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Volume II
Part IV of IX

Hydrogeologic Investigation Report

Chaffee Landfill Facility Area 7/8 Development
Town of Sardinia, New York

Submitted to:
Waste Management of New York, LLC
Chaffee, New York

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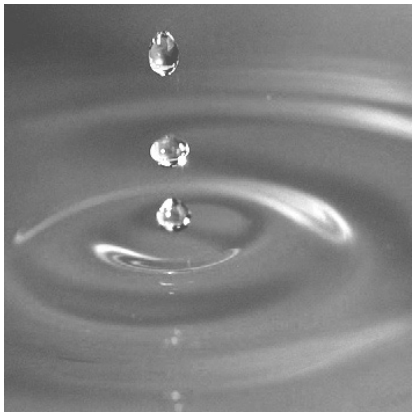

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CERTIFICATION

"I, Richard H. Frappa, a professional geologist licensed and currently registered to practice in the State of New York, having experience in similar hydrogeologic investigations, participated in and/or supervised procedures for obtaining the hydrogeologic information for the Area 7/8 Development and certify the information is complete and correct to the best of my knowledge and belief and addresses Department's comments and responses acknowledged in the NYSDEC approval letter dated July 14, 2021."

4/29/22

Richard H. Frappa
NYPG #00639

Executive Summary

The Chaffee Landfill Facility is located in the Town of Sardinia, Erie County, New York and is owned and operated by Waste Management of New York, LLC under Solid Waste Management Facility (SWMF) Permit I.D 9 1462-00001/00006. A 6 NYCRR Part 360/363 Permit Application is being submitted for the Area 7/8 Development with partial overlap on the Closed Landfill, Western Landfill, and Valley Fill Landfill Areas. The preparation of a Hydrogeologic Investigation Report is a permit application requirement and has been prepared per regulation 6 NYCRR Part 363-4.4(a).

The Chaffee Landfill disposal areas, including the Area 7/8 Development, are situated entirely on glacial moraine sediments which overlie deeper glacially-derived soils that fill a scoured bedrock valley that trends in a northwest-southeast direction. The moraine is considered a non-aquifer area. Water resources important to the NYSDEC permit application include the location of the Sardinia Aquifer which has been mapped approximately 1,600 feet to the south of the Area 7/8 Development. The Sardinia Aquifer is not listed as a NYSDEC Primary or Principal Aquifer and consists of saturated outwash sand and gravel deposits near the ground surface with confined deposits of sand and gravel at depths greater than 100 feet. The USEPA has designated a portion of the Cattaraugus Creek Watershed as a Federal Sole Source Aquifer (SSA) and includes geologic materials such as moraine deposits and bedrock in the area of the Chaffee Landfill which transmit little to no water.

The hydrogeologic investigation of the Area 7/8 Development was conducted in accordance with the NYSDEC-approved Site Investigation Plan (SIP) (February 2019) and subsequent scopes of work provided in correspondence with the Department. The 2019/2020 investigation and prior studies characterized geologic units to depths of approximately 100 feet below ground surface. Based on hydrogeologic properties, the following hydrostratigraphic units were identified:

- Discontinuous Perched Water in Upper Silty Clay/Till
- Upper Silty Sand and Gravel (also referred to as the Upper Water-Bearing Zone)
- Lower Silty Clay Aquitard
- Lower Silty Sand and Gravel (also referred to as the Lower Water-Bearing Zone)
- Deeper Till Aquitard

Hydrogeologic investigation findings include the following:

Perched water exists within discontinuous lenses of sand and gravel in the Upper Silty Clay/Till along the northern boundary of the Area 7/8 Development where the surface clay till is relatively thicker. In the southern half of the Area 7/8 Development, perched water occurring in lenses of sand and gravel was not found. However, several Upper Silty Clay/Till monitoring wells and piezometers have been observed to accumulate small amounts of water over long periods of time. This accumulation does not represent a water table and is more likely a result of seepage into the well sand pack of water temporarily present in the larger pore spaces after precipitation events. Where observed, the rate of seepage is insufficient for sampling using conventional methods.

The Upper Silty Sand and Gravel is the Upper Water-Bearing Zone in the Area 7/8 Development and elsewhere at the Chaffee Landfill area. Groundwater occurs under water table (unconfined) conditions where unsaturated areas of the Upper Silty Sand and Gravel are present below the Upper Silty Clay/Till and Ablation Till. Depth to the water table in the Area 7/8 Development is typically 15 feet or more at current grades. Recharge to the Upper Water-Bearing Zone beneath the existing Closed, Western, and Valley Fill areas and the Area 7/8 Development occurs primarily through horizontal flow as vertical flow is restricted by the low permeability of the Upper Silty Clay and Ablation Till. The Upper Water-Bearing Zone is bound at the bottom by the laterally continuous Lower Silty Clay Aquitard. This low permeability unit is approximately 7 to 22 feet thick below the Area 7/8 Development. The aquitard was found to be thicker south of the Area 7/8 Development (more than 38 feet thick). The aquitard is saturated but does not readily transmit groundwater as it primarily consists of medium plasticity silty clay having a geometric mean permeability of 4.62×10^{-8} cm/s. While occasional silty sand and gravel layers were identified in the Lower Silty Clay, the investigation demonstrated that the Lower Silty Clay Aquitard is effective in restricting the vertical movement of groundwater between the Upper and Lower Water-Bearing zones thereby isolating deeper water-bearing zones from the Upper Water-Bearing Zone.

Surface water in Wetland SD-1 and in Sedimentation Basins #1, #2, and #3 recharges groundwater near the Area 7/8 Development. Exfiltration of water from the wetland and the Basins was found to influence the direction of groundwater flow in the Upper Water-Bearing Zone below the Area 7/8 Development. During regionally higher groundwater elevations which occur in the spring and extend to mid-summer, exfiltration from the wetland and Sedimentation Basins has less of an effect on the groundwater flow direction and groundwater in the Upper Silty Sand and Gravel below the Area 7/8 Development flows seasonally in a south direction. However, as groundwater levels regionally decline during the late summer, through the fall and winter seasons, a progressive shift in groundwater flow direction occurs in a northeast direction caused by higher heads in Wetland SD-1 and the exfiltration of sedimentation basin surface water. Groundwater seepage velocities were estimated to average 0.59 feet/year in a south direction below the central and southernmost portion of the Area 7/8 Development during the spring and early to mid-summer months.

When the groundwater flow direction transitions to a northeast direction during the late summer months, extending through the fall and winter months, the average estimated seepage rate was calculated to be 2.07 feet/year beneath the Area 7/8 Development. Site hydrogeologic data indicate theoretical particle transport (excluding natural attenuation processes) below the Area 7/8 Development within the Upper Water-Bearing Zone would occur at an annual net vector rate of approximately 1.33 feet/year in a northeastward direction. Therefore, theoretical particle transport below the Area 7/8 footprint would not migrate toward the Sardinia Aquifer.

The overall groundwater quality of the Upper Water-Bearing Zone in the Area 7/8 Development is representative of background conditions. Groundwater quality east, west, and south of the development area is very similar to the chemistry of existing wells located along the northern boundary of the development area indicating groundwater quality below the Area 7/8 Development in the Upper Water-Bearing Zone is consistent. PFAS compounds were detected in groundwater locally at well MWSE-4 near the Sedimentation Basins. Sampling of surface water in the Sedimentation Basins confirmed PFAS presence in surface water. Sampling of surface water in Hosmer Brook confirmed PFAS presence downstream from Basin #3 discharge but the concentrations were below New York State Department of Health (NYSDOH) drinking water regulatory criteria established for public water supply in 10 NYCRR Part 5, Subpart 5-1 Public Water Systems.

Hydrogeologic investigation data for the Chaffee Facility and the Area 7/8 Development were used to develop a Conceptual Site Model (CSM) in support of the refinement of the Critical Stratigraphic Section (CSS) for the Facility. The CSS includes identification of stratigraphic units where constituents that might escape from engineered waste containment areas at the facility might reasonably be expected to migrate. The CSS for the Area 7/8 Development includes:

- the Upper Silty Clay/Till; and
- the Upper Silty Sand and Gravel.

The CSS designation requires groundwater monitoring of the Upper Silty Clay/Till where perched conditions sporadically occur on the northeast side the Area 7/8 Development (area of overlap onto the Closed Landfill) and the laterally extensive water-bearing zone in the Upper Silty Sand and Gravel below the Area 7/8 Development. This monitoring approach is consistent with the permitted areas of the Chaffee Facility as defined in the existing EMP.

The 2019/2020 hydrogeologic investigation concluded the following regarding landfill siting and design:

- The siting requirements specified in Part 363-5.1(a) are met for the Area 7/8 Development based on the following: 1) more than 400 feet of unconsolidated deposits exist beneath the Chaffee Landfill Facility; 2) the soil below the development area consists of low permeability silty clay or ablation till with soil properties conducive to minimizing the movement of chemical constituents; and 3) the design of engineering controls for landfill construction are consistent with current regulations and have been demonstrated to provide effective containment to protect groundwater at the Chaffee Facility.

- The siting requirements specified in Part 363-5.1(d) are met for the Area 7/8 Development at Chaffee Landfill Facility as the facility is situated on the Lake Escarpment Moraine which is not a Primary or Principal Aquifer. The Sardinia Aquifer (not listed as a Primary or Principal Aquifer) is mapped approximately 1,600 feet south of the Area 7/8 proposed landfill footprint. Constituent migration from a theoretical release from the landfill and, assuming vertical migration through the Upper Silty Clay/Till to groundwater in the Upper Water-Bearing Zone, would transport constituents in a northeast direction and not toward the Sardinia Aquifer.

No variances from the regulations are required for landfill construction based on Site hydrogeologic conditions.

1. Introduction

This Hydrogeologic Investigation Report (HIR) has been prepared by GEI Consultants, Inc. P.C. (GEI) for Waste Management of New York, LLC (WMNY) in support of a 6 NYCRR Part 360/363 Permit Application for a southern lateral expansion at the Chaffee Landfill Facility, referred to as the "Area 7/8 Development" or "expansion area" in this document. The HIR addresses the requirements in regulation 6 NYCRR Part 363-4.4(a) to document hydrogeologic conditions at the Chaffee Landfill Facility with particular emphasis on the Area 7/8 Development through implementation of the Site Investigation Plan (SIP) dated February 2019, responses to comments provided by the New York State Department of Environmental Conservation (NYSDEC or Department), and supplemental scopes of work provided in correspondence dated July 24, 2019 and September 30, 2019 (included in Appendix A). The SIP and responses to Department comments with additional scopes of work developed and implemented to compliment the investigation activities described in the SIP are described in more detail in Section 3 of this report. The remainder of this section provides a brief site background and describes the report objectives and format of this HIR.

1.1 Background

The Chaffee Landfill is located in the Town of Sardinia, Erie County, New York. The landfill is owned and operated by WMNY under Solid Waste Management Facility (SWMF) Permit I.D 9-1462-00001/00006. The location of the facility is shown on Figure 1. The landfill facility includes: the 50-acre Closed Landfill; the 52.5-acre Western Landfill Area; the 13.7-acre Valley Fill Expansion Area situated between the Closed Landfill and Western Landfill Area; and permitted areas for soil borrow. These features and the proposed Area 7/8 Development are shown on an aerial map on Figure 2. A 6 NYCRR Part 360/363 Permit Application for expansion is being submitted for the Area 7/8 Development with an overlay of the existing landfill. The site layout presented on Figure 3 (also Plate 1) shows boring, test pit, monitoring well, and piezometer locations around the Facility and includes the proposed footprint of the Area 7/8 Development occupying approximately 30 acres, most of which is reclaimed land from permitted soil borrow (West Soil Borrow Area) and overlay of the existing landfill.

Since the late 1980s, a substantial volume of hydrogeologic information has been collected to support the development of the Chaffee Facility. In addition, environmental monitoring at the facility has occurred in compliance with 6 NYCRR Part 360 regulations and is currently conducted in accordance with the Environmental Monitoring Plan (EMP) dated December 2012. The information obtained from prior investigations and monitoring has been incorporated, as needed, to support this HIR.

1.2 Report Objectives and Format

This HIR addresses the primary objectives stated in the SIP and includes:

- Integration of hydrogeologic data collected from the Closed Landfill during the 1980s and 1990s, as well as hydrogeologic information obtained during permitting of the Western Landfill Area during the early 2000s and subsequent permitting for soil borrow in Soil Borrow Area A and the East and West Soil Borrow Areas.

- Provision of data necessary for landfill design and construction to meet engineering requirements of 6 NYCRR Part 363-4.3.

- Definition of the critical stratigraphic section for the Area 7/8 Development as required for development of an appropriate environmental monitoring and groundwater protection program for the facility.

In addition, the investigation findings are used to address to 6 NYCRR Part 363-5 siting requirements as they relate to physical site conditions.

As described in the SIP (February 2019), a substantial database of geologic, hydrogeologic and groundwater quality data exist for the Chaffee Facility. These data were collected during on-going environmental monitoring programs and Site investigations conducted to support investigations of the Closed Landfill and 6 NYCRR Part 360 permitting of the Western Landfill Area and Valley Fill Area and permitting of soil borrow areas. The hydrogeologic investigation work described in this report is supplemented with that information and has been used to comprehensively document the hydrogeologic conditions in the Area 7/8 Development. This report is organized as follows:

- Section 2 describes site history and prior site investigations

- Section 3 describes the Site Investigation Plan and subsequent scopes of work for hydrogeologic investigation

- Section 4 describes regional geologic and hydrogeologic conditions including groundwater usage and primary/principal aquifers

- Section 5 describes comprehensive hydrogeologic investigation findings for the Chaffee Area 7/8 Development

- Section 6 describes the Conceptual Site Model and defines the Critical Stratigraphic Section

- Section 7 provides a conceptual plan to adequately monitor environmental conditions at the Area 7/8 Development and the Chaffee Facility

- Section 8 summarizes design considerations and investigation conclusions

2. Site History and Summary of Previous Investigations

2.1 Site History

A municipal waste disposal site has operated at the Chaffee site since 1958. The landfill facility is owned and operated by WMNY, who purchased the facility in July 1998. The landfill facility was formerly known as the C.I.D. Landfill. WMNY operated the original landfill (currently closed) and later received a permit in December 2006 to develop a lateral expansion west of the currently closed landfill. The Western Landfill Area consists of six cells designated Cell 1 through Cell 6. In May 2013, a permit application was approved to construct the Valley Fill Expansion Area.

Subsurface investigations have been completed at the Site since the early 1980s. The investigations are listed below with their purpose.

- "Comprehensive Soils Report for Chaffee Landfill, Inc.," prepared by Earth Dimensions, Inc. January 1981 - Initial assessment of soil type and hydraulic characteristics.

- "Soils Report, Chaffee Landfill, Inc., Leachate Collection System," prepared by Earth Dimensions, Inc., October 1981 – Report of soil conditions along perimeter trench walls during installation of the leachate collection system for the original landfill.

- "Evaluation of Hydrogeologic and Ground-Water Quality Data Pertaining to the C.I.D. Landfill," prepared by BB&L, P.C., July 1986 – Investigation of groundwater quality performed on behalf of legal representation (Steve Miller, Esq.) for the Town of Sardinia.

- "Hydrogeologic and Soils Assessment for C.I.D. Landfill, Inc.," prepared by Earth Investigations, LTD., April 1989 - Investigation to evaluate soil conditions on parcels adjacent to the original landfill and preliminarily assess hydrogeology of the underlying sand and gravel outwash unit.

- "Hydrogeologic Site Investigation Plan," prepared by Earth Investigations, LTD, June 1991 – Review of data consisting of well and test boring logs, water level data, chemical analyses, as well as the results of previous test trench studies and hydrogeologic investigations.

- "Leachate Accountability Assessment at the Chaffee Landfill," prepared by Geomatrix Consultants, Inc., July 2000 – Investigation to characterize saturation in the Closed Landfill and confirmed clay bottom of landfill.

- "Hydrogeologic Report for Chaffee Western Landfill Expansion – Part 360 Permit Modification Application" – February 2005 prepared by McMahon & Mann Consulting Engineers, P.C. (MMCE) and Terra-Dynamics, Inc. - Detailed hydrogeologic investigation of the parcel west of the Closed Landfill to support the permit application for lateral expansion. The investigation utilized information from prior investigations to support site characterization of site geology, hydrogeology, and surface water hydrology.

- "Borrow Area Use Plan for the East and West Soil Borrow Area Chaffee Landfill" – March 2009 prepared by MMCE – Characterization of soil and groundwater conditions in the soil borrow areas south of the Closed Landfill.

- "Soil Borings Completed at Potential South Soil Borrow Property and Proposed South Expansion Area", November 2017 completed by Earth Dimensions, Inc. – Completed 13 soil borings to determine clay thickness on property south of the landfill and in the Proposed Area 7/8 Development for conceptual landfill layouts developed by MMCE.

Survey and geologic information presented in these reports were incorporated into this HIR to supplement the information compiled from the 2019/2020 investigation of the Area 7/8 Development. Where used in this report, the HIR summary tables include previous investigation data and relevant boring logs are included in the appendices.

3. Site Investigation Plan and Field Work

This section describes the chronology of meetings and correspondence documenting the development and submittal of the final Site Investigation Plan (SIP) implemented to investigate the Area 7/8 Development at the Chaffee Facility. The SIP was provided to the NYSDEC for comment with regard to the adequacy of methods proposed to satisfy 6 NYCRR Part 363-4.4(j) requirements for the site investigation. This section also includes an overview of investigation and field activities completed in 2019/2020 and modifications dictated by the site conditions encountered.

3.1 Chronology of the SIP and Supplemental Scopes of Work

This chronology lists meetings with NYSDEC staff to discuss permitting progress and preliminary investigation findings and identifies the submission of supplemental SIP scopes of work developed and implemented in response to Department's requests for additional information.

- November 15, 2018 - A Pre-Application Kick-off Meeting was held at the Region 9 NYSDEC office on November 15, 2018 to support the Part 360/363 Permit Application for the Area 7/8 Development. The Department was provided an overview of the WMNY's permit application approach, conceptual design of the expansion, objectives of the hydrogeologic study, and overall permit application schedule.

- February 1, 2019 – GEI and WMNY provided the NYSDEC with a Site Investigation Plan (SIP) dated February 2019 to satisfy the requirement in 6 NYCRR Part 363-4.4 for Hydrogeologic Investigation.

- March 6, 2019 – NYSDEC reviewed the SIP and provided GEI with comments in correspondence dated March 6, 2019.

- March 25, 2019 - GEI responded to the Department's comments in correspondence submitted on March 25, 2019 which included the submittal of information requested by the Department for completion of the SIP.

- April 4, 2019 - The NYSDEC approved the scope of work described in the SIP with the inclusion of information provided by GEI on March 25, 2019 in correspondence dated April 4, 2019.

- July 15, 2019 - A preliminary summary of findings of geologic/hydrogeologic conditions in the Area 7/8 Development was prepared and discussed during a meeting with the Department on July 15, 2019. The meeting was held prior to initiation of detailed

engineering design with NYSDEC Region 9 staff and Mr. Vincent Fay and Mr. Robert Phaneuf (NYSDEC Albany) participating via conference call. Meeting discussions focused on surface clay thickness, hydraulic properties of the Upper Water-Bearing Zone, and presence of an aquitard below the Upper Water-Bearing Zone.

- July 24, 2019 – GEI and WMNY developed and submitted a scope of work in correspondence dated July 24, 2019 at the request of the NYSDEC to propose additional work to further characterize shallow soil conditions in the southwestern corner of the Area 7/8 Development as discussed in the July 15, 2019 meeting.

- September 17, 2019 – A meeting with Department geologists from Region 8, Region 9, and Albany took place on September 17, 2019 at the Chaffee Landfill to discuss the implementation of the July 24 scope of work and the finding of low permeability soil in the upper 7 to 11 feet of the ground surface in the southwest corner of the expansion area. During the meeting, the NYSDEC requested further characterization of an aquitard identified below the Upper Water-Bearing Zone.

- September 30, 2019 – WMNY and GEI, with interactive discussion with NYSDEC staff geologists, developed a scope of work to characterize the continued lateral and vertical presence of the aquitard below the Upper Water-Bearing Zone and assess hydraulic properties to verify that it functions as an aquitard. The work scope was verbally agreed upon and documented in GEI correspondence to the Department on September 30, 2019.

The SIP, Department correspondence, and supplemental scopes of work for site investigation identified herein are included in Appendix A. Historic site investigation locations including borings, test pits, piezometers, and monitoring wells are shown on Plate 1.

3.2 Literature Search

A comprehensive review of available reports and literature analysis was performed prior to beginning the field investigation and during the compilation of regional and site-specific information. The review included appropriate documents referenced in previous hydrogeologic investigations. Sources used to more comprehensively understand the physical site setting included, but were not limited to, reports and information from:

- United States Geological Survey Water Resources
- United States Department of Agriculture Soil Conservation Service
- New York State Geological Survey
- Erie County GIS Services Division (http://www2.erie.gov/gis/index.php)
- Army Corps of Engineers

- New York State Department of Health
- NYSDEC
- United States Environmental Protection Agency Surface Geologic Mapping

References cited in the report are included in Section 9.

3.3 2019/2020 Subsurface Investigation Activities

Prior investigations at the Chaffee Facility primarily focused on characterizing the geologic and hydrogeologic properties of the surface clay till and the "sand and gravel unit" below the clay till. The 2019 subsurface investigation characterized the following geologic units:

- Upper Silty Clay/Till and Ablation Till
- Upper Silty Sand and Gravel
- Lower Silty Clay
- Lower Silty Sand and Gravel
- Deeper Till

Subsurface investigations were completed as described in the SIP and included supplemental investigations described in Section 3.1. Subsurface investigation activities occurred between April 4 and October 11, 2019. The drilling and piezometer installation program occurred during two separate mobilizations. The first mobilization occurred in April with the completion of borings and piezometers to investigate the Upper Silty Clay/Till and the Upper Silty Sand and Gravel as described in the SIP. The first mobilization identified the Upper Silty Sand and Gravel below the Upper Silty Clay/Till in the Area 7/8 Development as somewhat thin, typically less than 30 feet in thickness and bounded at depth by a second laterally extensive clay till referred to as the Lower Silty Clay. As identified in correspondence in Appendix A, it was agreed that a second mobilization of drilling equipment was needed to further investigate the Lower Silty Clay and assess the effectiveness of the unit to function as a barrier to vertical groundwater flow (termed aquitard) and support characterization of the Critical Stratigraphic Section for the Area 7/8 Development. The second mobilization of the drilling program was conducted between September 30 and October 11, 2019.

The 2019 subsurface investigation program characterized hydrogeologic conditions at the Area 7/8 Development and included test pit excavations, soil borings and soil sample collection, piezometer installations screening either the Upper or Lower Silty Sand and Gravel, collection of soil samples from each of the geologic units for geotechnical laboratory analysis, and groundwater monitoring well installations. Subsurface investigation locations at the Area 7/8 Development are shown on Plate 2 and Figure 4 and investigation activities are described in the following sections.

3.3.1 Test Pit Excavations

As described in Section 3.1 and correspondence in Appendix A, the NYSDEC requested additional characterization of shallow stratigraphy in the southwestern corner of the Area 7/8 Development. Three test pits designated TP01-19 through TP03-19 were excavated on July 30, 2019 in the southwestern corner of the Area 7/8 Development (Figure 4) consistent with methods in Part 363-4.4(f) where the Upper Silty Clay/Till was not observed to be present above the Upper Silty Sand and Gravel. In that portion of the Area 7/8 Development, geologic materials encountered in split spoon soil samples from borings PZ03-19 and SB04-19 were described on boring logs as Silty Fill and/or Silty Reworked soil.

A track excavator was used to expose the upper 10 to 12 feet of soil for visual characterization by a GEI New York State licensed geologist and to collect soil samples for laboratory analysis for grain size distribution (sieve and hydrometers) by ASTM Method 422, in-situ permeability by ASTM Method D5084, and determination of organic matter content (organic fraction or Foc) by the Walkley-Black Method (Dichromate Oxidation Method) to assess the natural attenuation properties of the soil. Test pit excavations encountered either clay till or ablation-type till. Table 1 summarizes stratigraphic information for each test pit. Laboratory geotechnical data are summarized in Table 2. Test pit excavation logs are included in Appendix B.1 and geotechnical laboratory reports are included in Appendix C.

3.3.2 Soil Borings and Piezometer Installations

The 2019 subsurface investigation included a total of 12 soil borings for exploratory purposes and an additional 10 soil borings with the installation of temporary piezometers in and near the Area 7/8 Development (Figure 4). Soil borings confirmed the extent and refined the thickness of the surface silty clay soils (Upper Silty Clay/Till) and characterized deeper soils below the Upper Silty Sand and Gravel Unit. Split spoon soil samples collected at soil boring/piezometer locations were logged by a geologist from Earth Dimensions Drilling, Inc. under the direction and supervision of a GEI New York State licensed professional geologist. Soil boring logs are included in Appendix B.1. Soil stratigraphy encountered at each soil boring/piezometer location is summarized in Table 1.

A total of 28 soil samples considered representative of the laterally extensive soil types identified in Section 3.5 were collected during the investigation for geotechnical analysis by Third Rock, LLC which maintains AASHTO accreditation. Cohesive soil samples were analyzed for Atterberg limits by ASTM Method D4318 and all soil samples were analyzed for grain size gradation by ASTM Method D422. Soil permeability testing by ASTM Method D5856 was performed for 12 samples collected from the Upper Silty Clay/Till (or Ablation Till) and Lower Silty Clay. The geotechnical laboratory reports are included in Appendix C. Physical testing of soil characteristics are summarized in Table 2.

Two-inch diameter temporary piezometers installed in soil borings were completed with 10-foot screen lengths in the Upper Silty Sand and Gravel and either 10-foot or 5-foot screen lengths in the Lower Silty Sand and Gravel depending on thickness of the unit at the piezometer locations. At location PZ01-19, a piezometer was planned for installation to screen the Lower Silty Sand and Gravel per SIP correspondence dated September 30, 2019. However, after drilling below the Upper Silty Sand and Gravel and into Lower Silty Clay, the Lower Silty Sand and Gravel was not encountered after drilling and sampling to a depth of 80 feet. The location was re-labeled as SBPZ11D-19 and tremie grouted with cement/bentonite grout to ground surface. At the scoped location SB11-19, an exploratory soil boring was planned according to the SIP correspondence dated September 30, 2019. However, after encountering alternating layers of till and silty sand and gravel, a decision was made to install a piezometer with a well screen positioned below the Lower Silty Clay to assess groundwater elevations of the unit at that location. The 1-inch diameter piezometer is equipped with a 10-foot, 10-slot well screen and was installed at a depth of 60 to 70 feet (see geologic cross-sections on Figures 9b and 9d and Plate 3).

Piezometer pair PZ05S-19 and PZ05D-19 was installed central to the Area 7/8 Development using 4-inch diameter Schedule 40 PVC to accommodate a submersible pump for short-term pumping tests beneath the footprint of the expansion area described in Section 3.6. The "S" piezometer was installed to monitor groundwater in the Upper Silty Sand and Gravel (Upper Water-Bearing Zone) and the "D" piezometer to monitor groundwater in the Lower Silty Sand and Gravel (Lower Water-Bearing Zone) below the Lower Silty Clay (aquitard). Piezometer construction details are shown on boring logs in Appendix B.1 and summarized in Table 3.

Piezometers were developed no sooner than 48-hours after installation by removing a minimum of 10 well volumes using a Whale pump and/or bailer. The piezometers provided hydraulic information including groundwater flow direction in the Upper Silty Sand and Gravel, hydraulic conductivity, and vertical hydraulic gradients.

3.3.3 Monitoring Well Installations

Four groundwater monitoring wells MWSE-1 through MWSE-4 were installed to characterize groundwater quality at the Area 7/8 Development per Part 363-4.4(a)(2)(ii)(e)(2). The monitoring wells monitor groundwater quality of the Upper Silty Sand and Gravel (Upper Water-Bearing Zone) along the perimeter of the expansion area at locations shown on Figure 4. The monitoring well construction details conform to requirements in 6 NYCRR Part 363-4.4(k)(2) and include choke sand above and below a 3-foot thick bentonite well seal with 10-foot length, continuous 10-slot well screens. Monitoring well construction details are provided on boring logs in Appendix B.1 and summarized in Table 3. Each monitoring well was completed with a temporary lockable steel protective surface casing (Part 363-4.3(k)(2)(vi)). The temporary protective casings and concrete surface seal will be replaced to conform with requirements in 363-4.4(k)(2)(iii) as they become incorporated into the environmental monitoring program during Area 7/8 Development construction activity.

Each monitoring well was developed no sooner than one week following well installation (Part 363-4.4(k)(3). Monitoring wells were developed using a combination of a Whale pump and bailer to remove groundwater and any accumulated sediment on the well bottom. Well development information is summarized with the monitoring wells construction logs in Appendix B.1.

3.4 Groundwater Elevation Monitoring

Groundwater elevations were monitored monthly beginning May 2019 in completed piezometers and monitoring wells and continued through March 2020. Supplemental water level data were also collected monthly from the following existing wells screened in the Upper Silty, Sand and Gravel that monitor groundwater quality at the Closed Landfill Area, Western Landfill Area, and Western Soil Borrow Area:

MWBA-1	MW-50	MW-R4A
MWBA-2	MW-30	MW-R1A
MWBA-3	MW-13R	P3-03

Facility-wide groundwater measurements were collected during quarterly groundwater quality monitoring events in June 2019, August 2019, December 2019, and March 2020 from groundwater monitoring wells screened in the Silty Sand and Gravel as described in the existing EMP (2012) to supplement the monthly measurements collected from the piezometers and wells near the Area 7/8 Development. Additional water level measurements obtained during quarterly landfill monitoring (Q2, Q3, and Q4 2020 and Q1 2021) are incorporated into this report. Groundwater elevation data are summarized in Table 4.

3.5 Hydraulic Conductivity Testing

Hydraulic conductivity values for the Upper Silty Sand and Gravel were obtained from the four monitoring wells and 5 piezometers installed during the first 2019 drilling mobilization by performance of slug tests per Part 363-4.4(n). In addition, hydraulic conductivity values were obtained from two- and four-inch diameter piezometers PZ05D-19, PZBA2D-19, PZMWSE3D-19, and PZ04D-19 installed during the second drilling mobilization in October 2019 that monitor the Lower Silty Sand and Gravel. A known volume of water was displaced in the well by inserting a PVC slug and the water level decline was measured using a down-hole pressure transducer. Following equilibration, the slug was removed and the water level rise in the well monitored. Slug test displacement and recovery data were analyzed using AQTESOLV software to yield estimates of hydraulic conductivity in each well using analytical methods developed by Bouwer and Rice (1979) for unconfined and confined conditions for the Upper and Lower Water-Bearing Zones, respectively. Hydraulic conductivity calculations are provided in Appendix D and summarized on Table 2.

3.6 Pumping Tests

Pumping tests were conducted to estimate the specific yield (sustained yield) of the two 4-inch diameter piezometers (PZ05S-19 and PZ05D-19). As described in Section 5.1.2, the Upper Silty Sand and Gravel was comparatively thin and bound at its base by the Lower Silty Clay. Therefore, an additional objective established in the field during the pumping tests was to assess the effectiveness of the aquitard in minimizing vertical hydraulic communication between the Upper Silty Sand and Gravel (Upper Water-Bearing Zone) and the Lower Silty Sand and Gravel. The pumping test at PZ05D-19 was completed on July 9, 2019 and involved placement of down-hole pressure transducers in PZ05D-19, PZ05S-19, and PZ04-19 (closest piezometer to the PZ05S/D-19 pair) which were used to automatically record water levels during testing at 30 second intervals. Hand measurements were recorded in wells MWSE-1, MWSE-2, MWSE-3, MWBA-1, and MWBA-2 before pumping began and several times during 6 hours of pumping at PZ05D-19.

A submersible well pump capable of a maximum flow rate of over 28 gallons per minute (gpm) was lowered to a depth of approximately 6-inches from the bottom of piezometer at PZ05D-19. Pumping was initiated at 20 gpm for approximately the first hour, the rate was increased to 22 gpm for approximately 30 minutes, then increased to a sustained, steady rate of 25 gpm for the remainder of the 6 hours of pumping. A rate higher than 25 gpm dewatered the well. The specific capacity of the test was calculated by:

$$S_c = Q / (h_o - h)$$

Where:
Sc = Specific capacity in gallons / foot
Q = Equilibrium flow rate
(h_0-h) = Total drawdown

The specific capacity of the piezometer was calculated to be 1.5 gpm/ft. Hydraulic response to pumping was not identified in wells screened in the Upper Water-Bearing Zone at piezometers PZ05S-19 (screened within 10 feet of the deeper pumping well), PZ04-19 or any of the wells monitored for water levels. The specific capacity calculation and summaries of monitoring water levels for hydraulic response are included in Appendix D.

Following testing at PZ05D-19, a second test was set up at piezometer PZ05S-19. An initial test was conducted to determine an appropriate rate of pumping. However, the pump was not capable of sustaining the low flow required to prevent the piezometer from becoming dewatered and it was determined that the testing of the piezometer needed to be delayed until a smaller pump could be obtained. Testing at piezometer PZ05S-19 was completed on August 23, 2019 using a Grundfos submersible pump capable of a maximum flow rate of approximately 5 gpm. A step test flow rate of 1.3 gpm was established as a sustainable rate such that the height of the water column in the piezometer would not fall below the top of the pump. After 6 hours of

pumping, the water column height was lowered by approximately 8.5 feet. Following testing, the flow rate was increased from 1.3 to approximately 1.8 gpm; however, the piezometer could not sustain the flow rate and the water level dropped below the pump intake in less than a minute.

The specific capacity of piezometer PZ05S-19 was calculated to be 0.15 gpm/ft. Hydraulic responses caused by pumping were not identified in the Upper Water-Bearing Zone at piezometer PZ04-19 or any of the other piezometers or monitoring wells screened in the Upper Silty Sand and Gravel nor was hydraulic response from pumping observed in the deeper piezometer PZ05D-19 screened below the aquitard. The specific capacity calculation and summaries of monitoring water levels for hydraulic response are included in Appendix D.

3.7 Existing Groundwater Quality Testing

As described in the SIP, existing groundwater quality at the Area 7/8 Development was established by sampling and analysis of groundwater samples collected from the four new monitoring wells MWSE-1, MWSE-2, MWSE-3, and MWSE-4 per Part 363-4.6(i)(a)(1). Groundwater quality sampling occurred during two monitoring events coincident with the Facility-wide environmental monitoring program. Sampling was performed by a sampling crew from TestAmerica during the 2019 Site-Wide Second Quarterly sampling event on July 19, 2019 and analyzed for the Part 363 Expanded List of parameters. The wells were sampled again on September 19, 2019 during the 2019 Third Quarter event and analyzed for the Part 363 Baseline List of parameters. The Baseline monitoring event parameter list also included the analysis for Per and Polyfluorinated Alkyl Substances (PFAS) following the detection of trace to low concentrations in wells MWSE-1 and MWSE-4 during the first sampling event for the Expanded List of parameters. Laboratory data reports and laboratory data validation reports for Existing Water Quality are provided in Appendix E and summarized in Table 5A. Supplemental sampling of wells MWSE-3 and MWSE-4 and surface water samples collected from Sed Basin #1 and Hosmer Brook were conducted in February 2020 for PFAS analysis. Laboratory data are summarized in Table 5B. Groundwater and surface water quality are discussed in Section 5.3.

3.8 Surface Water Study

The Chaffee Landfill is located near the surface water flow divide associated with the headwaters of un-named tributaries that are part of the Cazenovia Creek watershed system and Hosmer Brook which is part of the Cattaraugus Creek watershed system. Surface water quality and flow data were collected during investigations completed for the 2005 Western Landfill Area Part 360 Permit Application and evaluated:

- Characteristics of surface water flow on the clay till and the sand and gravel deposits; and
- The relationship of surface water and groundwater flow systems, including the locations of surface water flow divides relative to groundwater flow divides.

Based on the findings presented in the 2005 permit application, the Area 7/8 Development project lies entirely within the Cattaraugus Creek watershed system with surface flow occurring from wetlands and engineered sedimentation basins that ultimately flow to Hosmer Brook.

The surface water study completed in 2019/2020 included:

- Summarization of hydrologic findings for surface water discharging toward Hosmer Brook;
- Verification of existing surface water drainage and comparison to surface water conditions evaluated during the prior hydrologic study; and
- Collection of discharge estimates at three locations SH-2, SH-3, and SH-6 with the inclusion of field measured parameters specific conductance, pH, and temperature. New staff gauges were installed April 2019 and surveyed at locations shown on Figure 3.
- Collection of surface water samples for PFAS substances in Basin #1 discharge and Hosmer Brook in February 2020 as discussed in Section 5.3.1 and Section 5.4 and summarized in Table 5B.

Flow and field measured parameter data were collected monthly from May through December 2019 and are summarized in Table 6.

3.9 Investigation Locations Surveying

In accordance with Part 363-4.4(k)(4), the location of each soil boring, piezometer, monitoring well, and staff gauge was surveyed on May 2 and October 22, 2019 by Wendel Survey, a State of New York licensed surveyor under contract to WMNY for landfill construction. The three test pit locations were surveyed using a hand-held GPS by EnSol, Inc. on August 8, 2019.

3.10 Private Water Well Survey

A water well survey of private homeowner wells within one-mile of the Western Landfill Area and Closed landfill was documented in April 2004 for the Part 360 permit approval. While Department regulations at that time (and currently) require the survey cover a one-mile downgradient distance and a one quarter mile upgradient distance from the project area, the 2004 survey was extended one mile in an upgradient direction due to the proximity of a groundwater flow divide in the Upper Water-Bearing Zone located near the WMNY southern property boundary. The 2004 water well survey was conducted of 158 properties within the search area and excluded homes located in the Hamlet of Chaffee situated in the southeast corner of the search radius that are supplied with water by the Chaffee Water Works Company. Of the 158 properties receiving water well use questionnaires, 56 responses were received.

In 2019, the water well survey was updated to fulfill requirements in 6NYCRR Part 363.4-4(g) and included a search of landowners for tax parcels within a one-mile search radius of the limits of the Area 7/8 Development. The source of tax parcel information was obtained from the 2019 Erie County Office of GIS database. Consistent with the 2004 survey, tax parcels located in the Hamlet of Chaffee and serviced by the Chaffee Water Works Company (see Appendix F) were excluded from the 2019 survey and questionnaires were not mailed to parcels owned by Waste Management subsidiaries. The survey area is shown on Figure 5. A total of 161 questionnaires were mailed to parcel owners within the survey area, with 63 responses received. The results of the water well survey are discussed in Section 4.3.

4. Regional Physical Setting

4.1 Regional Geology

The Chaffee Landfill Facility lies on glacially derived materials deposited within a scoured bedrock valley that trends in a northwest-southeast direction carved by the pre-glacial Cazenovia River. The in-filled valley is reported to extend between East Aurora and Ischua, NY (Calkin et al., 1974 and Yager et al., 1997) (see Inset Figure 4.1 below). As shown on the figure below and Figure 7, the Chaffee Facility landfill areas, including the Area 7/8 Development are situated north of the terminus of the Lake Escarpment Moraine. The buried bedrock valley is underlain by Middle and Upper Devonian shale. Drilling logs and gravity measurements have delineated part of the buried valley between Holland and Sardinia (Calkin and others, 1974; Miller and Staubitz, 1985). Within this reach, the buried valley beneath the Chaffee Landfill is filled with as much as 600 ft of sediments from multiple glacial advances and retreats. The East Branch of Cazenovia Creek currently flows northward across the surface of the sediment-filled buried valley.

Inset Figure 4.1: From Yager., et al., (1997) with annotation.

Glacial geology in Western New York has been described by Fairchild (1932), Calkin (1974, 1982), Miller and Staubitz (1985), Muller and Calkin (1993), and Yager et al. (1997) as well as others. The most prominent glacial feature in the Chaffee area is the Lake Escarpment Moraine whose formation in Late Wisconsin glaciation times (13,000 to 12,000 years before present and most recent glacial deposition in the area) is significant as it extends laterally in a southwest direction into Ohio and eastward into Central New York State where it is also known as the Valley Heads Moraine (Fairchild, 1932; Calkin, 1982). In Western New York, the Lake Escarpment Moraine has been intensely studied by Calkin (1982) at multiple till exposures in the area of Gowanda, New York (25 miles west of Chaffee) and describes till formation associated with ice margin oscillations forming several till hills in the area. Where the Lake Escarpment Moraine occurs between Holland and Chaffee, a

former spillway of a proglacial lake (located a few tenths of a mile west of the location of the Chaffee Landfill) was identified by Fairchild (1938). A USGS Report prepared by Staubitz and Miller (1985) describes the headwaters of Hosmer Brook originating at the former spillway location. Historic surface water flow from the spillway partly eroded a channel in previously deposited valley fill sediments, and a veneer of later outwash was deposited in this eroded area which Hosmer Brook now parallels. Clay till hills are present south of the Chaffee expansion area at the location of reclaimed Borrow Area "B" and the 8.9 acre Proposed South Borrow Area shown on Figure 2. The crest of the surface clay capping the moraine occurs near Hand Road and creates a surface water drainage divide where surface water drains to the north toward the East Branch of Cazenovia Creek and south in the direction toward Cattaraugus Creek.

Hydrogeologic studies in the buried bedrock valley between Holland and Sardinia, NY have been performed by Todd S. Miller of the US Geologic Survey (USGS) who was the primary or co-author of several USGS publications (Miller and Staubitz, 1985; Miller, 1988; Yager, Miller, and Thayer, 1997) related to this topic. The 1985 USGS investigation (Miller and Staubitz, 1985) describes the surface clay till deposit on the moraine to consist of "*a fine-grained texture that is sparse in pebbles*." Geologic logs from the USGS investigation were obtained by the NYSDEC and provided to GEI and logs for USGS wells SA-25 and SA-28 (located south of the expansion area) are included in Appendix B.1. Miller and Staubitz (1985) report that the till was derived from reworked fine-grained deposits from the ancestral Cazenovia River valley to the north and that these fine-grained deposits were transported by glacial ice during the Lake Escarpment re-advance forming the moraine. They also suggest that the glacial ice front of the Lake Escarpment re-advance oscillated and overrode the glacially-derived deeper sand and gravel deposits that underlie the moraine near the Chaffee Facility. Figure 6 includes geologic cross-sections included in the 1985 USGS Report.

In a 1997 USGS groundwater modeling study conducted for the Town of Holland water supply system by Yager and Miller et al. (1997), they report, "*The buried valley is plugged between Holland and Chaffee by the Lake Escarpment moraine*,…" The report also states that, "*little information is available on the types of sediments that form the Lake Escarpment moraine south of Holland. Till is present at land surface and is estimated to be 50 ft thick. Several sand and gravel layers similar to those described by Miller (1993) near the Valley Heads moraine near Dryden, NY could be buried within the moraine, but their extent and depth is unknown*." The hydrogeologic conditions represented in their model included the area between an Iroquois Gas Corp. natural gas well Phelps MK1 (API number 31029045530000 - situated south of the Chaffee Landfill Facility) and an area north of the Town of Holland which parallels the buried valley. As shown on Figure 6, their model identified approximately 50 feet of Till (described as pebbles embedded in a clayey silt matrix), approximately 520 feet of undifferentiated morainal deposits, and approximately 80 feet of a "confined sand and gravel aquifer" covering the valley floor overlying bedrock near the Chaffee Facility.

The USGS geologic cross-sections provided on Figure 6 (from the 1985 and 1997 USGS reports) show deposition of alternating layers of clay till and sand and gravel (produced by glacial

advances and recessions) within at least the upper 100 feet of the ground surface in the area of the Chaffee Facility. These features are interpreted to reflect the final stage of Lake Escarpment moraine formation with surface clay deposition occurring as the final depositional sequence on the moraine. This interpretation is based on studies completed by Miller and Staubitz (1985), mapping of surficial aquifers by Miller (1988), groundwater modeling by Yager et al., (1997), and the similarity in silty clay till composition (surface clay and the deeper till layers) encountered below the Area 7/8 Development and areas to the south (see Section 5 for discussion).

4.2 Regional Hydrogeology and Aquifers

Regional groundwater flow in the buried valley occurs within the moraine where sand and gravel deposits are laterally continuous and under confining conditions as layers of silty clay till restrict the vertical movement of groundwater. In these areas, the groundwater flow direction is primarily northward within the thick moraine deposits. Little movement of water occurs in embedded saturated sand and gravel pockets found at elevations above 1450 ft msl in thicker areas of the silty clay till. Where water is present, groundwater flow in the silty clay till is minor and occurs only where sand and gravel occurs in discrete layers within the clay matrix. Age dating of groundwater in the surface clay till during the 2005 Chaffee hydrogeologic investigation for Western Landfill Area demonstrated that some saturated portions of the surface clay till have not been recharged under recent atmospheric conditions (pre-1950 tritium isotopic data) which is attributable to the low permeability of the surrounding clay matrix. South of the moraine, in the Outwash Plain, groundwater flows southward under water table conditions in surficial sand and gravel deposits and confined conditions in deeper, buried permeable deposits between layers of low permeability sediments which can be artesian (Miller and Staubitz,1985).

La Sala (1968) identified four glacial sand and gravel aquifers in a regional study of the groundwater resources of the Erie-Niagara Drainage Basin and described till and sand and gravel deposits in the Sardinia Area. Miller and Staubitz (1985) completed a hydrogeologic appraisal of five selected aquifers in Erie County which included a study of sand and gravel deposits occurring south of the Lake Escarpment Moraine referred to as the Sardinia Aquifer. New York State has not identified the Sardinia Aquifer as a listed New York State Primary or Principal Aquifer in the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 2.1.3 (October 1990) - Memorandum for “Primary and Principal Aquifer Determinations.”

The New York State Geographical Information System (GIS) Clearinghouse maintains a database of geologic and hydrogeologic mapping information completed in New York State. For New York State aquifers, the GIS Metadata file source data are based on NYSDEC's Unconsolidated Aquifers mapping at a scale of 1:250,000. The mapping of aquifers in Western New York State, including the area of Chaffee, is based on a compilation by Todd S. Miller at the USGS (1988 – Potential Yields of Wells in Unconsolidated Aquifers in Upstate New York – Niagara Sheet) and presumably used information from his 1985 study in its creation. As shown on the GIS mapping of New York State aquifers (see Figure 7), the Chaffee Landfill Facility is

located in the area mapped as “Moraine” and labeled as “Not a Primary Aquifer, Unknown”. “Unknown” refers to expected pumping well yield. An area mapped as an “Unconfined, high yield aquifer not a Primary Aquifer > 100 gallons/minute” is shown to exist at its closest point to the Chaffee Facility approximately 1600 feet to the southeast of the landfill facility. The unconfined, high yield aquifer is presumed to represent Outwash Plain sand and gravel deposits, termed by Calkin (1982) and identified as the Sardinia Aquifer by Miller (1985). The outwash sand and gravel deposits occur south of the buried moraine deposits identified by Miller and hydrogeologic investigations completed at the Chaffee facility (see Section 5).

In 1987, the USEPA designated a portion of the Cattaraugus Creek Watershed as a Federal Sole Source Aquifer (SSA). SSAs are delineated primarily by surface watershed boundaries and encompass a variety of geologic materials including moraine sediments and bedrock that transmit little to no water. As reported in the 2005 Hydrogeologic Study for the Western Landfill development (MMCE, 2005), land in the area of and to the south of the Chaffee Facility lie within the federal designation of the Cattaraugus Creek Basin Sole Source Aquifer. However, as explained below, the SSA has no bearing on whether or not the area is designated as a New York State Primary or Principal aquifer.

According to NYSDEC TOGS 2.1.3, the NYSDEC considers the benefit of a Federal SSA designation as "symbolic." The NYSDEC states further in TOGS 2.1.3 that there is no evidence that the SSA designation process considers the groundwater resource potential and vulnerability in the same way the Department identifies Primary Water Supply Aquifers and Principal Aquifers. The Hydrogeologic Study for the Western Landfill development (MMCE, 2005) reported that the NYSDEC Division of Water commented and took the position during a hearing held on the proposed designation that the groundwater resource did not justify designation as a federal sole source aquifer for a number of reasons. The Division of Water did not specifically address the issue of primary/principal aquifers as it applied to the SSA in question, except to state that it endorsed the 18 already designated primary aquifers in the state being included in the federal sole source designation.

4.3 Local Groundwater Usage

As described in Section 3.10, groundwater use in the vicinity of the Chaffee Facility was assessed across a distance of one mile upgradient and downgradient from the Area 7/8 Development and existing boundaries of waste containment. Well information questionnaires were mailed via USPS to 161 property owners and 63 property owners responded to the survey. A total of 14 respondents indicated their parcel did not have a well and was either an undeveloped property or situated on Allen Road or Olean Road and serviced by municipal water provided by the Chaffee Water Works. The remaining 49 parcels reported having a well which was utilized for household or farm water supply. Appendix F provides details and includes a table summarizing tax parcel IDs and property addresses that received a questionnaire, whether

or not a well was located on the parcel, well water usage, known well construction details (when provided by the respondent) and other details if provided by the respondent.

The majority of respondents reported drilled wells with well depths of 80 feet or more. Several wells are drilled through the overburden into bedrock – particularly parcels on Savage Road west of the Chaffee Facility. Based on well depth, most wells likely obtain water from the overburden. The closest domestic well to the Chaffee Facility is situated at Parcel 218 and located on Olean Rd. approximately 0.25 miles northeast of the Facility. The well was reported to be 80 feet deep and likely obtains water from the Upper Silty Sand and Gravel beneath more than 40 feet of the clay till. South of the Chaffee Facility, Parcel 164 is located on Allen Road and was reported to utilize a 100-foot deep well for household supply.

South of the facility, the Chaffee Water Works provides water to the residents in the Hamlet of Chaffee and obtains its municipal water supply from ground water with a well screened in the upper 20 feet of sand and gravel outwash in the Sardinia Aquifer or a second, newer well screened in confined sand and gravel deposits deeper in the aquifer. The water supply well is located 1.1 miles southeast of the Area 7/8 Development.

5. Hydrogeologic Investigation Results

This section describes site geology and hydrogeologic conditions at the Chaffee Landfill Facility and the proposed Area 7/8 Development.

5.1 Geology

The Chaffee Landfill areas and proposed Area 7/8 Development are located entirely over glacially-derived deposits associated with late stages of formation of the Lake Escarpment Moraine. On WMNY property, the moraine deposits consist of clay-rich tills interbedded with deeper, laterally extensive deposits of silty sand and gravel. The moraine deposits cover the entire landfill areas and are interpreted to extend southward more than 1600 feet beyond the Area 7/8 Development boundary based on USGS studies and site-specific hydrogeologic studies.

The United States Department of Agriculture (USDA) soils database was utilized to generate a map of surficial soil types present at the Area 7/8 Development and surrounding areas to the south. Soil types and USDA soil mapping are included in Appendix G. The USDA soil mapping identifies several silt-loam and gravel-loam soils with surface slopes typically varying between 3% and 8%. Soils surrounding Hosmer Brook to the south of the Area 7/8 Development are identified as having a "muck" and silt loam surficial soil expression. The surficial soil types identified in the USDA database are consistent with the USCS classifications of soil types identified in previous investigations. The presence of silty soil types and areas of gravel loam south of the Expansion Area were verified during site investigations.

Investigations of the Chaffee Landfill, Western Landfill Area, and Area 7/8 Development have identified the following laterally extensive units situated within the upper 100 feet of the ground surface:

- Upper Silty Clay/Till
- Ablation Till
- Upper Silty Sand and Gravel
- Lower Silty Clay
- Lower Silty Sand and Gravel
- Deeper Till

The geologic materials encountered at each investigation point (test pit, soil boring, piezometer, monitoring well) at and near the Area 7/8 Development have been described on geologic logs for the 2019 subsurface investigation included in Appendix B.1 and in the stratigraphic summary presented in Table 1. Geologic logs for borings/wells completed in and near the Area 7/8 Development prior to 2019 are included in Appendix B.2. Soils and hydraulic testing information summarized from pre-2019 investigations are included in Appendix B.3.

Visual depictions of site geology at the Chaffee Landfill are provided for geologic cross-section lines shown on Figure 8 and profiled on Figures 9a through 9d and also on Plate 3. The geologic cross-section for B to B' extends off-site to the south approximately 1,600 feet to include geology from USGS well SA-25. Geologic information for the boring is included in Appendix B.1. Geologic unit thicknesses are shown on isopach maps for the surface clay till, Upper Silty Sand and Gravel, and Lower Silty Clay/Till on Figures 10 through 12. Plate size drawings of these figures are provided on Plates 4 through 6. Physical and hydraulic properties of the geologic units are summarized in Table 2.

Each unit is described below with references to the tables and figures identified above.

5.1.1 Upper Silty Clay/Till

As described in previous investigations, the Upper Silty Clay/Till comprises the uppermost strata at the Chaffee Facility and occurs across most of the Area 7/8 Development. To a lesser extent, Ablation Till is also present at the ground surface in the extreme southwest corner of the development area (see Section 5.1.2). The Upper Silty Clay/Till is classified as CL-ML (USCS classification) and described as a uniform brown (becoming gray where deeper and less oxidized) silty clay with trace fine gravel having moderate plasticity. The Upper Silty Clay/Till extends beyond the boundaries of the Area 7/8 Development with the exception of a small area in the southwestern corner of the expansion area where Ablation Till occurs. The Upper Silty Clay/Till is thickest in the northern portion of the Area 7/8 Development (greater than 57 feet in thickness) and thins to 10-feet or less in a southerly direction as shown on the isopach map of the Upper Silty Clay/Till on Figure 10 and Plate 4. The Upper Silty Clay/Till is above the water table and found to be unsaturated at each boring location during continuous split spoon soil sample collection and test pit excavation. However, piezometer PZ09 indicated saturated conditions may occur in the pore water of the surface clay Till as water slowly entered the piezometer screen (7.5 feet deep) over the course of monitoring (a water column height of 1.5 feet after four months of monitoring). This is not unexpected as decommissioned piezometer SB6-08 also identified minor water in the Upper Silty Clay/Till in the soil borrow area prior to mining. Based on the slow rate of entry into the piezometer, it is likely the water represents a transient condition under which the larger soil pore spaces are temporarily at or near saturation in response to precipitation events resulting in minor accumulation within the screened interval.

Table 2 summarizes grain size testing, Atterberg limits, and undisturbed permeability measurements from 2019 geotechnical laboratory testing. Typically, the Upper Silty Clay/Till consists of 75% or more of silt and clay and less than 10% gravel. The Plasticity Index of the samples collected during this study and previous studies (included in Appendix B.3) indicate the material is classified as moderately plastic. Permeability testing of the in-situ Upper Silty Clay/Till samples indicates very low permeability values ranging from approximately $3x10^{-8}$ cm/s to $8x10^{-8}$ cm/s in the Area 7/8 Development.

Occasional lenses of silt, sand and gravel were described to occur locally in the Upper Silty Clay/Till during prior site investigations at the Chaffee Landfill. However, only one such sand and gravel lens was encountered in borings and test pits during the 2019 investigation and found at TP01-19 (*Photograph 1*).

Photograph 1 – Upper Silty Clay Till with a dry sand and gravel lens at TP01-19.

Laboratory soils testing for Organic Matter (organic fraction or Foc) was performed to assess attenuation properties of the soil. In addition to low permeability which influences constituent retardation, soil organic matter is important to natural attenuation processes in soil. Five samples were analyzed (one from the surface silty clay, three from Ablation Till, and one from the Upper Silty Sand and Gravel). Organic Matter was detected in the sample collected from the silty clay Till with a Foc value of 0.0029 g/g. The Foc values are considered to have average or above average soil attenuation properties since 0.002 g/g is considered a default value in USEPA natural attenuation models.

5.1.2 Ablation Till

Where the Upper Silty Clay/Till thins and is absent in the extreme southwest corner of the expansion area, compact, poorly sorted gravelly sand with silt and clay was observed at the ground surface in test pit excavations completed at TP02-19 and TP03-19. The soil was recognized as Ablation Till based on past experience at other Western New York landfill sites by the logging professional geologist (Photograph 2). The Ablation Till was found to be 7 to 11 feet thick and the estimated aerial extent is shown on Figure 10.

Photograph 2 – Compact Ablation Till to a depth of 11.5 feet at TP03-19.

Table 2 summarizes grain size testing and undisturbed permeability measurements from geotechnical laboratory testing. The Ablation Till was found to consist of about 35% gravel and 50% sand in a silt and clay matrix. Permeability testing of the Ablation Till indicates permeability values range from approximately 9x10-6 cm/s to 4x10-7 cm/s. A value of 1.2x10-3 cm/s was obtained for an in-situ (Shelby tube) sample collected from TP03-19 at 8 feet; however, the soils laboratory indicated a piece of angular gravel adjacent to the wall of the permeameter provided an inaccurate permeability

value. Therefore, Ablation Till soil remaining in the sampling bucket collected from a similar depth in the test pit which was collected for grain size analysis and was recompacted to a similar in-place soil density as that collected from the original Shelby tube. The test was re-run and the value obtained (8.9x10-6 cm/s) which was similar to the value obtained from TP02-19. The permeability of soil is a function of the D_{10} grain size which is also termed the "effective grain size" and is considered when evaluating the ability of soil to transmit water. The D_{10} grain size of the soil samples collected from TP03-19 was 0.03 mm (silt size) which effectively reduces soil permeability. The recompacted permeability value is considered to be more representative of the material than the original Shelby tube. Both test results are provided in Table 2 for TP03-19.

Organic Matter was detected in samples collected from the Ablation Till with Foc ranging from 0.0014 g/g to 0.0028 g/g. The Foc values are considered to have average or above average soil attenuation properties.

5.1.3 Upper Silty Sand and Gravel

The Upper Silty Sand and Gravel is the unit found below the Upper Silty Clay/Till and Ablation Till and was deposited in a glaciofluvial, high energy glacial meltwater environment. The Upper Silty Sand and Gravel unit occurs Site-wide in the Lake Escarpment Moraine beneath the Upper Silty Clay/Till. Based on the presence of cobbles and boulders, angularity of gravel, abundance of soft black shale fragments with random orientation (non-planar), and relatively high

Photograph 3 – Upper Silty Clay on left side of split spoon and Upper Silty Sand and Gravel on the right side.

percentages of fines (typically 10 to 15%), transport and deposition likely occurred a relatively

short distance from its source of origin (glacial ice margin). The soil was classified as SM-GM (USCS classification) and described as a brown-gray gravelly silty sand with some stratification (see Photograph 3). The top and bottom surfaces of the unit are somewhat irregular and exhibit undulations from scouring of the surface of the deeper Lower Silty Clay during transport and deposition and possible scouring from glacial ice re-advance and deposition of clay till above. The unit is approximately 10 to 27 feet thick in the Area 7/8 Development (see Figure 11 and Plate 5). As shown on geologic cross-sections, the upper portion of the silty sand and gravel deposits are unsaturated as the water table occurs within the unit.

5.1.4 Lower Silty Clay/Till

The Lower Silty Clay/Till is identified as CL-ML (USCS classification) and described as uniform gray-brown silty clay with trace fine gravel having moderate plasticity (see Photograph 2 below). The Lower Silty Clay/Till extends laterally across the Area 7/8 Development and was

Photograph 4 – Sharp contact between Lower Silty Clay (left side of split spoon) and Lower Silty Sand and Gravel (right side of split spoon).

encountered in all deep borings that penetrated the Upper Silty Sand and Gravel. As shown on Figure 12 and Plate 6, the thickness of the Lower Silty Clay below the Area 7/8 Development ranged from 7.1 feet to approximately 22 feet. Outside the expansion area, the Lower Silty Clay/Till was found to be thicker to the south (greater than 38.3 feet at SBPZ01D-19) and east (25 feet at PZSB11-19). At boring locations PZBA2D-19 and PZSB11-19, the Lower Silty Clay/Till was interbedded with distinct, rhythmic recessional silty sand and gravel deposits having thicknesses ranging from about 6 inches to 2 feet. No intermixing of the layered materials was observed. The areas where silty sand and gravel deposits were found interbedded with the Lower Silty Clay/Till are shown on the geologic cross-section D-D' (Figure 9d and

Plate 3). The top surface of the Lower Silty Clay was contoured on Figure 12A to better understand the configuration of bottom of the Upper Silty Sand and Gravel and support the understanding of the seasonally transitional groundwater flow direction in the Upper Sand and Gravel described in Section 5.2.2. As depicted in Figure 12A, the surface of the Lower Silty Clay rises in a westward direction causing a thinning of the saturated portions of Upper Sand and Gravel near the northern portions of Wetland SD-1 which recharges the UWBZ west and northwest of the Area 7/8 Development. The surface of the Lower Silty Clay slopes in a north and south direction beneath the Area 7/8 Development.

Table 2 summarizes grain size testing, Atterberg limits, and undisturbed permeability measurements from geotechnical laboratory testing of the Lower Silty Clay. Laboratory testing results from the unit were nearly identical to the Upper Silty Clay/Till where the Lower Silty Clay consists of 75% or more of silt and clay and less than 10% gravel with moderate plasticity. Permeability testing results of in-situ Lower Silty Clay/Till samples were low, ranging from approximately $3x10^{-8}$ cm/s to $4x10^{-8}$ cm/s (similar to the Upper Silty Clay/Till permeability results). The Lower Silty Clay/Till samples tested excluded silty sand and gravel layered materials when present.

5.1.5 Lower Silty Sand and Gravel

The Lower Silty Sand and Gravel was encountered below the laterally extensive Lower Silty Clay/Till. Similar to the Upper Silty Sand and Gravel, the lower Silty Sand and Gravel was deposited in a glaciofluvial environment. The soil was identified as SM-GM with some samples identified as SW-SP (USCS classification) and described as a gray silty sand and gravel with some stratification. The unit was completely penetrated by five soil borings in the vicinity of the Area 7/8 Development and was found to range in thickness from 4 feet (PZMWSE3D-19) to 21 feet (SB12-19) along the southern WMNY property boundary south of the expansion area. As shown on geologic cross-sections, the top and bottom surfaces of the Lower Silty Sand and Gravel deposits undulate and are bound by the Lower Silty Clay and deeper Till, respectively. The Lower Silty Sand and Gravel was not observed southwest of the Area 7/8 Development at boring SBPZ01D-19 as the Lower Silty Clay was found to extend downward at least to a depth of 80 feet. At PZ05D-19 below the central portion of the Area 7/8 Development, the unit was found to be well sorted (visually cleaner containing fewer fines) and well stratified. Elsewhere, borings completed along the southern WMNY property boundary and at the northern end of the expansion area (i.e., decommissioned well MW-K(D) from the Western Landfill Area investigation), contained percentages of fines (silt and clay) ranging from 8.4 to 14.8% which is similar to the percentage of fines found in the Upper Silty Sand and Gravel.

5.1.6 Clay, Silt, and Fine Sand/Deeper Till

A deeper till was identified below the Lower Silty Sand and Gravel at five locations in the vicinity of the Area 7/8 Development (see geologic cross-sections on Plate 3). The deeper till was observed to be visually similar to Upper Silty Clay/Till and Lower Silty Clay/Till with the

exception of PZ05D-19. At that location, a compact, uniform very fine sand and silt was identified below the Lower Silty Sand and Gravel Unit and appeared to have glaciolacustrine deposition origins based on uniform grain size, lack of gravel, and high dilatancy. Grain size analysis indicated 4.4% sand, 92% silt, and 3.9% clay. Material similar to the deeper Till soil was identified on other boring logs in deeper borings completed in the Western Landfill Area; most notably boring MW-E(D) situated a few hundred feet south of Hand Road where it was encountered at a depth of 68 feet (1387 ft elevation) having a thickness of approximately 50 feet (see Appendix B.2 for boring log details).

5.2 Site Hydrogeology

The hydrogeology of the Chaffee Facility and the Area 7/8 Development has been characterized to depths of more than 100 feet below ground surface by borings, piezometers, and monitoring wells. The following hydrostratigraphic units have been identified:

- Discontinuous Perched Water in Upper Silty Clay/Till
- Upper Silty Sand and Gravel (also referred to as the Upper Water-Bearing Zone)
- Lower Silty Clay Aquitard
- Lower Silty Sand and Gravel (also referred to as the Lower Water-Bearing Zone)
- Deeper Till Aquitard

5.2.1 Upper Silty Clay/Till

At the Closed Landfill and Western Landfill Area, the Upper Silty Clay/Till is considered to be a monitorable hydrostratigraphic unit at locations where perched groundwater is present in lenses of course grained soils within the silty clay soil matrix. Groundwater monitoring wells screened in these perched zones exhibit spatially variable groundwater elevations corresponding generally to the elevation of the saturated lenses encountered. This head distribution suggests a lack of continuity and little to no hydraulic interconnection between the identified perched zones. The interaction between perched water in the Upper Silty Clay/Till and the water table occurring in the Upper Silty Sand and Gravel below the surface clay was evaluated in the hydrogeologic investigation for the Western Landfill Area. Pumping tests completed in the Upper Silty Sand and Gravel unit indicated no hydraulic response in wells monitoring perched groundwater. Also, age dating of perched groundwater in the surface clay till performed during the 2005 hydrogeologic investigation for Western Landfill Area demonstrated that some saturated portions of the surface clay till have not been recharged under recent atmospheric conditions (pre-1950 tritium isotopic data). This suggests accumulation of perched water in coarse-grained lenses has occurred very slowly over time.

The groundwater monitoring program established for the Closed Landfill and Western Landfill Area for the 2005 Part 360 Permit application concluded that, where groundwater was identified

in more permeable lenses of sand and gravel within the surrounding silty clay matrix, a monitoring well would be installed for groundwater quality monitoring. Along the northern boundary of the Area 7/8 Development, monitoring wells screened in surface clay at MW-K(S) and MW-3R are dry but wells MW-4CR and MW-1BR contain perched water. However, the latter of these wells requires several days or longer to recover to near static water levels after purging. At these well locations, the surface clay is more than 35 feet thick.

South of the Closed Landfill, mining in the West Soil Borrow Area removed tens of feet of clay soil from the ground surface in the Area 7/8 Development. The remaining thickness of the surface clay (15 feet or less) was investigated and described in Section 5.1.1. As reported, the clay was found to be fairly uniform with no observable sand and gravel zones containing perched groundwater. Test pit TP01-19 was found to have a lens of sand and gravel at approximately 4.5 feet below ground surface but was dry. It is important to note that two piezometers screened in Upper Silty Clay/Till within the limits of the Area 7/8 Development (decommissioned well at SB6-08 completed for the West Soil Borrow Area investigation and 2019 investigation piezometer PZ9-19) were observed to slowly accumulate groundwater over time. The groundwater recharge rates in these piezometers were measured on a time scale of weeks to months.

Unlike the Upper Silty Clay/Till in the northern portion of the Area 7/8 Development (adjacent to the Closed Landfill and Western Landfill Area) which is thicker and contains saturated sand and gravel lenses and is considered a monitorable hydrostratigraphic unit, the Upper Silty Clay/Till in the southern half of the development area is not considered a monitorable hydrostratigraphic unit based on the absence of perched water in lenses of sand and gravel, and extremely low porewater seepage rates into well screens that were installed in the silty clay soil within the expansion area.

5.2.2 Upper Silty Sand and Gravel Water-Bearing Zone

The Upper Silty Sand and Gravel Water-Bearing Zone (Upper Water-Bearing Zone) is the uppermost laterally continuous water-bearing zone below the Area 7/8 Development and the Chaffee Facility. Groundwater occurs generally under unconfined (water table) conditions as exhibited by an unsaturated zone observed in the Upper Silty Sand and Gravel. Depth to groundwater below the Area 7/8 Development is typically 15 feet based on the existing ground surface elevations in the southern half of the development area. Where ground surface elevations rise to the north, depth to groundwater increases. Recharge to the Upper Water-Bearing Zone below the Area 7/8 Development footprint occurs through horizontal flow as downward vertical flow is restricted by the low permeability of the Upper Silty Clay/Till and Ablation Till within the boundaries of the proposed landfill footprint. Surface water located west and southwest of Area 7/8 Development recharges the Upper Water-Bearing Zone.

The thickness of the Upper Water-Bearing Zone is dictated by seasonal fluctuation in water levels and the fixed surface elevation of aquitard below it. The geologic cross-sections on Figures 9a through 9d show depth to groundwater for May and October 2019 monitoring events

(data summarized on Table 4). Based on the cross-sectional information, the average saturated thickness of the unit across the expansion area ranges from approximately 7 to 15 feet depending on depth to the aquitard below the unit.

Figure 13 shows groundwater elevation fluctuations over a six year period for monitoring wells MW-R4A and MWBA-2 which are located at the north and south ends of the Area 7/8 Development, respectively. The observed groundwater elevation changes indicate a seasonal pattern of fluctuating water levels; approximately 2.5 to 4 feet during this time frame. Included on the figure are monthly groundwater elevations for piezometer PZ05S-19 installed near the center of the expansion area during the 2019/2020 hydrogeologic investigation. Groundwater elevation data in PZ05S-19 mimic the decline of groundwater elevations in the two monitoring wells (MW-R4A and MWBA-2).

Groundwater elevation fluctuations in monitoring wells and piezometers located in and near the Area 7/8 Development are shown on Figure 14. During higher water table conditions (April/May), the measured difference in groundwater elevations between locations is less than one foot. As the investigation timeframe progressed, declining water levels were observed with lows occurring in October/November. As shown on the figure, groundwater levels declined the least in piezometers and wells located closest to Sed Basins #1, #2 and #3 (i.e., MWSE-4, P3-03). Among the monitored piezometers and wells, water levels in well MWSE-4 declined the least, however fluctuation patterns in monthly groundwater elevation data generally mimic water levels responses observed in other wells/piezometers. The proximity of well MWSE-4 to the Sedimentation Basins is the cause of the observed difference in hydraulic response. Water levels in the well were held more constant as a direct result of slow exfiltration of stormwater occurring through the bottom of the basins. This process plays an important role in groundwater recharge and influences the overall direction of groundwater flow in the Upper Water-Bearing Zone. This process is more fully discussed in Section 5.5.

The groundwater flow direction in the Upper Silty Sand and Gravel is shown on potentiometric surface maps on Figures 15 through 20 for data collected in the Area 7/8 Development from May, June, August, October, and December 2019 monitoring events and the March 2020 monitoring event, respectively, as well as Appendix H for monitoring events in June, August, November 2020, and March 2021 monitoring events. The June, August, and December 2019 and March, June, August, November 2020 maps, as well as the March 2021 map depict groundwater elevation data obtained during Site-wide quarterly groundwater monitoring events. June, August, and December 2019 data and March 2020 data are also provided on Plates 7, 8 , 9, and 10. Based on the horizontal hydraulic gradient across the Area 7/8 Development footprint, the groundwater flow direction in the Upper Silty Sand and Gravel (Upper Water-Bearing Zone) seasonally transitions from a north/northeast vector (Q4) to a south vector (Q2). The hydraulic gradient and groundwater seepage velocities for the Area 7/8 Development presented in Appendix I were calculated using the following Darcy seepage velocity calculation for the two

seasonal groundwater flow vector directions (south and northeast) for 2019 and 2020 using the following equation:

$$v = seepage\ velocity = \frac{Ki}{\eta_e}$$

$where$:

$K = hydraulic\ conductivity *$

$$i = hydraulic\ gradient = \frac{(h_1 - h_2)}{L}$$

$\eta_e = effective\ porosity **$

$h_1\ and\ h_2 = \Delta\ groundwater\ elevation$

$L = horizontal\ distance$

As shown in Appendix I, the groundwater seepage velocity in the Upper Water-Bearing Zone below the Area 7/8 Development is calculated to be 0.58 ft/yr and 0.60 ft/yr in 2019 and 2020, respectively, in a southward direction in the spring and summer seasons (April - August). Flow seasonally transitions to a northeast direction at a calculated rate of 1.88 ft/yr and 2.26 ft/yr in 2019 and 2020, respectively, as groundwater elevations regionally decline during the late summer, fall and winter seasons (September through early March). Based on an average south flow component of 0.59 ft/yr and an average northeast flow component of 2.07 ft/yr, the net vector sum has an estimated annual seepage velocity beneath the Area 7/8 Development of 1.33 ft/yr in a northeast direction. Hence, a particle beneath the footprint would be expected to be transported to the northeast and would migrate at a rate of 1.3 feet per year assuming no retardation of particle transport.

5.2.3 Lower Silty Clay Aquitard

The Lower Silty Clay Aquitard was investigated for lateral continuity, thickness, and laboratory measured permeability. The aquitard is saturated but does not readily transmit groundwater as it primarily consists of moderate plasticity silty clay having a laboratory measured geometric mean permeability of 4.62×10^{-8} cm/s. As shown in geologic cross sections shown on Figures 9a through 9d, the lower aquitard is laterally continuous below the expansion area and extends southward beyond the WMNY southern property boundary. Described in Section 5.1.3, areas of alternating layers of silty clay and silty sand and gravel were identified in borings located southeast of the Area 7/8 Development but overall thickness and confirmed low permeability of the silty clay portions of the Lower Silty Clay Aquitard would not compromise the overall properties of the aquitard to restrict vertical groundwater movement based on the hydraulic data collected.

Heads in piezometers screened in the Lower Water-Bearing Zone (discussed in section 5.2.4 below) are above the elevation of the base of the aquitard while exhibiting between 3 and 4 feet of head loss relative to the Upper Water-Bearing Zone. This is indicative of the confining properties of the Lower Silty Clay Aquitard. As reported in Section 3.6, the groundwater

pumping test at PZ05D-19 (screened in the Lower Water-Bearing Zone) did not produce a hydraulic response in the Upper Water-Bearing Zone , thereby demonstrating the effectiveness of the Lower Silty Clay Aquitard to restrict vertical movement of groundwater between the Upper and Lower Water-Bearing zones below and in close proximity to the Area 7/8 Development footprint.

5.2.4 Lower Silty Sand and Gravel Water-Bearing Zone

The Lower Silty Sand and Gravel is the lower water-bearing zone investigated in the Area 7/8 Development. Groundwater occurs under confined conditions as a clay aquitard exists above and below the unit in proximity to the Area 7/8 Development footprint. Recharge to the Lower Water-Bearing Zone beneath the footprint occurs horizontally as vertical movement of groundwater is restricted by the aquitards above and below the unit. Unit recharge occurs east or southeast from Area 7/8 Development based on groundwater elevations measured in piezometers screened in the Lower Water-Bearing Zone.

The thickness of the Lower Water-Bearing Zone is fixed by the surface elevation of the aquitards above and below the unit (see Figures 9a through 9d). Based on the cross-sectional information and stratigraphic data in Table 1, the average saturated thickness of the unit across the expansion area ranges from approximately 10 to 17 feet. The Lower Water-Bearing Zone was not observed southwest of the Area 7/8 Development footprint at boring SBPZ01D-19 as the Lower Silty Clay was found to extend downward at least to a depth of 80 feet (see Figure 9a). South of the development area, geologic cross-section D-D' (Figure 9d) shows the unit thinning to the west and thickening to the east. Geologic cross-section B-B' (Figure 9b) incorporates off-site data from USGS Well SA-25 and projects a thickening of the Lower Water-Bearing Zone in a south direction with continued confining conditions by the presence of aquitards above and below the unit.

Figure 21 depicts monthly water levels at piezometers PZ05S-19 and PZ05D-19 screened respectively above and below the aquitard. Two to four feet of head loss occurs between the Upper and Lower Water-Bearing Zones. The vertical head difference of this magnitude is indicative of the low permeability aquitard restricting vertical groundwater flow.

Similar to information provided on Figure 21, Figure 22 plots heads in the other four piezometer pairs installed beyond the southern boundary of the Area 7/8 Development. The head differentials between the Upper and Lower Water-Bearing Zone range from 2 to 4 feet and are consistent with the presence of the low permeability aquitard restricting vertical flow.

The groundwater flow direction in the Lower Water-Bearing Zone is inferred in a northwest direction based on the triangulation of groundwater elevations between the five piezometers screened in the unit (see Table 2). Piezometers with the highest heads are located southeast of the Area 7/8 Development footprint. Comparatively, the highest groundwater elevations in the Upper Water-Bearing Zone occur southwest and west of the Area 7/8 Development.

Groundwater elevation data and seasonal fluctuations suggest recharge to the Lower Water-Bearing Zone occurs east and/or southeast from the Area 7/8 Development, well beyond the limits of the Area 7/8 proposed landfill footprint.

5.2.5 Deeper Till Aquitard

The Lower Water-Bearing Zone is bound by a deeper till as described in Section 5.1.5. Based on visual observation and grain size data for the deeper Till, the confining properties are expected to be similar to those described for the Lower Silty Clay Aquitard.

5.3 Groundwater and Surface Water Quality

Site-wide groundwater and surface water quality is monitored quarterly in accordance with the Chaffee Facility EMP (2012). The monitoring program includes groundwater quality monitoring in perched zones within the Upper Silty Clay/Till north of the Area 7/8 Development and in the Upper Silty Sand and Gravel unit. In the Area 7/8 Development, perched groundwater occurring in pockets of sand and gravel materials was not identified; therefore, the assessment of existing groundwater quality in the Area 7/8 Development was conducted using wells MWSE-1 through MWSE-4 (see Figure 4). Water quality data from existing monitoring wells MW-R1A and MW-R4A, currently used to monitor water quality on a quarterly basis in the Upper Silty Sand and Gravel along the southern boundary of the Closed Landfill (northern boundary of the Area 7/8 Development), were used to supplement the discussion of water quality. The wells are located on the upgradient or downgradient boundary (seasonally dependent) of the Area 7/8 Development.

Table 5A summarizes sample analytical results for four new monitoring wells screened in the Upper Water-Bearing Zone near the Area 7/8 Development. The following NYSDEC Part 363 Expanded List of organic chemicals were not detected: volatile organic and semi-volatile organic compounds (VOCs/SVOCs including 1, 4-dioxane), pesticides/herbicides, and PCBs. Per- and polyfluoroalkyl substances (PFAS) constituents were detected at low concentrations (parts per trillion level) at two well locations. PFAS constituent perfluorobutanoic acid (PFBA) (2.5 nanograms per liter {ng/L}) was detected at well MWSE-1 and seven individual PFAS constituents were detected at well MWSE-4. Based on the detection of PFAS during the Expanded List event, PFAS constituents were included with the Baseline Parameter List (second event). PFAS constituents were not detected in sample MWSE-1 and therefore, not confirmed at the well location during the Baseline sampling event. The same seven individual PFAS constituents detected at well MWSE-4 during the Expanded List sampling event were confirmed during the Baseline sampling event.

Radiological parameters (uranium and radium 226/228) and heavy trace metals were either not detected or detected at background concentrations when compared to water quality comparison criteria shown on Table 5A.

5.3.1 PFAS in Groundwater and Surface Water

As described in Section 5.2.2 and later in Section 5.5, slow exfiltration from storm water detained in Sedimentation Basins #1, 2, and 3 locally recharges groundwater near well MWSE-4. As such, surface water in the sedimentation basins was considered a possible source of the PFAS detected in groundwater at well MWSE-4.

The source of PFAS in MWSE-4 was investigated through supplemental surface water sample collection from the storm water sedimentation basins. GEI collected a surface water sample from the discharge from Basin #1 to Basin #2 on February 6, 2020 in combination with low flow groundwater sampling of wells MWSE-3 and MWSE-4 (previously sampled twice by Test America) and the collection of a surface water sample from Hosmer Book (designated HBSW-1) which receives storm water discharge from the basins. All samples were analyzed for PFAS. Following review of laboratory analytical data, three surface water samples were collected from Hosmer Brook on February 26, 2020 at: 1) an upstream sample location US-HBSW-1, 2) a downstream location DS-HBSW-1, and 3) the previously sampled surface water location in Hosmer Brook (HBSW-1). Sample locations are shown on Figure 23 and laboratory PFAS detections summarized in Table 5B.

The individual PFAS constituents and concentrations detected in the storm water sample collected at Basin #1 were similar to those detected in groundwater at well MWSE-4. Among the list of 21 PFAS compounds analyzed, only perfluorooctanoic acid (PFOA) and perfluorooctanoic acid (PFOA) have a NYSDOH drinking water standard of 10 ng/L applicable to public water systems. The concentration of PFOA was above the NYSDOH drinking water criterion at MWSE-4 during 2 of the 3 sampling events summarized in Table 5B.

PFAS constituents were not detected in the upstream sample collected from Hosmer Brook (UP-HBSW-1). PFOS and PFOA were detected in the downstream sample (DS-HBSW-1) with reported concentrations of 3.6 ng/L and 4.7 ng/L, respectively. While no ambient surface water criteria are currently proposed for New York State, the PFAS concentrations detected in Hosmer Brook are below the NYSDOH drinking water regulatory criteria.

5.3.2 Major Elements, Anions and Cations in Groundwater

The major elements and anions and cations detected in groundwater at Area 7/8 Development (see Table 5A) were not elevated with respect to water quality comparison criteria with the exception of TDS at well MWSE-2 and the following major elements:

- aluminum at MWSE-2 (first event) and MWSE-3 (both events). Suspended solids in the sample frequently influence the detection of aluminum in groundwater samples and sample turbidity was elevated (above 5 NTU) in those samples.

- iron at MWSE-2 (first event), MWSE-3 (both events), and MWSE-4 (both events). Similar to aluminum, suspended solids in the sample affected influenced detected concentrations.

These constituents appear to be naturally elevated in groundwater at the Chaffee Facility based on quarterly testing results from the past decade of site-wide groundwater quality monitoring.

Major cation and anion chemistry for the four groundwater monitoring well samples were plotted on a Piper Trilinear Diagram to graphically plot the water-chemistry type and provide a comparison to existing groundwater quality data from monitoring wells located along the northern boundary of the Area 7/8 Development (wells MW-R1A and MW-R4A). The Piper plot is shown on Figure 24 with groundwater chemistry plotting in the upper left side of the Piper Plot. The hydrochemical facies description for samples plotted on the diagram is that of a mixed type magnesium-bicarbonate and calcium-chloride type groundwater. For geochemical comparison, the major chemistry from approximately 10 years (28 sampling events) of groundwater quality monitoring for wells MW-R1A and MW-R4A is shown on the Piper Plots presented on the lower portion of the Figure 24. The geochemical ellipse for those samples was projected onto the Piper Plot in the upper portion of the figure for direct comparison of chemistry to the four new wells. As shown on the upper diamond, the major cation and anion chemistry from the four new monitoring wells installed in the Area 7/8 Development is very similar to the chemistry of existing wells located along the northern boundary of the expansion area indicating groundwater quality across the Upper Water-Bearing Zone at the Area 7/8 Development is consistent.

5.4 Surface Water Conditions

The Chaffee Facility is located near a watershed divide which occurs naturally at the maximum elevation of the Lake Escarpment Moraine near Hand Road. Surface water drainage on the north side of the moraine crest flows within the Cazenovia Creek Watershed System and drainage south of the crest flows within in the Cattaraugus Creek Watershed System. At the Chaffee Facility, surface water run-off from the eastern portion of the Closed Landfill is collected by drainage swales and directed to Sedimentation Basin #4 situated at the southeast corner of the landfill. Permitted discharge from this detention basin eventually discharges to Wetland SD-1 that is part of the Hosmer Brook sub-watershed within the Cattaraugus Creek Watershed.

Drainage in the Western Landfill Area and proposed Area 7/8 Development is directed to Sed Basins #5, #1, #2, and # 3 which in turn flows to the south within the Hosmer Brook sub-watershed.

Wetlands with perennial surface water exist east and west of the Area 7/8 Development and influence groundwater elevations in the study area. Drainage from Wetland SD-1 east of the West Soil Borrow Area and Area 7/8 Development drains to Hosmer Brook having its headwaters in wetlands west and southwest of the Chaffee Facility. Drainage from Wetland SD-

1 located west and southwest of the Area 7/8 Development occurs through a culvert installed beneath an access road southwest of Sed Basin #3 (Figure 3).

Three staff gauges, SH-2, SH-3 and SH-6 were installed and surveyed in April 2019 at locations similar to surface water locations evaluated during the Western Landfill Area Part 360 Permit Application and are shown on Figures 3 and 4. The original location of staff gauge SH-6 during the Western Landfill Area investigation was within Sedimentation Basin #3 and didn't allow for measurements of discharge from the basin. For the Area 7/8 Development investigation, the location of SH-6 was re-located south of the gravel road and within the basin discharge swale to facilitate measurements of discharge. Discharge estimates and field measured parameters including pH, specific conductance, and temperature were collected at each staff gauge location. Table 6 presents a summary of field measured parameters, surface water elevations and discharge estimates during each monitoring event.

Hosmer Brook/ Wetland SD-1 Discharge (Station SH-2)

Staff Gauge station SH-2 is located immediately downstream of a culvert pipe that drains the western portion of wetland SD-1. Surface water elevations at SH-2 are controlled by the ponded surface water in SD-1 and ranged between 1437.2 (April 2019) and 1437.5 feet msl (August 2019). Discharge rates ranged between 4.5 (April 2019) and 7.0 ft^3/s (August 2019) during the investigation period.

Hosmer Brook Bridge at Allen Road (Station SH-3)

Staff gauge station SH-3 is located within the Hosmer Brook stream channel at the concrete culvert beneath Allen Road (Figure 3). Surface water elevations at SH-3 ranged from 1426.7 (August 2019) to 1427.4 feet msl (April 2019). Discharge rates at SH-3 ranged from 163 (August 2019) to 392 ft^3/s (April 2019).

Hosmer Brook/ Sedimentation Basin #3 Discharge (Station SH-6)

Staff gauge station SH-6 monitors the outflow from Sedimentation Basin #3 which flows into Wetland SD-1 and ultimately drains to Hosmer Brook. Surface water elevations at this location ranged between 1440.9 (June 2019) and 1441.4 feet msl (October 2019) during the 2019 investigation. Discharge rates at SH-6 ranged between 3.2 (June 2019) and 9.6 ft^3/sec (October 2019).

Chemical Constituents in Basin #3 Surface Water Discharge and Hosmer Brook

The Chaffee Facility EMP requires quarterly analysis of surface water samples from the discharge at Basin #3. During the past decade, organic chemicals, heavy metals and leachate indicator compounds commonly associated with leachate presence have not been detected in samples collected from the basin discharge. During the 2019/2020 investigation, trace constituent concentrations of PFAS were detected in Hosmer Brook and surface water in the Sed

Basins. The detected PFAS concentrations in Hosmer Brook were below proposed NYSDOH drinking water regulatory criteria. This was discussed in Section 5.3.1.

In Hosmer Brook, the range of field-measured parameters (pH, specific conductance and temperature) at each of the staff gauge locations during the 2019 hydrogeologic investigation were similar to those measured during the 2004 hydrogeologic investigation for the Western Landfill development and are consistent with values found in site-wide groundwater.

5.5 Groundwater/Surface Water Interaction

Recharge to the Upper Water-Bearing Zone outside the limits of the Area 7/8 Development is influenced by surface water located on areas of the moraine not covered by the Upper Silty Clay/Till. This includes NYSDEC Wetland SD-1 west and southwest of the Area 7/8 Development and Sed Basins #1 #2, and #3 situated immediately west of the western boundary of the Area 7/8 Development. Surface water is perennially present in both of these areas and influences groundwater elevations in the Upper Water-Bearing Zone below the Chaffee Facility.

Sedimentation Basins #1, #2, and #3 were constructed by excavation of soils where the Upper Silty Clay/Till was not present. The basin subgrades were soil lined using compacted clay having a maximum in-place permeability of $1x10^{-5}$ cm/s. The basin bottoms were constructed to elevations between 1441 and 1443 feet msl with operating surface water elevations maintained between 1444 and 1446 feet msl. Surface water in Basin #3 is conveyed toward Hosmer Brook through a permitted discharge with minimum surface water elevations of 1440.9 feet msl during the 2019 study. The surface water elevations in the Sed Basins and basin discharge are several feet higher than the expected elevation of the water table in that area (approximately 1438 feet msl). Water level monitoring data indicate surface water in the basins slowly exfiltrates and seeps downward through the unsaturated zone thereby mounding the water table beneath the area surrounding the storm water Sedimentation Basins west of the Area 7/8 Development. This effect is shown by the radial flow pattern observed on groundwater potentiometric surface mapping for the Upper Silty Sand and Gravel water-bearing zone (see Figures 15 through 20 and Appendix H) and monthly water levels at well MWSE-4 which are 1 to 3 feet higher than groundwater elevations recorded in all other piezometers and wells in and near the Area 7/8 Development. While the water level trend in MWSE-4 is somewhat similar to Site-wide declining trends in groundwater elevations, particularly in the spring and early summer, a continued decline in groundwater elevation in the late summer and fall was not observed. This observation was also noted, but to a lesser extent, in wells P3-03, PZ02-19, and PZ03-19 which are located closest to the Sed Basins.

Exfiltration of water from Wetland SD-1 and the Sedimentation Basins is an important factor influencing the direction of groundwater flow in the Upper Water-Bearing Zone below the Area 7/8 Development. The higher heads maintained by Wetland SD-1 and exfiltrating basin surface water influence the observed seasonal shift in groundwater flow direction below the expansion area from southward, during higher regional groundwater elevations, to northeastward as

seasonal declining groundwater elevations in the moraine deposits are observed. In addition, the top of the Lower Silty Clay aquitard, as shown in Figure 12A, slopes in a north and south direction which also influences the seasonal direction of groundwater flow in the Upper Water-Bearing Zone.

6. Conceptual Site Model and Critical Stratigraphic Section

This section presents a Conceptual Site Model (CSM) which provides a summary interpretation of the geologic setting, groundwater flow, and describes the possible consequence from a release of leachate from the Area 7/8 Development footprint. The CSM is used to assist with the identification of the Critical Stratigraphic Section (CSS) which is critical toward developing an effective groundwater monitoring program.

6.1 Conceptual Site Model

Geologic information described in US Geological Survey Reports, NYSDEC aquifer mapping, and earlier site-specific investigations at Chaffee, including the 2019/2020 hydrogeologic investigation, indicate the Lake Escarpment Moraine extends southward for at least 1/3 of a mile beyond the southern WMNY Chaffee Landfill property boundary near the Area 7/8 Development. The northern limits of the Sardinia Aquifer was mapped as the southern extent of moraine deposition by the USGS. The aquifer consists of a thick sequence of permeable surficial outwash sediments and deeper confined sand and gravels deposited during earlier glacial events.

The moraine geology is composed of 400 to 600 feet of glacial melt water sediments deposited in a scoured bedrock valley during ice sheet advance and retreat. The moraine sediments have been investigated to depths of over 100 feet at the Chaffee Facility and consist of a layered (interbedded) silty clay till with silty sand and gravel deposits. Observations of soils collected during the 2019 subsurface investigation of deeper soils at the Area 7/8 Development and 1984 USGS soil descriptions indicate the Upper, Lower, and Deeper Silty Clay Tills have similar physical and hydraulic characteristics and are separated by layers of Silty Sand and Gravel originating from glaciofluvial transport with deposition during late stages of moraine formation during oscillating glacial ice retreat and re-advance.

Water level data and physical testing soil data indicate the Upper, Lower and Deeper Silty Clay units are aquitards preventing the vertical movement of groundwater between saturated Silty Sand and Gravel units. In the Upper Silty Clay/Till, perched water exists within discontinuous lenses of sand and gravel in the clay till along the southern portion of the Closed Landfill and extends northward where the Upper Silty Clay/Till is thicker. Groundwater in the Upper Silty Sand and Gravel is identified as the Upper Water-Bearing Zone and is laterally continuous across the Site and is bound below by the Lower Silty Clay aquitard which prevents the downward movement of groundwater. The groundwater flow direction beneath the Area 7/8 Development in the Upper Water-Bearing Zone is seasonally dependent and transitions from a southerly direction during the spring and early summer months to a more northeasterly direction in the late summer, fall, and winter months. Surface water in Wetland SD-1 situated west and southwest of

the development area and in the Sedimentation Basins influence the groundwater flow direction below the Area 7/8 Development by recharging groundwater in the Upper Water-Bearing Zone. The measured horizontal hydraulic gradients in the Upper Water-Bearing Zone beneath the development area are very low to flat causing low groundwater seepage velocities. The groundwater flow velocity below the Area 7/8 Development was calculated to be 0.59 ft/yr. in a southward direction from April through August and transitions to a northeast direction at a somewhat higher rate of 2.07 ft/yr. as groundwater elevations regionally decline between September through March. The annual net vector sum flow rate below the Area 7/8 Development footprint occurs in a northeast direction at 1.33 ft/yr. Therefore, if a potential leachate release occurred from the Area 7/8 landfill footprint, constituents would ultimately migrate in a northeast direction in the Upper Water-Bearing Zone.

Geologic and hydrogeologic information indicate the Lower Water-Bearing Zone is isolated from the Upper Water-Bearing Zone beneath the footprint of the Area 7/8 Development and would not be affected by the presence of potential leachate related constituents in the Upper Water-Bearing Zone should a theoretical release occur. This conclusion is based on the following:

- A low permeability silty clay unit (Lower Silty Clay or aquitard) was identified between the Upper and Lower Water-Bearing Zones (permeability values between $3x10^{-8}$ cm/s and $4x10^{-8}$ cm/s) which restricts the vertical movement of water between the two water-bearing zones.

- The aquitard was found to be laterally extensive at the Area 7/8 Development outspreading the area below the design landfill footprint of Cells 7 and 8 with thicknesses ranging from 7.1 feet (PZ03-19) to 22.3 feet (SB03-19). Figure 12 depicts the mapped thickness of the Lower Silty Clay aquitard below and beyond the design landfill footprint.

- Pumping tests conducted at well pair PZ05S-19 and PZ05D-19 demonstrated no responses to hydraulic stress when the Upper and Lower Water-Bearing zones were individually pumped and potential hydraulic responses were monitored; thereby, confirming no vertical hydraulic communication between the units below the Area 7/8 Development.

- Measured groundwater elevations in five (5) piezometer pairs screened in the Lower Water-Bearing Zone are uniformly 2.5 to 4 feet lower than groundwater elevations measured in the Upper Water-Bearing Zone. This head differential is further evidence of the hydraulic isolation of the Lower Water-Bearing Zone from the Upper Water-Bearing Zone.

- Among the five piezometers installed in the Lower Water-Bearing Zone, piezometer PZSB11D-19 (located southeast of the footprint) consistently has the highest

groundwater elevations with the lowest groundwater elevations measured in piezometers PZMWSE3D-19 and PZ04D-19 (located near the southwest corner of the footprint). Higher heads found in piezometer PZSB11D-19 indicate groundwater recharge occurs east or southeast of the Area 7/8 Development with flow in the Lower Water-Bearing Zone occurring toward the west and northwest. This local flow direction is independent and nearly counter to the groundwater flow direction identified in the Upper Water-Bearing Zone at Area 7/8 Development which is toward the northeast and seasonally to the south.

- Groundwater elevations in the Lower Water-Bearing Zone are lower in piezometers closest to the surface water features that recharge the Upper Water-Bearing Zone (i.e., Wetland SD-1 and the sedimentation basins). Those surface water bodies do not serve as recharge to both the Upper Water-Bearing Zone and Lower Water-Bearing Zone. This is demonstrated by 1) the fact that the heads in both units are not similar (there is a consistent seasonal 2.5 to 4 feet head differential); and 2) the groundwater elevations in both units would be highest closest to the surface water features, which is not the case for the Lower Water-Bearing Zone.

- Water level graphing of groundwater elevations in the Lower Water-Bearing Zone depicted on Figures 21 and 22 show hydraulic responses that mimic seasonal recharge. The data indicate the hydraulic responses observed in Lower Water-Bearing Zone groundwater elevations appear to be recharged by similar mechanisms as the Upper Water-Bearing Zone. However, because head data for the Lower Water-Bearing Zone are lowest where head levels in the Upper Water-Bearing Zone are the highest and the hydraulic gradient in the Lower Water-Bearing Zone is toward the west and northwest, the recharge area for groundwater in the Lower Water-Bearing Zone occurs from distant areas east and/or southeast of the Area 7/8 Development.

Based on the physical and hydraulic evidence provided from site investigations, the Lower Water-Bearing Zone is fully isolated from the Upper Water-Bearing Zone within and beyond the limits of the Area 7/8 Development. Therefore, the Lower Water-Bearing Zone is not considered a unit for inclusion into the Critical Stratigraphic Section described below.

6.2 Critical Stratigraphic Section

The Critical Stratigraphic Section below a solid waste facility is defined in 6 NYCRR Part 360.2 as "*all stratigraphic units, both unconsolidated deposits and bedrock, including but not limited to the unsaturated zone, uppermost aquifer, and first water-bearing unit into which contaminants that escape from a facility might reasonably be expected to enter and cause contamination.*"

Prior hydrogeologic studies for the permitted Chaffee Landfill disposal areas identified the CSS as groundwater occurring in perched zones in the "surface clay/Till" and groundwater in "upper sand and gravel." The existing CSS for the Facility developed for the ongoing environmental

monitoring program has not been changed but refined using information presented in the CSM described in Section 6.1. Based on site hydrogeologic conditions in the Area 7/8 Development and other areas at the Chaffee Facility, the CSS is identified as:

- the Upper Silty Clay/Till; and
- the Upper Silty Sand and Gravel.

Figure 25 graphically presents the CSS for the Area 7/8 Development and is applicable to the entire Chaffee Landfill Facility. Based on the discussion in Section 6.1, groundwater in the Lower Silty Sand and Gravel is excluded from the CSS.

The optimal strategy to monitor the CSS in the expansion area is placement of detection monitoring wells having well screens that monitor perched groundwater encountered in sand and gravel lenses in the Upper Silty Clay/Till at the north boundary of the expansion area and groundwater in the Upper Silty Sand and Gravel which is the first laterally continuous water-bearing zone across the Site. The Upper Silty Sand and Gravel is bound at its base by a laterally continuous, thick aquitard which precludes the downward movement of groundwater.

In the unlikely scenario where landfill leachate leakage occurs in the Area 7/8 Development, the constituents would migrate very slowly in a downward direction in low permeability ($1x10^{-8}$ to $1x10^{-6}$ cm/s) soil in the Upper Silty Clay/Till or Ablation Till. Attenuation to soil particles and organic matter in the tills would further retard the rate of constituent migration. Should constituents migrate vertically through the tills, migration would occur vertically downward through unsaturated Upper Silty Sand and Gravel, eventually entering the Upper Water-Bearing Zone within the Upper Silty Sand and Gravel at a typical depth of 15 feet below the current ground surface in the southern portion of the development area footprint. The Upper Water-Bearing Zone is bound at its base by an aquitard (Lower Silty Clay) preventing vertical transport beyond the Upper Silty Sand and Gravel as described in Section 6.1. Groundwater quality monitoring should focus on the detection of leachate constituents potentially released to the Upper Water-Bearing Zone.

7. Environmental Monitoring

An Environmental Monitoring Plan (EMP) is currently in place for the Chaffee Landfill Facility. The EMP was most recently updated in December 2012 for the Valley Fill Expansion. The EMP describes monitoring programs for environmental media, including groundwater, surface water, and landfill leachate collection systems. The operation of the Area 7/8 Development will require revisions to the existing EMP to address requirements in 6 NYCRR Part 363-4.6(f). The updated EMP is being submitted as Part VII of the Area 7/8 Development Part 360/363 Application package.

Section 6.2 identified the Critical Stratigraphic Section at the Chaffee Landfill Facility including the Area 7/8 Development, as the:

- Upper Silty Clay/Till; and
- Upper Silty Sand and Gravel.

Consistent with 6 NYCRR Part 363-4.6(f)(8)(i)(a)(2), the groundwater monitoring network for the Area 7/8 Development will monitor the first water-bearing unit. This requires groundwater monitoring of the Upper Silty Clay/Till where perched conditions sporadically occur on the northeast side the expansion area (area of overlap onto the Closed Landfill) and of the water-bearing zone in the Upper Silty Sand and Gravel unit below the Area 7/8 Development. This monitoring approach is consistent with the permitted areas of the Chaffee Facility as defined in the existing EMP.

The current groundwater monitoring network will be modified to incorporate groundwater monitoring wells MWSE-1 to MWSE-4, a new monitoring well pair (monitoring perched water in the Upper Silty Clay/Till and groundwater in the Silty Sand and Gravel) to be installed near the northeast corner of expansion area overlap onto the Closed Landfill, and decommissioning of existing wells: MW-K(S); MW-K(I); MW-R4A; MW-4CR; MW-82B; MW-R3; MW-R1A; and MW-R1B located on the southern boundary of the Western Landfill Area and Closed Landfill within the area of Area 7/8 Development overlap.

The revised EMP for the Chaffee Facility (inclusive of the Closed Landfill, Western Landfill and Valley Fill Areas, and Area 7/8 Development) is included as a separate document with the Chaffee Landfill Facility Manual.

Elements of the revised EMP include:

- a description of the critical stratigraphic section;

- a Site Plan and description of all proposed monitoring points, including leachate, groundwater, surface water, and sediment;
- the analyses to be performed;
- an implementation plan describing the transition of the site-wide monitoring program to incorporate requirements in Part 363-4.6(f);
- a description of the statistical methods to be used; and
- reporting requirements.

The EMP includes an implementation plan with a sampling schedule, landfill construction schedule, a schedule for the installation and decommissioning of groundwater monitoring wells, and a schedule for initiation of the existing water quality (establishing baseline groundwater quality) and operational water quality monitoring programs. The EMP also includes a contingency water quality monitoring plan with trigger mechanisms to initiate its implementation.

A Site Analytical Plan is included in the EMP describing sample collection methods, chain of custody documentation, analyses to be performed, laboratory analytical methods and reporting limits, data quality objectives, procedures for corrective actions, and procedures for data reduction, validation and reporting.

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8. Design Considerations and Conclusions

The geologic, hydrogeologic and hydrochemical conditions were investigated for landfill expansion into the proposed Area 7/8 Development. The investigation results were used to assess the suitability of the expansion area for landfill operations (per 6 NYCRR Part 363-5.1 Siting Requirements), provide information to develop an EMP, and provide hydrogeologic and geotechnical information for landfill design.

The following is relevant hydrogeologic information for Area 7/8 Development landfill siting:

Part 363-5.1(a) - Bedrock and Unconsolidated Deposits

- Part 363-5.1(a) (2)(ii) states, "at existing landfill sites active on or after November 4, 1992 operating under and in compliance with a current permit or order on consent, there are no soil type restrictions provided the applicant demonstrates that the expansion site will have no significant adverse impact on groundwater." The siting requirements pertaining to bedrock and unconsolidated deposits are met because the proposed engineering controls for landfill construction are consistent with current regulations and the Western Landfill Area which have been proven to provide effective containment protective of groundwater. Furthermore, site-specific geologic and hydrogeologic information obtained during hydrogeologic studies has identified that the soil below the Area 7/8 Development consists of low permeability silty clay or ablation till with soil properties and hydraulic conditions conducive to minimizing the movement of chemical constituents. The depth to bedrock is more than 400 feet below the Chaffee Facility and is not recharged by surface water or shallow groundwater near the facility.

Part 363-5.1(b) – Proximity to Mines or Caves

- The Area 7/8 Development is not located near existing mines, caves or other anomalous features that can alter groundwater flow.

Part 363-5.1(d) – Primary and Principal Aquifers, and Public Water Supplies

- Per Part 363-5.1(d)(1), " … *a lateral expansion cannot be constructed over a primary water supply aquifer, principal aquifer, within a public water supply stabilized cone of depression area, or within a minimum distance of 500 feet to surface waters that are actively used as a source of municipal drinking water supply*." The Chaffee Landfill Facility, including the expansion area, is situated on the Lake Escarpment Moraine. Mapping and boring data indicate the moraine complex extends approximately 1,600 feet south of the proposed landfill expansion footprint. NYSDEC GIS New York State Aquifer mapping identifies the moraine as "not a Primary Aquifer" and well yield is

"unknown". Site investigation to depths of 80 feet within and outside the expansion area footprint did not identify hydrogeologic conditions that would meet the NYSDEC definition of a Principal Aquifer described in TOGS 2.1.3, October 1990. GIS aquifer mapping shows a "High Yield Unconfined Aquifer" approximately 1,600 feet south of the expansion area (see Figure 7) and represents the Sardinia Aquifer consisting of outwash sand and gravel deposits. The Sardinia Aquifer is not a NYSDEC Listed Primary or Principal Aquifer.

- Per Part 363-5.1(d)(2), "*the required horizontal separation between deposited waste and primary water supply aquifers, principal aquifers, capture zones of public water supply stabilized cone of depression areas or surface waters that are actively used as sources of municipal drinking water supply must be sufficient to preclude contravention of groundwater standards in the aquifer and surface water standards in waters that are currently used as a source of municipal drinking water supply*." Constituent migration from a theoretical release from the Area 7/8 Development footprint would not contravene groundwater standards in the Sardinia Aquifer situated 1600 feet south of the WMNY property boundary near the expansion area. Assuming vertical migration of constituents through low permeability silty clay soil and entry to Upper Water-Bearing Zone in the Upper Silty Sand and Gravel, constituent transport would occur in a northeast direction considering the hydraulic gradient and seasonal influences on groundwater flow direction. The expansion area is not located near surface water that is used as a source of municipal supply.

Based on the above, the following conclusions can be made for the Area 7/8 Development regarding environmental monitoring:

- The investigation sufficiently characterized hydrogeologic conditions to identify groundwater flow directions, barriers to vertical groundwater flow, and existing water quality in Upper Silty Sand and Gravel.

- The hydrogeologic investigation has demonstrated that groundwater in the expansion area is monitorable with predictable groundwater flow.

- The Critical Stratigraphic Section for the Area 7/8 Development, which is consistent with the Closed Landfill and Western Landfill Area, includes the following units:

  - Perched water in the Upper Silty Clay/Till identified at the northern boundary of the expansion area; and
  - Groundwater in the Upper Silty Sand and Gravel unit.

- The EMP will be developed to monitor the quality of perched groundwater in the Upper Silty Clay/Till along the northeastern boundary of the expansion area and groundwater in

the Upper Silty Sand and Gravel along the western, southern, eastern and northeastern boundary of the expansion area. The EMP would also monitor the quality of surface water discharge from the Site and would monitor the protectiveness of constructed landfill containment systems at the Western Landfill and Area 7/8 Development.

The following conclusions can be made for the Area 7/8 Development regarding landfill design and construction:

- No variances are required for landfill construction.
- The base of the landfill liner system should be constructed at or above an elevation of 1444 feet msl to achieve 5 feet of separation between the seasonal high groundwater elevation in the Upper Silty Sand and Gravel in the Area 7/8 Development.

9. References

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Tables

Table 1. Stratigraphic Summary - Area 7/8 Development
Hydrogeologic Investigation Report
Chaffee Sanitary Landfill - Area 7/8 Development
Town of Sardinia, New York

Test Pit, Soil Boring or Well / Piezometer ID	NORTH COORDINATE	EAST COORDINATE	Ground Surface Elevation (ft)	Unit Thickness (ft)					Depth of Boring/Test Pit (ft.)	Boring/Test Pit Bottom Elevation (ft)	Comments	Unit Surface Elevation				
				Ablation Till/Upper Silty Clay	Upper Silty Sand and Gravel (3)	Lower Silty Clay	Lower Silty Sand and Gravel (3)	Clay, Silt and Fine Sand/Deeper Till				Elevation - Top of Ablation Till/Upper Silty Clay	Elevation - Top Upper Silty Sand and Gravel	Elevation - Top Lower Silty Clay	Elevation - Top Lower Silty Sand and Gravel	Elevation - Lacustrine Fine Sand/Silt or Till
2019 Borings, Test Pits, Piezometers, and Monitoring Wells Completed for Southern Expansion (1)																
Soil Borings																
SB01-19	939664.45	1169965.72	1459.3	4.5 / 8.0	>5.5	-	-	-	18.0	1441.3		1459.3	1446.8	NA	NA	
SB02-19	939324.60	1170287.76	1453.6	4.2 / 7.8	20.7	>3.3	-	-	36.0	1417.6		1453.6	1441.6	1420.9	NA	
SB03-19	939255.32	1170418.79	1460.1	3.5 / 8.5	17.0	22.3	>0.7		52.0	1408.1		1460.1	1448.1	1431.1	1408.8	
SB04-19	939102.39	1170398.87	1455.4	8 / 0	20.0	13.0	>7.0		40.0	1415.4	2 feet of road base with 6 feet of silty reworked soil fill	NP	1447.4	1427.4	1414.4	
SB05-19	939363.33	1170518.01	1461.9	0 / 18.5	10.4	>3.1	-	-	32.0	1429.9	1.8 ft of surface stone fill stockpile	1460.1	1441.6	1431.2	NA	
SB06-19	939324.51	1170833.55	1451.6	0 / 13.5	>2.5	-	-	-	16.0	1435.6		1451.6	1438.1	NA	NA	
SB07-19	939111.58	1170723.72	1462.5	8 / 3.2	25.0	8.8	>5	-	50.0	1412.5	8 ft of soil borrow stockpile, Silty clay between 16.8 to 19.2 ft	1454.5	1451.3	1426.3	1417.5	
SB08-19	939159.41	1171416.17	1448.7	0 / 17.2	17.8	>3	-	-	38.0	1410.7		1448.7	1430.9	1413.1	NA	
SB09-19	939279.31	1171345.13	1449.3	0 / 10.0	19.0	18	>3	-	50.0	1399.3		1449.3	1439.3	1420.3	1402.3	
SB10-19	939443.50	1171408.75	1449.8	0 / 20.0	>2	-	-	-	22.0	1427.8		1449.8	1429.8	NA	NA	
SBPZ01D-19 (1A)	938648.41	1170445.15	1453.2	5.5 / 0	36.3	>38.2	NP		80.0	1373.2		1453.2	1447.7	1411.1	NA	
SB12-19 (1A)	938985.35	1170846.52	1454.8	0 / 10.6	16.4	10.2	21	>3.8	62.0	1392.8		1454.8	1444.2	1427.8	1417.6	1396.6
Test Pits																
TP01-19 (1B)	939073.42	1170695.09	1460.0	0 / 9.2	>2.8	-	-	-	12.0	1448.0		1460.0	1450.8	NA	NA	
TP02-19 (1B)	939078.33	1170559.35	1458.3	7.0 / 0	>3	-	-	-	10.0	1448.3		1458.3	1451.3	NA	NA	
TP03-19 (1B)	939065.09	1170426.45	1454.9	11.0 / 0	>0.5	-	-	-	11.5	1443.4		1454.9	1443.9	NA	NA	
Piezometers																
PZ01-19	938641.81	1170448.04	1453.7	6.0 / 0	18.0	>2	-	-	26.0	1427.7		NP	1447.7	1429.7	NA	
PZ02-19	938911.54	1170460.22	1457.2	9.5 / 1.2	17.3	9.5	>0.5	-	38.0	1419.2	9.5 ft Soil berm and Ablation Till	1447.7	1446.5	1429.2	1419.7	
PZ03-19	939121.11	1170496.19	1457.4	9.0 / 4.0	12.8	7.1	>1.1	-	34.0	1423.4	9.0 ft Soil berm and Ablation Till	1448.4	1444.4	1431.6	1424.5	
PZ04-19	938964.93	1170982.16	1456.3	0 / 10.0	20.0	>2.0	-	-	32.0	1424.3		1456.3	1446.3	1426.3	NA	
PZ04D-19 (1A)	938969.66	1170977.32	1456.1	0 / 10.0	26.5	6.8	>16.7	-	60.0	1396.1		1456.1	1446.1	1419.6	1412.8	
PZ05D-19	939206.77	1170882.92	1451.5	0 / 9.5	18.7	16.8	17.0	>8.0	70.0	1381.5		1451.5	1442.0	1423.3	1406.5	1389.5
PZ05S-19	939208.43	1170888.68	1451.6	0 / 9.5	18.7	>0.8	-	-	29.0	1422.6		1451.6	1442.1	1423.4	NA	
PZMWSE3D-19 (1A)	938989.99	1170673.87	1457.2	8.5 / 3	30.2	7.3	4	>7	60.0	1397.2	8.5 ft Ablation Till	1457.2	1445.7	1415.5	1408.2	1404.2
PZBA2D-19 (1A)	938973.68	1171294.18	1453.3	0 / 19	19.0	13 (includes 4.7 ft S&G interbed)	9	>4	64.0	1389.3		1453.3	1434.3	1415.3	1402.3	1393.3
PZSB11-19 (1A)	938995.97	1171525.62	1455.4	0 / 19	17.0	25 (includes 11.5 ft of S&G interbed)	>9		70.0	1385.4		1455.4	1436.4	1419.4	1394.4	
Monitoring Wells														1407.9		
MWSE-1	939377.66	1171481.00	1449.7	0 / 10.0	13.8	>2.2	-	-	26.0	1423.7		1449.7	1439.7	1425.9	NA	
MWSE-2	939038.17	1171136.68	1449.9	0 / 4.0	17.0	>5.5	-	-	26.0	1423.9		1449.9	1445.9	1428.9	NA	
MWSE-3	938987.29	1170663.09	1457.2	5.8 / 2.2	>22	-	-	-	30.0	1427.2	5.8 ft Ablation Till	1457.2	1449.2	NA	NA	
MWSE-4	939171.90	1170296.20	1448.6	0 / 0	>20.5	-	-	-	20.5	1428.1		NP	1448.6	NA	NA	
Pre-2019 Borings, Piezometers, and Monitoring Wells (2)																
MW-A(I)	939996.52	1169702.43	1461.6	0 / 14.0	22.5	>1.5	-	-	38.0	1423.6		1461.6	1447.6	1425.1	NA	
SB6-03	939976.51	1169910.24	1455.6	0 / 11.2	>0.8	-	-	-	12.0	1443.6		1455.6	1444.4	NA	NA	
MA-2	939480.83	1169780.91	1454.5	0 / 0	21.5	>2.0	-	-	30.0	1431.0	Pre-graded surface elevation at 1461.0 for leachate tank construction - Upper Silty Clay and Upper S, S&G thickness adjusted	NP	1454.5	1433.0	NA	
MA-3	939556.80	1170261.71	1458.0	0 / 16.2	>7.3		-	-	35.0	1434.5	Pre-pond construction surface elevation at 1469.5 - Upper Silty Clay thickness adjusted	1458.0	1441.8	NA	NA	
MW-3R2	939800.56	1171447.29	1498.0	0 / >57.5	-	-	-	-	57.5	1440.5		1498.0	NP	NA	NA	
MW-R4A(1)	939812.35	1170811.34	1487.8	10 / 36.5	>24.5	-	-	-	55.0	1423.0	Post construction current grade increased to 1487.8 from 1478.0	1478.0	1441.5	NA	NA	
MW-K(D)(1)	939852.20	1170232.26	1472.6	0 / 22.7	27.0	9.0	10.5	>3.5 Till	96.0	1400.5	Post construction current grade decreased to 1472.6 from 1496.5 - Upper Silty Clay thickness adjusted	1472.6	1449.9	1422.9	1413.9	1404.0
MW-R1A(1)	939822.16	1171899.47	1500.6	15 / 42.2	>11.8	-	-	-	54.0	1431.0	Post construction current grade increased to 1500.6 from 1478.0	1485.0	1442.8	NA		
MW-J(I)	940869.69	1170259.77	1552 estimate	0 / 34	30	11	>11	-	86.0	1376.2	Pre-construction boring elevation. Active landfill area top elevation estimate	1462.2	1428.2	1398.2	1387.2	
SB6-08	939308.23	1170614.27	1455.2	0 / 9.0	>2.4	-			26.0	1443.8	Pre-mining surface elevation at 1469.8 - Upper Silty Clay thickness adjusted	1455.2	1446.2	NA		
SB7-08	939495.36	1171041.48	1463.7	0 / 16.5	>3.7	-	-	-	48.0	1442.9	Pre-mining surface elevation at 1490.9 - Upper Silty Clay thickness adjusted	1463.7	1447.2	NA		
SB8-08	939464.91	1171662.65	1466.7	0 / 26.0	>4.0	-	-	-	30.0	1436.7	No surface elevation change	1466.7	1440.7	NA		
SB9-08	939087.59	1171166.69	1450.3	0 / 9.1	>12.9	-	-	-	43.3	1428.3	Pre-mining surface elevation at 1471.6 - Upper Silty Clay thickness adjusted	1450.3	1441.2	NA		
P3-03	938677.00	1169929.00	1449.1	0 / 0	>20	-			20.0	1429.1						
MW-50	939528.00	1169485.00	1460.6	0 / 0	22.5	>17.5			40.0	1420.6		NP	1460.6	1438.1		
MWBA-1	938980.00	1171539.30	1456.4	0 / 18.7	9.3	>2.0	-	-	30.0	1426.4		1456.4	1437.7	1428.4		
MWBA-2	938960.83	1171294.50	1454.8	0 / 16.9	>13.1	-	-	-	30.0	1424.8		1454.8	1437.9	NA		
MWBA-3	938954.21	1170987.10	1456.9	0 / 8.0	>11.0	-	-	-	19.0	1437.9		1456.9	1448.9	NA		
SB1-17	939579.42	1171405.42	1475.9	0 / 40.7	>3.3	-	-	-	44.0	1431.9		1475.9	1435.2	NA		
SB2-17	939152.95	1170989.21	1450.1	0 / 8.5	>7.2	-	-	-	15.7	1434.4		1450.1	1441.6	NA		
SB3-17	939165.90	110624.50	1465.5	2.3 / 0	>4.1	-	-	-	6.4	1459.1	Silty sandy reworked soil at ground surface	NP	NP	NA		
SB4-17	938974.30	1170495.70	1455.1	2 / 0	>14	-	-	-	16.0	1439.1	Silty sandy reworked soil at ground surface	NP	1453.1	NA		
SB12-17	939164.38	1170723.15	1458.0	1.1 / 9.6	>3.3	-	-	-	14.0	1444.0		1456.9	1447.3	NA		
SB13-17	939260.93	1170682.16	1459.9	0 / 15.7	>2.3	-	-	-	18.0	1441.9		1459.9	1444.2	NA		

Notes:

(1) Surface elevation from Wendel May 2, 2019 survey. (1A) Surface elevation from Wendel October 22, 2019 survey. (1B) Location and surface elevation EnSol, Inc. August 8, 2019

(2) Surface elevations provided by MMCE November 28, 2017 unless indicated differently.

(3) Non-Cohesive, silt and sand with 15 to 30+% gravel

Table 2. Summary of Soil Physical and Hydraulic Testing
Hydrogeologic Investigation Report
Chaffee Sanitary Landfill - Area 7/8 Development
Town of Sardinia, New York

SOIL CLASSIFICATION, GRAIN SIZE, ATTERBURG LIMITS AND DENSITY											
Soil Boring or Piezometer ID	**Sample Depth (fbgs)**	**Unit Name**	**USCS Classification/Description**	**% Gravel**	**% Sand**	**% Silt**	**% Clay**	**Plastic Limit %**	**Liquid Limit %**	**Plasticity Index**	**Density (N) Values (Sample Interval)**
Soil Borings (2019)											
SB03-19	38-40	Lower Sitly Clay	CL/ Gray, Lean Clay with Sand	1.5	8.3	50.6	39.6	17.0	27.0	10.0	9 (38-40)
SB04-19	10-13	Upper Silty Sand and Gravel	SM-GM/ Brown Silty Sand and Gravel	37.8	45.0	17.2 (1)		NT	NT	NT	11 (10-12)
SB05-19	6-8	Upper Silty Clay	CL/ Gray Sandy Silt and Clay	1.9	15.2	42.4	40.5	16.0	26.0	10.0	15 (6-8)
SB08-19	4-6	Upper Silty Clay	CL/ Gray Sandy Silt and Clay	1.7	11.4	48.0	38.9	16.0	27.0	11.0	11 (4-6)
SB09-19	6-9	Upper Silty Clay	CL/ Brown Sandy Silt and Clay	6.7	13.7	41.1	38.5	16.0	27.0	11.0	11,12 (6-9)
SB09-19	42-44	Lower Silty Clay	CL-ML/ Gray Clayey Silt	5.8	5.6	67.4	21.2	16.0	22.0	6.0	18 (42-44)
SB12-19	28-37.5	Lower Silty Clay	CL/ Gray Clayey Silt	0.8	7.1	92.1 (1)		19.0	31.0	12.0	16, 24 (28-37.5)
SBPZ01D-19	36-38	Lower Silty Clay	CL/ Gray Clayey Silt	5.6	16.9	48.2	29.3	17.0	25.0	8.0	27 (36-38)
SBPZ01D-19	56-58	Lower Silty Clay	CL-ML/ Gray Clayey Silt	1.4	4.3	63.8	30.5	19.0	26.0	7.0	39* (56-58) * N is from a 3-inch dia spoon
Piezometers (2019)											
PZ05S-19	22.5-24.5	Upper Silty Sand and Gravel	GW/ Gray Sandy Gravel with Silt	63.2	31.1	5.7 (1)		NT	NT	NT	26 (22-24)
PZ05D-19	40-42	Lower Sitly Clay	CL/ Gray, Lean Clay with Sand	3.7	21.4	47.4	27.5	16.0	24.0	8.0	26 (40-42)
PZ05D-19	62.5-68	Deeper Silt Clay Till	CL/ Gray Silt with trace fine Sand	0.0	4.4	92.0	3.9	NT	NT	NT	30, 42 (64-68)
PZSB11-19	36-44	Lower Silty Clay	CL/ Gray Clayey Silt	2.2	21.6	76.2 (1)		17.0	25.0	8.0	19, 33, 14 (36-44)
PZBA2D-19	34-43.5	Lower Silty Clay	CL/ Gray Silty Clay	4.6	8.6	28.8	58.0	20.0	31.0	11.0	15, 28 (34-43.5)
PZBA2D-19	44-48	Lower Sand and Gravel	SM-GM/Gray Silty Sand and Gravel	43.5	41.7	14.8 (1)		NT	NT	NT	26, 61 (44-48)
PZBA2D-19	52-58	Lower Sand and Gravel	SM-GM/Gray Silty Sand and Gravel	51.7	39.9	8.4 (1)		NT	NT	NT	51,48,74 (52-58)
PZMWSE3D-19	41.7-46	Lower Silty Clay	CL-ML/ Gray Silt and Clay	1.3	8.4	50.0	43.3	18.0	25.0	7.0	19 (41.7-46)
PZMWSE3D-19	49-53	Lower Sand and Gravel	SM/Gray Silty Sand and Gravel	34.6	51.1	14.3 (1)		NT	NT	NT	51,29 (49-53)
PZMWSE3D-19	58-60	Deeper Silt Clay Till	CL-ML/ Gray Silt and Clay	0.8	6.7	54.3	38.2	18.0	25.0	7.0	57 (58-60)
PZ04D-19	36.5-42	Lower Silty Clay	CL/ Gray Clayey Silt	4.6	16.0	33.4	46.0	18.0	27.0	9.0	28, 21 (36.5-42)
PZ04D-19	43.3-60	Lower Sand and Gravel	SW-SP/Gray Silty Sand and Gravel	23.8	63.0	13.2 (1)		NT	NT	NT	27,23,31,37 (43.3-60)
Monitoring Wells (2019)											
MWSE-1	16-26	Upper Silty Sand and Gravel	SM-GM/ Brown Silty Sand and Gravel	46.9	36.8	14.3 (1)		NT	NT	NT	26, 24, 36, 28, 30 (16-26)
MWSE-2	16-24	Upper Silty Sand and Gravel	SW-SM-GM/ Brown Silty Sand and Gravel	45.2	37.0	17.8 (1)		NT	NT	NT	31, 29, 24, 20 (16-24)
MWSE-3	18-28	Upper Silty Sand and Gravel	SM-GM/ Stratified Brown Silty Sand and Gravel	46.1	35.9	18 (1)		NT	NT	NT	7, 7, 7, 14, 18 (18-28)
MWSE-4	8-18	Upper Silty Sand and Gravel	SW-SM-GM/ Brown Silty Sand and Gravel	48.7	36.2	15.1 (1)		NT	NT	NT	5, 12, 5, 10, 29 (8-18)
Test Pits (2019)											
TP01-19	4.5	Upper Silty Clay	CL/ Brown Sandy Silt and Clay	5.4	10.7	34.5	49.4	NT	NT	NT	NA
TP02-19	5-7	Ablation Till	SM/ Non-stratified Brown Silty Sand with Gravel	39.6	45.2	12.1	3.1	NT	NT	NT	NA
TP03-19	3.5-5	Ablation Till	SM/ Non-stratified Brown Silty Sand with Gravel	33.6	50.2	13.3	2.9	NT	NT	NT	NA
TP03-19	11-11.5	Upper Silty Sand and Gravel	GW/ Gray Sandy Gravel with Silt	57.2	28.0	4.1	3.8	NT	NT	NT	NA

Table 2. Summary of Soil Physical and Hydraulic Testing
Hydrogeologic Investigation Report
Chaffee Sanitary Landfill - Area 7/8 Development
Town of Sardinia, New York

SOIL PERMEABILITY (LABORATORY IN-SITU OR REMOLDED)

Location	Depth (fbgs)	Unit	% Moisture	Wet/Dry Density (pcf) (Field)	Type	Average Permeability (cm/s)
SB03-19	5-7	Upper Silty Clay	19.3	132.4 / 111.0	In-situ	3.0x10-8
SB05-19	4-6	Upper Silty Clay	15.5	137.5/ 119.1	In-situ	8.0x10-8
SB08-19	4-6	Upper Silty Clay	14.0	140.2 / 123.0	In-situ	4.7x10-8
SB09-19	4-6	Upper Silty Clay	17.4	136.0 / 115.8	In-situ	3.7x10-8
TP01-19	4.5	Upper Silty Clay	18.5	125.2 / 105.7	In-situ	3.2x10-8
TP02-19	7.0	Ablation Till	15.8	125.6 / 108.5	In-situ	4.1x10-7
TP03-19	3.5-5	Ablation Till	9.0	118.4 / 108.6	Re-molded	8.9x10-6
TP03-19	8.5	Ablation Till	11.7	116.2 / 104.0	In-situ	1.2x10-3 (2)
SBPZB01D-19	38-38.5	Lower Silty Clay	11.0	140.7 / 126.8	In-situ	2.7x10-8
PZBA2D-19	36-38	Lower Silty Clay	24.3	129.8 / 104.4	In-situ	2.5x10-8
PZMWSE3D-19	44-46	Lower Silty Clay	18.4	144.3 / 121.8	In-situ	4.4x10-8
PZ04D-19	38 40	Lower Silty Clay	16.2	132.9 / 114.3	In-situ	4.2x10-8

SOIL PERMEABILITY (SATURATED SOIL SLUG TEST)

Well I.D.	Screened Depth (fbgs)	Unit	Screened Interval Elevation (famsl)	Slug In (Hydraulic Conductivity (cm/s)	Slug Out (Hydraulic Conductivity (cm/s)	Average Hydraulic Conductivity (cm/s)
MWSE-1	15-25	Upper Silty Sand and Gravel	1434.7-1424.7	3.62E-04	1.09E-04	2.0E-04
MWSE-2	15-25	Upper Silty Sand and Gravel	1434.9-1429.9	NA	7.05E-04	7.05E-04
MWSE-3	18-28	Upper Silty Sand and Gravel	1439.2-1429.2	4.12E-04	3.11E-04	3.58E-04
MWSE-4	10-20	Upper Silty Sand and Gravel	1438.6-1428.6	1.35E-04	NA	1.35E-04
PZ01-19	15-25	Upper Silty Sand and Gravel	1438.7-1428.7	1.46E-03	NA	1.46E-03
PZ02-19	18-28	Upper Silty Sand and Gravel	1439.2-1429.2	9.98E-04	NA	9.98E-04
PZ03-19	18-28	Upper Silty Sand and Gravel	1439.4-1429.4	7.89E-04	NA	7.89E-04
PZ04-19	18-28	Upper Silty Sand and Gravel	1438.3-1428.3	1.85E-04	NA	1.85E-04
PZ05S-19	18-28	Upper Silty Sand and Gravel	1433.3-1423.3	5.59E-04	NA	5.59E-04
PZ05D-19	52.5-62.5	Lower Silty Sand and Gravel	1399.0-1389.0	NA	1.09E-02	1.09E-02
PZBA2D-19	50-60	Lower Silty Sand and Gravel	1403.3-1393.3	1.95E-04	9.64E-05	1.37E-04
PZMWSE3D-19	49-54	Lower Silty Sand and Gravel	1408.2-1403.2	3.09E-04	2.95E-04	3.02E-04
PZ04D-19	48-58	Lower Silty Sand and Gravel	1408.1-1398.1	2.67E-04	3.79E-05	1.01E-04

Upper Silty Sand and Gravel
4.53E-04 cm/s Geomean

Lower Silty Sand and Gravel
4.62E-04 cm/s Geomean

SOIL ORGANIC MATTER CONTENT (WALKLEY BLACK Method)

Location	Depth (fbgs)	Unit	Organic Content (mg/kg / Organic Fraction)
TP01-19	4.5	Upper Silty Clay	2970 mg/Kg / 0.0029 g/g
TP02-19	5-7	Ablation Till	2820 mg/Kg / 0.0028 g/g
TP02-19	9.5	Ablation Till	2130 mg/Kg / 0.0021 g/g
TP03-19	3.5-5	Ablation Till	1470 mg/Kg / 0.0014 g/g
TP03-19	11-11.5	Upper Silty Sand and Gravel	<1210 mg/Kg / <0.0012 g/g

USEPA Soil Screening Guidance for compound-specific evaluation of soil attenuation assumes an Foc of 0.002 g/g - Foc values above 0.002 g/g are expected to have above average soil attenuation properties.

Notes:
(1) - Presented as a total fines value.
(2) Low data quality caused by sample angular gravel resting against the wall of the laboratory permeameter after Shelby Tube extrusion. The re-molded sample was recompacted to a similar density as the original shelby tube sample prior to analysis.
The permeability data of the re-compacted sample is considered more representative of Ablation Till sample from TP03-19.
- Grainsize distribution by ASTM D422
- Atterberg Limits Analysis by ASTM D4318
fbgs - feet below ground surface
NT - Not Tested (non-cohesive sample)

Table 3. Well and Piezometer Construction Summary
Hydrogeologic Investigation Report
Chaffee Sanitary Landfill - Area 7/8 Development
Town of Sardinia, New York

Date Installed	Monitoring Well	Coordinates Northing (ft.)	Coordinates Easting (ft.)	Elevation Ground Surface (ft.)	Elevation Steel Casing (ft.)	Elevation PVC Casing (ft.)	APPLICABLE SURVEY NOTE Coord.	APPLICABLE SURVEY NOTE Elev.	Well inside diameter (in.)	Unit Screened	Bottom of PVC Screen Elevation (ft.)	Top of PVC Screen Elevation (ft.)
Closed Landfill Area												
Sep-83	MW-R1A	8062.94	7787.91	1500.6	1502.30	1501.58	1	10	2.0	Upper Silty S&G	1431.0	1433.0
Dec-02	MWR-1BR	8069.78	7784.36	1485.1	1488.16	1487.63	6	6	2.0	Upper Silty Clay	1451.6	1471.1
Jun-02	MW-2R	8838.57	8093.24	1491.3	1493.50	1493.34	3	3	2.0	Upper Silty Clay	1473.3	1478.3
Sep-83	MWR-3	8049.91	7324.69	1493.5	1496.51	1496.02	1	2	2.0	Upper Silty Clay	1479.8	1481.8
Aug-84	MW-R4A	8062.54	6699.62	1487.8	1490.78	1490.53	1	10	2.0	Upper Silty S&G	1423.0	1425.0
Dec-02	MWR-4CR	8011.05	6674.07	1479.1	1482.49	1482.19	6	6	2.0	Upper Silty Clay	1461.4	1468.0
May-86	MW-7R	9946.76	7886.42	1499.40	1500.18	1501.18	1	1	2.0	Upper Silty Clay	1434.5	1439.5
Dec-02	MW-9R	9149.14	8053.21	1487.8	1490.50	1490.13	6	6	2.0	Upper Silty Clay	1428.4	1437.9
Dec-02	MW-10R	9960.37	7343.57	1513.3	1516.41	1516.09	6	6	2.0	Upper Silty S&G	1419.0	1428.4
Dec-02	MW-11R	9958.61	7349.28	1513.9	1516.61	1516.31	6	6	2.0	Upper Silty Clay	1499.9	1504.4
Jan-91	MW-12A	9954.78	6877.74	1491.5	1494.77	1494.63	1	2	2.0	Upper Silty Clay	1404 (approx)	1414 (approx)
Jan-91	MW-12B	9949.84	6877.89	1492.3	1493.91	1493.56	1	2	2.0	Upper Silty Clay	1483 (approx)	1488 (approx)
Dec-02	MW-13R	9121.91	8073.98	1491.3	1494.49	1494.13	6	10	2.0	Upper/Lower Silty S&G	1394.0	1403.5
Nov-96	MW-14R	9927.86	7859.21	1500.70	1502.23	1502.29	1	1	2.0	Upper Silty S&G	1407 (approx)	1417 (approx)
Mar-03	MW-24AR	9662.84	7947.73	1482.1	1484.66	1484.36	6	6	2.0	Upper Silty S&G	1388.6	1398.1
Mar-03	MW-24BR	9684.32	7942.78	1483.1	1485.64	1485.21	6	6	2.0	Upper Silty Clay	1469.1	1473.6
Dec-02	MW-80A	10038.76	7322.11	1504.0	1507.18	1506.91	6	6	2.0	Upper Silty S&G	1411.2	1420.7
Dec-02	MW-80B	10047.52	7321.24	1503.5	1506.85	1506.59	6	6	2.0	Upper Silty Clay	1489.4	1493.9
Dec-02	MW-81	10037.51	6924.92	1495.6	1498.82	1498.34	6	6	2.0	Upper Silty S&G	1404.1	1413.6
Nov-03	MW-82B	6696.65	7864.69	1478.4	1481.43	1481.23	7	7	2.0	Upper Silty Clay	1460.6	1467.6
Western Landfill Area												
May-88	MW-16	9956.26	4807.15	1453.70	1455.90	1455.25	1	1	2.0	Upper Silty S&G	1426.3	1431.3
Apr-01	MW-16(S)	9951.91	4809.40	1453.50	1454.73	1454.41	4	4	2.0	Upper Silty Clay	1440.0	1445.0
May-88	MW-17	9967.69	5951.95	1459.30	1461.68	1461.06	1	1	2.0	Upper Silty S&G	1419.9	1424.9
Nov-03	MW-18BR	5964.00	9966.71	1461.37	1463.48	1463.18	7	7	2.0	Upper Silty Clay	1436.7	1441.7
Jun-88	MW-30	9219.53	4806.32	1471.56	1473.00	1472.87	1	10	2.0	Upper Silty S&G	1427.2	1437.2
Jun-88	MW-32	9219.36	4797.54	1470.25	1472.45	1472.22	1	1	2.0	Upper Silty Clay	1459.4	1464.4
Jun-88	MW-50	7787.36	5371.32	1460.6	1463.87	1463.55	1	2	2.0	Upper Silty S&G	1435.4	1445.4
Apr-01	MW-K(S)	8107.25	6136.58	1471.49	1474.42	1474.12	5	5	2.0	Upper Silty Clay	1455.1	1460.1
Apr-01	MW-K(I)	8106.95	6129.01	1472.55	1474.58	1474.29	5	10	2.0	Upper Silty S&G	1437.2	1447.2
Jun-05	MW-L(S)	9937.06	5216.97	1464.59	1466.71	1466.64	8	8	2.0	Upper Silty Clay	1439.6	1449.6
Jun-05	MW-L(I)	9938.04	5211.36	1464.18	1466.68	1466.61	8	8	2.0	Upper Silty S&G	1424.2	1434.2
Jul-09	MW-M(S)	9949.09	5698.72	1458.81	1461.44	1461.29	8	8	2.0	Upper Silty Clay	1436.8	1446.8
Jul-09	MW-M(I)	9948.24	5692.55	1459.09	1461.41	1461.28	8	8	2.0	Upper Silty S&G	1419.1	1429.1
Jul-09	MW-N(S)	9932.47	6168.01	1474.25	1476.50	1476.39	8	8	2.0	Upper Silty Clay	1449.3	1459.3
Jul-09	MW-N(I)	9932.64	6162.63	1473.95	1476.49	1476.35	8	8	2.0	Upper Silty S&G	1428.5	1438.5
Jun-05	MW-O(S)	9543.19	4803.29	1478.34	1480.72	1480.61	8	8	2.0	Upper Silty Clay	1458.3	1463.3
Jun-05	MW-O(I)	9552.64	4805.03	1478.34	1480.63	1480.52	8	8	2.0	Upper Silty S&G	1426.8	1436.8
Jul-09	MW-P(S)	9940.36	5453.08	1465.59	1468.34	1468.24	8	8	2.0	Upper Silty Clay	1439.6	1449.6
Jul-09	MW-P(I)	9942.01	5447.89	1466.28	1469.03	1468.90	8	8	2.0	Upper Silty S&G	1413.3	1428.3
West Soil Borrow Area												
Nov-09	MWBA-1	938980.00	1171539.30	1455.31	1456.48	1455.99	9	10	2.0	Upper Silty S&G	1425.8	1435.8
Nov-09	MWBA-2	938960.83	1171294.50	1453.63	1454.91	1454.60	9	10	2.0	Upper Silty S&G	1425.1	1435.1
Nov-09	MWBA-3	938954.21	1170987.10	1456.01	1456.95	1456.89	9	10	2.0	Upper Silty S&G	1437.7	1447.7
Southern Expansion Area												
Monitoring Wells:												
Apr-19	MWSE-1	939377.70	1171481.00	1449.70	1452.13	1451.92	10	10	2.0	Upper Silty S&G	1424.7	1434.7
Apr-19	MWSE-2	939038.17	1171136.68	1449.89	1452.44	1452.25	10	10	2.0	Upper Silty S&G	1424.9	1434.9
Apr-19	MWSE-3	938987.29	1170663.09	1457.19	1459.43	1459.29	10	10	2.0	Upper Silty S&G	1429.2	1439.2
Apr-19	MWSE-4	939171.92	1170296.16	1448.58	1450.72	1450.59	10	10	2.0	Upper Silty S&G	1428.1	1438.1
Piezometers:												
Aug-03	PZ03-3	938677.0	1169929.0	1449.1	1451.49	1451.36	10	10	2.0	Upper Silty S&G	1429.1	1439.1
Apr-19	PZ01-19	938641.81	1170448.04	1453.7	NA	1455.38	10	10	2.0	Upper Silty S&G	1428.7	1438.7
Apr-19	PZ02-19	938911.54	1170460.22	1457.2	NA	1458.68	10	10	2.0	Upper Silty S&G	1429.2	1439.2
Apr-19	PZ03-19	939121.11	1170496.19	1457.4	NA	1459.04	10	10	2.0	Upper Silty S&G	1429.4	1439.4
Apr-19	PZ04-19	938964.93	1170982.16	1456.3	NA	1457.79	10	10	2.0	Upper Silty S&G	1428.3	1438.3
Oct-19	PZ04D-19	938969.66	1170977.32	1456.1	NA	1458.20	11	11	2.0	Lower Silty S&G	1398.1	1408.1
Apr-19	PZ05D-19	939206.77	1170882.92	1451.5	NA	1453.89	10	10	4.0	Lower Silty S&G	1393.5	1403.5
Apr-19	PZ05S-19	939208.43	1170888.68	1451.6	NA	1453.95	10	10	4.0	Upper Silty S&G	1423.6	1433.6
Apr-19	PZ09-19	939279.31	1171345.13	1449.3	NA	1451.30	10	10	1.0	Upper Silty Clay	1441.8	1443.8
Oct-19	PZMWSE3D-19	938989.99	1170673.87	1457.2	NA	1459.15	11	11	2.0	Lower Silty S&G	1403.2	1408.2
Oct-19	PZBA2D-19	938973.68	1171294.18	1453.3	NA	1455.09	11	11	2.0	Lower Silty S&G	1393.3	1403.3
Oct-19	PZSB11-19	938995.97	1171525.62	1455.4	NA	1457.72	11	11	1.0	Lower Silty S&G	1385.4	1395.4

NOTES:
1. Locations and elevations based on survey completed by Deborah A. Nabor, PLS, PC dated March 2001.
2. Locations and elevations based on survey completed by Deborah A. Nabor, PLS, PC dated July 2001.
3. Locations and elevations based on survey completed by Deborah A. Nabor, PLS, PC dated April 19, 2002.
4. Locations and elevations based on survey completed by Deborah A. Nabor, PLS, PC dated May 2001.
5. Locations and elevations based on survey completed by Wendel Duchscherer Survey dated December 27, 2007.
6. Locations and elevations based on survey completed by Wendel Duchscherer Survey upon completion of well installations and submitted in "Well Installation Report, Chaffee Landfill," prepared by Golder Associates Inc. and dated October 2, 2003.
7. Locations and elevations based on information supplied on logs prepared by Golder Associates.
8. Locations and elevations based on survey completed by Wendel Duchscherer Survey dated August 25, 2005.
9. Locations and elevations based on survey completed by Wendel Duchscherer Survey dated November 2009.
10. Locations and elevations based on survey completed by Wendel Project No. 403103. Survey dated May 2, 2019.
11. Locations and elevations based on survey completed by Wendel Project No. 403103. Survey dated October 22, 2019.

Table 4. 2019/2020 Groundwater Elevation Data
Hydrogeologic Investigation Report
Chaffee Sanitary Landfill - Area 7/8 Development
Town of Sardinia, New York

Well ID	TOR Elevation[1]	Apr. 12, 2019	Apr. 19, 2019	Apr. 26, 2019	Apr. 30, 2019	May 3, 2019	May 9, 2019	Jun. 12, 2019 [2]	Jul. 8, 2019	Aug. 19, 2019 [2]	Sep. 17, 2019	Oct. 18, 2019	Nov. 15, 2019	Dec. 9, 2019 [2]	Jan. 10, 2020	Feb. 6, 2020	Mar. 9, 2020	Jun. 1, 2020	Aug. 31, 2020	Nov. 16, 2020	Mar. 8, 2021
		Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation	Elevation
Western Area																					
Upper Silty Clay Till Monitoring Wells:																					
MW-K(S)	1474.12							DRY		<1456.33				DRY			1456.33	DRY	DRY	DRY	DRY
MW-32	1472.22									<1441.28				1468.79			1469.67	1467.07	1462.64	1465.33	1468.15
MW-O(S)	1480.61							DRY		<1457.97				1457.89			1470.30	1465.31	DRY	DRY	1466.61
MW-16(S)	1454.41							1446.42		1446.54				1451.71			1451.96	1448.62	1445.06	1451.84	1451.36
MW-L(S)	1466.64							DRY		<1438.52				1438.91			1439.29	DRY	DRY	DRY	DRY
MW-P(S)	1468.24							1454.28		1453.26				1453.67			1455.26	1454.42	1452.50	1452.73	1453.49
MW-18BR	1463.48							1446.72		1444.43				1445.13			1446.73	1447.06	1444.15	1443.97	1444.76
MW-M(S)	1461.29							1449.95		1449.21				1450.35			1450.72	1450.01	1448.12	1449.03	1450.01
MW-N(S)	1476.39							1461.7		1461.11				1461.94			1462.91	1461.45	1456.43	1462.37	1460.92
MW-Q(S)	1477.55							1443.88		1441.60				1440.69			1443.39	1444.49	DRY	DRY	DRY
Upper Silty Sand and Gravel Monitoring Wells:																					
MW-K(I)	1474.29	Not repaired yet	Not repaired yet	DRY	<1439.89	<1439.89	<1439.89	<1439.89	<1439.89	<1439.89	1436.84	<1439.89	<1439.89	<1439.90	<1439.90	1437.89	1438.50	1438.65	1437.12	DRY	DRY
MW-50	1463.55	1438.80	1439.05	1438.95		1438.84	1438.85	1438.05	1438.15	1437.66	1437.60	1437.60	1437.75	1437.87	1438.15	1438.37	1439.01	1438.76	1437.56	1437.66	1437.89
MW-30	1472.87	1438.17	1438.09	1438.55		1438.17	1438.25	1437.80	1437.47	1436.65	1436.30	1435.97	1436.10	1436.42	1436.85	1437.48	1437.82	1438.03	1436.60	1435.62	1436.34
MW-O(I)	1480.52							1437.82		1436.63	1436.27			1436.39			1437.82	1437.99	1436.62	1435.60	1436.27
MW-16	1455.25							1437.04		1436.89				1435.67			1437.13	1437.27	1435.74	1434.82	1435.53
MW-L(I)	1466.61							1437.70		1436.49				1436.35			1437.77	1437.97	1436.38	1435.38	1436.11
MW-P(I)	1468.90							1437.96		1436.48				1435.83			1437.84	1438.13	1436.18	1435.02	1435.71
MW-17	1461.06							1437.32		1435.71				1434.74			1437.08	1437.49	1435.35	1433.91	1434.69
MW-M(I)	1461.28							1438.05		1436.47				1435.50			1437.79	1438.20	1436.04	1434.67	1435.44
MW-N(I)	1476.35							1437.99		1436.36				1435.39			1437.73	1438.14	1436.00	1434.57	1435.29
MW-Q(I)	1478.61							NA		1436.33				1435.30			1437.65	1438.11	1435.93	1434.49	1435.21
Closed Landfill																					
Upper Silty Clay Till Monitoring Wells:																					
MW-2R	1493.40							1488.14		1486.32				1486.49			1487.79	1488.22	1486.16	1484.93	1486.80
MW-3R	1499.93							DRY		DRY				DRY			<1479.22	DRY	DRY	DRY	DRY
MW-R1BR	1505.20							1490.45		1470.87				1490.65			1496.89	1493.70	1472.02	1467.31	1494.25
MW-82B	1481.43							1473.85		1472.94				1472.57			1473.42	1474.08	1473.05	1471.70	1472.77
MW-R4CR	1489.19							1480.96		1481.22				1482.04			1482.22	1481.16	1480.61	1481.59	1481.69
MW-24BR	1485.21							1480.62		1479.80				1481.19			1481.37	1480.86	1478.64	1481.12	1480.77
MW-7R	1501.18							1450.19		1449.06				1448.13			1449.24	1450.25	1448.70	1447.68	1447.39
MW-11R	1516.31							1506.79		1503.93				1509.21			1509.52	1502.81	1506.09	1508.91	1508.90
MW-80B	1506.59							1499.61		1499.94				1502.47			1502.60	1500.06	1498.13	1502.42	1502.19
MW-12B	1493.56							1485.77		1485.77				1487.46			1488.28	1486.36	1485.48	1488.58	1487.56
Upper Silty Sand and Gravel Monitoring Wells:																					
MW-R4A	1490.53	1438.42	1438.48	1438.69		1438.39	1438.33	1438.00	1437.71	1436.67	1436.28	1435.85	1436.13	1436.27	1436.71	1437.54	1438.31	1438.13	1436.49	1435.61	1436.21
MW-R1A	1501.58	1438.69	1438.84	1438.97		1438.64	1438.67	1438.11	1437.72	1436.42	1434.98	1435.48	1435.56	1435.82	1436.48	1437.51	1438.19	1437.45	1434.94	1434.88	1435.73
MW-9R	1490.13							1455.38		1454.72				1455.05			1455.27	1455.49	1454.68	1454.49	1454.52
MW-13R	1494.13	1439.19	1439.29	1439.55		1439.09	1439.14	1438.48	1437.94	1436.48	1435.79	1435.15	1435.18	1435.51	1436.19	1437.68	1438.24	1438.67	1435.95	1434.44	1435.41
MW-24AR	1484.36							1438.40		1436.47				1435.39			1438.03	1438.62	1435.91	1434.40	1435.27
MW-14R	1502.26							1438.21		1436.21				1435.10			1437.37	1438.19	1435.49	1440.16	1434.86
MW-10R	1516.09							1437.80		1436.07				1434.99			1437.28	1437.88	1435.51	1434.14	1434.75
MW-80A	1506.91							1437.89		1436.17				1435.09			1437.36	1438.00	1435.61	1434.12	1434.86
MW-81	1498.34							1437.84		1436.14				1435.09			1437.41	1437.97	1435.65	1434.13	1434.89
MW-12A	1494.63							1437.87		1436.17				1435.18			1437.40	1437.99	1435.68	1434.19	1434.95

Table 4. 2019/2020 Groundwater Elevation Data
Hydrogeologic Investigation Report
Chaffee Sanitary Landfill - Area 7/8 Development
Town of Sardinia, New York

Well ID	TOR Elevation[1]	Apr. 12, 2019 Elevation	Apr. 19, 2019 Elevation	Apr. 26, 2019 Elevation	Apr. 30, 2019 Elevation	May 3, 2019 Elevation	May 9, 2019 Elevation	Jun. 12, 2019 [2] Elevation	Jul. 8, 2019 Elevation	Aug. 19, 2019 [2] Elevation	Sep. 17, 2019 Elevation	Oct. 18, 2019 Elevation	Nov. 15, 2019 Elevation	Dec. 9, 2019 [2] Elevation	Jan. 10, 2020 Elevation	Feb. 6, 2020 Elevation	Mar. 9, 2020 Elevation	Jun. 1, 2020 Elevation	Aug. 31, 2020 Elevation	Nov. 16, 2020 Elevation	Mar. 8, 2021 Elevation
Areas 7/8 Development																					
Upper Silty Sand and Gravel Monitoring Wells:																					
MWBA-1	1455.99	1438.37	1438.63	1438.61	1438.34	1438.42	1438.39	1437.79	1437.57	1436.55	1436.29	1435.79	1436.05	1436.20	1436.99	1437.57	1438.38	1438.15	1436.19	1435.52	1436.22
MWBA-2	1454.60	1438.19	1438.45	1438.45	1438.20	1438.28	1438.25	1437.68	1437.51	1436.62	1436.32	1435.88	1436.14	1436.26	1437.07	1437.50	1438.42	1438.05	1436.32	1435.66	1436.34
MWBA-3	1456.89		1438.41	1438.46	1438.23	1438.24	1438.28	1437.74	1437.57	<1436.39	<1436.39	<1436.39	<1436.39	<1436.39	<1436.39	1437.59	1438.53	1438.14	DRY	DRY	Dry
P3-03	1451.36	1438.31	1438.84	1438.69	1438.55	1438.54	1438.53	1437.86	1437.86	1437.15	1437.50	1436.76	1437.32	1437.82	1438.86	1438.84	1439.74	1438.54	1437.26	1437.06	1437.71
PZ01-19	1455.38	1437.77	1438.28	1438.17	1438.00	1438.00	1438.01	1437.36	1437.19	1436.54	1436.89	1436.38	1436.95	1437.21	1438.05	1437.97	1438.93				
PZ02-19	1458.68	1438.05	1438.63	1438.56	1438.35	1438.37	1438.38	1437.60	1437.70	1436.83	1437.29	1436.54	1437.18	1437.52	1438.43	1438.43	1439.53	1438.45	1437.08	1436.94	1437.43
PZ03-19	1459.04	1438.32	1438.52	1438.64	1438.39	1438.44	1438.44	1437.87	1437.74	1436.82	1436.71	1436.23	1436.63	1436.79	1437.59	1437.94	1438.86				
PZ04-19	1457.79	1438.19	1438.39	1438.46	1438.01	1438.23	1438.27	1437.74	1437.56	1436.62	1436.38	1435.96	1436.26	1436.36	1437.16	1437.56	1438.49				1436.41
PZ05S-19	1453.95	Not installed	1438.40	1438.52	1438.26	1438.30	1438.30	1437.91	1437.65	1436.64	1436.40	1435.95	1436.26	1436.38	1437.15	1437.60	1438.48	1438.22	1436.55	1435.80	1436.38
PZ05D-19	1453.89	Not installed	1434.89	1435.49	1435.41	1435.42	1435.34	1434.96	1434.49	1433.29	1432.66	1432.16	1432.42	1453.89	1453.89	1453.89		1453.89	1453.89		1453.89
PZ09-19 (perched in Till)	1451.30	Not installed	Not installed	<1443.80	<1443.80	<1443.80	<1443.80	<1443.80	No Reading	No Reading	No Reading	1444.98	1445.70	1446.08	1446.25	1446.90	1446.47				
MWSE-1	1451.92	Not installed	Not installed	1438.77	1438.42	1438.52	1438.54	1437.97	1437.67	1436.56	1436.15	1435.64	1435.82	1435.97	1436.77	1437.52	1438.27	1438.30	1436.20	1435.27	1436.00
MWSE-2	1452.25	Not installed	Not installed	1438.51	1438.24	1438.28	1438.31	1437.78	1437.59	1436.63	1436.36	1435.92	1436.21	1436.35	1437.12	1437.56	1438.47	1438.15	1436.37	1435.72	1436.36
MWSE-3	1459.29	Not installed	Not installed	1438.44	1438.21	1438.17	1438.24	1437.62	1437.56	1436.73	1436.70	1436.21	1436.69	1436.87	1437.70	1437.88	1438.85	1438.20	1436.74	1436.35	1436.91
MWSE-4	1450.59	Not installed	Not installed	1439.25	1439.24	1439.40	1439.23	1438.36	1438.44	1438.71	1439.59	1437.64	1438.29	1439.52	1440.79	1441.69	1443.11	1440.09	1437.91	1438.27	1440.61
Lower Water-Bearing Zone:																					
PZSB11D-19	1457.72											1433.87	1434.39	1434.39	1435.60	1436.66	1437.56				1434.56
PZBA2D-19	1455.09											1432.58	1432.71	1432.95	1434.27	1435.01	1435.89				1433.24
PZMWSE3D-19	1459.15											1431.99	1432.25	1432.31	1433.73	1434.54	1435.36				
PZ04D-19	1458.20											1432.10	1432.12	1432.43	1433.80	1434.59	1435.46				1432.78
PZ05D-19	1453.89		1434.89	1435.49	1435.41	1435.42	1435.34	1434.96	1434.49	1433.29	1432.66	1432.16	1432.42	1432.67	1433.89	1434.66	1435.53				1432.83
Surface Water:																					
SH-2	1436.62	1437.20				1437.32	1437.12	1437.24	1437.22	1437.52	1437.30	1437.27	1437.42	1437.38	-	-	1437.54				
SH-3	1426.24	1427.44				1427.80	1427.82	1427.14	1427.06	1426.74	1427.14	1427.24	1427.14	1427.32	-	-	--				
SH-6	1440.69	1441.19				1441.26	1441.09	1440.93	1441.01	1441.34	1441.37	1441.41	1441.20	1441.30	-	-	1441.47				

Notes:
Blank Cell - Data not recorded.
Staff gauge reference elevations from 0-mark on gauge. Measurement is feet above 0 mark elevation.
[1] TOR (top of riser for monitoring wells) measured in feet; distance above sea level.
[2] Data from quarterly monitoring event.

Table 5A. Groundwater Analytical Summary - Expanded and Baseline Events
Hydrogeologic Investigation Report
Chaffee Sanitary Landfill - Southern Expansion
Chaffee, New York

PARAMETER	UNITS	Water Quality Comparison Criteria[1]	MWSE-1				MWSE-2				MWSE-3				MWSE-4			
			7/19/2019 (Expanded Event)		9/19/2019 (Baseline Event)		7/19/2019 (Expanded Event)		9/19/2019 (Baseline Event)		7/19/2019 (Expanded Event)		9/19/2019 (Baseline Event)		7/19/2019 (Expanded Event)		9/19/2019 (Baseline Event)	
Volatile Organic Compounds (by EPA Method 8260)	µg/L		ND		ND		ND		ND		ND		ND		ND		ND	
Semi-Volatile Organic Compounds (by EPA Method 8270D SIM)	µg/L		ND		NA		ND		NA		ND		NA		ND		NA	
Polychlorinated Biphenyls (PCBs) (by EPA Method 8082A)	µg/L		ND		NA		ND		NA		ND		NA		ND		NA	
Herbicides & Pesticides (by EPA Method 8015A/8081B)	µg/L		ND		NA		ND		NA		ND		NA		ND		NA	
Fluorinated Alkyl Substances (by EPA Method 537 Mod)																		
Perfluorobutanesulfonic acid (PFBS)	ng/L		1.9	U	1.9	U	1.8	U	1.9	U	2	U	1.8	U	4.7		4.8	
Perfluorobutanoic acid (PFBA)	ng/L		2.5		1.9	U	1.8	U	1.9	U	2	U	1.8	U	16		15	
Perfluoroheptanoic acid (PFHpA)	ng/L		1.9	U	1.9	U	1.8	U	1.9	U	2	U	1.8	U	7.3		5.8	
Perfluorohexanoic acid (PFHxA)	ng/L		1.9	U	1.9	U	1.8	U	1.9	U	2	U	1.8	U	23		21	
Perfluorooctanesulfonic acid (PFOS)	ng/L	*	1.9	U	1.9	U	1.8	U	1.9	U	2	U	1.8	U	2.1		2.6	
Perfluorooctanoic acid (PFOA)	ng/L	*	1.9	U	1.9	U	1.8	U	1.9	U	2	U	1.8	U	11		9	
Perfluoropentanoic acid (PFPeA)	ng/L		1.9	U	1.9	U	1.8	U	1.9	U	2	U	1.8	U	19		15	
General Chemistry Parameters (by various EPA standard methods)																		
Alkalinity, Total	mg/L		192		237		186		216		25.9		21.6		139		146	
Ammonia as N	mg/L-N	2	0.02	U	0.05	UJ	0.02	U	0.05	U	0.02	U	0.05	U	0.02	U	0.05	U
Biochemical Oxygen Demand	mg/L		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Chemical Oxygen Demand	mg/L		5	U	5	U	5	U	5	U	5	U	5	U	6.3		6.9	
Chromium, Hexavalent	mg/L	0.05	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Color	C.U.		10		0.01	U	10		0.01	U	40		0.01	U	5		5	
Cyanide, Total	mg/L	0.1	0.01	U	0.01	U	0.01	U	0.01	UJ	0.01	U	0.01	U	0.01	U	0.01	U
Hardness, Total	mg/L		362		368		420		432		43.1		44		225		252	
Nitrogen, Nitrate	mg/L-N	10	0.05	U	0.11		0.058		0.081		2.4		2.3		0.05	U	0.05	U
Total Recoverable Phenolics	mg/L	0.001	0.005	U	0.0088	UJ	0.005	U	0.008	UJ	0.005	U	0.0094	UJ	0.005	U	0.008	UJ
Total Dissolved Solids	mg/L	500	480		430		587		617		57		54		441		336	
Total Kjeldahl Nitrogen	mg/L-N		0.15	U	0.6		0.22		1.3		0.23		1.1		0.15	U	0.15	U
Total Organic Carbon	mg/L		1.4		1	U	1.5		1	U	1	U	1	U	2		1.4	
Metals, Total (by EPA Method 6010C/7470A)																		
Aluminum	mg/L	0.1	0.2	U	0.2	U	1.4		0.2	U	2.8		0.74		0.2	U	0.2	U
Antimony	mg/L		0.02	U	0.015	U	0.02	U	0.015	U	0.02	U	0.015	U	0.02	U	0.015	U
Arsenic	mg/L	0.025	0.015	U	0.01	U	0.015	U	0.01	U	0.015	U	0.01	U	0.015	U	0.01	U
Barium	mg/L	1	0.1		0.2	U	0.12		0.2	U	0.061		0.2	U	0.055		0.2	U
Beryllium	mg/L		0.002	U	0.003	U	0.002	U	0.003	U	0.002	U	0.003	U	0.002	U	0.003	U
Boron	mg/L	1	0.023		0.03		0.046		0.045		0.02	U	0.02	U	0.052		0.066	
Cadmium	mg/L	0.005	0.002	U	0.005	U	0.002	U	0.005	U	0.002	U	0.005	U	0.002	U	0.005	U
Calcium	mg/L		102		105		122		133		12.3		12.9		69.9		79.8	
Chromium	mg/L	0.05	0.004	U	0.01	U	0.004	U	0.01	U	0.004	U	0.01	U	0.004	U	0.01	U
Cobalt	mg/L	0.005	0.004	U	0.05	U	0.004	U	0.05	U	0.004	U	0.05	U	0.004	U	0.05	U
Copper	mg/L	0.2	0.01	U	0.025	U	0.01	U	0.025	U	0.01	U	0.025	U	0.01	U	0.025	U
Iron	mg/L	0.3	0.061		0.1	U	2.5		0.1	U	4		0.95		0.32		0.34	
Lead	mg/L	0.025	0.01	U	0.003	U	0.01	U	0.003	U	0.01	U	0.003	U	0.01	U	0.003	U
Magnesium	mg/L	35	26.4		26.8		27.8		28.7		3		5	U	12.3		14	
Manganese	mg/L	0.3	0.059		0.036		0.3		0.056		0.2		0.052		0.13		0.22	
Mercury	mg/L	0.002	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
Nickel	mg/L		0.01	U	0.04	U	0.01	U	0.04	U	0.01	U	0.04	U	0.01	U	0.04	U
Potassium	mg/L		1.2		5	U	4.6		5	U	1.8		5	U	1.8		5	U
Selenium	mg/L	0.01	0.025	U	0.005	U	0.025	U	0.005	U	0.025	U	0.005	U	0.025	U	0.005	U
Silver	mg/L	0.05	0.006	U	0.01	U	0.006	U	0.01	U	0.006	U	0.01	U	0.006	U	0.01	U
Sodium	mg/L	20	4.4		5		12.7		10.6		1.3		5	U	14		14.7	
Thallium	mg/L		0.02	U	0.01	U	0.02	U	0.01	U	0.02	U	0.01	U	0.02	U	0.01	U
Tin	mg/L		0.01	U	NA		0.01	U	NA		0.01	U	NA		0.01	U	NA	
Vanadium	mg/L		0.005	U	0.05	U	0.005	U	0.05	U	0.005		0.05	U	0.005	U	0.05	U
Zinc	mg/L	0.3	0.01	U	0.02	U	0.017		0.02	U	0.041		0.02	U	0.01	U	0.02	U
Anions (by EPA Method 300.0)																		
Bromide	mg/L	2	0.4	U	1	U	1	U	1	U	0.2	U	0.2	U	0.4	U	0.4	U
Anions (by EPA Method 4110B)																		
Chloride	mg/L	250	8.5		7.9		14.1		16.1		1	U	0.96		22		20	
Sulfate	mg/L	250	136		125		217		229		14.5	UJ	14.2		97.1		120	
Radiological (by EPA Method 903/904 and 908)																		
Radium-226	pCi/L	5**	0.137	U	NA		0.153	U	NA		0.101	U	NA		0.181	U	NA	
Radium-228	pCi/L	5**	0.724	U	NA		0.766	U	NA		0.605	U	NA		0.922	U	NA	
Uranium	pCi/L	30**	0.116		NA		0.235		NA		0.0765		NA		0.175		NA	
Field Data																		
pH, Field	SU		7.23		7.34		7.45		7.37		5.98		6.18		7.52		6.84	
Field EH/ORP	millivolts		79		135		111		99		288		174		70		67	
Specific Conductance, Field	umhos/cm		692		25830		832		1408		104		105		516		570	
Temperature, Field (°C)	°C		11.9		13.1		13.2		12.4		13		16.6		16.2		16	
Turbidity, Field	TEXT	5	6.8		1.9		30.9		1.8		29.2		11.8		6.9		2.7	

Notes:
(1) Water Quality Comparison Criteria - TOGS 1.1.1 * No MCL promulgated; NYSDEC DER further assessment requred if PFOA/PFOS is >10 ng/L ** EPA MCL, Radium is a combined concentration of -226/-228
Shaded value indicates concentration is above NYSDEC Class GA Standard
ND = Not detected.
NA = Not analyzed for this parameter.
U = Not detected; value reported is the laboratory reporting limit.
J = Result is qualified as estimated because MS/MSD recoveries were outside of acceptance limits.

Table 5B. Groundwater Analytical Summary - Fluorinated Alkyl Substances Only
Hydrogeologic Investigation Report
Chaffee Sanitary Landfill - Area 7/8 Development
Town of Sardinia, New York

PARAMETER	UNITS	Water Quality Comparison Criteria[1]	MWSE-3						MWSE-4						Basin #1		HBSW-1 (Hosmer Brook)				DS-HBSW-1 (Hosmer Brook)		US-HBSW-1 (Hosmer Brook)	
			7/19/2019 (Expanded Event)		9/19/2019 (Baseline Event)		2/6/2020 (PFAS Only Event)		7/19/2019 (Expanded Event)		9/19/2019 (Baseline Event)		2/6/2020 (PFAS Only Event)		2/6/2020 (PFAS Only Event)		2/6/2020 (PFAS Only Event)		2/26/2020 (PFAS Only Event)		2/26/2020 (PFAS Only Event)		2/26/2020 (PFAS Only Event)	
Fluorinated Alkyl Substances (by EPA Method 537 Mod)																								
Perfluorobutanesulfonic acid (PFBS)	ng/L		2	U	1.8	U	1.8	U	4.7		4.8		5.7		5.3		1.8	U	1.6	U	1.6	U	1.7	U
Perfluorobutanoic acid (PFBA)	ng/L		2	U	1.8	U	1.8	U	16		15		19		14		3.8		3.4		4.1		1.7	U
Perfluoroheptanoic acid (PFHpA)	ng/L		2	U	1.8	U	1.8	U	7.3		5.8		10		5.4		1.8	U	1.6	U	1.7		1.7	U
Perfluorohexanesulfonic acid (PFHxS)	ng/L		2	U	1.8	U	1.8	U	1.8	U	1.8	U	1.9		1.9	U	1.8	U	1.6	U	1.6	U	1.7	U
Perfluorohexanoic acid (PFHxA)	ng/L		2	U	1.8	U	1.8	U	23		21		43		42		6.9		7.4		10		1.7	U
Perfluorononanoic acid (PFNA)	ng/L		2	U	1.8	U	1.8	U	1.8	U	1.8	U	2.6		1.9	U	1.8	U	1.6	U	1.6	U	1.7	U
Perfluorooctanesulfonic acid (PFOS)	ng/L	*	2	U	1.8	U	1.8	U	2.1		2.6		3.8		13		1.8	U	1.6	U	3.6		1.7	U
Perfluorooctanoic acid (PFOA)	ng/L	*	2	U	1.8	U	1.8	U	11		9		26		14		2.9		2.9		4.7		1.7	U
Perfluoropentanoic acid (PFPeA)	ng/L		2	U	1.8	U	1.8	U	19		15		27		17		3.3		3.6		4.4		1.7	U

Notes:
(1) Water Quality Comparison Criteria - * NYSDOH adopted MCL drinking water standard for PFOA and PFOS for public water systems at 10 ng/L
Shaded value indicates concentration is above NYSDEC Class GA Standard
ND = Not detected.
NA = Not analyzed for this parameter.
U = Not detected; value reported is the laboratory reporting limit.
J = Result is qualified as estimated because MS/MSD recoveries were outside of acceptance limits.

Table 6. Surface Water Field Chemistry and Flow Rate Summary
Hydrogeologic Investigation Report
Chaffee Sanitary Landfill - Area 7/8 Development
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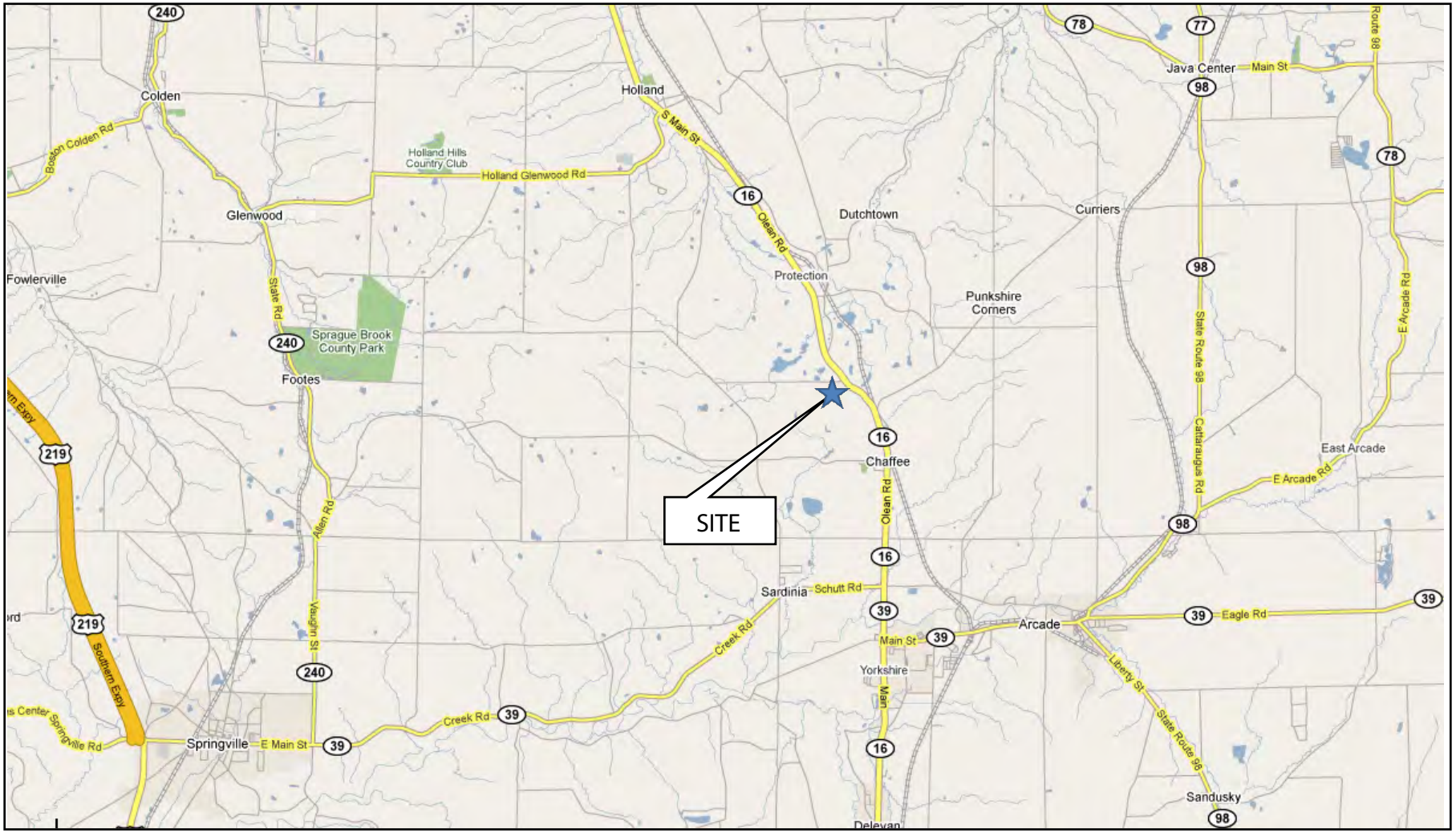
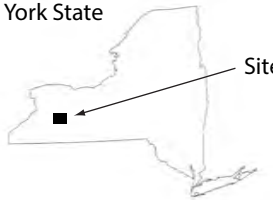
Staff Gauge ID	Parameter	UNITS	Date						
			4/12/2019	6/12/19	8/19/2019	9/17/2019	10/15/2019	11/15/2019	12/9/2019
SH-2	pH	SU	NA	8.1	6.1	NA	8.1	8.2	8.3
	Specific Conductance	uS/cm	NA	430	310	300	290	360	310
	Temperature	^{o}C	NA	24.9	22.5	17.5	7.3	3.6	4.5
	Surface Water Elev.	fasl	1437.20	1437.24	1437.52	1437.30	1437.27	1437.42	1437.38
	Flow Rate	ft^3/min	4.5	4.8	7.0	5.3	5.0	6.2	5.9
SH-3	pH	SU	NA	8.0	7.9	NA	8.3	8.2	8.4
	Specific Conductance	uS/cm	NA	480	441	440	420	460	450
	Temperature	^{o}C	NA	22.2	23.2	16.4	9.1	3.0	4.5
	Surface Water Elev.	fasl	1427.44	1427.14	1426.74	1427.14	1427.24	1427.14	1427.32
	Flow Rate	ft^3/min	392	294	163	294	327	294	353
SH-6	pH	SU	NA	7.8	6.2	NA	8.4	8.2	8.6
	Specific Conductance	uS/cm	NA	510	447	490	450	530	730
	Temperature	^{o}C	NA	24.2	23.0	18.8	9.2	3.6	3.4
	Surface Water Elev.	fasl	1441.19	1440.93	1441.34	1441.37	1441.41	1441.20	1441.30
	Flow Rate	ft^3/min	6.7	3.2	8.7	9.1	9.6	6.8	8.2

Notes:
NA - measurement not performed
SU- standard units
uS/cm- microsiemens per centimeter
^{o}F- degrees Celcius
fasl- feet above sea level
ft^3/min- cubic feet per minute

Figures



New York State



Scale in Miles (approximate)

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Waste Management of New York, L.L.C.
Chaffee, New York

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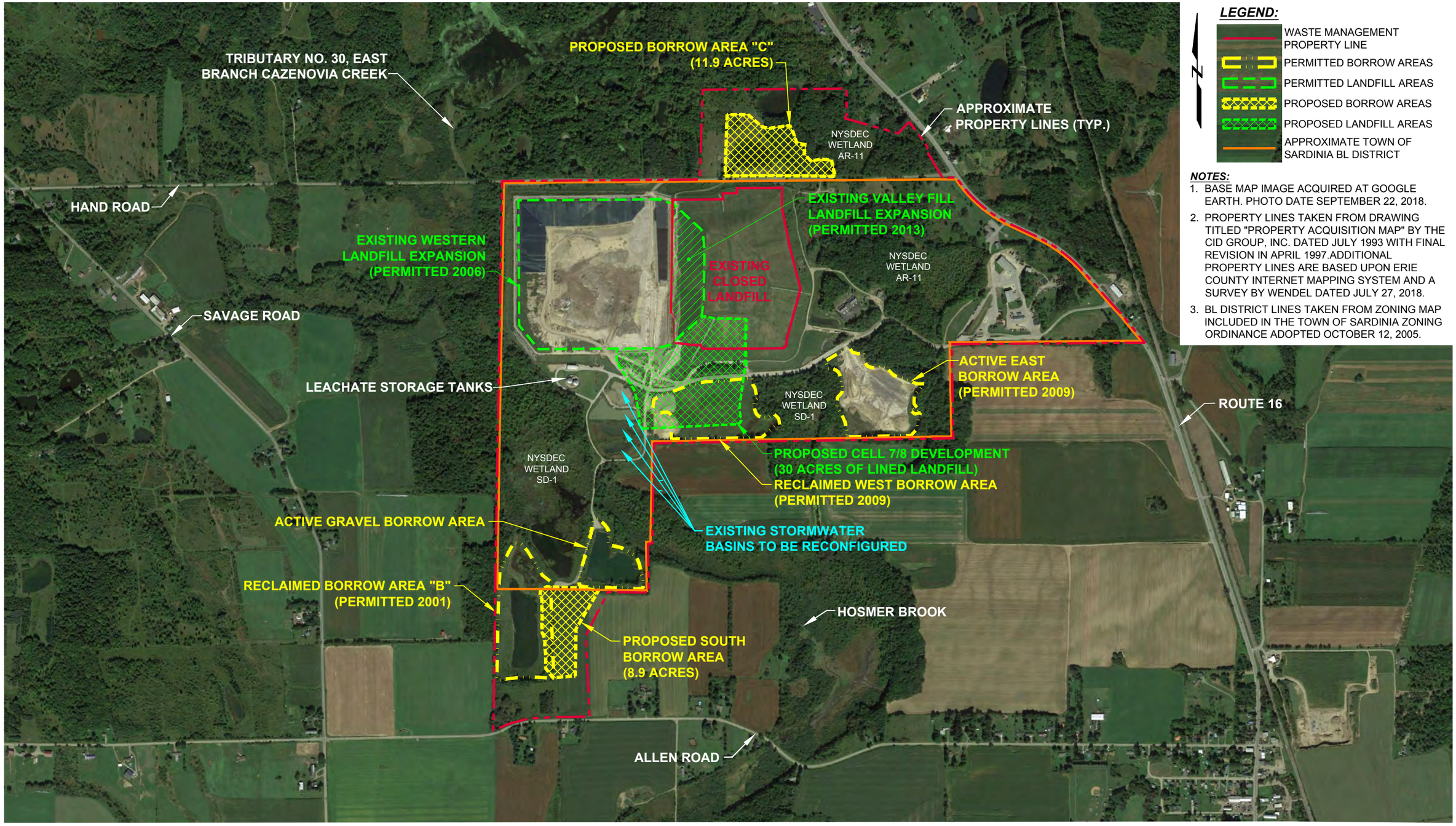
SITE LOCATION

Project 1900192 | April 2020 | Fig. 1



LEGEND:

- WASTE MANAGEMENT PROPERTY LINE
- PERMITTED BORROW AREAS
- PERMITTED LANDFILL AREAS
- PROPOSED BORROW AREAS
- PROPOSED LANDFILL AREAS
- APPROXIMATE TOWN OF SARDINIA BL DISTRICT

NOTES:

1. BASE MAP IMAGE ACQUIRED AT GOOGLE EARTH. PHOTO DATE SEPTEMBER 22, 2018.
2. PROPERTY LINES TAKEN FROM DRAWING TITLED "PROPERTY ACQUISITION MAP" BY THE CID GROUP, INC. DATED JULY 1993 WITH FINAL REVISION IN APRIL 1997.ADDITIONAL PROPERTY LINES ARE BASED UPON ERIE COUNTY INTERNET MAPPING SYSTEM AND A SURVEY BY WENDEL DATED JULY 27, 2018.
3. BL DISTRICT LINES TAKEN FROM ZONING MAP INCLUDED IN THE TOWN OF SARDINIA ZONING ORDINANCE ADOPTED OCTOBER 12, 2005.

SOURCE:

PLAN BASED ON *FIGURE 1: EXISTING AND PROPOSED EXPANSION AREAS*, PREPARED BY CORNERSTONE ENGINEERING, GEOLOGY AND LAND SURVEYING, PLLC, BUFFALO N.Y., SCALE: 1" = 1000', CAD FILE PROVIDED BY TETRATECH ON 2/13/2020.

0 1000 2000

SCALE: 1" = 1000'

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Chaffee, New York

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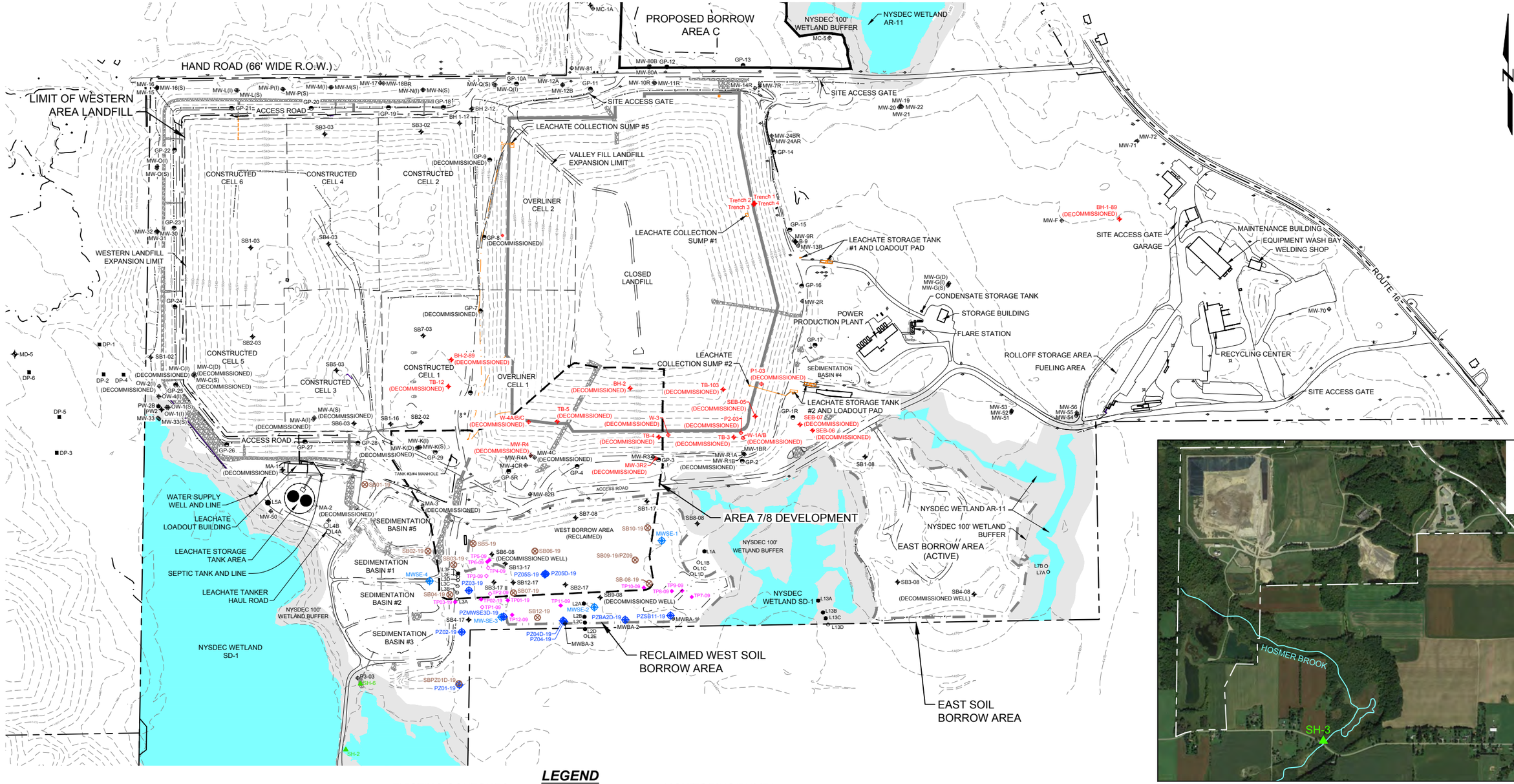
SITE FEATURES

Project 1900192 | April 2020 | Fig. 2

\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192_HIR_FEAT.dwg - 12/23/2019



LEGEND

- EXISTING CONTOURS (1450)
- EXISTING STORMWATER BASIN
- EXISTING CULVERT
- EXISTING RIP-RAP
- PROPERTY LINE
- APPROXIMATE CELL BOUNDARIES
- APPROXIMATE BORROW AREA LIMIT
- 100' WETLAND BUFFER
- DELINEATED WETLAND
- MONITORING/PUMP/OBSERVATION/DRIVE POINT WELL (MW-F, OW-4(I), PW-2B, DP-2)
- BORE HOLE (L3F, SB2-02, L3E)
- TEST PIT (TP11-09)
- INVESTIGATION POINT (IP2019)
- GAS PROBE (GP-28)
- STAFF GAUGE (SH-6)
- 2019 MONITORING WELL
- 2019 PIEZOMETER

SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

0 500 1000
SCALE: 1" = 500'

LOCATION OF SH-3

0 2000 4000
SCALE: 1" = 2000'

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SITE LAYOUT PLAN

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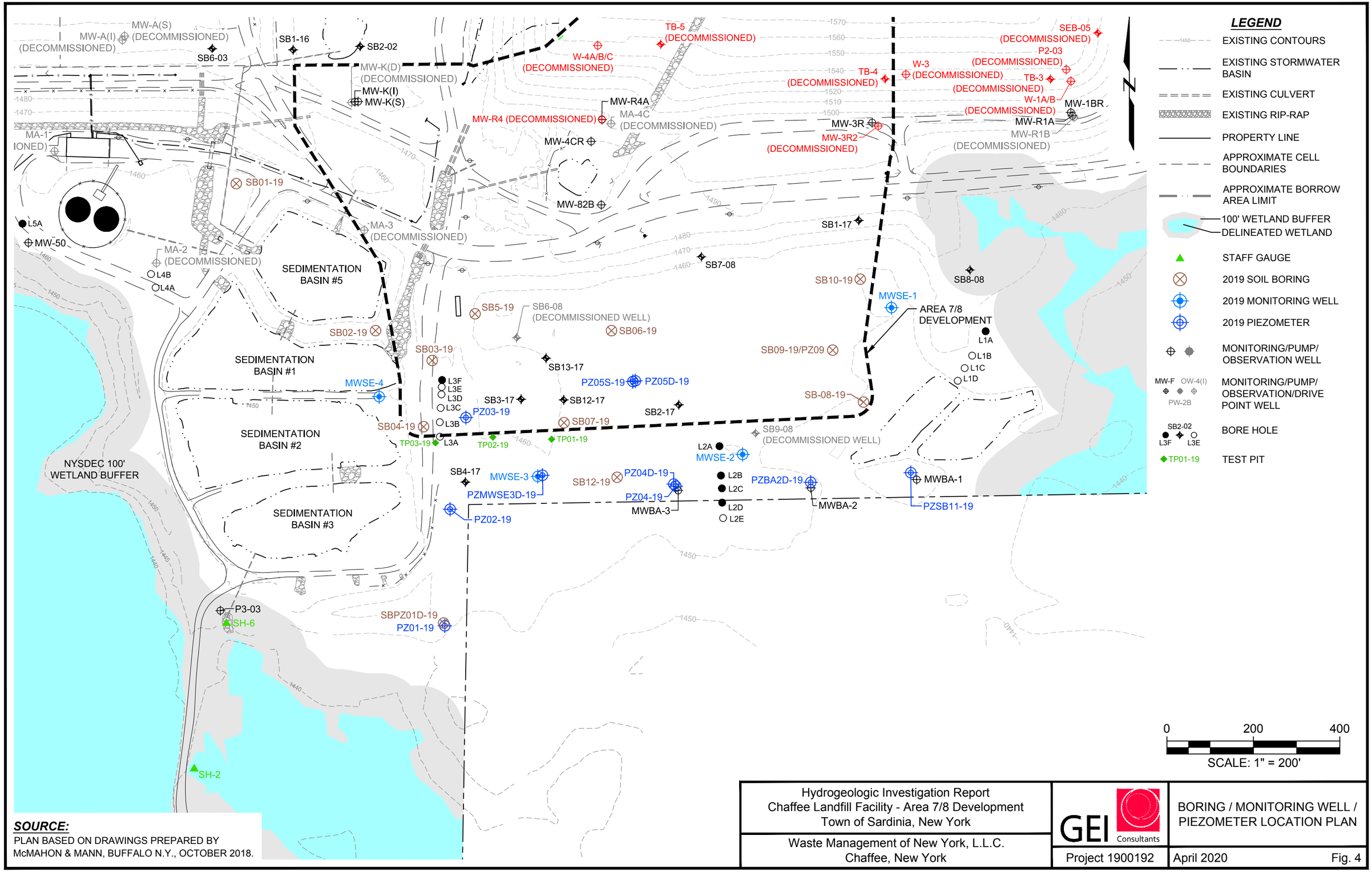
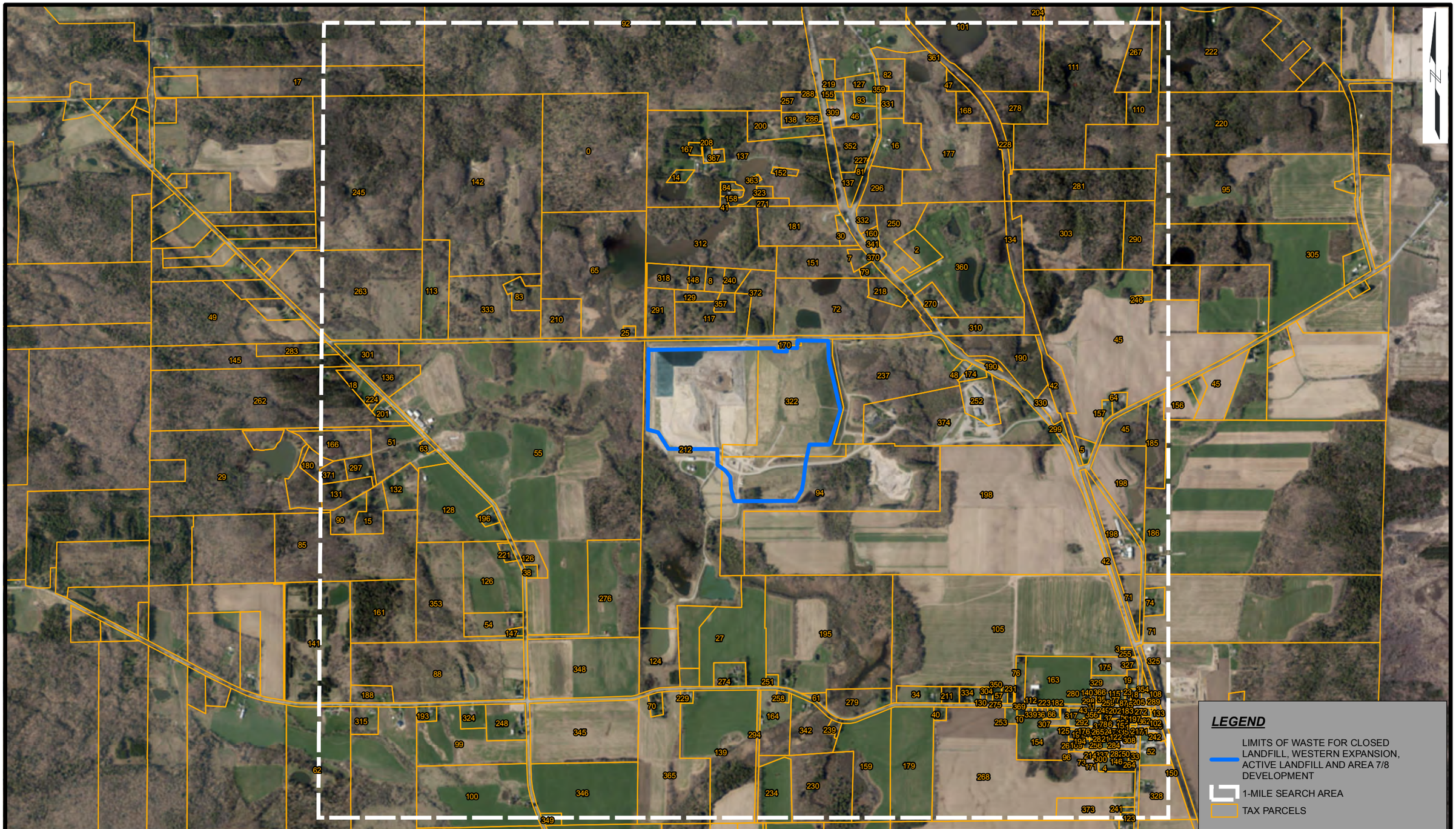
\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192_HIR_SLOT.dwg - 3/20/2020



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	BORING / MONITORING WELL / PIEZOMETER LOCATION PLAN
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Fig. 4

\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-SBMW.dwg - 2/28/2020



SOURCE:
2011 ESRI WORLD IMAGERY ACCESSED VIA ARCGIS ONLINE *(www.arcgis.com)*.
2. TAX PARCELS FROM ERIE COUNTY NEW YORK INTERACTIVE MAPPING VIEWER:
https://gis.erie.gov/Html5Viewer/index.html?viewer=ErieCountyNY.HTML5_2_11_0

0 1,500 3,000
SCALE: 1" = 1,500'

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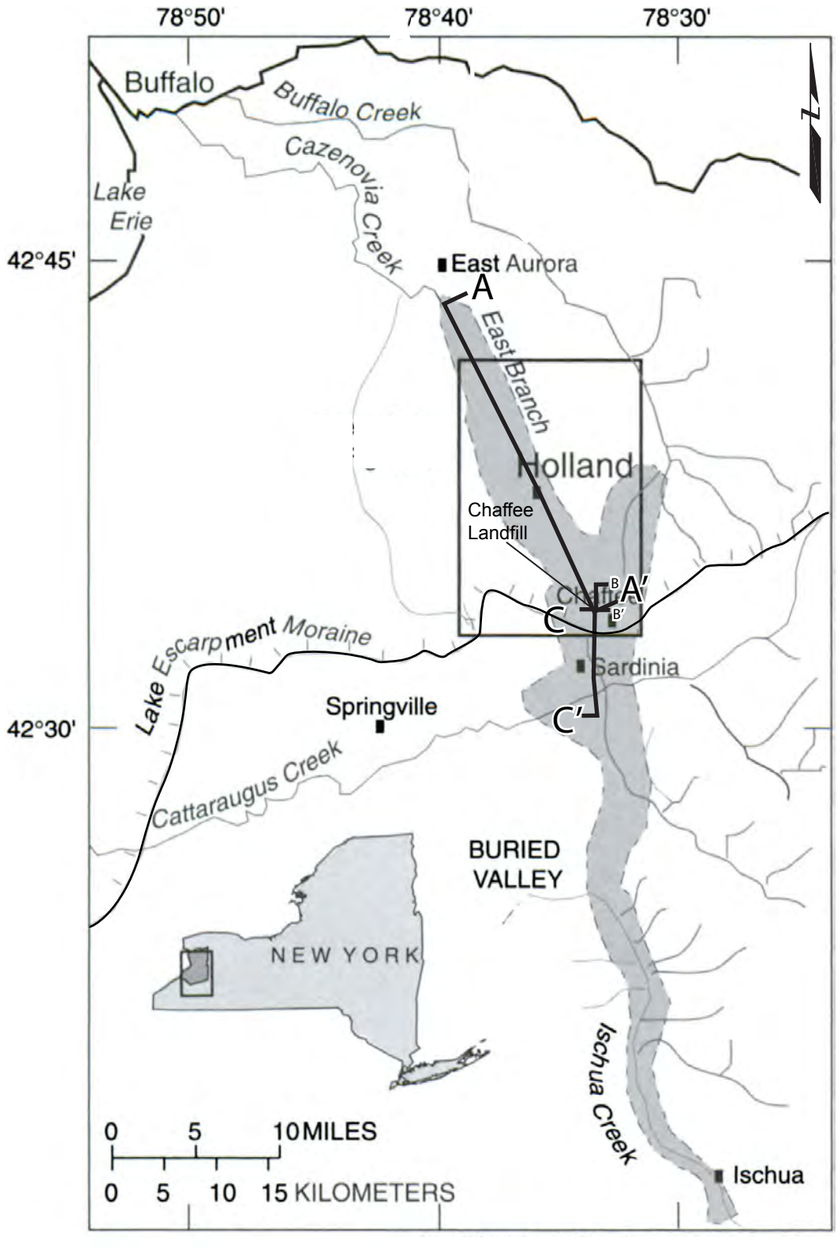
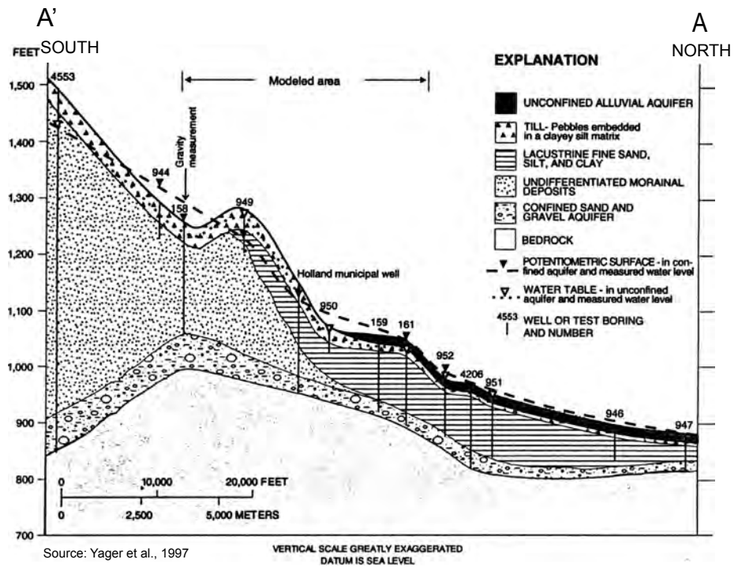
WATER WELL SURVEY
SEARCH AREA

April 2020 Fig. 5

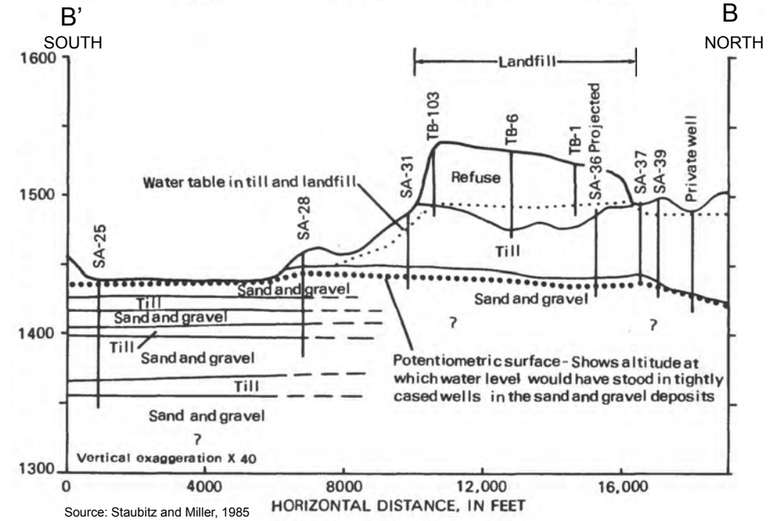
\\gtb1v-fs01\gis\Projects\Waste Managment of New York\Chaffee Landfill Facility\Chaffee-Landfill Public Notification update April 2020.mxd



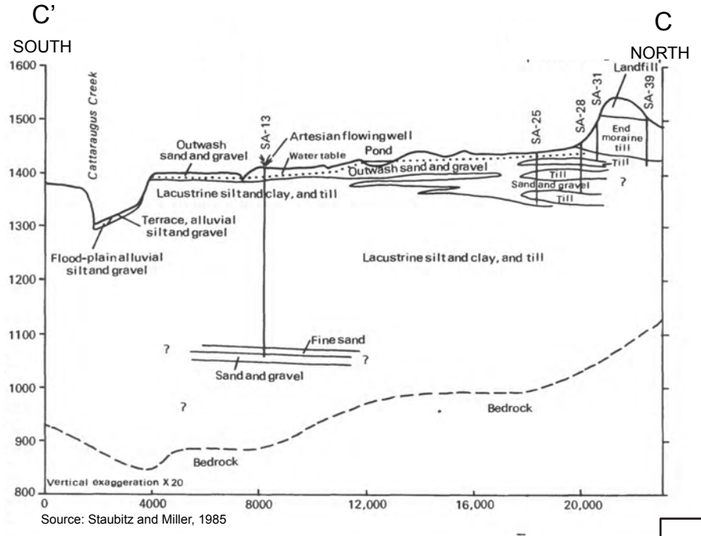
Source: Yager et al., 1997 annotated by GEI 2020



Source: Yager et al., 1997



Source: Staubitz and Miller, 1985



Source: Staubitz and Miller, 1985

Sources:
Miller, T.S. and W.W. Staubitz. 1985. Hydrogeologic Appraisal of Five Selected Aquifers in Erie County, New York. U.S. Geological Survey, Water Resources Investigations Report 84-4334.
Yager, R.M., Miller, T. S., and J. Thayer, I 997, Delineation of Areas Contributing Recharge to Municipal Wells in Three Selected Confined Glacial Aquifers in Erie County, New York: U.S. Geological Survey Water-Resources Investigations Report 96-4229, 40 p

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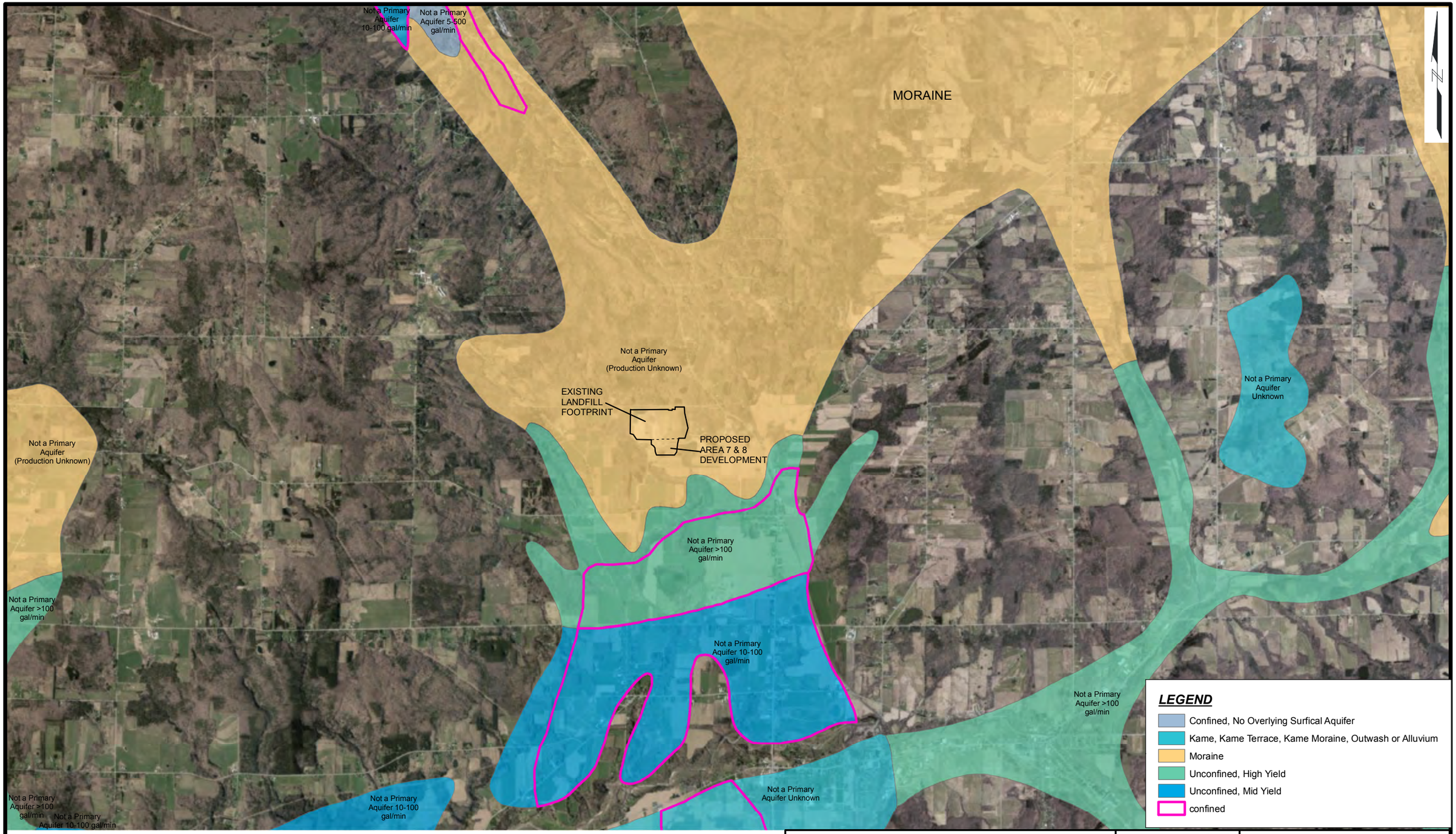
Regional USGS Geologic Cross Sections

April 2020

Fig. 6



SOURCE:
2011 ESRI WORLD IMAGERY ACCESSED VIA ARCGIS ONLINE *(www.arcgis.com)*.
2. AQUIFER DATA FROM U.S. GEOLOGICAL SURVEY AND THE NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION.

0 5,000 10,000
SCALE: 1" = 5,000'

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MAPPED NEW YORK STATE AQUIFERS AND GLACIAL FEATURES

April 2020 Fig. 7

\\gtb1v-fs01\gis\Projects\Waste Managment of New York\Chaffee Landfill Facility\Chaffee-Landfill Aquifers.mxd

CROSS SECTION B LOCATION

0 750 1500

SCALE: 1" = 750'

A'

MW-J(I)
(DECOMMISSIONED)

SB7-03

OVERLINER
CELL 2

CLOSED
LANDFILL

CONSTRUCTED
CELL 1

OVERLINER
CELL 1

AREA 7/8 DEVELOPMENT

SB1-16

SB2-02

MW-K(I)

MW-K(S)

MW-K(D)
(DECOMMISSIONED)

MW-R4A

MW-4C
(DECOMMISSIONED)

MW-4CR

MW-82B

MW-R3

MW-R1B
(DECOMMISSIONED)

MW-1BR

MW-R1A

B'

ACCESS ROAD

MA-3
(DECOMMISSIONED)

SB1-17

SB7-08

SB8-08

SEDIMENTATION
BASIN #5

SEDIMENTATION
BASIN #1

SEDIMENTATION
BASIN #2

SEDIMENTATION
BASIN #3

C

SB02-19

SB03-19

SB5-19

SB6-08
(DECOMMISSIONED WELL)

SB06-19

SB10-19

MWSE-1

SB09-19/PZ09

C'

TP5-09

TP6-09

TP4-09

SB13-17

PZ05D-19

PZ05S-19

TP3-09

MWSE-4

SB3-17

SB12-17

SB2-17

SB-08-19

TP10-09

L1A

L1B

L1C

L1D

TP9-09

TP8-09

TP7-09

PZ03-19

SB04-19

TP2-09

SB07-19

SB9-08
(DECOMMISSIONED WELL)

L3F

L3E

L3D

L3C

L3B

L3A

TP03-19

TP02-19

TP01-19

TP1-09

TP11-09

L2A

MWSE-2

PZMWSE3D-19

MWSE-3

TP12-09

SB12-19

PZ04D-19

L2B

L2C

PZBA2D-19

PZSB11-19

MWBA-1

D'

SB4-17

PZ02-19

D

PZ04-19

MWBA-3

MWBA-2

L2D

L2E

SBPZ01D-19

PZ01-19

A

SEE INSET FOR FULL EXTENT
OF CROSS SECTION B-B'

0 200 400

SCALE: 1" = 200'

LEGEND

1450 — EXISTING CONTOURS	MW-F OW-4(I) PW-2B DP-2 — MONITORING/PUMP/ OBSERVATION/DRIVE POINT WELL
EXISTING STORMWATER BASIN	SB2-02 L3F L3E — BORE HOLE
EXISTING CULVERT	TP11-09 — TEST PIT
EXISTING RIP-RAP	2019 SOIL BORING
PROPERTY LINE	2019 MONITORING WELL
APPROXIMATE CELL BOUNDARIES	2019 PIEZOMETER
APPROXIMATE BORROW AREA LIMIT	A — A' CROSS SECTION LOCATION
100' WETLAND BUFFER / DELINEATED WETLAND	

SOURCE:

PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

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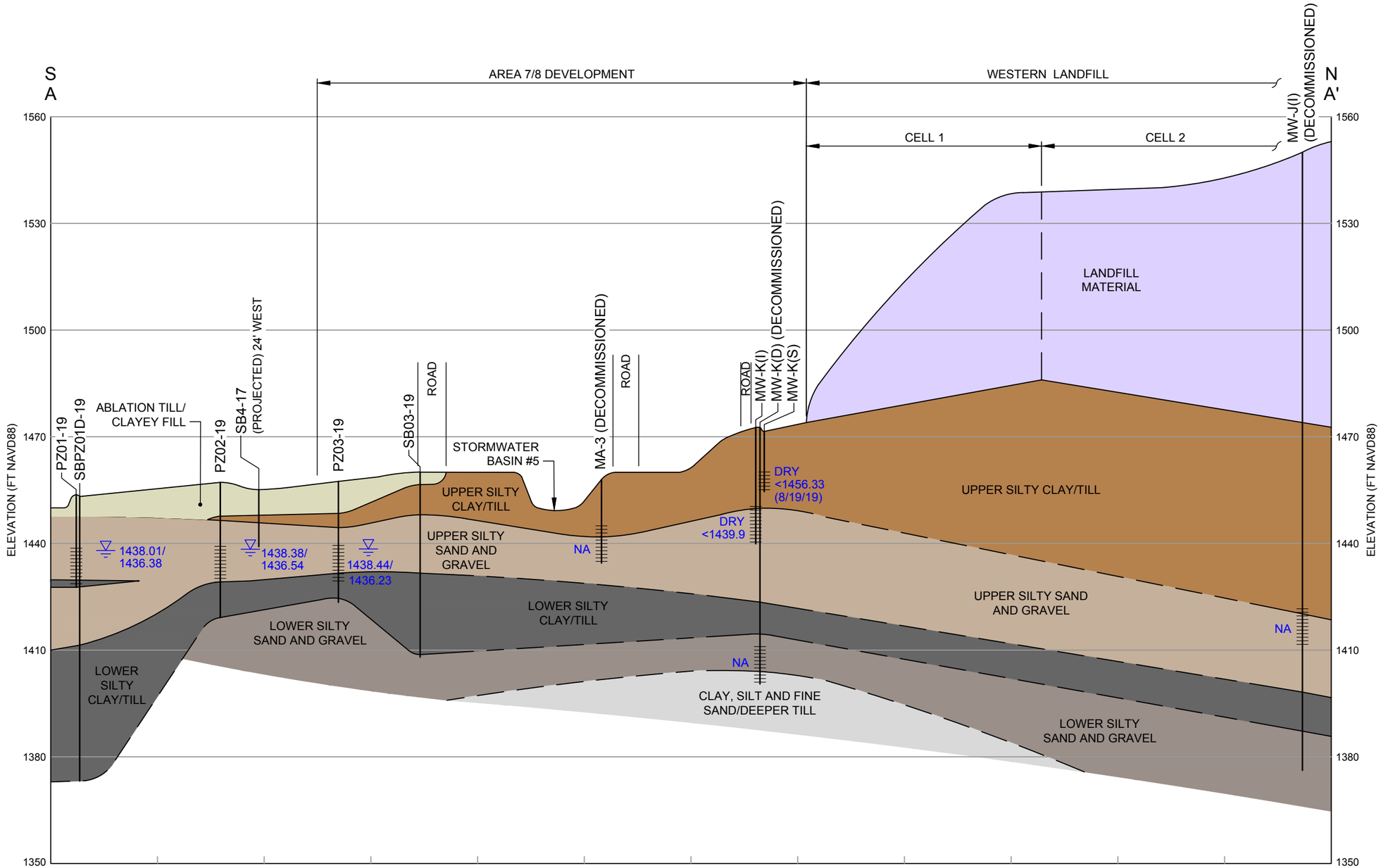
CROSS SECTION
LOCATION PLAN

April 2020 Fig. 8

\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-XSEC.dwg - 12/23/2019



HORIZONTAL SCALE: 1" = 200'

0 200 400

0 30 60

VERTICAL SCALE: 1" = 30'

NOTE: 6.7xVERTICAL EXAGGERATION

LEGEND:

PZ03-19 — SOIL BORING / MONITORING WELL IDENTIFICATION

1438.44/ 1436.23 — WATER LEVEL ON MAY 9, 2019/ OCTOBER 18, 2019

WELL SCREEN INTERVAL

CONTACT

BOUNDARY IS APPROXIMATED

GEOLOGIC UNIT

- LANDFILL MATERIAL
- ABLATION TILL/ CLAYEY FILL
- UPPER SILTY CLAY/TILL
- UPPER SILTY SAND AND GRAVEL
- LOWER SILTY CLAY/ TILL
- LOWER SILTY SAND AND GRAVEL
- CLAY, SILT AND FINE SAND/DEEPER TILL

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Chaffee, New York

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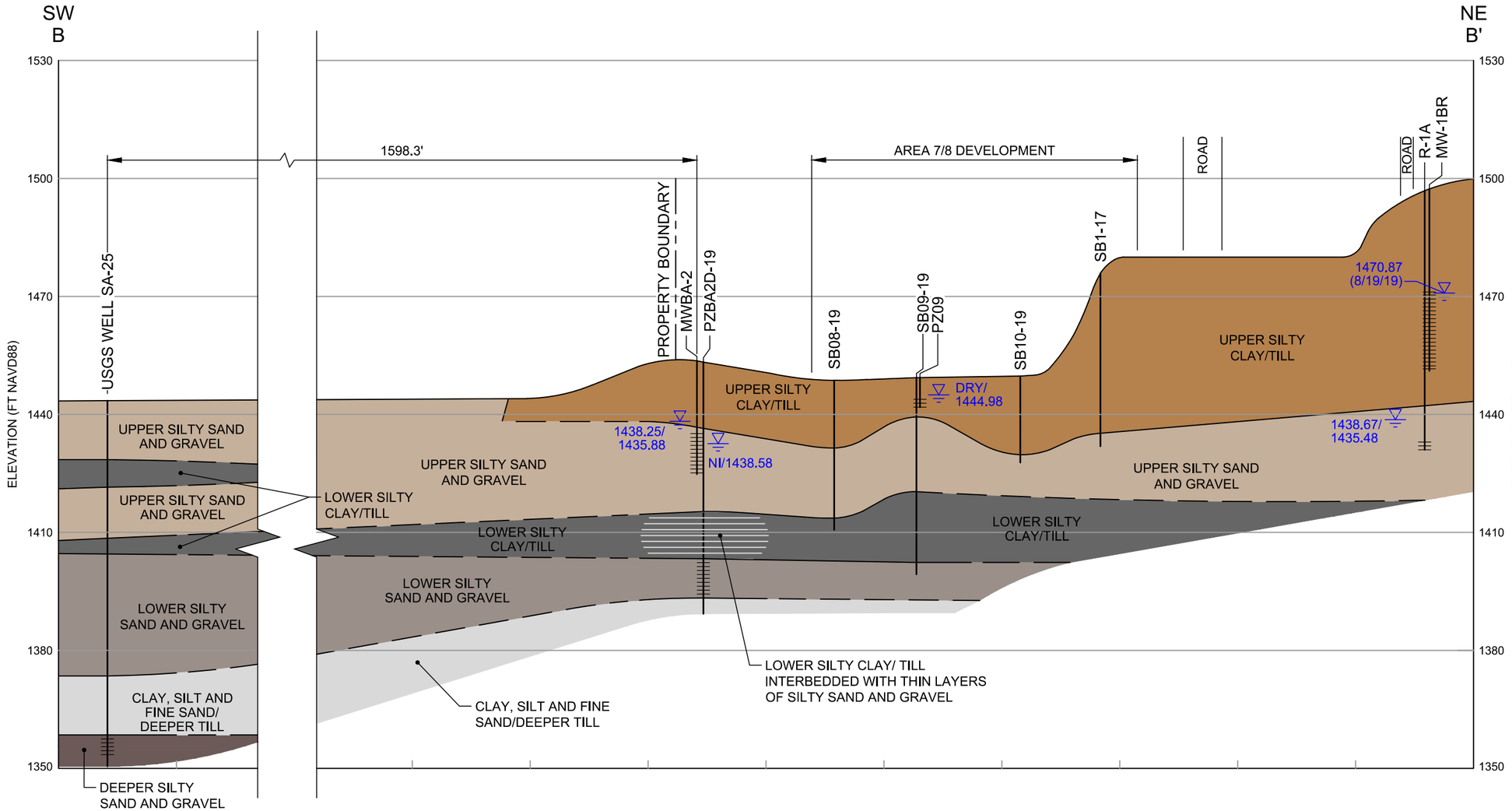
GEOLOGIC CROSS SECTION
A-A'

Project 1900192 | April 2020 | Fig. 9a

\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-XSEC.dwg - 7/15/2020



LEGEND:

MWBA-2 — SOIL BORING / MONITORING WELL IDENTIFICATION

1438.25/ 1435.88 — WATER LEVEL ON MAY 9, 2019/ OCTOBER 18, 2019
NI = NOT INSTALLED

WELL SCREEN INTERVAL

CONTACT

BOUNDARY IS APPROXIMATED

GEOLOGIC UNIT

- UPPER SILTY CLAY/TILL
- UPPER SILTY SAND AND GRAVEL
- LOWER SILTY CLAY/ TILL
- LOWER SILTY CLAY/ TILL INTERBEDDED WITH THIN LAYERS OF SILTY SAND AND GRAVEL
- LOWER SILTY SAND AND GRAVEL
- CLAY, SILT AND FINE SAND/DEEPER TILL
- DEEPER SILTY SAND AND GRAVEL

HORIZONTAL SCALE: 1" = 200'

0 200 400

0 30 60

VERTICAL SCALE: 1" = 30'

NOTE: 6.7xVERTICAL EXAGGERATION

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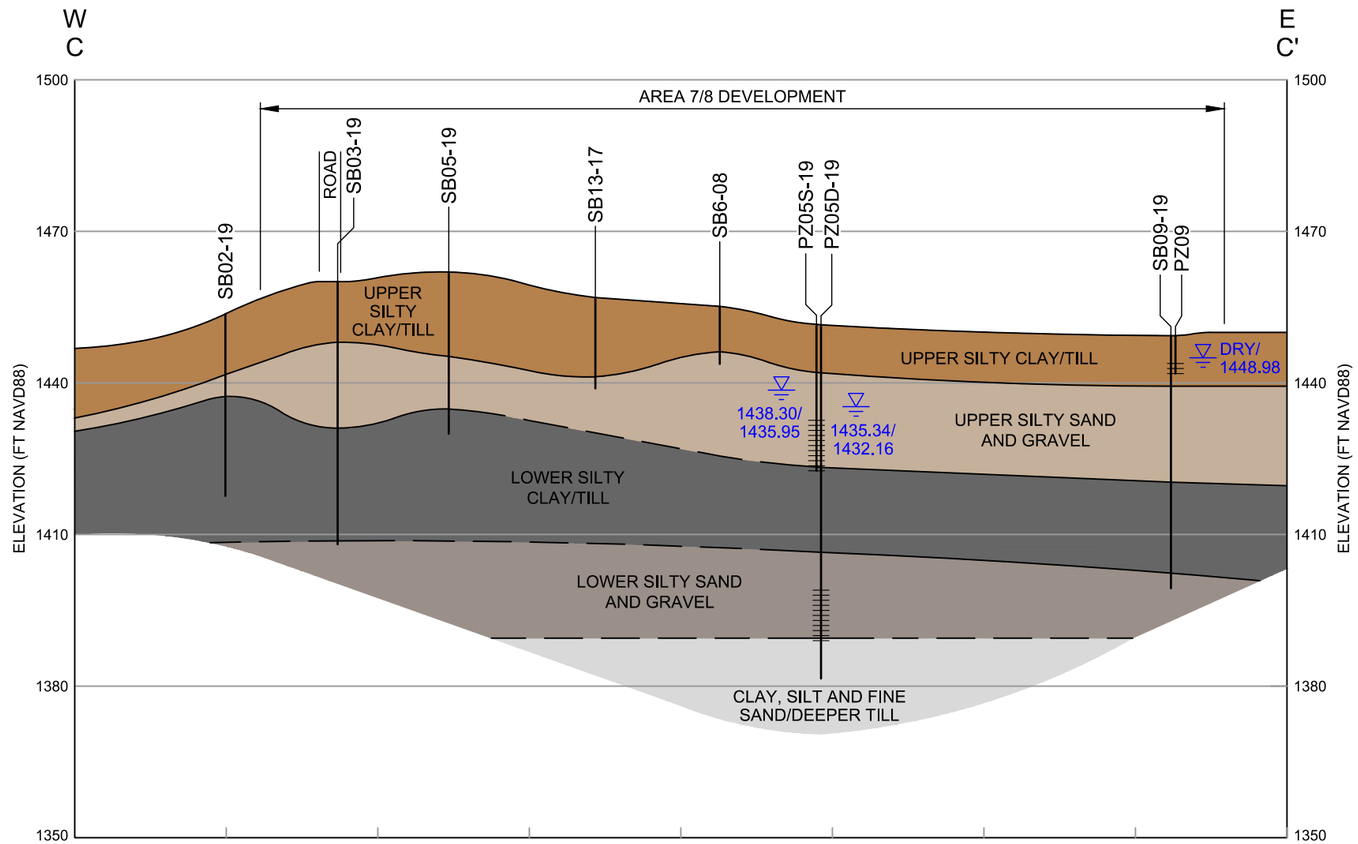
GEI Consultants

GEOLOGIC CROSS SECTION
B-B'

Project 1900192 | April 2020 | Fig. 9b

\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-XSEC.dwg - 12/23/2019



LEGEND:

PZ05S-19 — SOIL BORING / MONITORING WELL IDENTIFICATION

1438.30/ 1435.95 — WATER LEVEL ON MAY 9, 2019/ OCTOBER 18, 2019

WELL SCREEN INTERVAL

CONTACT

BOUNDARY IS APPROXIMATED

GEOLOGIC UNIT

- UPPER SILTY CLAY/TILL
- UPPER SILTY SAND AND GRAVEL
- LOWER SILTY CLAY/ TILL
- LOWER SILTY SAND AND GRAVEL
- CLAY, SILT AND FINE SAND/DEEPER TILL

HORIZONTAL SCALE: 1" = 200'

0 200 400

0 30 60

VERTICAL SCALE: 1" = 30'

NOTE: 6.7xVERTICAL EXAGGERATION

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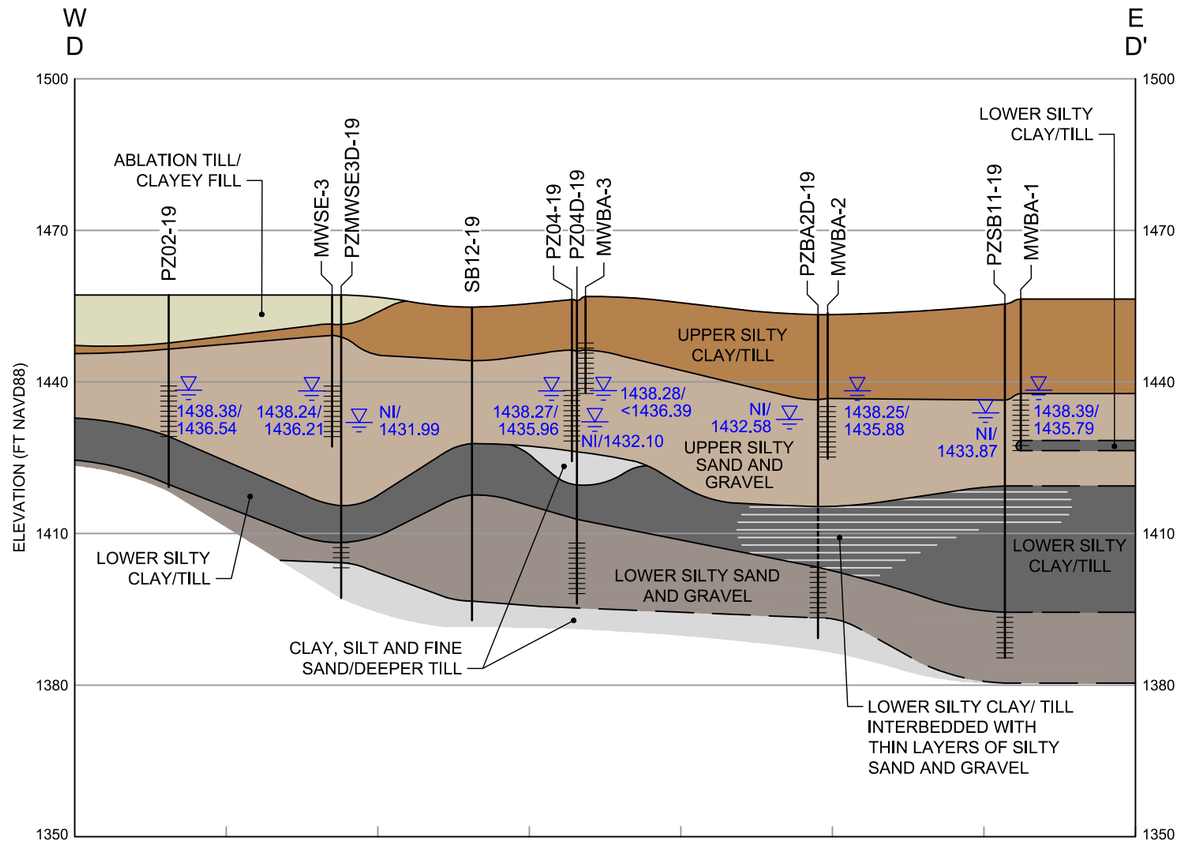
GEOLOGIC CROSS SECTION
C-C'

Project 1900192 | April 2020 | Fig. 9c

\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-XSEC.dwg - 12/23/2019



LEGEND:

PZ04-19 — SOIL BORING / MONITORING WELL IDENTIFICATION

1438.27/ 1435.96 — WATER LEVEL ON MAY 9, 2019/ OCTOBER 18, 2019
NI = NOT INSTALLED

WELL SCREEN INTERVAL

CONTACT

BOUNDARY IS APPROXIMATED

GEOLOGIC UNIT

- ABLATION TILL/ CLAYEY FILL
- UPPER SILTY CLAY/TILL
- UPPER SILTY SAND AND GRAVEL
- LOWER SILTY CLAY/ TILL
- LOWER SILTY CLAY/ TILL INTERBEDDED WITH THIN LAYERS OF SILTY SAND AND GRAVEL
- LOWER SILTY SAND AND GRAVEL
- CLAY, SILT AND FINE SAND/DEEPER TILL

HORIZONTAL SCALE: 1" = 200'
0 200 400
0 30 60
VERTICAL SCALE: 1" = 30'
NOTE: 6.7xVERTICAL EXAGGERATION

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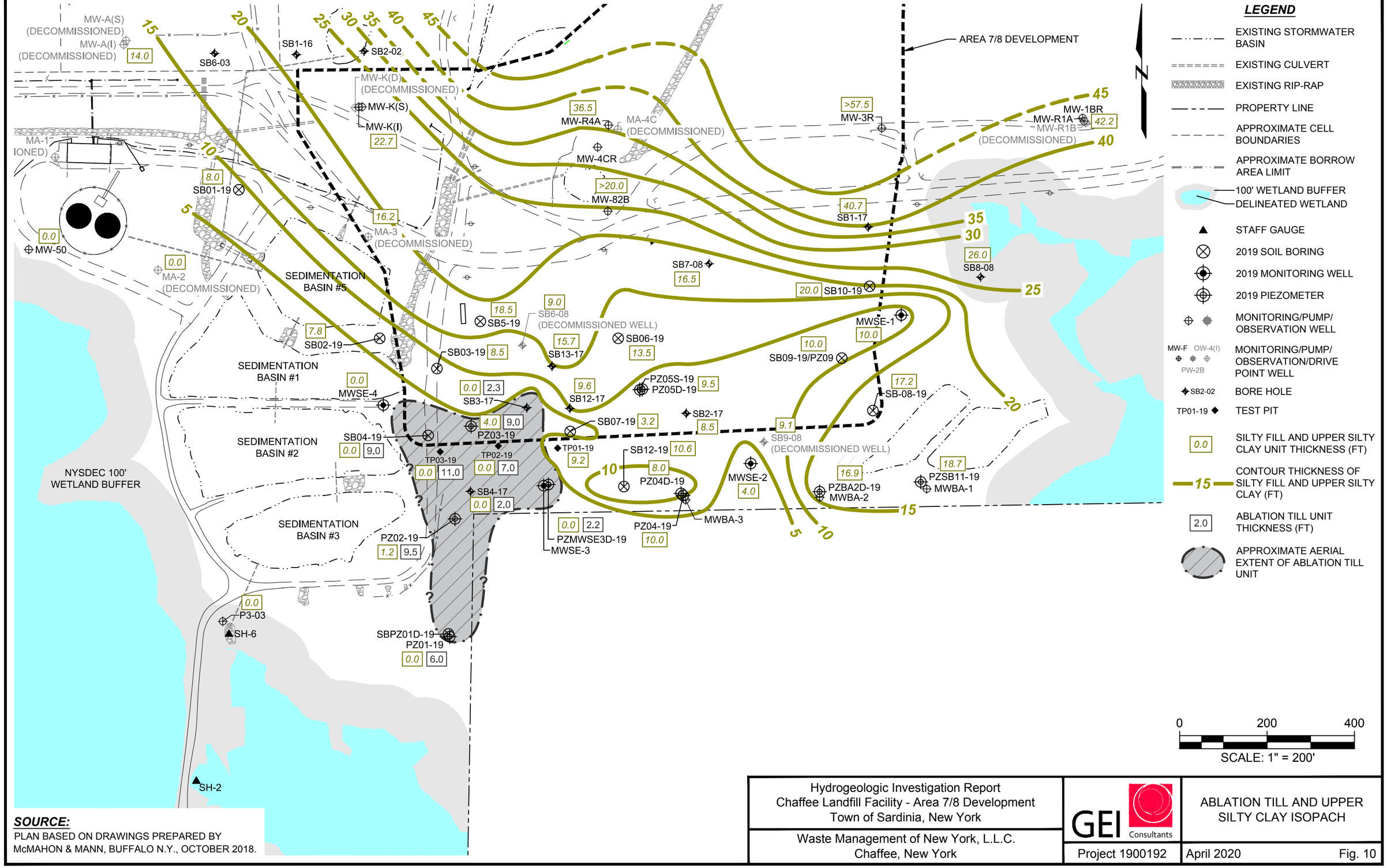
GEOLOGIC CROSS SECTION
D-D'

Project 1900192 | April 2020 | Fig. 9d

\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-XSEC.dwg - 12/23/2019



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

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Chaffee, New York

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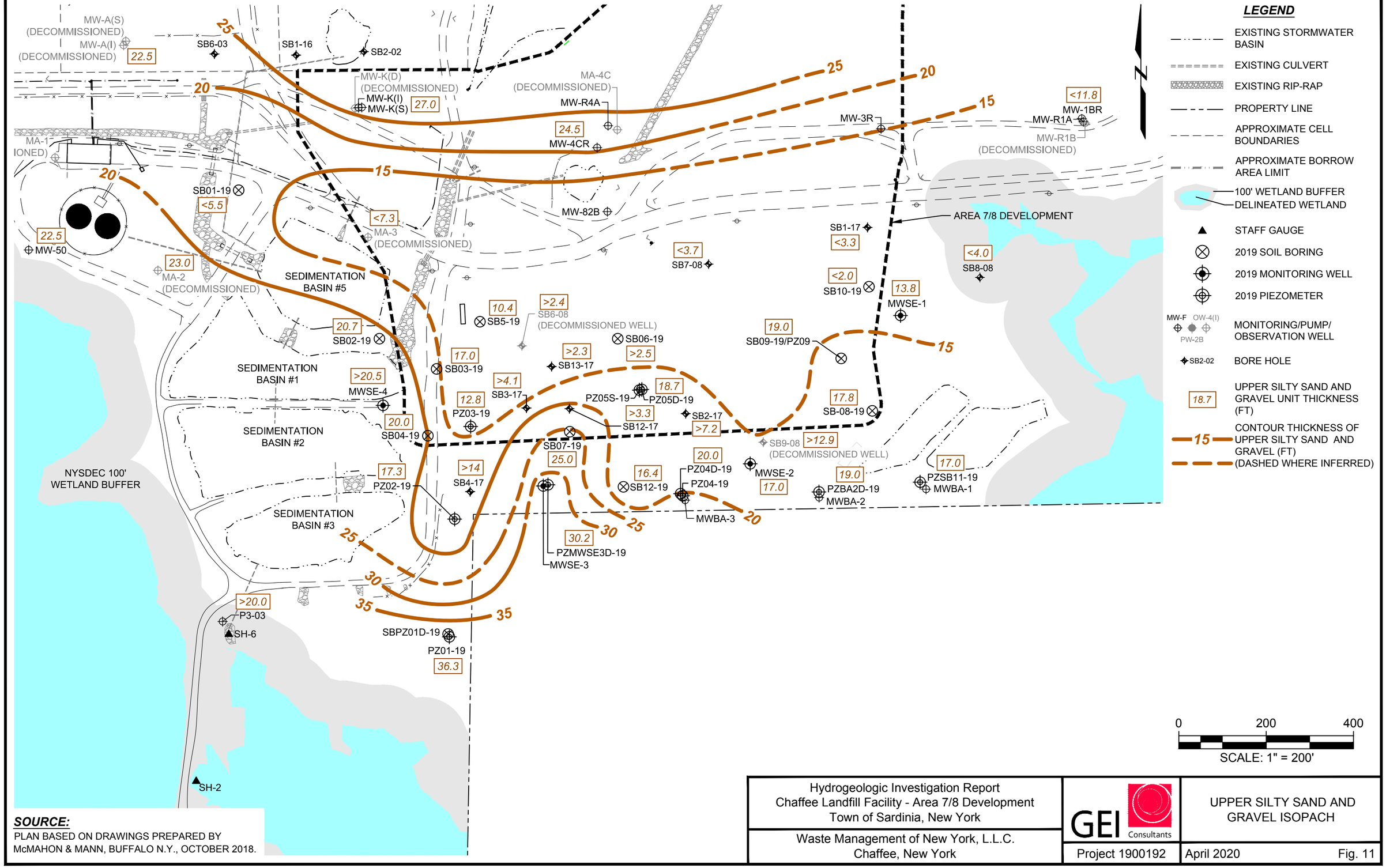
ABLATION TILL AND UPPER SILTY CLAY ISOPACH

Project 1900192 | April 2020 | Fig. 10

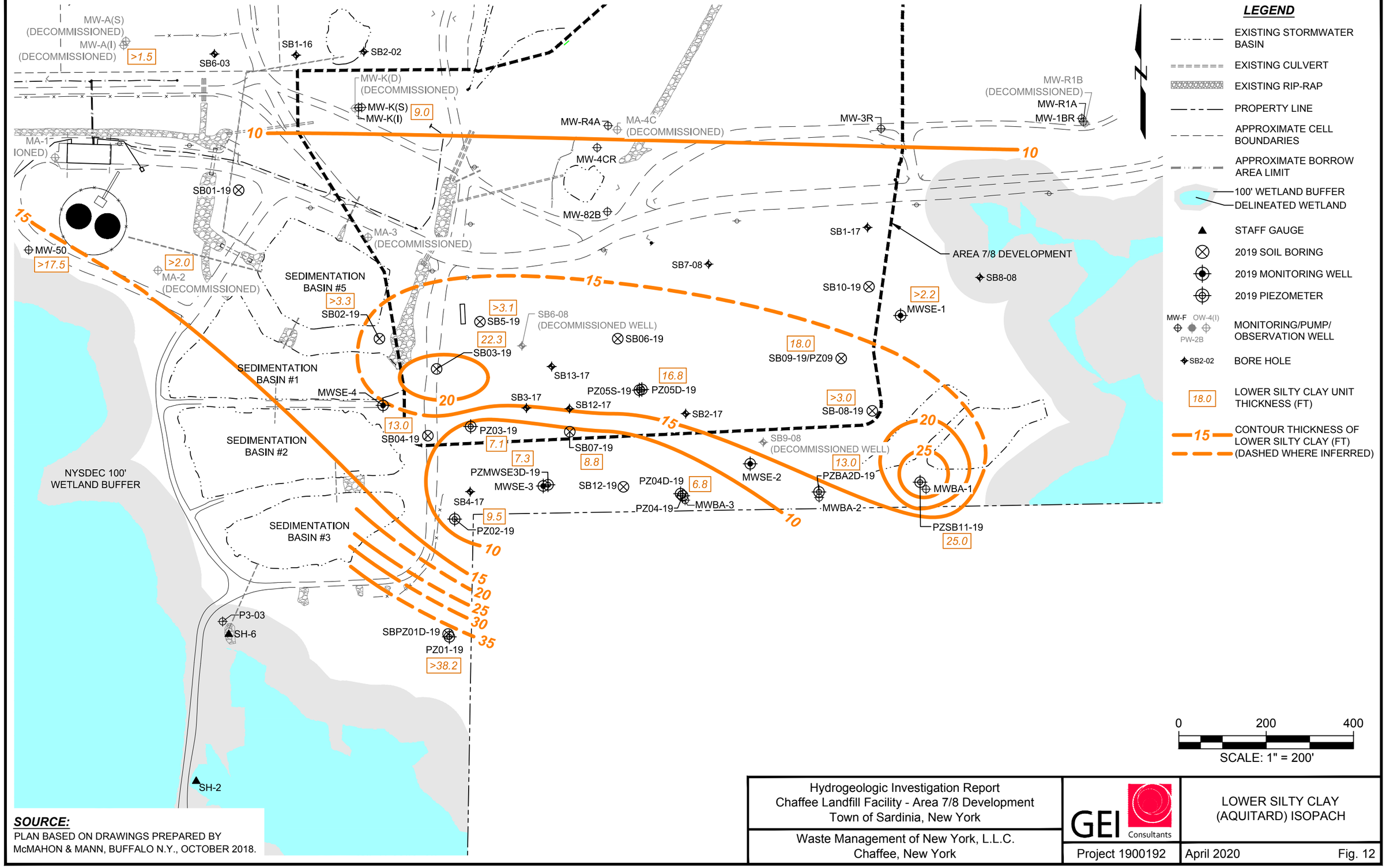
\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-USCT.dwg - 2/28/2020



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	UPPER SILTY SAND AND GRAVEL ISOPACH
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Fig. 11

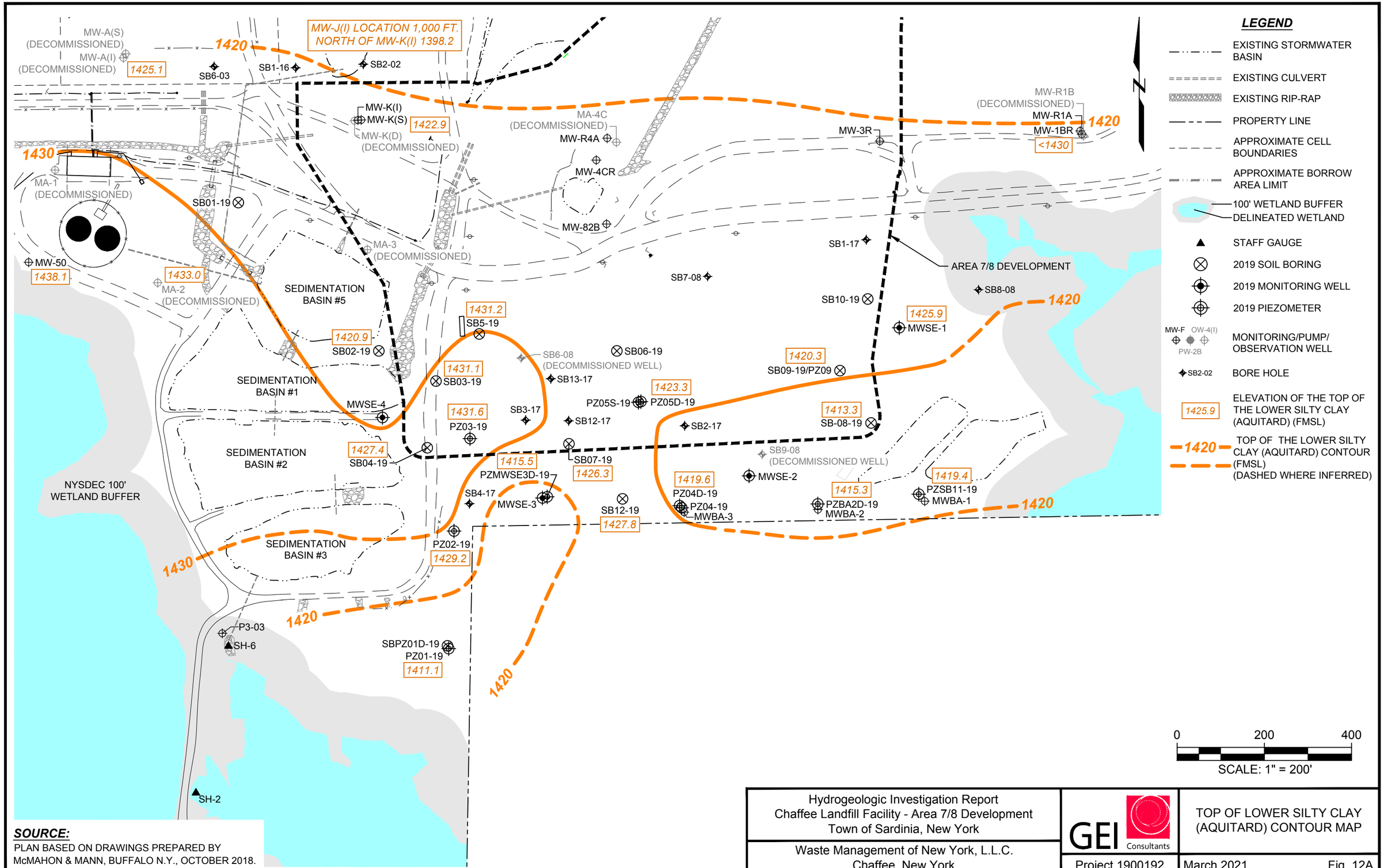
\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-USSG.dwg - 2/28/2020



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	LOWER SILTY CLAY (AQUITARD) ISOPACH
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Fig. 12

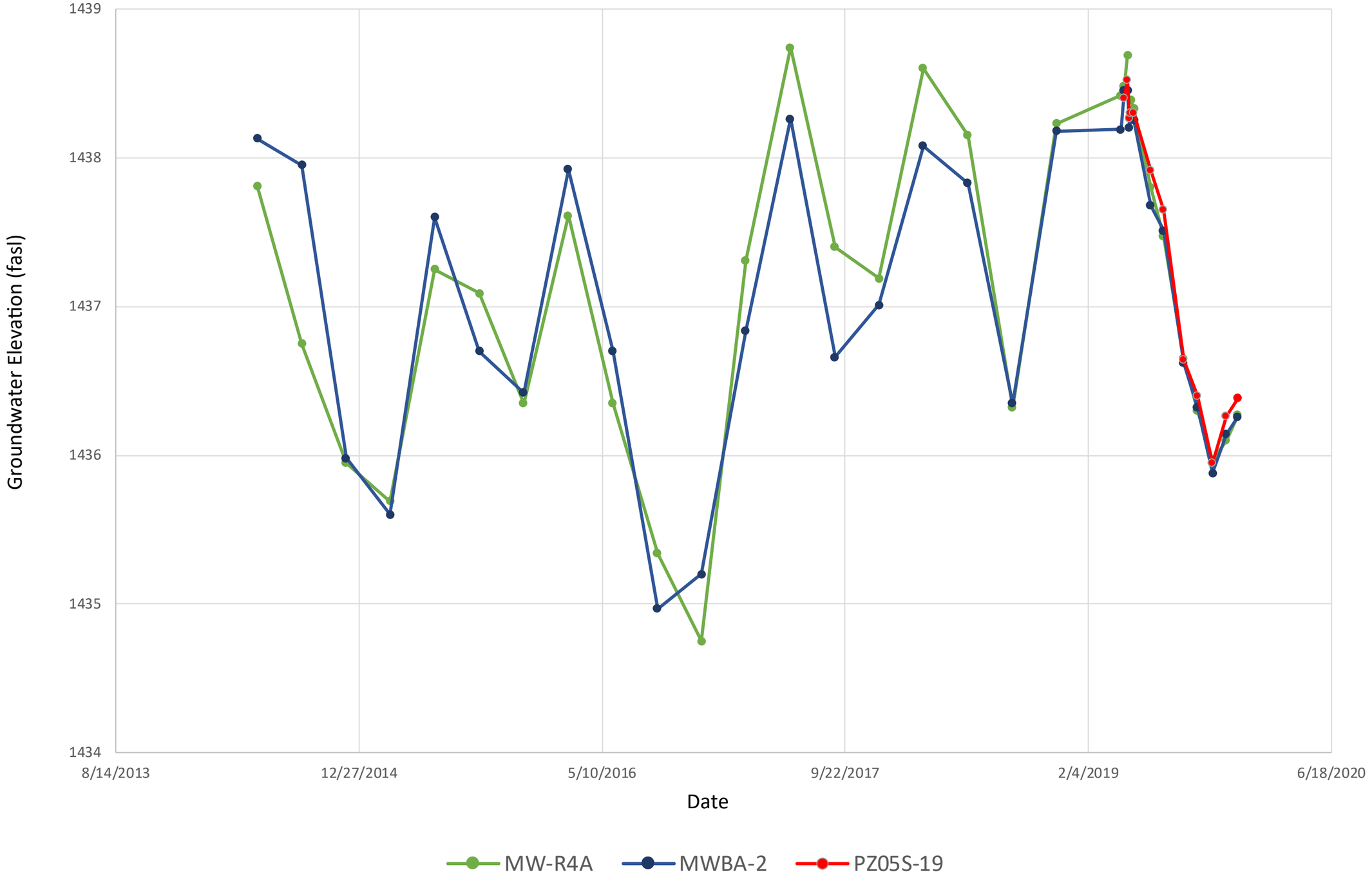
\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-LSCG.dwg - 2/28/2020



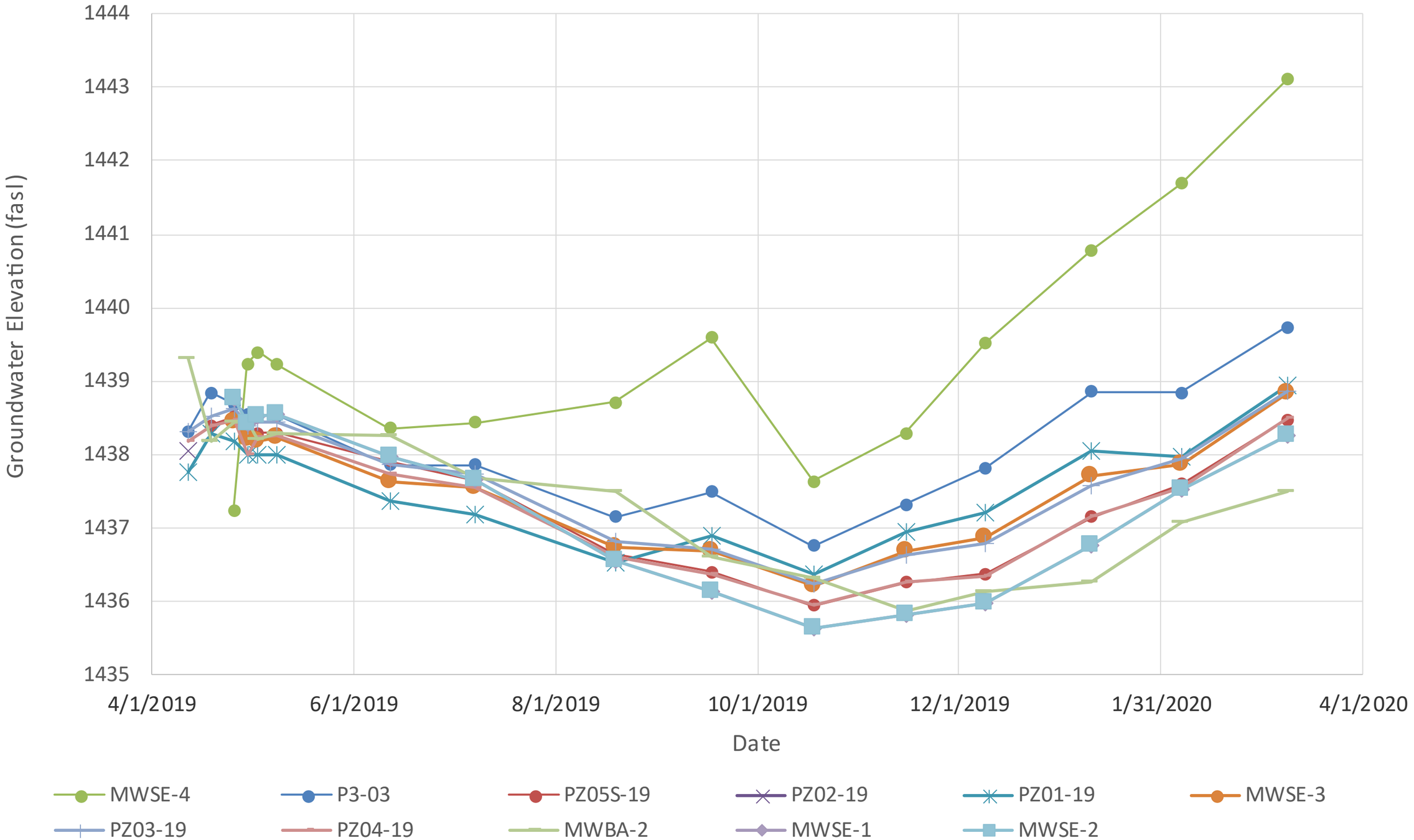
SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	TOP OF LOWER SILTY CLAY (AQUITARD) CONTOUR MAP
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	March 2021 Fig. 12A

\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-LSCC.dwg - 3/17/2021



Hydrogeologic Investigation Report Chaffee Landfill Facility- Area 7/8 Development Town of Sardinia, New York	GEI Consultants	AREA 7/8 DEVELOPMENT HISTORICAL GROUNDWATER ELEVATIONS
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Fig. 13



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Waste Management of New York, L.L.C.
Chaffee, New York

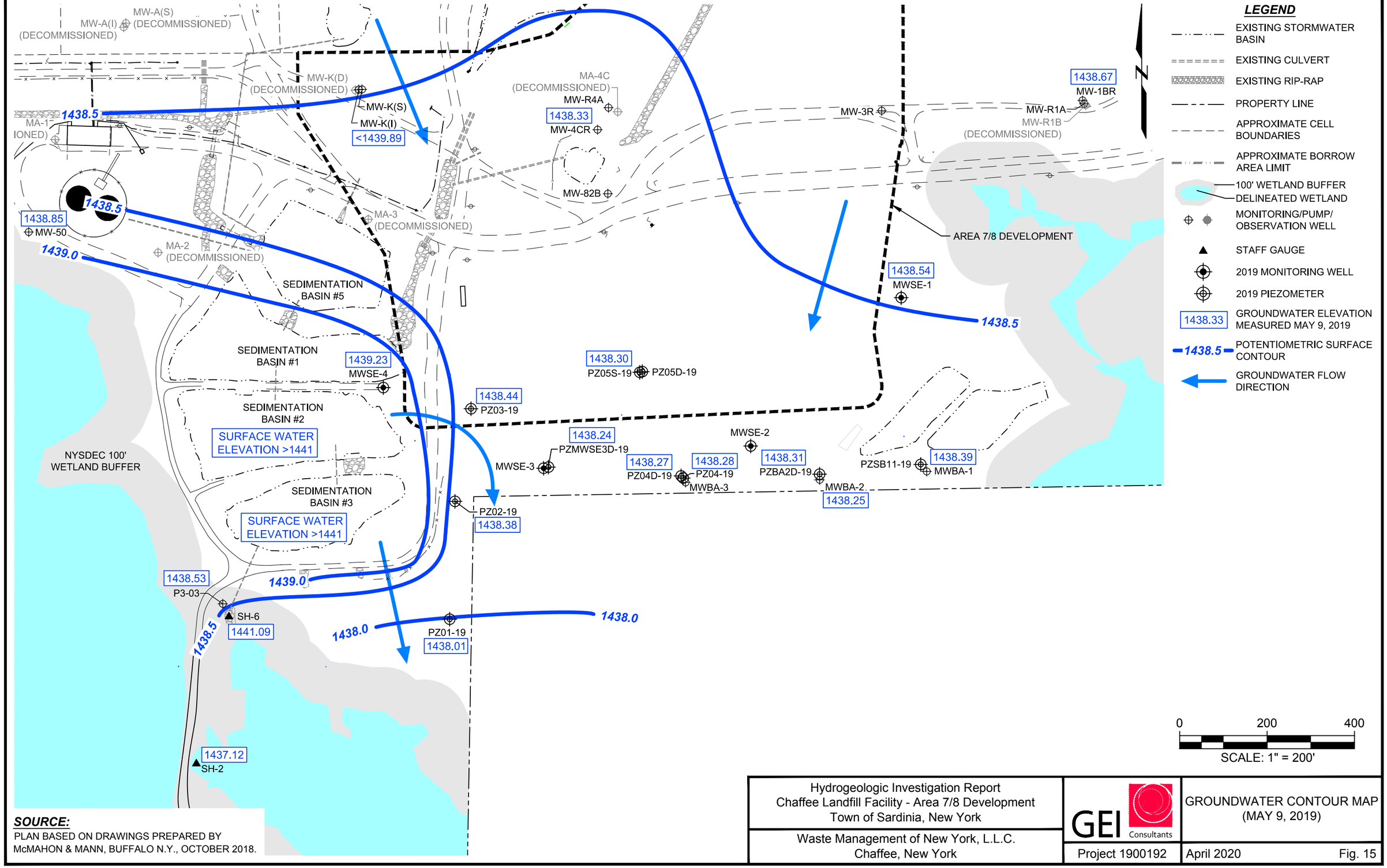
GEI Consultants

Project 1900192

GROUNDWATER ELEVATIONS AT THE AREA 7/8 DEVELOPMENT

February 2020

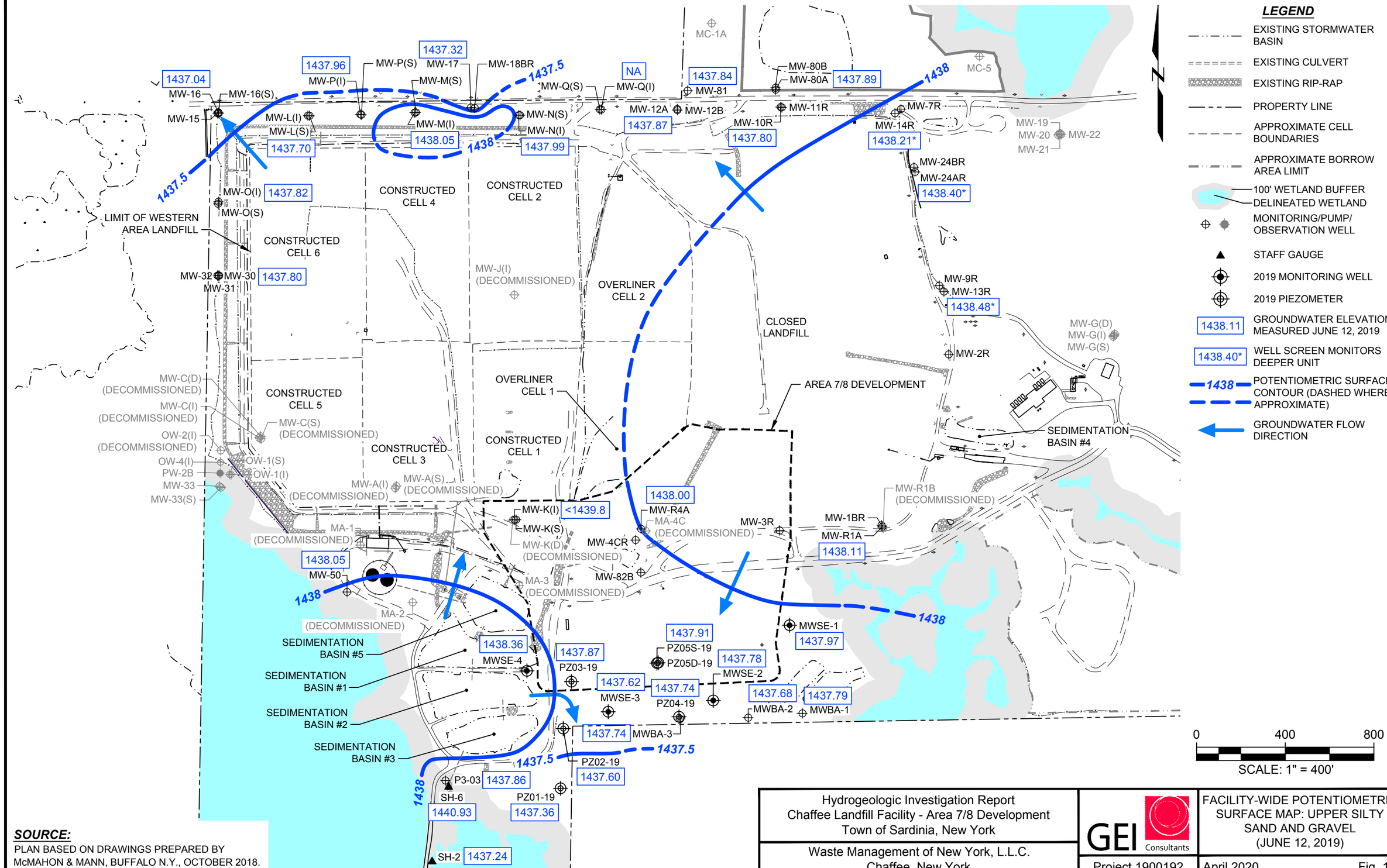
Fig.14



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY
McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	GROUNDWATER CONTOUR MAP (MAY 9, 2019)
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Fig. 15

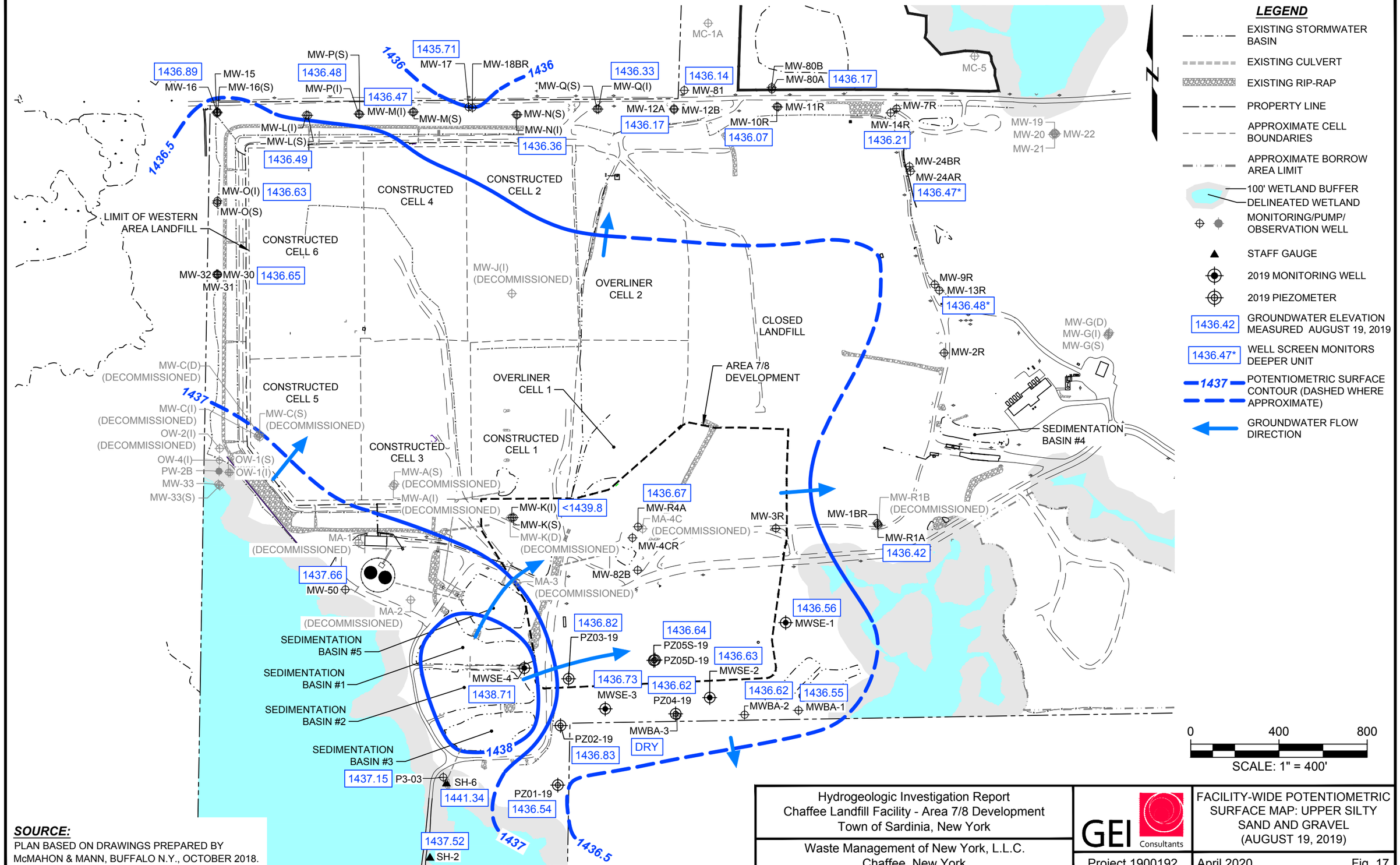
\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-GWC_0519.dwg - 2/28/2020



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	FACILITY-WIDE POTENTIOMETRIC SURFACE MAP: UPPER SILTY SAND AND GRAVEL (JUNE 12, 2019)
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Fig. 16

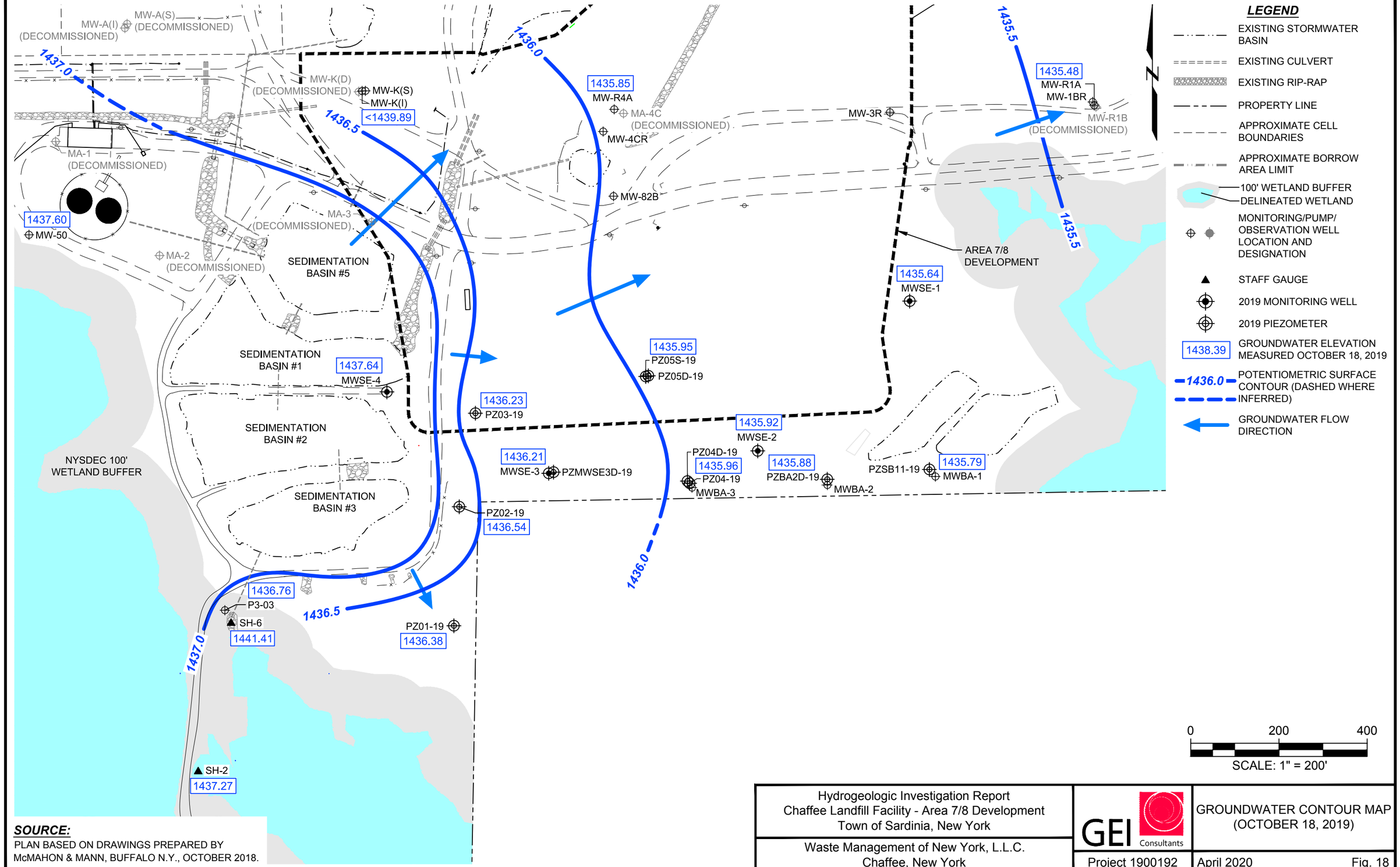
\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-GWC_0619.dwg - 2/28/2020



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	FACILITY-WIDE POTENTIOMETRIC SURFACE MAP: UPPER SILTY SAND AND GRAVEL (AUGUST 19, 2019)
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Fig. 17

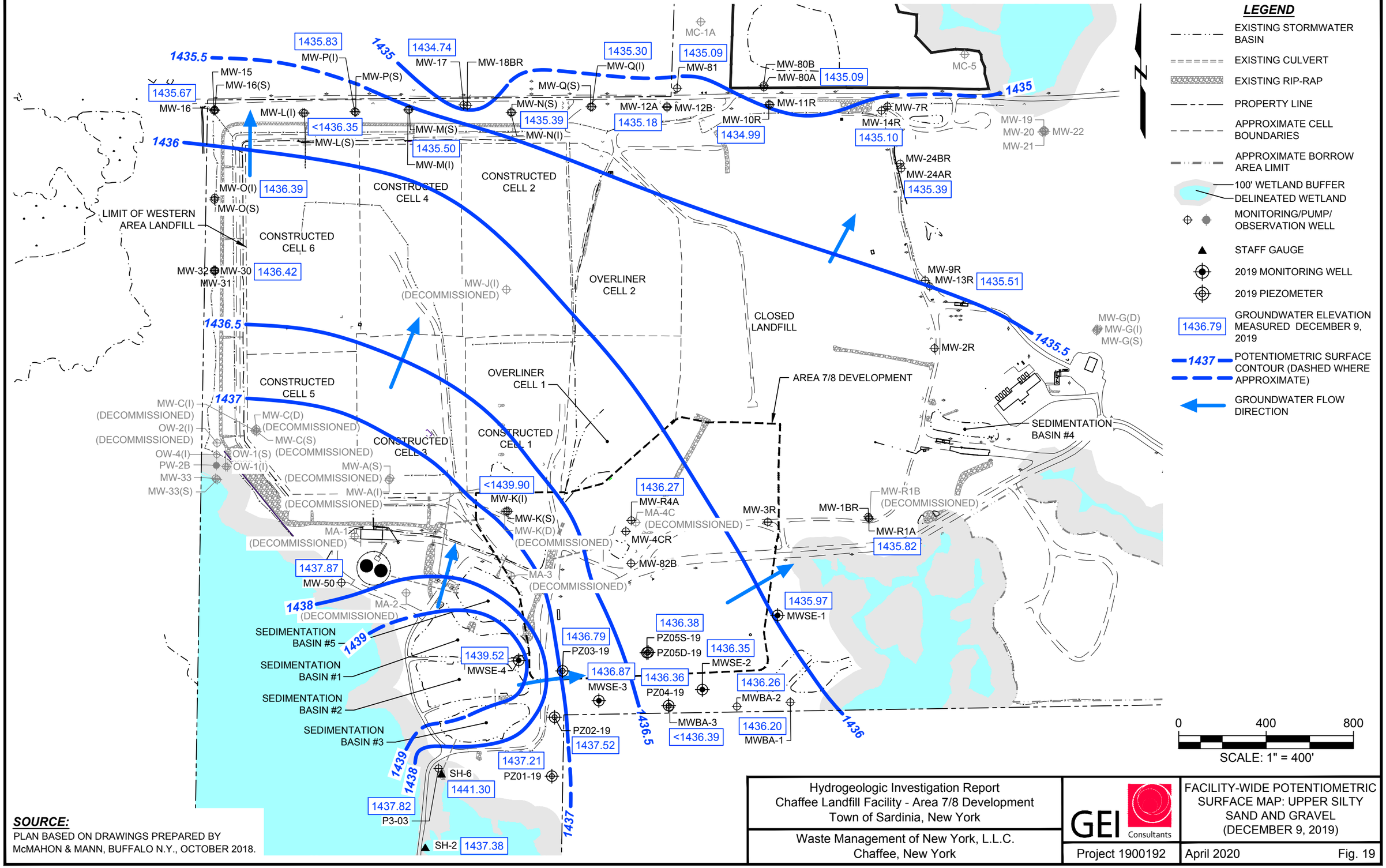
\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-GWC_0819.dwg - 2/28/2020



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	GROUNDWATER CONTOUR MAP (OCTOBER 18, 2019)
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Fig. 18

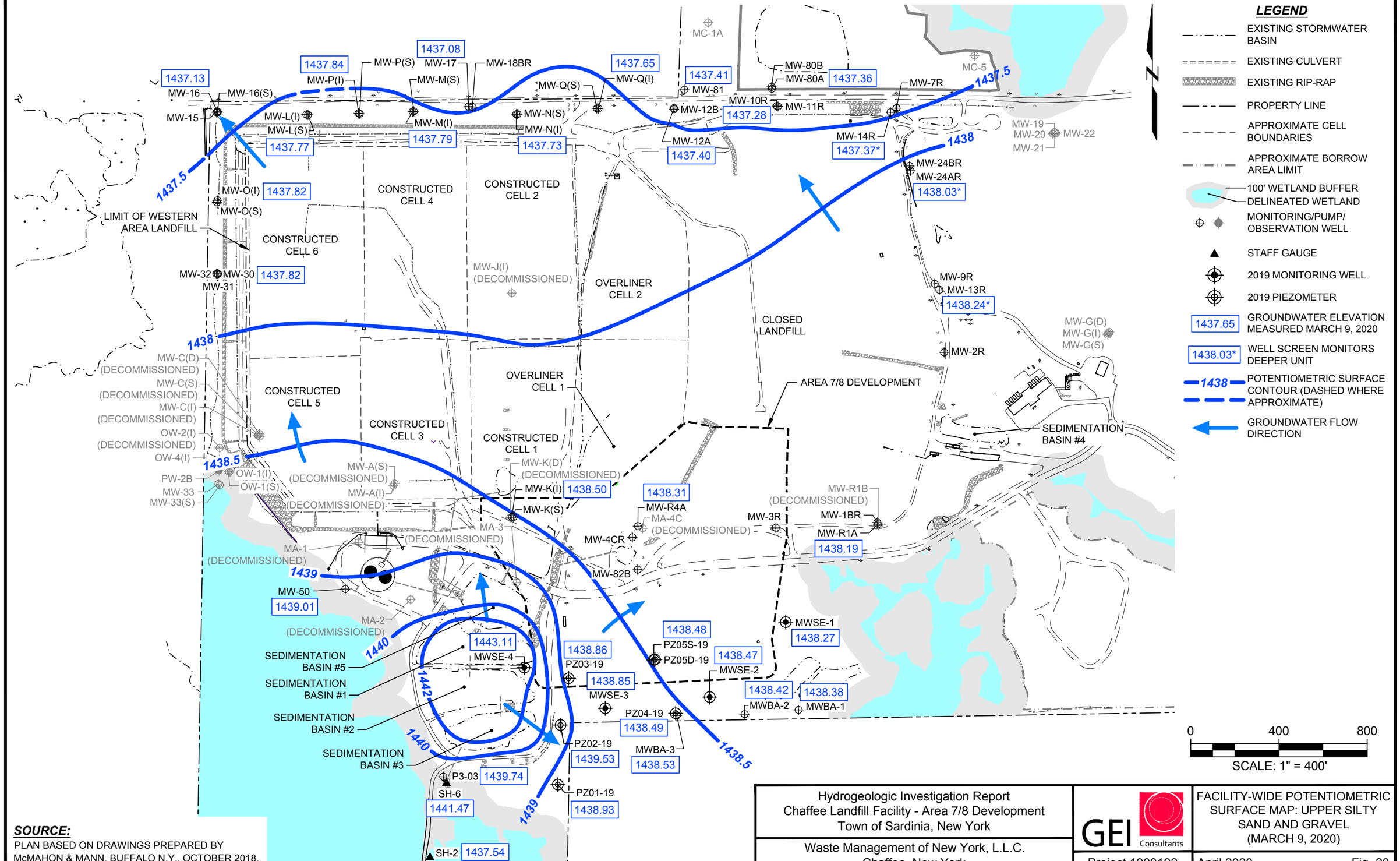
\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-GWC_1019.dwg - 2/28/2020



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	FACILITY-WIDE POTENTIOMETRIC SURFACE MAP: UPPER SILTY SAND AND GRAVEL (DECEMBER 9, 2019)
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Fig. 19

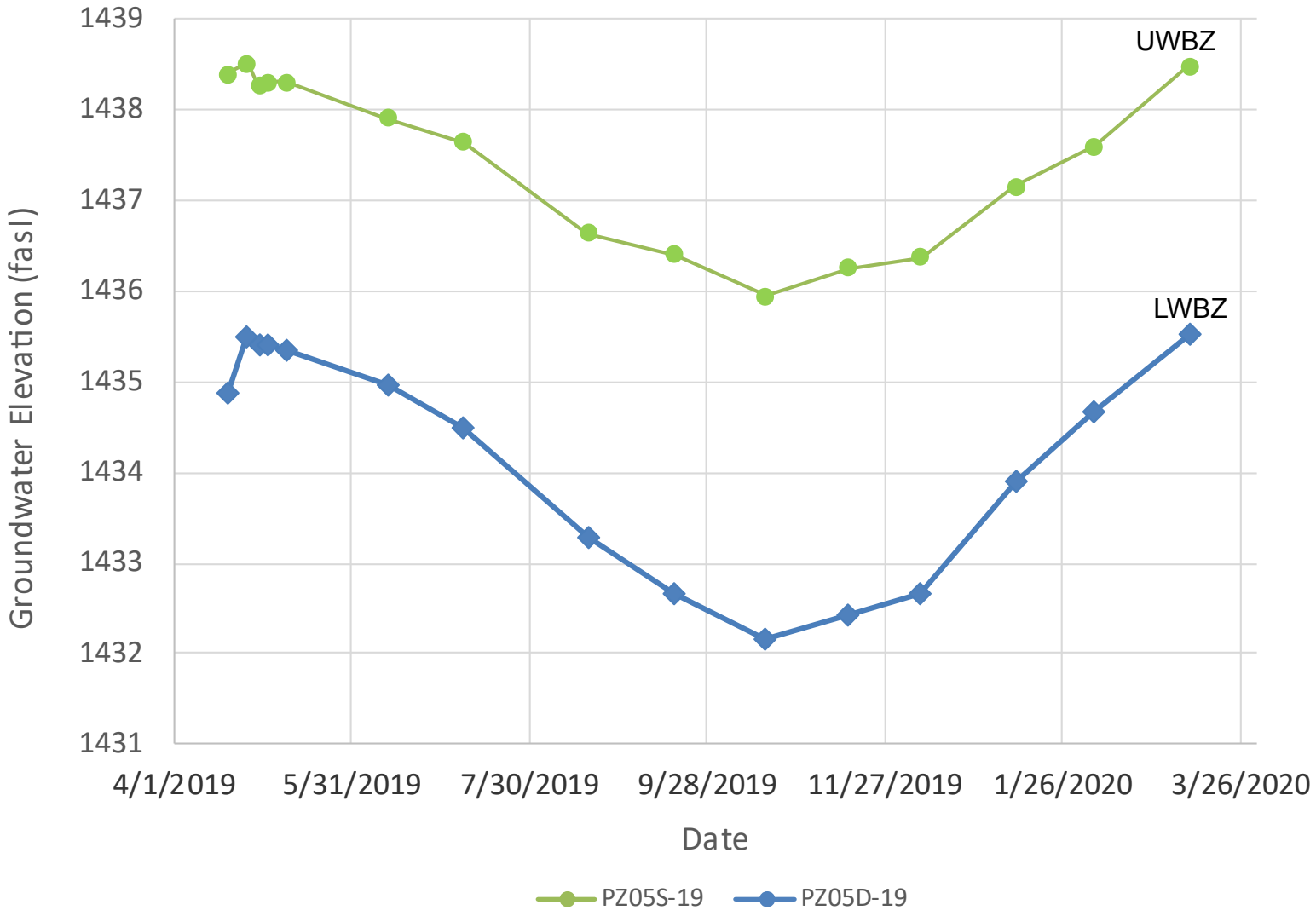
\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-GWC_1219.dwg - 2/28/2020



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	FACILITY-WIDE POTENTIOMETRIC SURFACE MAP: UPPER SILTY SAND AND GRAVEL (MARCH 9, 2020)
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Fig. 20

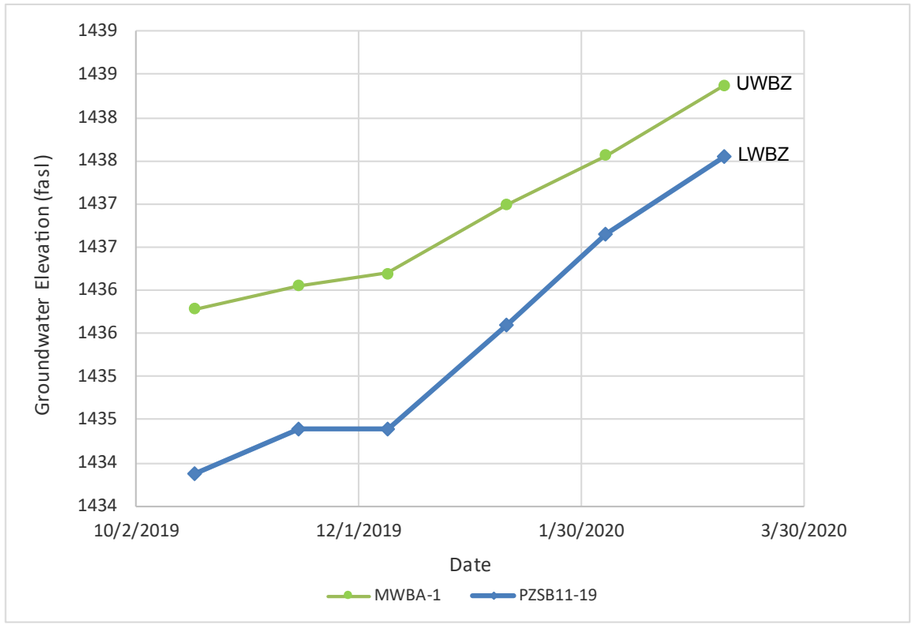
\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-GWC_0320.dwg - 3/19/2020

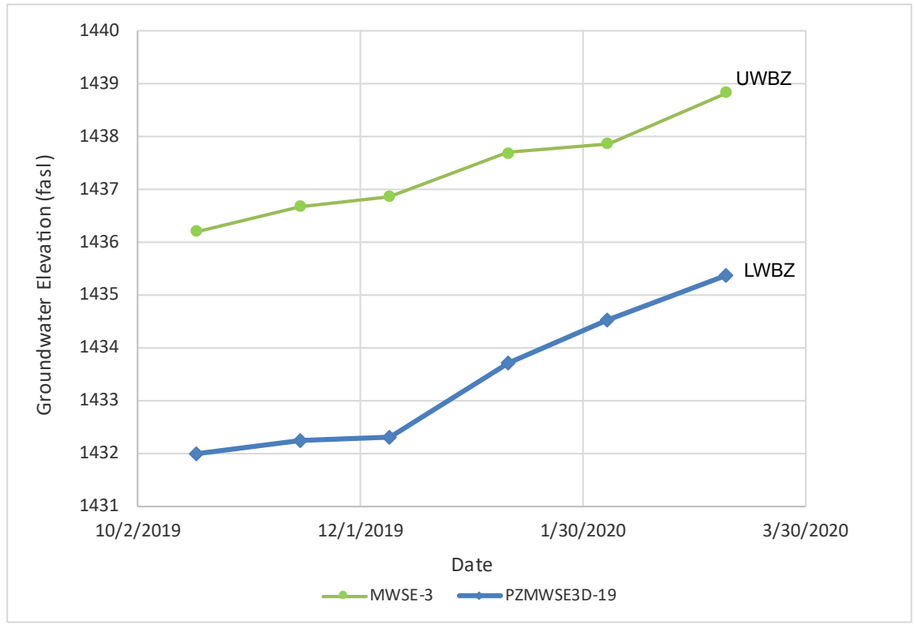


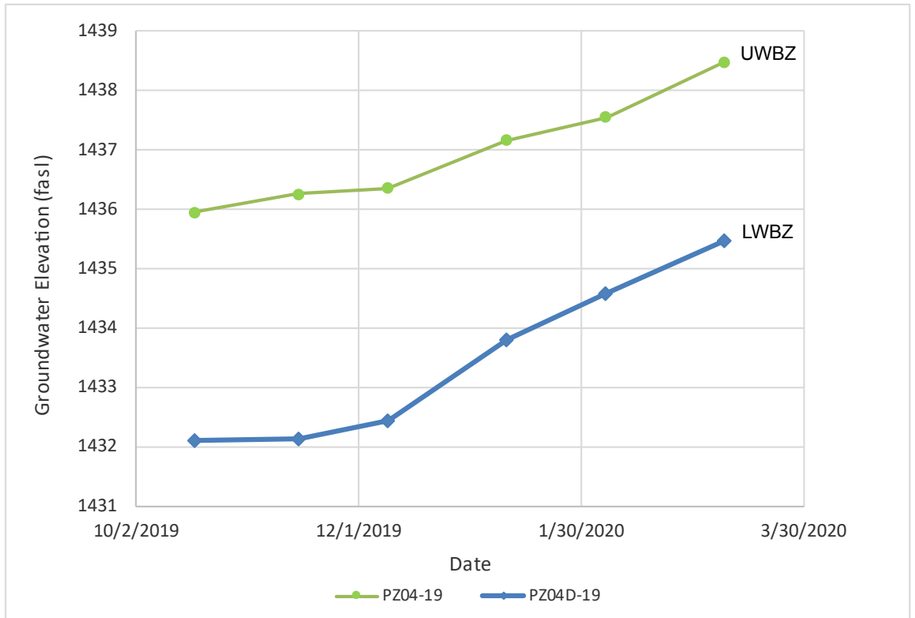
UWBZ- Upper Water Bearing Zone (Upper Silty Sand and Gravel)

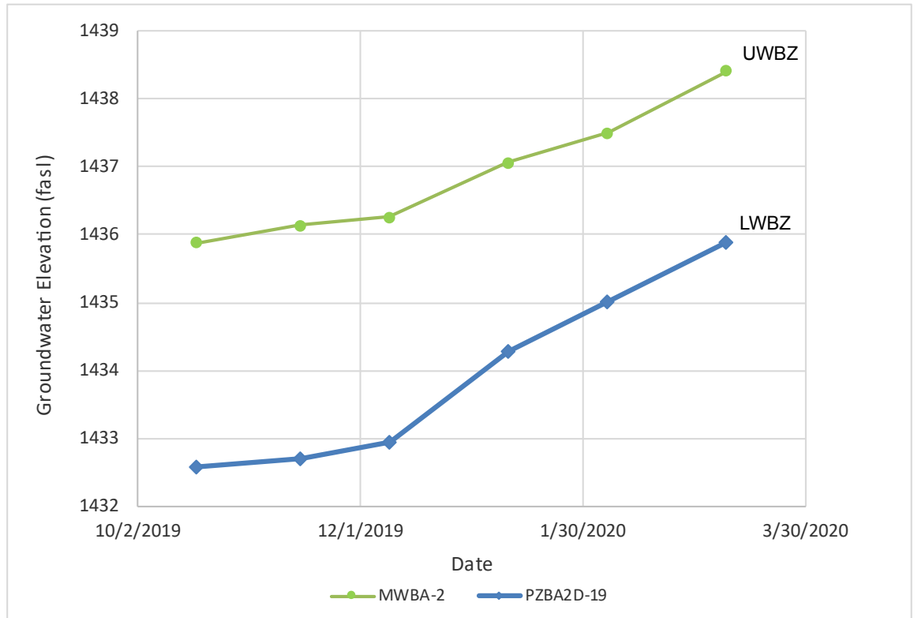
LWBZ- Lower Water Bearing Zone (Lower Silty Sand and Gravel)

Hydrogeologic Investigation Report Chaffee Landfill Facility- Area 7/8 Development Town of Sardinia, New York	GEI Consultants	GROUNDWATER ELEVATION COMPARISON- PZ-5S/5D WELL PAIR	
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020	Fig. 21









UWBZ- Upper Water Bearing Zone (Upper Silty Sand and Gravel)

LWBZ- Lower Water Bearing Zone (Lower Silty Sand and Gravel)

Hydrogeologic Investigation Report Chaffee Landfill Facility- Area 7/8 Development Town of Sardinia, New York	GEI Consultants	GROUNDWATER ELEVATION COMPARISON- UPPER and LOWER WATER BEARING ZONES
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Fig. 22

(DECOMMISSIONED)
MW-C(S)
(DECOMMISSIONED)
MW-C(I)
(DECOMMISSIONED)
OW-2(I)
(DECOMMISSIONED)
OW-4(I)
PW-2B
MW-33
MW-33(S)
MA-1
(DECOMMISSIONED)
MW-50
MA-2
(DECOMMISSIONED)
CONSTRUCTED CELL 5
CONSTRUCTED CELL 3
CONSTRUCTED CELL 1
OVERLINER CELL 1
AREA 7/8 DEVELOPMENT
SEDIMENTATION BASIN #4
MW-A(S)
(DECOMMISSIONED)
MW-K(D)
(DECOMMISSIONED)
MW-K(I)
MW-K(S)
MW-R4A
MW-3R
MW-1BR
MW-R1A
MW-4CR
MW-82B
MWSE-1
PZ05S-19
PZ05D-19
MWSE-2
MWSE-4
PZ03-19
BASIN-1
SEDIMENTATION BASIN #5
SEDIMENTATION BASIN #1
SEDIMENTATION BASIN #2
SEDIMENTATION BASIN #3
MWSE-3
PZ04-19
MWBA-2
MWBA-1
PZ02-19
MWBA-3
US-HBSW-1
P3-03
SH-6
PZ01-19
SH-2
HBSW-1
DS-HBSW-1

LEGEND

- EXISTING STORMWATER BASIN
- EXISTING CULVERT
- EXISTING RIP-RAP
- PROPERTY LINE
- APPROXIMATE CELL BOUNDARIES
- APPROXIMATE BORROW AREA LIMIT
- 100' WETLAND BUFFER
- DELINEATED WETLAND
- MONITORING/PUMP/ OBSERVATION WELL
- STAFF GAUGE
- 2019 MONITORING WELL
- 2019 PIEZOMETER
- SURFACE WATER SAMPLING LOCATION

N

0 500 1000

SCALE (ft., approximate)

SOURCE:

PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report
Chaffee Landfill Facility - Area 7/8 Development
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Waste Management of New York, L.L.C.
Chaffee, New York

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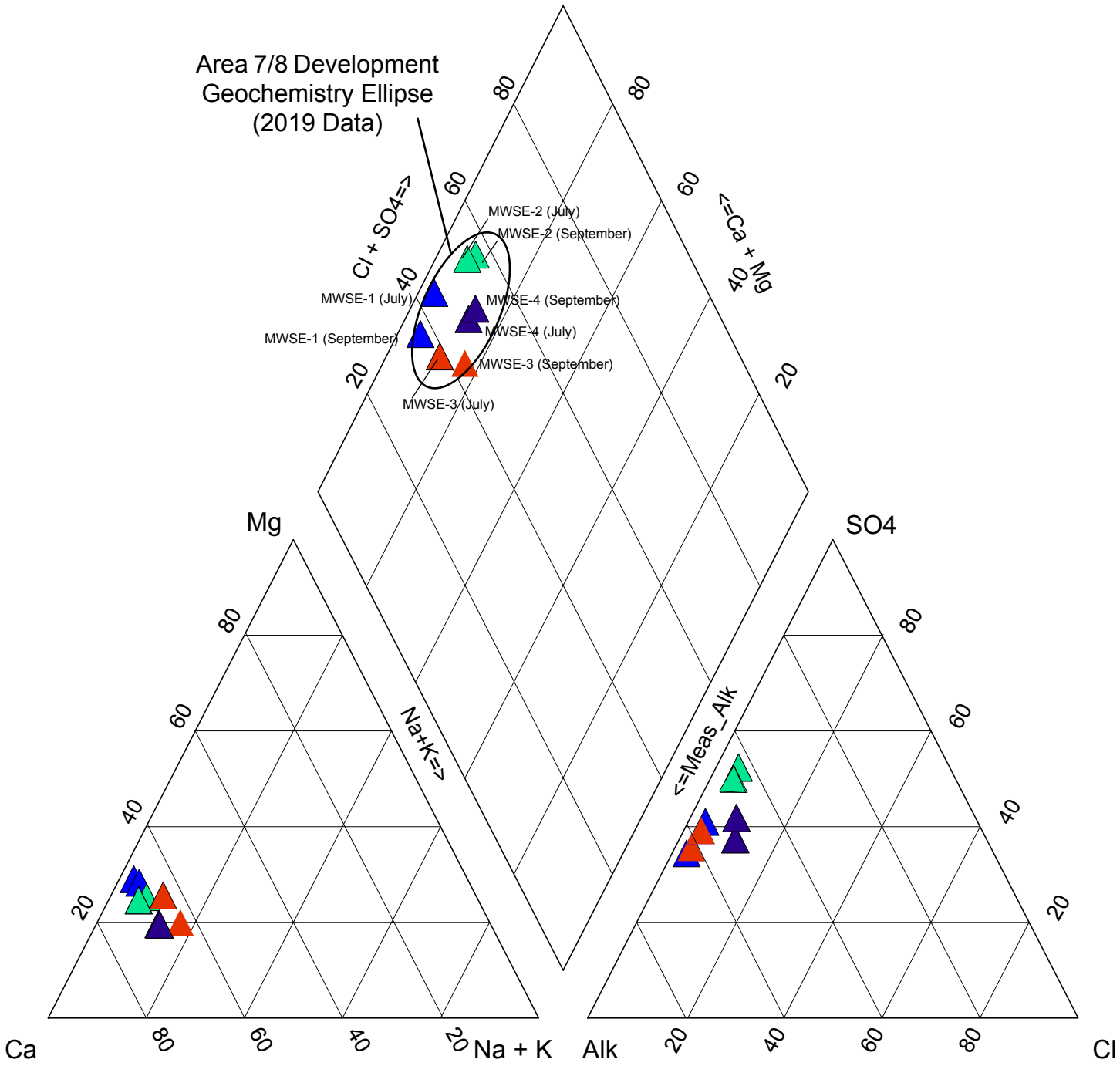
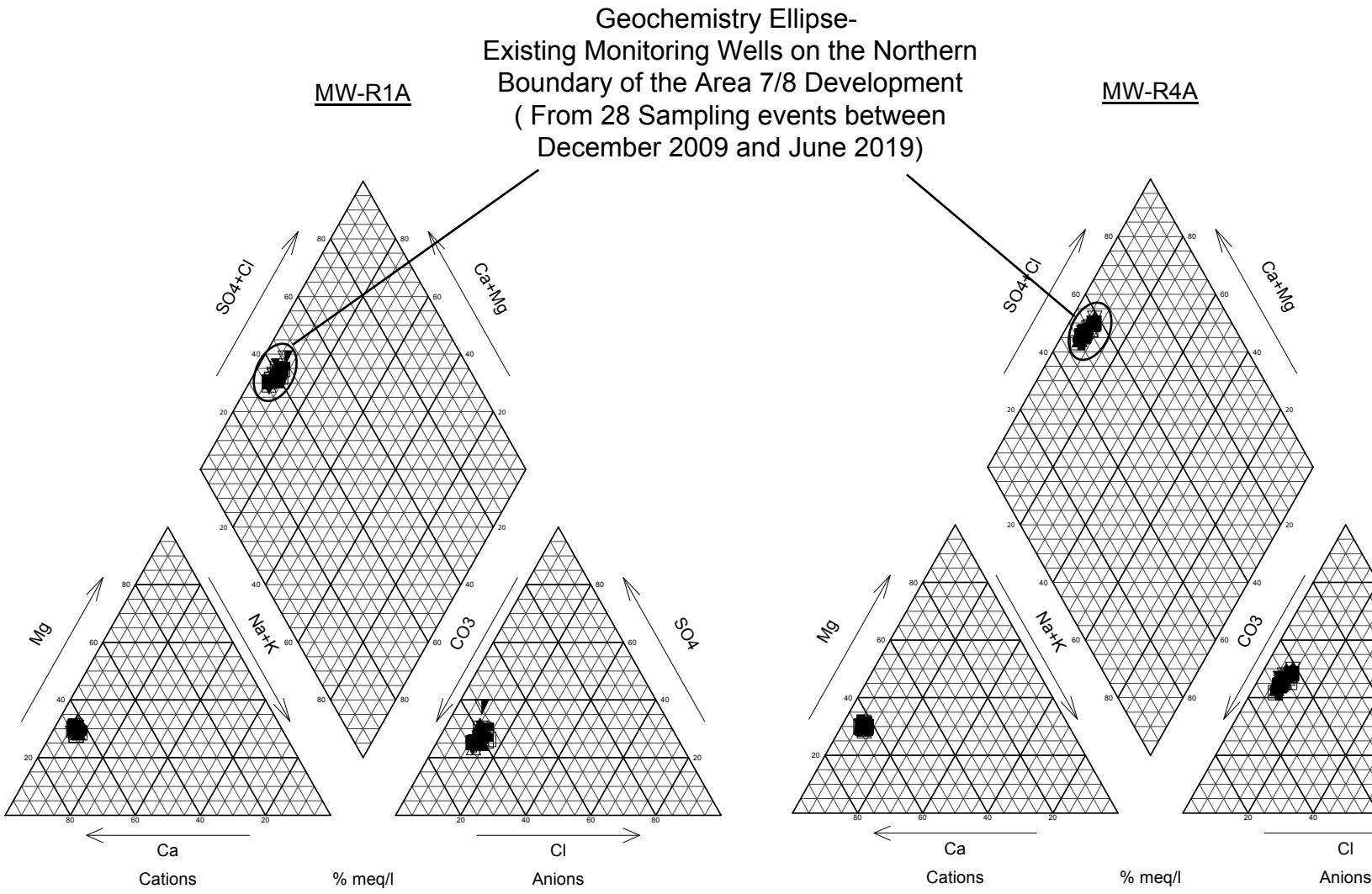
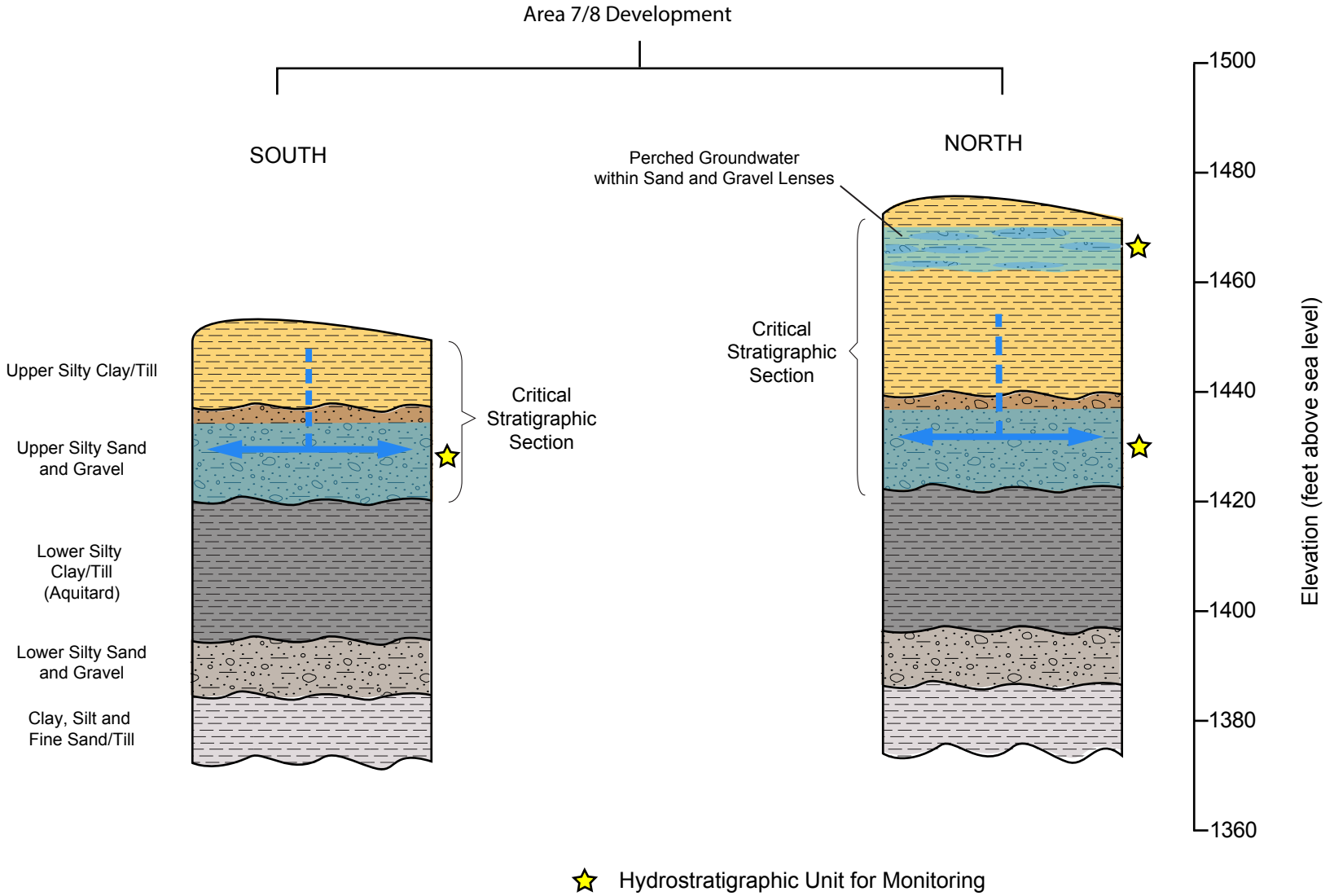
SUPPLEMENTAL SURFACE WATER SAMPLING LOCATIONS

Project 1900192 | April 2020 | Fig. 23





Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York		GEI Consultants	GEOCHEMISTRY COMPARISON AREA 7/8 DEVELOPMENT
Waste Management of New York, L.L.C. Chaffee, New York		Project 1900192	April 2020 Fig. 24



Hydrogeologic Investigation Report Chaffee Landfill Facility- Area 7/8 Development Town of Sardinia, New York	GEI Consultants	CRITICAL STRATIGRAPHIC SECTION and HYDROSTRATIGRAPHIC UNITS FOR MONITORING
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Fig. 25

Plates

LEGEND

- EXISTING CONTOURS
- EXISTING STORMWATER BASIN
- EXISTING CULVERT
- EXISTING RIP-RAP
- PROPERTY LINE
- APPROXIMATE CELL BOUNDARIES
- APPROXIMATE BORROW AREA LIMIT
- 100' WETLAND BUFFER
- DELINEATED WETLAND
- MW-F, OW-4(I), PW-2B, DP-2: MONITORING/PUMP/OBSERVATION/ DRIVE POINT WELL
- L3F, L3E, SB2-02: BORE HOLE
- TP11-09: TEST PIT
- IP2019: INVESTIGATION POINT
- GP-28: GAS PROBE
- SH-6: STAFF GAUGE
- 2019 MONITORING WELL
- 2019 PIEZOMETER

N

HAND ROAD (66' WIDE R.O.W.)

USACOE WETLAND W-11

NYSDEC WETLAND AR-11

NYSDEC 100' WETLAND BUFFER

PROPOSED BORROW AREA C

MC-1, MC-1A, MC-2, MC-3, MC-4, MC-5

MW-23, MW-81, MW-80B, MW-80A, GP-12, GP-13

MW-16, MW-15, MW-16(S), MW-L(I), MW-L(S), MW-P(I), MW-P(S), MW-M(I), MW-M(S), MW-17, MW-18BR, MW-N(I), MW-N(S), MW-Q(S), MW-Q(I), GP-10A, MW-12A, MW-12B, GP-11, MW-10R, MW-11R, MW-14R, MW-7R

ACCESS ROAD

SITE ACCESS GATE

MW-19, MW-20, MW-22, MW-21

GP-20, GP-21, GP-19, GP-18, BH 2-12, BH 1-12

SB3-03, SB3-02

LEACHATE COLLECTION SUMP #5

VALLEY FILL LANDFILL EXPANSION LIMIT

MW-24BR, MW-24AR, GP-14

MW-72, MW-71

GP-22, MW-O(I), MW-O(S), GP-9 (DECOMMISSIONED)

CONSTRUCTED CELL 6

CONSTRUCTED CELL 4

CONSTRUCTED CELL 2

OVERLINER CELL 2

LEACHATE COLLECTION SUMP #1

Trench 2, Trench 3, Trench 1, Trench 4

BH-1-89 (DECOMMISSIONED), MW-F

SITE ACCESS GATE

GARAGE

MAINTENANCE BUILDING

EQUIPMENT WASH BAY

WELDING SHOP

ROUTE 16

GP-23, MW-32, MW-30, MW-31, SB1-03, SB4-03, GP-8 (DECOMMISSIONED), GP-15, MW-9R, B-9, MW-13R

LIMIT OF WESTERN LANDFILL AREA

LEACHATE STORAGE TANK #1 AND LOADOUT PAD

CLOSED LANDFILL

GP-16, MW-2R

MW-G(D), MW-G(I), MW-G(S)

CONDENSATE STORAGE TANK

GP-24, GP-7 (DECOMMISSIONED), SB7-03

AREA 7/8 DEVELOPMENT

POWER PRODUCTION PLANT

STORAGE BUILDING

FLARE STATION

GP-17

MW-70

MD-5, DP-1, SB2-03, SB1-02, DP-6, DP-2, DP-4 (DECOMMISSIONED), MW-C(I) (DECOMMISSIONED), MW-C(D) (DECOMMISSIONED), MW-C(S) (DECOMMISSIONED), OW-2(I) (DECOMMISSIONED), GP-25, OW-4(I), DP-5, PW-2B, PW-2, OW-1(S), OW-1(I), MW-33(I), MW-33(S), MD-8, DP-3

CONSTRUCTED CELL 5

CONSTRUCTED CELL 3

CONSTRUCTED CELL 1

OVERLINER CELL 1

SB5-03, SB6-03

BH-2-89 (DECOMMISSIONED), TB-12 (DECOMMISSIONED), GP-6 (DECOMMISSIONED)

LEACHATE COLLECTION SUMP #2

P1-03 (DECOMMISSIONED), BH-2 (DECOMMISSIONED), TB-103 (DECOMMISSIONED), SEB-05 (DECOMMISSIONED), TB-5 (DECOMMISSIONED), W-3 (DECOMMISSIONED), P2-03 (DECOMMISSIONED), TB-4 (DECOMMISSIONED), TB-3 (DECOMMISSIONED), W-1A/B (DECOMMISSIONED), W-4A/B/C (DECOMMISSIONED), MW-R4 (DECOMMISSIONED), MW-4C (DECOMMISSIONED), MW-4R4A, MW-4CR, GP-5R, MW-3R2 (DECOMMISSIONED), MW-R3, MW-R1A, MW-R1B (DECOMMISSIONED), GP-3, GP-2, MW-1BR, GP-4

SEDIMENTATION BASIN #4

LEACHATE STORAGE TANK #2 AND LOADOUT PAD

GP-1R, SEB-07 (DECOMMISSIONED), SEB-06 (DECOMMISSIONED)

ROLLOFF STORAGE AREA

FUELING AREA

RECYCLING CENTER

SITE ACCESS GATE

MW-53, MW-52, MW-51, MW-56, MW-55, MW-54

SB1-08

MW-A(I) (DECOMMISSIONED), MW-A(S) (DECOMMISSIONED), SB1-16, SB2-02, MW-K(I), MW-K(D), MW-K(S), GP-26, GP-27, GP-28, GP-29, MA-1 (DECOMMISSIONED), TANK #3/#4 MANHOLE

ACCESS ROAD

WATER SUPPLY WELL AND LINE

LEACHATE LOADOUT BUILDING

LEACHATE STORAGE TANK AREA

SEPTIC TANK AND LINE

LEACHATE TANKER HAUL ROAD

L5A, MW-50, L4B, L4A, SP01-19, MA-2 (DECOMMISSIONED), MA-3 (DECOMMISSIONED)

SEDIMENTATION BASIN #5

SB7-08, SB1-17, SB8-08

WEST BORROW AREA (RECLAIMED)

SB10-19, MWSE-1

NYSDEC WETLAND AR-11

NYSDEC 100' WETLAND BUFFER

EAST BORROW AREA (ACTIVE)

L1A, L1B, L1C, L1D, L7B, L7A

SB5-19, SB6-08 (DECOMMISSIONED WELL), SB06-19, SB02-19, SB03-19, TP5-09, TP4C-09, SB09-19/PZ09, PZ05S-19, PZ05D-19, SB13-17, MWSE-4, TP3-09, L3E, L3D, L3C, L3B, PZ03-19, SB12-17, SB3-17, SB07-19, TP2-09, SB-08-19, TP10-09, SB2-17, SB9-08 (DECOMMISSIONED WELL), TP9-09, TP7-09, SB3-08, SB4-08 (DECOMMISSIONED WELL)

SEDIMENTATION BASIN #1

SEDIMENTATION BASIN #2

SEDIMENTATION BASIN #3

NYSDEC WETLAND SD-1

NYSDEC 100' WETLAND BUFFER

NYSDEC WETLAND SD-1

L13A, L13B, L13C, L13D

TP03-19, TP12-09, TP1-09, L3A, TP12-19, TP11-09, L2A, L2B, L2C, L2D, L2E, SB4-17, MW-SE-3, SB12-19, MWSE-2, PZBA2D-19, MWBA-1, MWBA-2, PZSB11-19

PZ02-19, PZ04D-19, PZ04-19, PZMWSE3D-19, MWBA-3

SBPZ01D-19, PZ01-19, P3-03, SH-6, SH-2, P4-03

APPROXIMATE SAWICKI PROPERTY

WETLAND MITIGATION AREA, MB-1

EXISTING GRAVEL BORROW AREA

LOCATION OF SH-3

0 1000 2000

SCALE: 1" = 1000'

0 250 500

SCALE, FEET

SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY
McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

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Town of Sardinia, New York

Waste Management of New York, L.L.C.
Chaffee, New York

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SITE LAYOUT PLAN

Project 1900192 | April 2020 | Plate 1

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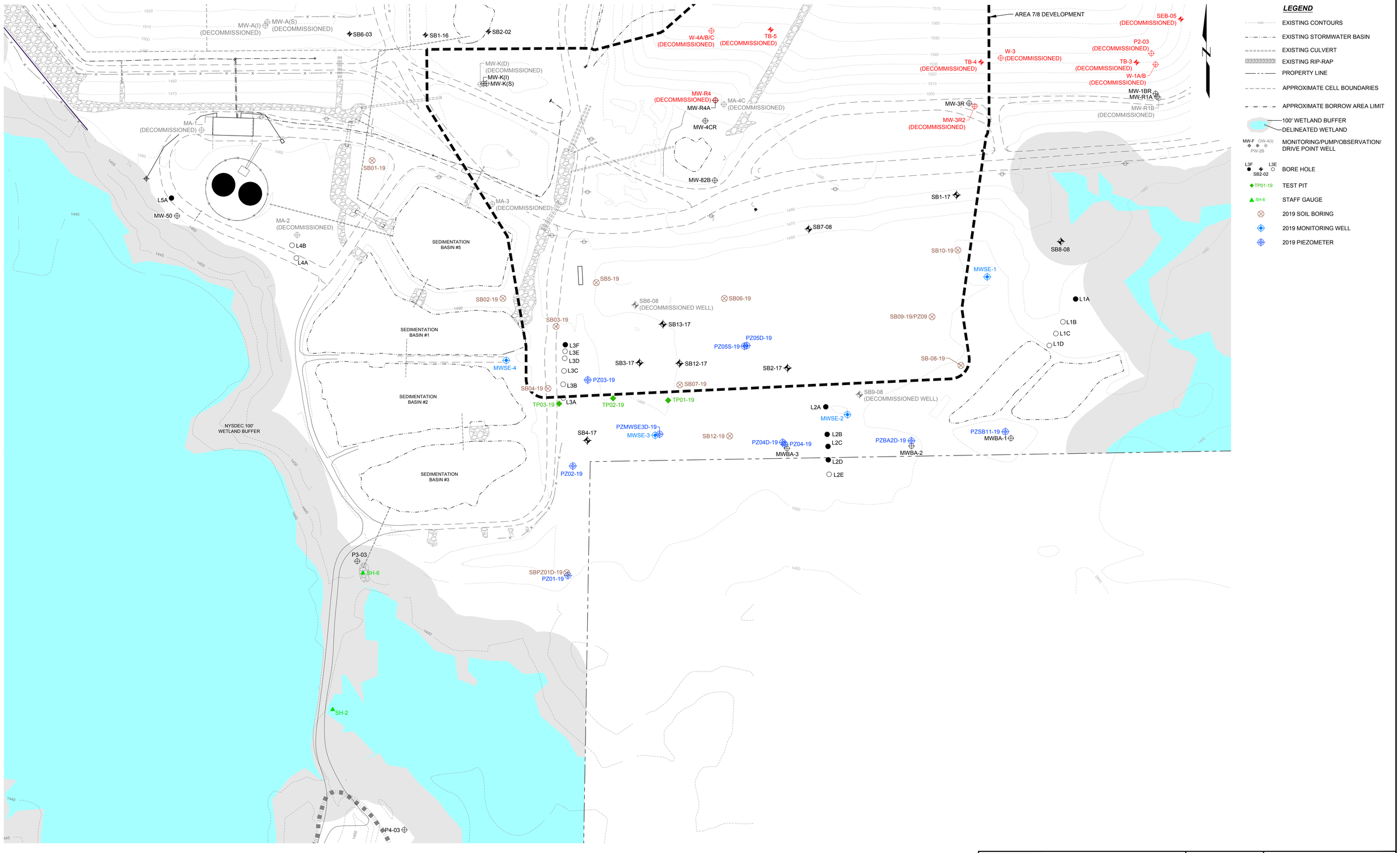

SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY
McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

0 100 200
SCALE: 1" = 100'

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AREA 7/8 DEVELOPMENT

Project 1900192 | April 2020 | Plate 2

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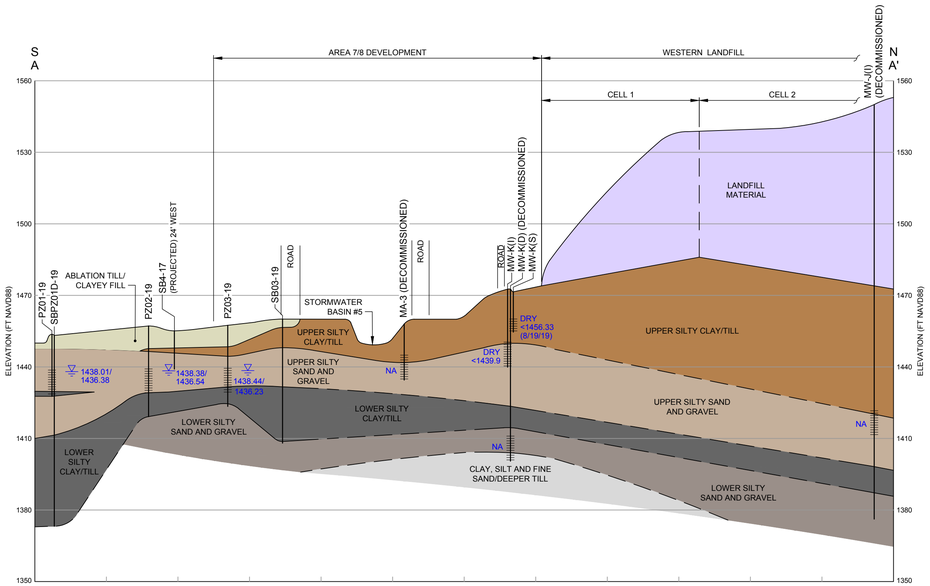


HORIZONTAL SCALE: 1" = 200'
0 200 400
0 30 60
VERTICAL SCALE: 1" = 30'
NOTE: 6.7xVERTICAL EXAGGERATION

CROSS SECTION LEGEND:

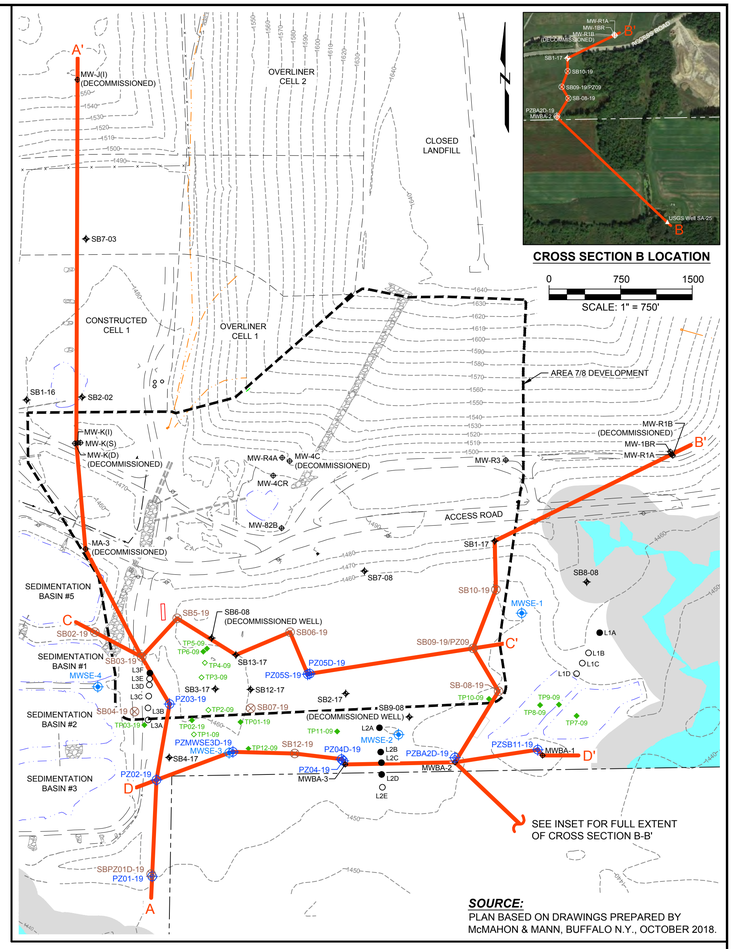
- PZ04-19 / 1438.27/ 1435.96 — SOIL BORING / MONITORING WELL IDENTIFICATION; WATER LEVEL ON MAY 9, 2019/ OCTOBER 18, 2019; NI = NOT INSTALLED
- WELL SCREEN INTERVAL
- CONTACT
- BOUNDARY IS APPROXIMATED

GEOLOGIC UNIT

- LANDFILL MATERIAL
- ABLATION TILL/ CLAYEY FILL
- UPPER SILTY CLAY/TILL
- UPPER SILTY SAND AND GRAVEL
- LOWER SILTY CLAY/ TILL
- LOWER SILTY CLAY/ TILL INTERBEDDED WITH THIN LAYERS OF SILTY SAND AND GRAVEL
- LOWER SILTY SAND AND GRAVEL
- CLAY, SILT AND FINE SAND/DEEPER TILL
- DEEPER SILTY SAND AND GRAVEL

PLAN VIEW LEGEND

- EXISTING CONTOURS (1450)
- EXISTING STORMWATER BASIN
- EXISTING CULVERT
- EXISTING RIP-RAP
- PROPERTY LINE
- APPROXIMATE CELL BOUNDARIES
- APPROXIMATE BORROW AREA LIMIT
- 100' WETLAND BUFFER
- MW-F, OW-4(I), PW-2B — MONITORING/PUMP/ OBSERVATION WELL
- SB2-02, L3F, L3E — BORE HOLE
- TP11-09 — TEST PIT
- 2019 SOIL BORING
- 2019 MONITORING WELL
- 2019 PIEZOMETER
- A — A' — CROSS SECTION LOCATION



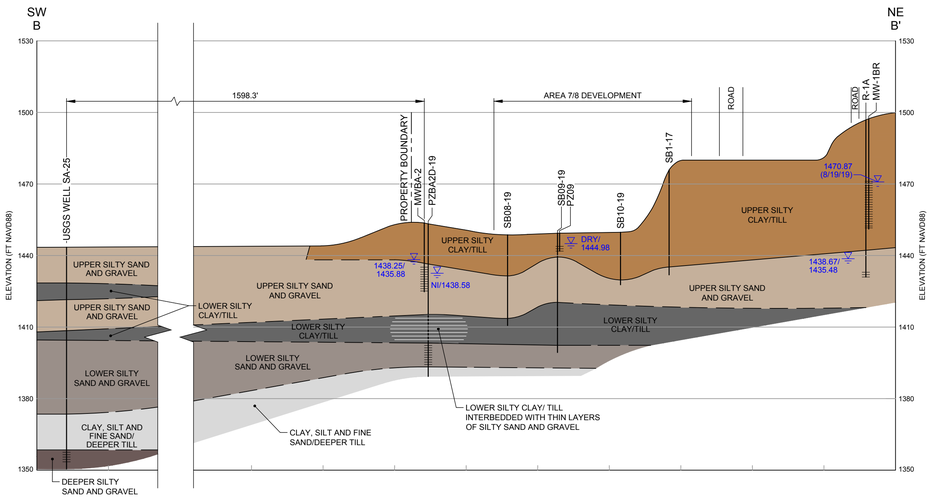
CROSS SECTION B LOCATION

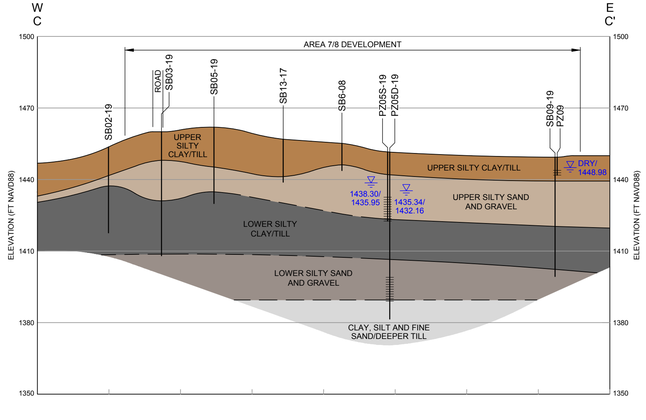
0 750 1500
SCALE: 1" = 750'

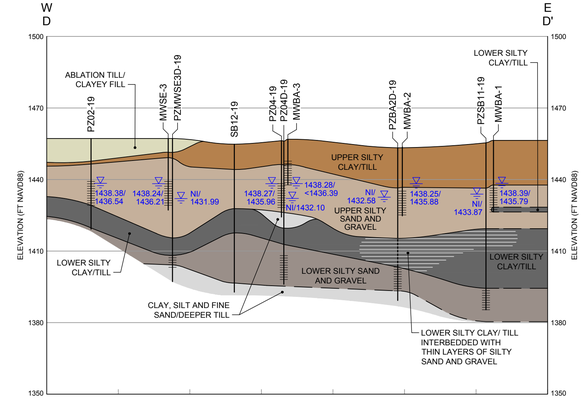
CROSS SECTION LOCATION

0 200 400
SCALE: 1" = 200'

SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.







Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	GEOLOGIC CROSS SECTIONS
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 — Plate 3

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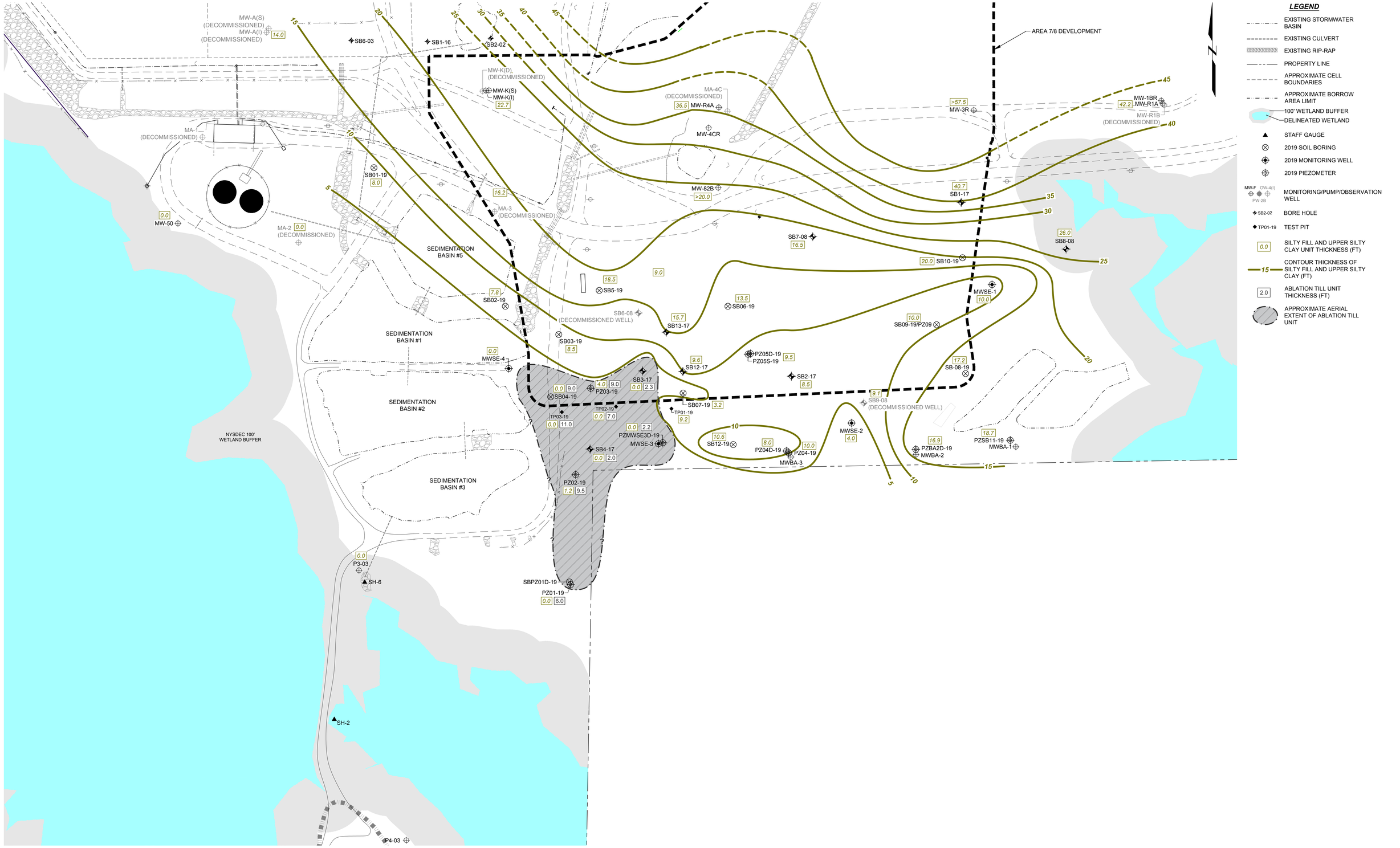

SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY
McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

0 100 200
SCALE: 1" = 100'

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Town of Sardinia, New York

Waste Management of New York, L.L.C.
Chaffee, New York

GEI Consultants

ABLATION TILL AND UPPER SILTY CLAY ISOPACH

Project 1900192 | April 2020 | Plate 4

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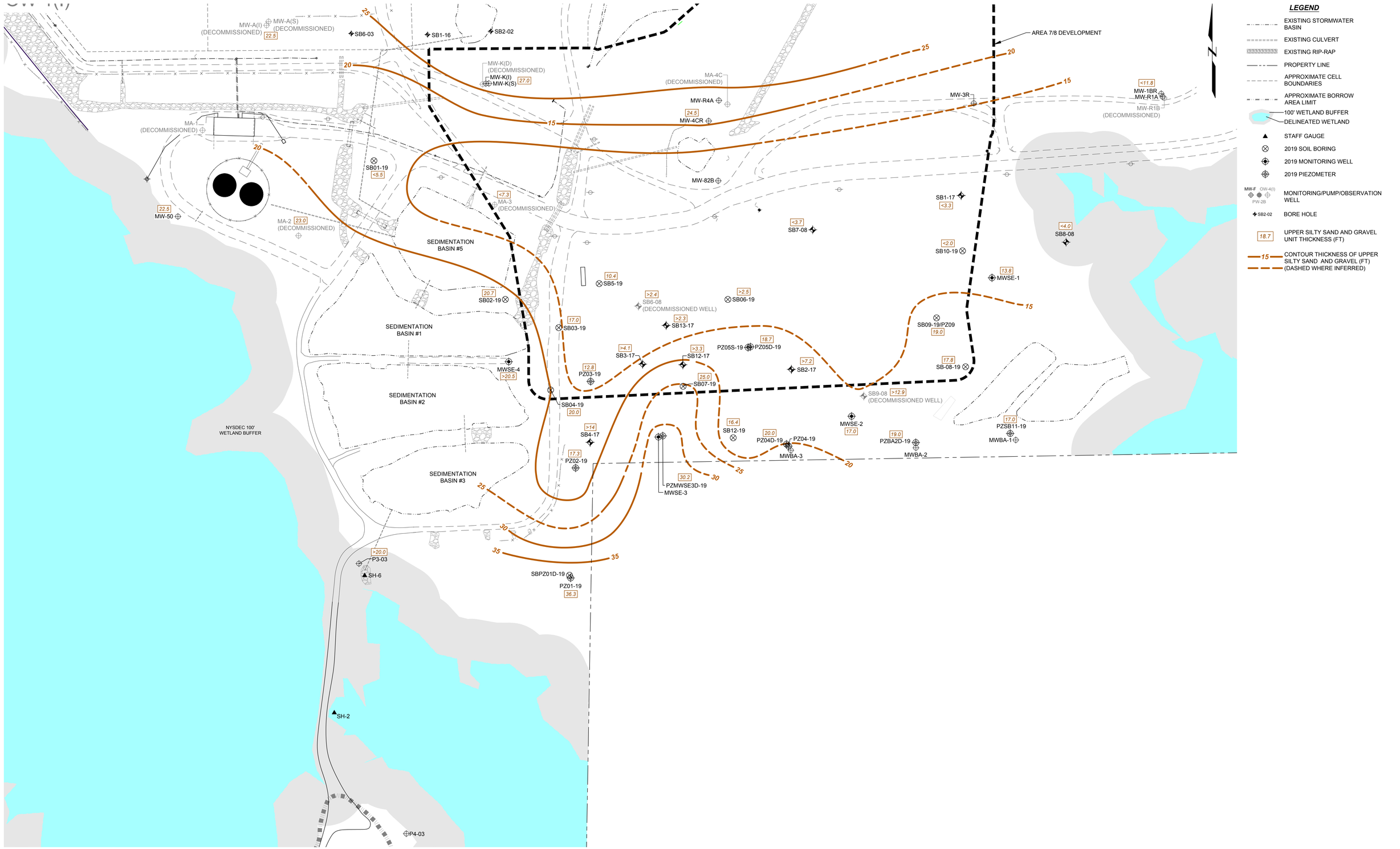

SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

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Chaffee Landfill Facility - Area 7/8 Development
Town of Sardinia, New York

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Chaffee, New York

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UPPER SILTY SAND AND GRAVEL ISOPACH

April 2020

Plate 5

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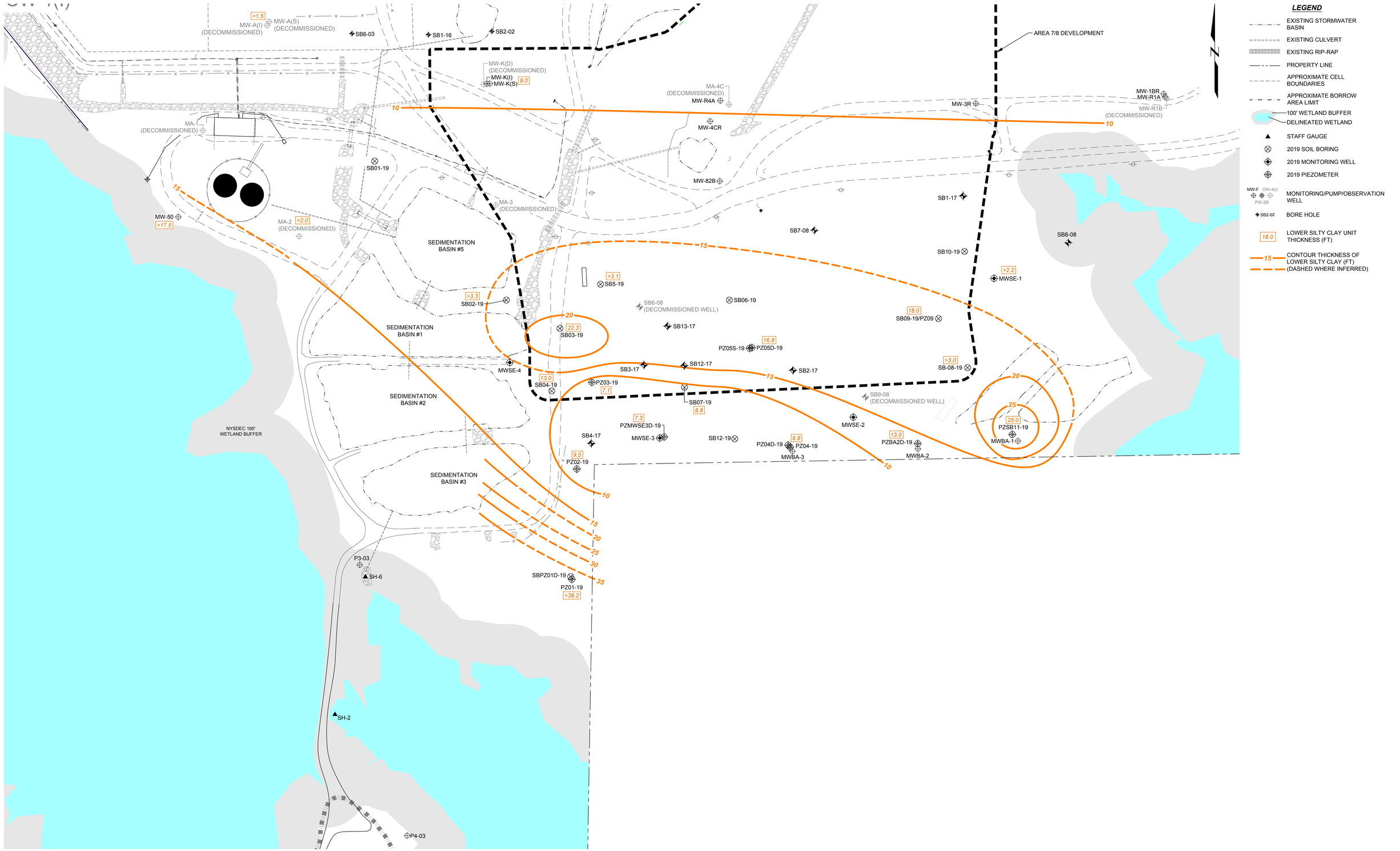

LEGEND

- EXISTING STORMWATER BASIN
- EXISTING CULVERT
- EXISTING RIP-RAP
- PROPERTY LINE
- APPROXIMATE CELL BOUNDARIES
- APPROXIMATE BORROW AREA LIMIT
- 100' WETLAND BUFFER
- DELINEATED WETLAND
- STAFF GAUGE
- 2019 SOIL BORING
- 2019 MONITORING WELL
- 2019 PIEZOMETER
- MW-F OW-4(I) PW-2B — MONITORING/PUMP/OBSERVATION WELL
- SB2-02 — BORE HOLE
- 18.0 — LOWER SILTY CLAY UNIT THICKNESS (FT)
- 15 — CONTOUR THICKNESS OF LOWER SILTY CLAY (FT) (DASHED WHERE INFERRED)

SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

0 100 200
SCALE: 1" = 100'

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Chaffee Landfill Facility - Area 7/8 Development
Town of Sardinia, New York

Waste Management of New York, L.L.C.
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LOWER SILTY CLAY (AQUITARD) ISOPACH

April 2020 Plate 6

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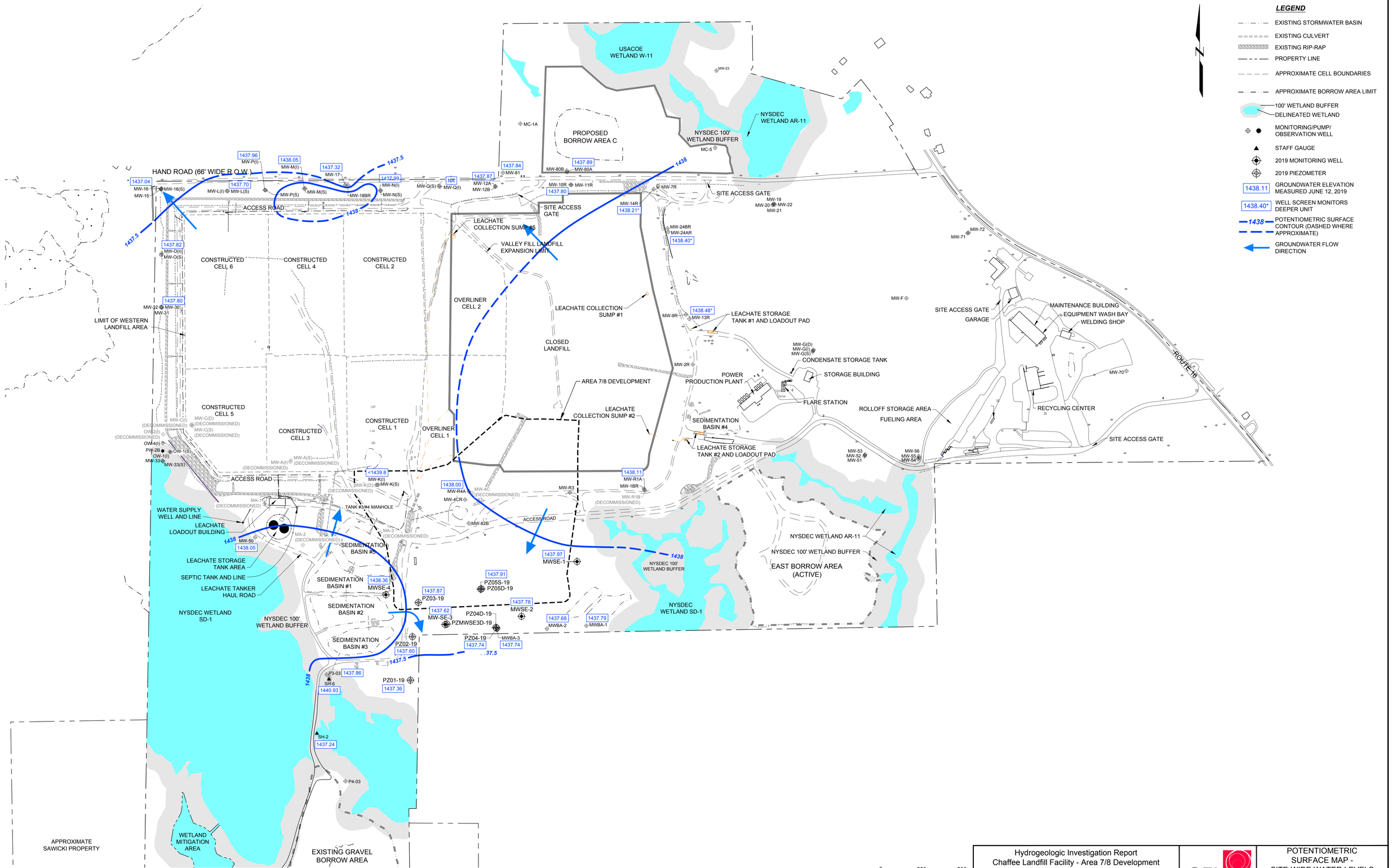
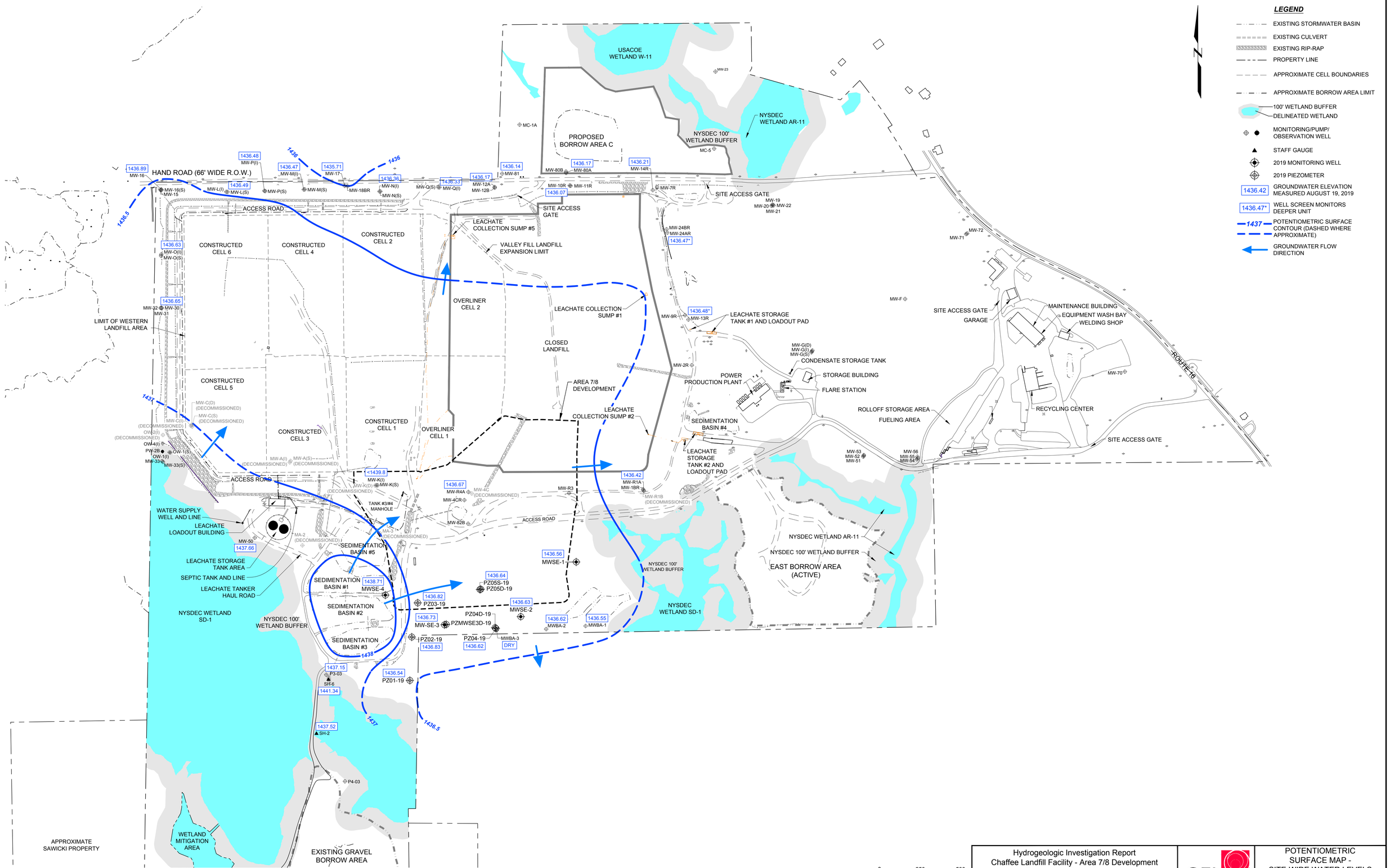


0 250 500
SCALE, FEET

SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	POTENTIOMETRIC SURFACE MAP - SITE-WIDE WATER LEVELS (JUNE 2019)
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Plate 7

\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\HIR\1900192-HIR-GWC_0619P.dwg - 7/15/2020



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	POTENTIOMETRIC SURFACE MAP - SITE-WIDE WATER LEVELS (AUGUST 2019)
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Plate 8

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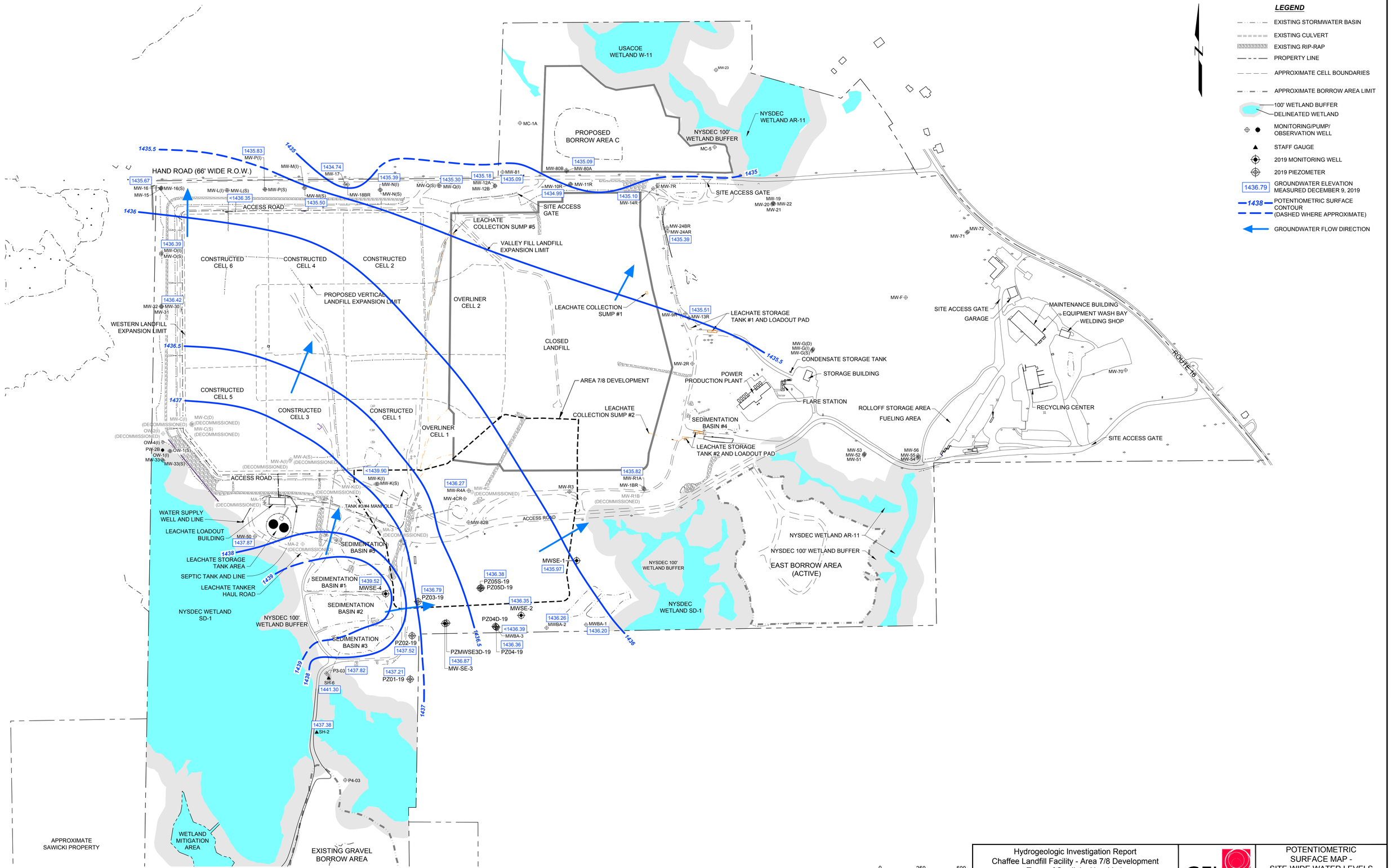

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SCALE, FEET

SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY
McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	POTENTIOMETRIC SURFACE MAP - SITE-WIDE WATER LEVELS (DECEMBER 2019)
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	April 2020 Plate 9

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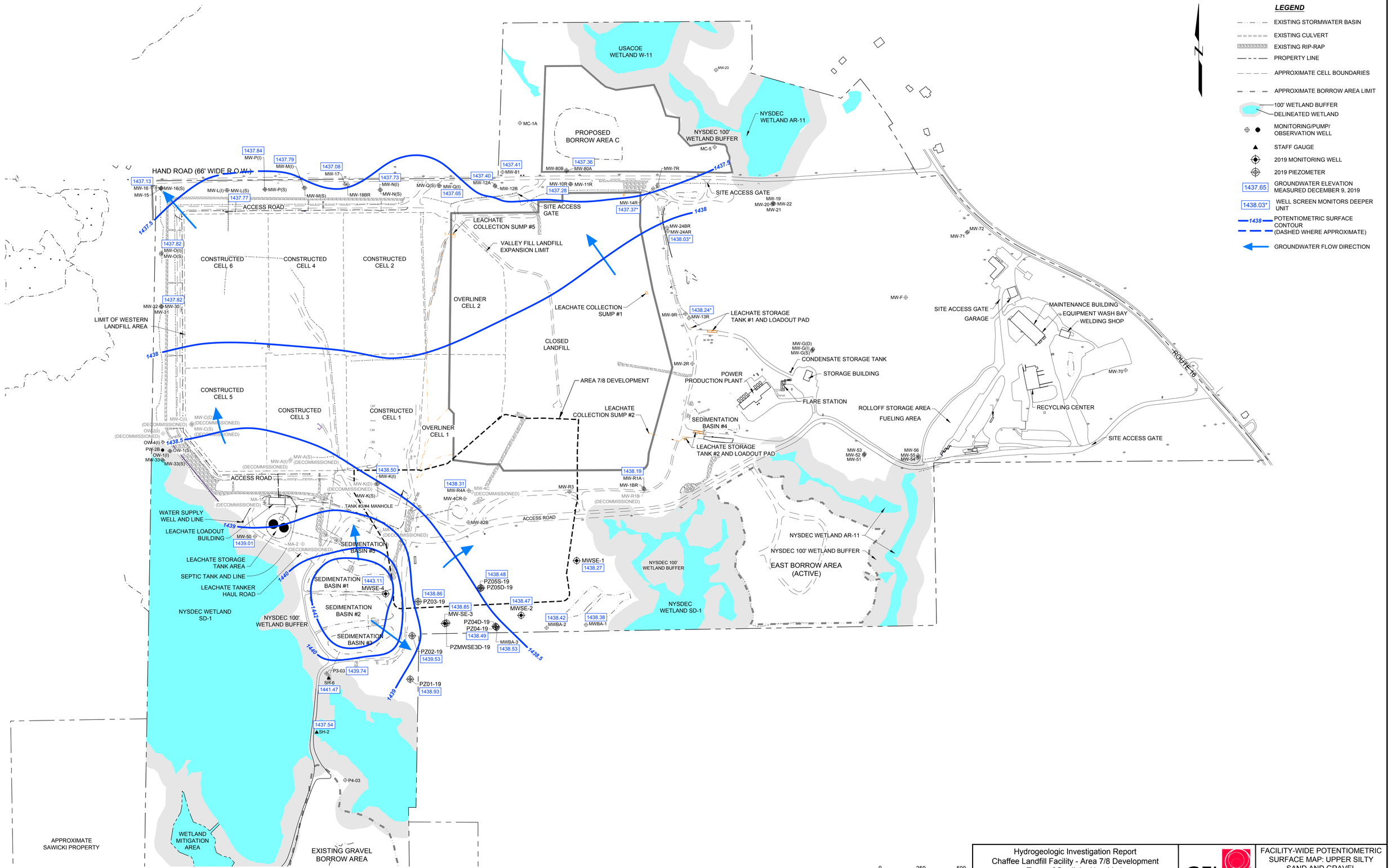
LEGEND
EXISTING STORMWATER BASIN
EXISTING CULVERT
EXISTING RIP-RAP
PROPERTY LINE
APPROXIMATE CELL BOUNDARIES
APPROXIMATE BORROW AREA LIMIT
100' WETLAND BUFFER
DELINEATED WETLAND
MONITORING/PUMP/ OBSERVATION WELL
STAFF GAUGE
2019 MONITORING WELL
2019 PIEZOMETER
1437.65 GROUNDWATER ELEVATION MEASURED DECEMBER 9, 2019
1438.03* WELL SCREEN MONITORS DEEPER UNIT
1438 POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE APPROXIMATE)
GROUNDWATER FLOW DIRECTION
N
USACOE WETLAND W-11
NYSDEC WETLAND AR-11
NYSDEC 100' WETLAND BUFFER
PROPOSED BORROW AREA C
HAND ROAD (66' WIDE R.O.W.)
ACCESS ROAD
SITE ACCESS GATE
LEACHATE COLLECTION SUMP #5
VALLEY FILL LANDFILL EXPANSION LIMIT
CONSTRUCTED CELL 6
CONSTRUCTED CELL 4
CONSTRUCTED CELL 2
CONSTRUCTED CELL 5
CONSTRUCTED CELL 3
CONSTRUCTED CELL 1
OVERLINER CELL 2
OVERLINER CELL 1
CLOSED LANDFILL
LIMIT OF WESTERN LANDFILL AREA
LEACHATE COLLECTION SUMP #1
AREA 7/8 DEVELOPMENT
LEACHATE COLLECTION SUMP #2
LEACHATE STORAGE TANK #1 AND LOADOUT PAD
LEACHATE STORAGE TANK #2 AND LOADOUT PAD
POWER PRODUCTION PLANT
CONDENSATE STORAGE TANK
STORAGE BUILDING
FLARE STATION
SEDIMENTATION BASIN #4
MAINTENANCE BUILDING
EQUIPMENT WASH BAY
WELDING SHOP
GARAGE
ROLLOFF STORAGE AREA
FUELING AREA
RECYCLING CENTER
ROUTE 16
TANK #3/#4 MANHOLE
WATER SUPPLY WELL AND LINE
LEACHATE LOADOUT BUILDING
LEACHATE STORAGE TANK AREA
SEPTIC TANK AND LINE
LEACHATE TANKER HAUL ROAD
SEDIMENTATION BASIN #1
SEDIMENTATION BASIN #2
SEDIMENTATION BASIN #3
SEDIMENTATION BASIN #5
NYSDEC WETLAND SD-1
NYSDEC 100' WETLAND BUFFER
EAST BORROW AREA (ACTIVE)
WETLAND MITIGATION AREA
EXISTING GRAVEL BORROW AREA
APPROXIMATE SAWICKI PROPERTY
MW-16 1437.13
MW-P(I) 1437.84
MW-M(I) 1437.79
MW-17 1437.08
MW-N(I) 1437.73
MW-12A 1437.40
MW-81 1437.41
MW-80B
MW-80A 1437.36
MW-7R
MW-10R
MW-11R 1437.28
MW-14R 1437.37*
MW-24BR
MW-24AR 1438.03*
MW-71
MW-72
MW-19
MW-20
MW-22
MW-21
MW-O(I) 1437.82
MW-O(S)
MW-32
MW-30 1437.82
MW-31
MW-9R
MW-13R 1438.24*
MW-F
MW-G(D)
MW-G(I)
MW-G(S)
MW-2R
MW-70
MW-53
MW-52
MW-51
MW-56
MW-55
MW-54
MW-C(I) (DECOMMISSIONED)
MW-C(D) (DECOMMISSIONED)
MW-C(S) (DECOMMISSIONED)
OW-2(I) (DECOMMISSIONED)
OW-4(I)
PW-2B
OW-1(S)
OW-1(I)
MW-33(I)
MW-33(S)
MW-A(I) (DECOMMISSIONED)
MW-A(S) (DECOMMISSIONED)
MW-K(I) 1438.50
MW-K(D) (DECOMMISSIONED)
MW-K(S)
MA-1 (DECOMMISSIONED)
MW-R4A 1438.31
MW-4C (DECOMMISSIONED)
MW-4CR
MW-82B
MW-R3
MW-R1A 1438.19
MW-1BR
MW-R1B (DECOMMISSIONED)
MA-2 (DECOMMISSIONED)
MA-3 (DECOMMISSIONED)
MW-50 1439.01
MW-N(S)
MW-M(S)
MW-P(S)
MW-L(I)
MW-L(S)
MW-18BR
MW-Q(S)
MW-Q(I) 1437.65
MW-12B
MW-11R
MW-10R
MW-R1A 1438.19
MW-1BR
MWSE-1 1438.27
MWSE-4 1443.11
MWSE-2 1438.47
MW-SE-3 1438.85
PZ03-19 1438.86
PZ06S-19
PZ05D-19 1438.48
PZ04D-19
PZ04-19 1438.49
PZMWSE3D-19
PZ02-19 1439.53
PZ01-19 1438.93
MWBA-2 1438.42
MWBA-1 1438.38
MWBA-3 1438.53
P3-03 1439.74
SH-6 1441.47
SH-2 1437.54
P4-03
1437.5
1438
1438.5
1439
1440
1442
SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.
0 250 500
SCALE, FEET
Hydrogeologic Investigation Report
Chaffee Landfill Facility - Area 7/8 Development
Town of Sardinia, New York
Waste Management of New York, L.L.C.
Chaffee, New York
GEI Consultants
Project 1900192
FACILITY-WIDE POTENTIOMETRIC SURFACE MAP: UPPER SILTY SAND AND GRAVEL (MARCH 9, 2020)
April 2020
Plate 10
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Appendix A

Site Investigation Plan, Correspondence, Supplemental Scopes of Work

GEI Consultants

Consulting
Engineers and
Scientists

Site Investigation Plan

Chaffee Sanitary Landfill – Southern Expansion
Facility DEC ID 9-1462-00001
Chaffee, New York

Submitted to:
Waste Management of New York
Chaffee, New York

Submitted by:
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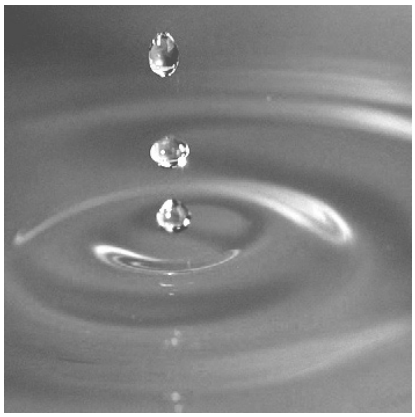

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1. Introduction

This Site Investigation Plan (SIP) is submitted to the New York State Department of Environmental Conservation (NYSDEC or Department) in support of a forthcoming Title 6 New York Code of Rules and Regulations (6 NYCRR) Part 360 Solid Waste Management Facility Permit Modification application for lateral expansion of the Chaffee Landfill, known as the Southern Expansion. The SIP has been prepared in accordance with the requirements contained in 6 NYCRR Part 363-4 Permit Application Requirements. The SIP is provided to the Department for comment with regard to the adequacy of methods proposed to satisfy 6 NYCRR Part 360- Part 363-4.4(j) requirements for hydrogeologic investigation of the Chaffee Landfill. The SIP describes:

- Geologic and hydrogeologic conditions already known in the area of lateral expansion from previous site investigations;
- Data gaps existing from previous hydrogeologic studies completed in the area of expansion;
- Scope of proposed investigation to meet 6 NYCRR Part 363-4 requirements; and
- Methods used to investigate the hydrogeologic conditions of the expansion area.

1.1 Background

The Chaffee Landfill is located in the Town of Sardinia, Erie County, New York. The landfill is owned and operated by Waste Management of New York, LLC (WMNY) under the landfill's Solid Waste Management Facility (SWMF) Permit I.D 9-1462-00001. The location of the facility is shown on Figure 1. The landfill facility includes the 50-acre Closed Landfill, 52.5-acre Western Expansion Area, a Valley Fill Expansion Area situated between the Closed Landfill and Western Expansion Area and permitted areas for soil borrow. These site features as well as the proposed Southern Expansion Area is shown on the aerial map on Figure 2. A 6 NYCRR Part 360 Permit Application for expansion will be submitted for a Southern Expansion Area with overlap on the Closed Landfill, Western Landfill Expansion, and Valley Fill Landfill Areas. The site layout is on Figure 3. The proposed footprint of the Southern Expansion Area is shown on Figure 4 and would occupy approximately 30 acres, most of which is reclaimed land from permitted soil borrow (West Soil Borrow Area) and overlap on existing landfill areas.

1.2 Objectives

The primary objectives of the hydrogeologic investigation described in this plan are to:

- Integrate hydrogeologic data to be collected during the implementation of this plan with previously collected hydrogeologic data from the existing landfill area and the area south of the existing landfill.

- Provide necessary data for landfill design and construction to meet engineering requirements of 6 NYCRR Part 363-3.

- Collect and evaluate the required hydrogeologic data to develop a site wide environmental monitoring plan.

1.3 Plan Outline

A portion of this plan is devoted to summarizing existing geologic and hydrogeologic data obtained during previous studies completed at the Chaffee Landfill. This is an important aspect of this plan because the scope of additional site investigation has been developed within the current understanding and framework of the geologic and hydrogeologic conditions previously defined for the site. As such, the emphasis of site investigation activities described in this plan is to fill in identified data gaps to satisfy site investigation requirements in Part 363-4, confirm the hydrogeologic site conceptual model, and address data needs for engineering landfill design to achieve maximum groundwater protection. This plan includes the following:

- Section 2 provides a summary of site history and previous investigations completed in the area of the landfill and the area south of the landfill (proposed expansion area);

- Section 3 provides a comprehensive description of the hydrogeologic setting in the area of the landfill as characterized through prior investigations and environmental monitoring of the existing landfill;

- Section 4 summarizes Site Investigation requirements and identifies data gaps to be addressed;

- Section 5 describes a scope of work for Site Investigation;

- Section 6 describes the sampling and analysis plan;

- Section 7 describes the Site Investigation Report;

- Section 8 provides a tentative schedule for SIP implementation; and

- Section 9 summarizes relevant references.

As indicated in Part 363-4.4(c)(2), A professional geologist licensed and currently registered to practice in the State of New York State, having experience in similar hydrogeologic

investigations, will supervise all procedures for obtaining the required hydrogeologic information for the Southern Expansion.

2. Site History and Summary of Previous Investigations

A municipal waste disposal site has operated at the Chaffee site since 1958. The landfill facility is owned and operated by WMNY, who purchased the facility in July 1998. The landfill facility was formerly known as the C.I.D. Landfill. WMNY operated the original landfill (currently closed) and later received a permit in December 2006 to develop a lateral expansion west of the currently closed landfill. The Western Expansion Area consists of six cells designated Cell 1 through Cell 6. In May 2013, a permit application was approved to construct the Valley Fill Expansion Area. The Valley Fill (area between the Closed Landfill and Western Expansion Area) is anticipated to be operational in the First Quarter 2019.

Subsurface investigations have been completed at the Site since the early 1980s. The investigations are listed below with their purpose.

- "Comprehensive Soils Report for Chaffee Landfill, Inc.," prepared by Earth Dimensions, Inc. January 1981 - Initial assessment of soil type and hydraulic characteristics.

- "Soils Report, Chaffee Landfill, Inc., Leachate Collection System," prepared by Earth Dimensions, Inc., October 1981 – Report of soil conditions along perimeter trench walls during installation of the leachate collection system for the original landfill.

- "Evaluation of Hydrogeologic and Ground-Water Quality Data Pertaining to the C.I.D. Landfill," prepared by BB&L, P.C., July 1986 – Investigation of groundwater quality performed on behalf of legal representation (Steve Miller, Esq.) for the Town of Sardinia.

- "Hydrogeologic and Soils Assessment for C.I.D. Landfill, Inc.," prepared by Earth Investigations, LTD., April 1989 - Investigation to evaluate soil conditions on parcels adjacent to the original landfill and preliminarily assess hydrogeology of the underlying sand and gravel outwash unit.

- "Hydrogeologic Site Investigation Plan," prepared by Earth Investigations, LTD, June 1991 – Review of data consisting of well and test boring logs, water level data, chemical analyses, as well as the results of previous test trench studies and hydrogeologic investigations.

- "Leachate Accountability Assessment at the Chaffee Landfill," prepared by Geomatrix Consultants, Inc., July 2000 – Investigation to characterize saturation in the Closed Landfill and confirmed clay bottom of landfill.

- "Hydrogeologic Report for Chaffee Western Landfill Expansion – Part 360 Permit Modification Application" – February 2005 prepared by McMahon & Mann Consulting Engineers, P.C. (MMCE) and Terra-Dynamics, Inc. - Detailed hydrogeologic investigation of the parcel west of the Closed Landfill to support the permit application for lateral expansion. The investigation utilized information from prior investigations to support site characterization of site geology, hydrogeology, and surface water hydrology.

- "Borrow Area Use Plan for the East and West Soil Borrow Area Chaffee Landfill" – March 2009 prepared by MMCE – Characterization of soil and groundwater conditions in the soil borrow areas south of the Closed Landfill. The proposed footprint of the Southern Expansion of the Landfill occurs in the area characterized in the Borrow Area Use Plan.

- "Soil Borings Completed at Potential South Soil Borrow Property and Proposed South Expansion Area", November 2017 completed by Earth Dimensions, Inc. – Completed 13 soil borings to determine clay thickness on property south of the landfill and in the Proposed Southern Expansion Area for conceptual landfill layouts developed by MMCE.

3. Hydrogeologic Setting

This section describes site geology and hydrogeologic conditions at the Chaffee Landfill and proposed expansion area. Figure 3 shows the site layout and includes test pit, boring, monitoring well, and piezometer locations completed at the Chaffee Landfill during prior investigations.

3.1 Geology

The Chaffee facility is located in the Erie-Niagara Drainage Basin. La Sala (1968) completed a study of the groundwater resources of the basin and included a regional surficial geology map showing that the Chaffee facility was underlain by "Till". Site investigations identified in Section 2 verified that the Closed Landfill, Western Expansion Area, Soil Borrow Areas, and a majority of the Southern Expansion Area are underlain by clay till. The till overlies outwash sand from a north to south progression with the southern boundary of the till shown on Figure 3 trending in an east-west direction.

Miller and Staubitz (1985) describe the "clay till" deposits at the Chaffee Facility as "having a fine-grained texture that is sparse in pebbles". They suggest the till was derived from reworked fine-grained deposits from the Cazenovia River valley (located to the north of the facility) and that these fine-grained deposits were transported by glacial ice during the Lake Escarpment re-advance to form an end moraine. According to Calkin (1982), the Lake Escarpment moraine was deposited in the Late Wisconsin glacial period (approximately 12,000 years ago). Miller and Staubitz suggest that the glacial ice front of the Lake Escarpment re-advance oscillated and overrode the glacially derived sand and gravel deposits that underlie the till below the Chaffee Facility.

The site geology consists of a low permeability clay till unit overlying a thick sequence of sand and gravel with some interbedded layers of silt and clay above shale bedrock. Miller and Staubitz (1985) indicate that over 400 feet of soils overlie bedrock below the site. A regional profile of site geology is shown on Figure 5.

Clay Till Description – Soil descriptions describe the Clay Till as a mixture of glacio-lacustrine clayey silt, silty clay and sandy silt, typically brown or gray in color. In certain areas, pebbles are intermixed within the clay and silt deposits. The clay till contains interbedded, discontinuous (isolated) stringers of silty sand, sand, and sand and gravel – occasional varved silt interbeds occur. The thickness of the clay till ranges from being absent in a small area of the southwest corner of the Southern Expansion Area (SB3-17) to greater than 55 feet near the northeast corner of the Southern Expansion Area (decommissioned well MW-3R2). The clay till thickness identified in the Southern Expansion Area is summarized in Table 1. The clay till thickness thins naturally in a southerly direction. GEI developed a preliminary three-dimensional (3D) model to

evaluate the lateral extent and known thickness of the clay till unit in the proposed Southern Expansion Area. Two-dimensional renderings of the model are presented in Appendix A as a series of snap shots showing the extent of clay till greater than 1 foot in thickness in 1-foot increments (1 foot through 10 feet) and 5-foot increments (15 feet and 20 feet).

Sand and Gravel Description - The permeable, coarse-grained sand and gravel unit is comprised of a variety of deposits including lake outwash sediments and sand and gravel outwash. The lake outwash deposits are located west and southwest of the Southern Expansion Area and are described by Miller and Staubitz (1985) to be associated with a proglacial lake. The sand and gravel outwash deposits are located beneath the Lake Escarpment Recessional Moraine and appear at the ground surface south and east of the clay till deposits. Silt and clayey silt zones observed in the test borings in the expansion areas within the sand and gravel unit can be more than 20 feet in thickness. Miller and Staubitz (1985) indicate that over 400 feet of unconsolidated deposits overlie bedrock below the landfill property (see Figure 5). These deposits overlay the Machias Formation consisting of predominantly shale bedrock.

3.2 Hydrogeology

The sand and gravel deposits south of WMNY property are known as the Sardinia Aquifer (Miller and Staubitz, 1985). New York State has not identified the Sardinia Aquifer as a Primary Aquifer but categorizes the aquifer as a Principal Aquifer based on its hydraulic properties. As shown on GIS mapping of New York State aquifers (see Figure 6), the Chaffee Landfill and proposed expansion area are situated on an area labeled as “Not a Primary Aquifer, Unknown”. Unknown refers to expected pumping well yield. An area mapped as an “Unconfined, high yield aquifer not a Primary Aquifer > 100 gallons/minute” is labeled on an area situated approximately 1600 feet south of the Site. Farther south, areas that include a deeper confined aquifer are identified on aquifer mapping.

3.2.1 Groundwater

At the Chaffee Landfill, perched groundwater conditions were identified in many areas of the clay till or in the upper section of the sand and gravel in the Western Landfill Expansion. The perched groundwater term is used because groundwater was not identified above or below these zones of saturation and water table conditions do not exist as evidence of wells screened in till having heads at spatially variable elevations. In areas where perched groundwater exists, site investigation for the Western Expansion Area indicated no direct hydraulic connection between the clay till confining unit and the sand and gravel unit. Groundwater flow in the clay till, where saturated, occurs at an estimated seepage velocity of approximately six inches/year in a vertically downward direction. Low flow velocities were confirmed by environmental isotope studies conducted in wells screened in the clay till.

The groundwater flow direction in the sand and gravel is primarily horizontal. The groundwater elevation difference measured in wells screened at the top of the sand and gravel unit and wells screened deeper in the sand and gravel in the Western Expansion Area was typically only a few inches. Groundwater in the sand and gravel below the Closed Landfill and Western Expansion Area flows in a north direction under low hydraulic gradient and is associated with regional discharge (see Figure 7) within the Cazenovia Creek Watershed which extends northward from the Chaffee Landfill.

Surface water flowing in streams where sand and gravel is present at the ground surface near the southern extent of the proposed limits of the Southern Expansion Area flow southward toward Hosmer Brook. Hosmer Brook is located south of the landfill property and associated with the Cattaraugus Creek Watershed that extends southward from the Chaffee Landfill. Groundwater occurring in the sand and gravel under water table conditions would also flow southward. Hence, a regional groundwater and surface water flow divide occurs in the sand and gravel unit near the southern edge of the proposed Southern Expansion Area.

3.2.2 Surface Water

The end moraine formed by the clay till creates a surface water drainage divide. Surface water to the north of the divide flows to a tributary of Cazenovia Creek. South of the divide, surface water flow is to Hosmer Brook, a tributary of Cattaraugus Creek. Surface water runoff from the site is directed into the Hosmer Brook watershed. Surface water runoff from precipitation drains off the Closed Landfill, Landfill Expansion Areas and Soil Borrow Areas via drainage systems to surface water detention basins. Surface water run-off from the eastern part of the Closed Landfill is collected by drainage swales and directed to existing Sedimentation Basin #4 at the southeast corner of the landfill. This detention basin eventually discharges to a wetland that is part of the Hosmer Brook watershed.

Surface water run-off from other areas is directed to the lined Sedimentation Basin #5. This basin is located just north of Sedimentation Basins #1, #2 and #3 (see Figure 3). Basin monitoring is incorporated in the site's environmental monitoring program.

3.3 Critical Stratigraphic Section

The Critical Stratigraphic Section (CSS) below a solid waste facility is defined in 6 NYCRR Part 360 as all stratigraphic units into which contaminants that theoretically could escape from the facility might reasonably be expected to enter and cause contamination. Definition of the CSS at the Chaffee Landfill site was a major goal of the Hydrogeologic Investigation for the Western Expansion Area. The CSS for the Chaffee Landfill is the clay till and the upper saturated sand and gravel unit.

4. Data Gaps and Site Investigation Requirements

This section identifies data gaps and data requirements for Hydrogeologic Report preparation for submittal of a permit application for the proposed Southern Expansion.

4.1 Data Gaps

Review of existing geologic and hydrogeologic information for the property near the proposed Southern Expansion Area has identified the following key data gaps to be addressed during hydrogeologic site investigation:

Description of Data Gap	Significance
Refinement is needed of the extent and thickness of the clay till along the southern boundary of the proposed Southern Expansion Area landfill footprint.	Landfill design parameter for footprint layout and landfill base grade elevations
Groundwater occurred in well SB6-08 which was screened in clay till (prior to abandonment and soil mining). While other borings completed in the West Borrow Area were described as moist (unsaturated), well screens were not installed in the clay till and further assessment is needed to determine if the clay till contains perched groundwater or if a water table condition is present in till where saturated soil is observed.	Landfill design parameter to determine need for a porewater drain
Several dry monitoring wells currently exist within or near the proposed Southern Expansion Area footprint. Additional piezometers and wells are needed to determine depth to groundwater in the sand and gravel unit below the clay till, within the footprint of the proposed Southern Expansion Area.	Landfill design parameter to determine minimum base grade elevation

Description of Data Gap	Significance
A groundwater flow divide in the sand and gravel occurs near the Southern Expansion Area. Piezometers to be installed south of the proposed expansion area are required to establish the direction of groundwater flow.	Environmental monitoring program design parameter to determine positioning of downgradient monitoring wells

Landfill design will establish a minimum separation distance of ten feet between the landfill base grade and the top of the saturated sand and gravel unit. The hydrogeologic investigation will expand the existing knowledge of clay till extent and thickness within the landfill footprint.

4.2 Hydrogeologic Investigation Activity Outline

Site investigation for the Hydrogeologic Report for the proposed Southern Expansion will include:

- Preparation of a Site Investigation Work Plan per Part 363-4.4(j) describing the work scope and investigation methods and identification of specific hydrogeologic questions to be addressed (included herein).
- Completion of soil borings and installation of piezometers having well screens positioned in the clay till and sand and gravel within the footprint of the proposed expansion area to determine groundwater presence in the clay till and the depth to groundwater in the uppermost water-bearing zone.
- Installation of piezometers/monitoring wells along the south property line with well screens installed in saturated sand and gravel to ascertain groundwater flow direction in the sand and gravel below the expansion area footprint.
- Water level monitoring on a seasonal basis to ascertain if seasonality affects groundwater flow direction in the sand and gravel near the proposed expansion area.
- Well development and hydraulic conductivity testing.
- Groundwater quality testing of the sand and gravel unit for water quality parameters as required in Part 363-4.
- Update the prior private water well users survey.

The focus of site investigation activities will be to address data gaps identified from the review of hydrogeologic data summarized in Section 4.1 and collect information for design and permit application requirements.

5. Scope of Work

Site investigation tasks are described below.

5.1 Literature Search

A preliminary review of existing reports and literature has been performed as described in Sections 2 and 3. A more comprehensive review of available reports and literature will be performed prior to beginning the field investigation. Additionally, Site-specific data available from the following resources will be incorporated into the literature review:

- The United States Geological Survey
- The United States Department of Agriculture
- The New York State Geological Survey
- The U.S. Army Corps of Engineers
- The New York State Department of Health
- The Erie County Department of Health
- The New York State Department of Environmental Conservation
- The New York State Department of Transportation
- The United States Environmental Protection Agency

5.2 Water Well Survey

A water well survey dated April 2004 was performed to supplement the Hydrogeologic Investigation Report for the Western Expansion Area permit application. At the time of the survey, uncertainty existed regarding the location of the groundwater flow divide in the sand and gravel unit. Because of the uncertainty that existed before additional monitoring wells were completed and monitored in the West Soil Borrow, the 2004 survey was conducted using a search radius of 1-mile from the Site.

The water well survey for the Southern Expansion Area will be conducted as specified in 6 NYCRR Part 363-4.4(g),

> "A survey of public and private water wells within one mile downgradient and one-quarter mile upgradient of the facility must be conducted. Surveys must obtain, where available, the location of wells, which must be shown on a map with their approximate elevation and depth, name of owner, age and usage of the well; stratigraphic unit screened; well construction; static water levels; well yield; perceived water quality; and any other relevant data that can be obtained."

If the Southern Expansion hydrogeologic investigation indicates groundwater flow in the sand and gravel unit beneath any portion of the footprint occurs in a southerly direction, the water well survey will be expanded to a search radius of one mile.

A private water well questionnaire will be mailed to residents living within the search radius of the Site. Information returned from the survey will be compiled into a database and summarized in the Hydrogeologic Investigation Report. Erie County Department of Health database records will aide in the search.

5.3 Surface Geologic Mapping

The U.S. Department of Agriculture Soil Conservation Service (SCS) soil series and associated hydrologic soil groups will be identified for Site soils within 100 feet of the expansion area footprint. The surface soil within the portion of the expansion area situated within the limits of the reclaimed West Soil Borrow Area is reclaimed soil. Soil boring data obtained during the site investigation will document surface soil type across the expansion area.

5.4 Subsurface Investigation Activities

As described in Section 3, the Chaffee Landfill has been extensively investigated. Investigations include those evaluating:

- environmental conditions around the Closed Landfill while it was in operation;
- detailed hydrogeologic studies of the land west of the Closed Landfill for the Part 360 Permit Application for the Western Expansion Area;
- investigations to assess clay till thickness in the East and West Soil Borrow Areas south of the Closed Landfill; and
- investigation to improve the understanding of clay thickness and extent for conceptual design of the Southern Expansion.

Table 1 summarizes the clay till thickness encountered in borings, test pits, and wells completed in and near the footprint of the Southern Expansion Area during prior investigations. Clay till thickness information presented in Table 1, as well as geologic information from investigations completed north of the Southern Expansion Area, were used to prepare the two-dimensional (2-D) model renderings of the three-dimensional (3D) model shown in Appendix A. Additional data obtained from soil borings proposed in and near the Southern Expansion will refine the model for landfill design.

Subsurface investigations planned for the Southern Expansion Area are described in the following sections.

5.4.1 Soil Borings and Piezometer Installations

Soil boring and piezometer installations to be completed in and near the footprint of the Southern Expansion will confirm the extent and refine the thickness of the clay till. Piezometers installed in the area will provide hydraulic information and determine groundwater flow direction in the sand and gravel at the south end of the expansion area. Soil boring and piezometer locations are shown on Figure 8. The following investigation activities will be performed:

- Completion of 10 soil borings with geologic sampling; select samples will be analyzed for physical properties.
- Installation of 3 piezometers screened in the sand and gravel unit to assess the horizontal hydraulic gradient and flow direction at the Southern Expansion Area.
- Installation of a piezometer pair within the footprint of the expansion area to determine vertical hydraulic gradient and hydraulic properties.
- Installation of a deeper piezometer at monitoring well MWBA-3 which has been dry.

5.4.1.1 Soil Borings

Five (5) soil borings will be completed to confirm the extent of clay till soil and five (5) will be located to characterize thickness of clay till and assess for potential saturated conditions within the footprint of the expansion area. Boring locations are shown on Figure 8. Soil borings may include installation of temporary piezometers to determine if clay till is saturated. Soil will be drilled using 2 3/4-inch diameter hollow stem augers with an all-terrain drill rig and the soil profile will be continuously sampled using 2-inch diameter stainless steel split spoons in accordance with 6 NYCRR Part 363 requirements. Blow counts for Standard Penetration Testing (SPT) will be obtained during sample collection. The soil will be continuously logged in accordance with the Unified Soil Classification System (USCS). A representative soil sample from each split spoon will be placed in a glass jar and labeled with the boring number, date, and sample collection depth. All soil samples will be packaged neatly for archive at the landfill facility. Each of the 10 soil borings will be sampled to a depth of no less than 10 feet into the sand and gravel unit below the Clay Till. Following the completion of borings used for exploratory purposes (not piezometer installation), borings will be backfilled to ground surface using a cement-bentonite grout mixture emplaced using tremie methods. The location of each boring will be staked and labeled for surveying of location and elevation.

Representative soil samples will be collected during the investigation of soils for geotechnical analysis as required by 6 NYCRR Part 363-4.4(l)(2). Approximately 5 soil samples collected from the clay till in the Southern Expansion Area will be analyzed for the following:

- Atterberg limits – ASTM D4318

- Grain Size Gradation (grain size distribution sieve and hydrometer analysis – ASTM D422

At a minimum of two locations, a Shelby tube sampler will be advanced for collection of clay till soil by method ASTM D1587 for undisturbed permeability analysis by method ASTM D5856.

The location and depth of each sample to be submitted for soil property characterization will be noted on the field logs.

5.4.1.2 Piezometer Installations

Four 2-inch diameter temporary piezometers and one piezometer pair will be installed at locations shown in Figure 8 to monitor groundwater elevations in the sand and gravel unit. Three piezometers will be installed in a north – south alignment parallel with the groundwater flow direction in the sand and gravel unit. A fourth piezometer will be installed to monitor groundwater elevations in the sand and gravel unit near existing well MWBA-3 which has been dry since installation in 2009. These piezometers will establish the hydraulic gradient and flow direction in the sand and gravel unit near the southern limit of the Southern Expansion Area.

Each temporary piezometer will consist of a 2-inch diameter, Schedule 40 PVC, 20-slot well screen 10 feet in length. A filter pack of #00N morie sand will be installed around the screened interval. Bentonite chips will backfill the borehole above the sand pack to a depth of 3 to 4 feet of ground surface. Cuttings will backfill the remaining borehole. Cement-bentonite grout will not be used for temporary well installations. The piezometers will be properly decommissioned after hydrogeologic assessments of the proposed expansion area are complete.

A temporary piezometer pair will be installed within the footprint of the expansion area to characterize the sand and gravel unit to a depth of approximately 65 to 70 feet below grade. Two borings will be advanced using 6 ¼-inch HSAs for installation of 4-inch diameter Schedule 40 PVC piezometers with 20-slot well screens that can accommodate a downhole pump for hydraulic testing. The depths of the screened interval (10 feet) of each piezometer will be field determined. The objective of screen placement will be to install a deeper piezometer at an approximate depth of approximately 65 to 70 feet and a shallower piezometer to about 35 to 40 feet below grade (assuming low permeability interbedded deposits are encountered in the sand and gravel unit and a clay till thickness of about 15 feet). The deeper of the two piezometers will be continuously sampled during advancement of augers as described in Section 5.4.1.1. Groundwater elevation data will support the understanding of vertical and horizontal groundwater flow direction in the sand and gravel unit.

5.4.2 Monitoring Well Installations and Development

Groundwater monitoring wells will be installed to characterize groundwater quality at the Southern Expansion Area per Part 363-4.4(a)(2)(ii)(e)(2). The monitoring wells will monitor the CSS along the perimeter of the proposed lateral expansion area and would be incorporated into the monitoring well network for the Chaffee Landfill. Four permanent groundwater monitoring wells will be installed at locations shown on Figure 8. Soil borings for each well installation will be advanced using 6 ¼-inch diameter hollow stem augers with continuous sampling. Continuous 10-slot schedule 40 PVC wire wrapped well screens 10 feet in length will be placed within the upper 15 feet of the saturated sand and gravel unit.

The monitoring well construction details for each well will conform to those requirements outlined in 6 NYCRR Part 363-4.4(k)(2) and include choke sand above and below a 3-foot thick bentonite well seal. Each monitoring well will be completed with a lockable protective surface casing and appropriately labeled for incorporation into the Site groundwater monitoring network.

Each newly-installed monitoring well will be developed no sooner than one week following well installation. Monitoring wells will be developed using a suction-lift pump, centrifugal down-hole pump, bottom-discharging bailer, or a Waterra™ hand pump. Development will involve using a combination of pumps and bailers to remove groundwater and any accumulated sediment on the well bottom. Development will be considered complete when the pH, specific conductivity, oxidation reduction potential and temperature have stabilized; and when the turbidity is at or below 5 NTU or has stabilized above 5 NTU and approximately 10 well volumes have been removed. Stability is defined as variation between measurements of 10 percent or less and no overall upward or downward trend in the measurements is observed. Water removed during development will be discharged to the ground surface.

5.5 Groundwater Elevation Monitoring and Hydraulic Testing

Groundwater elevations will be monitored in the new piezometers and monitoring wells monthly for a period extending no less than 6 months. Supplemental water level data will be collected monthly from the following existing wells screened in the sand and gravel unit:

MWBA-1	MW-50	MW-R4A
MWBA-2	MW-30	MW-R1A
	MW-13R	

Site-wide groundwater measurements will be collected from clay till and sand and gravel unit wells on a quarterly basis to supplement the monthly measurements recorded in new piezometers and wells.

Hydraulic conductivity estimates for the sand and gravel unit will be obtained from the four new monitoring wells by performance of slug tests. A known volume of water will be displaced in the well by inserting a PVC slug and the water level decline will be measured using a down-hole pressure transducer. Following equilibration, the slug will be removed and the water level rise in the well will be monitored. Slug test displacement and recovery data will be analyzed using AQTESOLV (or similar) software to yield estimates of hydraulic conductivity in each well.

Pumping tests will be conducted to determine the specific yield (sustained yield) of the two 4-inch diameter piezometers and determine the potential for vertical hydraulic communication in the sand and gravel unit. The pumping tests will be completed sequentially over a two-day period and involve the following:

1. Placement of down-hole pressure transducers to record water level changes in each piezometer during testing.

2. Place a submersible well pump 6 inches from the bottom of the piezometer and engage pumping at maximum flow rate (approximately 20 gpm) and monitor water level change automatically with pressure transducers and manually using an electronic water level indicator.

3. Pump for a minimum of six hours and record water level measures periodically to ensure water level in the piezometer does not fall below the pump intake. The discharge tubing will be directed to the clay till ground surface no closer than 100 feet from the piezometer.

4. Maintain a constant flow during the test.

5. Take drawdown readings in each of the three piezometers at a frequency no less than twice every hour and periodically check transducer readings to ensure they are functioning properly.

6. Monitor recovery data until a minimum of 80% recovery.

Pumping data will be plotted on a semi-log graph of drawdown vs. time and calculate specific capacity:

$$S_c = Q / (h_o - h)$$

Where:
Sc = Specific capacity in gallons / foot
Q = Equilibrium flow rate
(h_0-h) = Total drawdown

Observations of hydraulic response in the shallow and deeper piezometer during testing will be noted during testing and data analysis.

5.6 Existing Groundwater Quality Testing

Existing groundwater quality in the expansion area will be established using the four new monitoring wells on two sampling events per Part 363-4.6(f)(9)(i)(a) requiring characterization of the existing groundwater quality to be included in the permit application. The first sampling event is expected to be performed during a higher groundwater condition (late spring/early summer) and the second groundwater quality characterization sampling event will occur during a lower (fall) groundwater condition. The Part 363 Expanded and Baseline parameter lists are provided in Appendix B.

The background groundwater quality testing for the Southern Expansion Area (required prior to waste placement) will be described in the updated EMP for the landfill facility and will be included with the permit application.

5.7 Surface Water Study

The Chaffee Landfill is located near the surface water flow divide associated with the headwaters of un-named tributaries that are part of the Cazenovia Creek watershed system and Hosmer Brook which is part of the Cattaraugus Creek watershed system. Surface water quality and flow data were collected during investigations completed for Western Expansion Area Part 360 Permit Application and are shown on Figure 9. The investigation evaluated:

- Characteristics of surface water flow on the clay till and the sand and gravel deposits; and
- The relationship of surface water and groundwater flow systems, including the locations of surface water flow divides relative to groundwater flow divides.

Based on the findings presented in the permit application, the Southern Expansion Area project lies entirely within the Cattaraugus Creek watershed system with flow occurring from wetlands and engineered sedimentation basins that ultimately flow to Hosmer Brook.

The surface water study to be completed with the Site Investigation will include the following:

- Summarize hydrologic findings for surface water flowing toward Hosmer Brook;
- Verify existing surface water drainage and compare to surface water conditions evaluated during the prior hydrologic study; and
- Collect flow and field chemistry data from investigation locations SH-2, SH-3, and SH-6 (chemistry data only, no discharge) which are shown on Figure 9. If necessary, new staff gauges will be installed if the prior gauges are no longer functional.

Data will be collected monthly for a period of six months concurrent with groundwater elevation monitoring in the Southern Expansion Area.

5.8 Surveying

The location of each soil boring, piezometer, monitoring well, and staff gauge will be surveyed by a State of New York licensed surveyor working at the landfill. The locations will be presented in the New York State Plane Coordinate System. Ground surface and surface water elevations will be presented as feet above sea level, utilizing North American Vertical Datum standards.

5.9 Monitoring Well/Piezometer Abandonment

Following NYSDEC approval of the Site Investigation Report, monitoring wells and piezometers that occur within the footprint of the Southern Expansion that are not specified for use in the Environmental Monitoring Plan for the site will be properly abandoned. Monitoring wells and piezometers will be decommissioned in accordance with Part 363-4.4(k)(6).

6. Sampling and Analysis Plan

The sampling and analysis plan (SAP) is presented in Table 2. Groundwater monitoring well sampling will be conducted by a Test America sampling crew during sampling events conducted at the Chaffee Landfill. Sampling of the newly installed groundwater monitoring wells will be conducted consistent with current sampling protocols for quarterly environmental monitoring as described in the current Environmental Monitoring Plan (MMCE, December 2012). Field sampling protocols will be recorded on WM standard field forms. Prior to sampling, groundwater level measurements will be collected from wells and piezometers described in Sections 5.5 and 5.6. A minimum of three well volumes will be removed until field measured parameters (pH, temperature, specific conductance, and turbidity) stabilize. Stabilization is defined as variation between field measurements of 10 percent of less and no overall upward or downward trend in the measurements. Water removed during well purging will be discharged to the ground surface.

Field monitoring equipment will be calibrated in accordance to the manufacturer's recommendations and recorded on the sampling forms. The sampling devices used to monitor the environmental conditions at the site will be clearly marked on the sampling forms. The groundwater samples will be properly labeled, preserved, stored, and shipped in a manner that preserves its integrity and chain of custody.

Each sample will be labeled with a unique sample identification number using a non-removable label fixed to the outside of the sample container and will include: sample ID, sample collection date and time, sampler's initials, preservative (if required), and analytes for analysis with method number. The sample will be recorded on the Chain of Custody (COC) form.

Samples will be placed immediately into a sample shipping cooler packed with ice. The samples will be transported to the laboratory at the end of each work day under strict COC.

Laboratory analytical results will be evaluated for data usability and 5% of the samples collected from the expansion area will be validated during each sampling event.

7. Site Investigation Report

Following completion of the site investigation, a Site Investigation Report will be prepared consistent with Part 363-4.4(a). The Site Investigation Report will include, as an appendix, the following documents:

- Final Site Investigation Plan
- Revised Environmental Monitoring Plan

The Site Investigation Report will include a description of regional geology and hydrogeology. This assessment of geologic and hydrogeologic conditions will discuss the following:

- glacial geology, including a discussion of the formation, timing, stages, and distribution of glacial deposits, advances and retreats, hydrologic characteristics of the surficial deposits, such as kames, eskers, outwash moraines, etc.;
- major topographic features, their origin and influence upon drainage basin characteristics; and
- surface water and groundwater hydrologic features, including surface drainage patterns, recharge and discharge areas, wetlands and other sensitive environments, public water supply wells, and private water supply wells identified in the water supply well survey.

The Site Investigation Report will also include a discussion of Site-specific geology and hydrogeology. The Site Investigation Report will discuss the following:

- site geology, surface water and groundwater flow, and how they relate site-specific conditions to the regional geology;
- site hydrogeologic conditions in three dimensions and their relationship to the proposed landfill expansion;
- the critical stratigraphic section; and
- potential impact the landfill expansion will have on surface and groundwater resources.

The Site Investigation Report will include raw field data, analytical calculations, maps, geologic and hydrogeologic cross-sections, soils engineering data, interpretations (and alternative interpretations where applicable), and conclusions. The revised EMP will discuss monitoring details and will include an updated Site Analytical Plan.

8. Schedule

The anticipated duration/timing of tasks proposed for the site investigation is presented below. Groundwater sampling activities will be scheduled to be coincident with monitoring events scheduled for the existing landfill.

PROJECT PHASE	DURATION/ ANTICIPATED MILESTONE
Draft SIP Submittal to NYSDEC	Milestone (February 1, 2019)
Pre-Investigation Meeting with NYSDEC	Milestone (February 8, 2019)
Address NYSDEC SIP Comments/Finalize SIP	Milestone (March 1, 2019)
Literature Search, Private Water Well Survey Update, Surface and Subsurface Geologic Mapping	12 weeks
Soil borings, Piezometer and Monitoring Well Installations	4 to 5 weeks
Well Development & Hydraulic Testing/Survey	2 weeks
Groundwater/Surface Water Elevations (Monthly for 6 mos.) / Site-Wide Quarterly	9 months
Groundwater Quality Characterization (2 events – Late Spring / Fall 2019)	6 months
Prepare Draft Site Investigation Report & Draft EMP and SAP	Milestone (December 2019)
Address NYSDEC comments and submit Final Site Investigation Report with Final EMP and SAP	Milestone (January 2020)

9. References

BB&L, P.C., July 1986. Evaluation of Hydrogeologic and Ground-Water Quality Data Pertaining to the C.I.D. Landfill.

Earth Dimensions, Inc., January 1981. Comprehensive Soils Report for Chaffee Landfill.

Earth Dimensions, Inc., October 1981. Soils Report Chaffee Landfill.

Earth Dimensions, Inc., November 2017. Soils Boring Logs for Thirteen Soil Borings Completed at Potential South Soil Borrow Property and Conceptual South Expansion Area.

Earth Investigations, LTD., April 1989. Hydrogeologic and Soils Assessment for C.I.D. Landfill.

Earth Investigations, LTD, June 1991. Hydrogeologic Site Investigation Plan.

Geomatrix Consultants, Inc., July 2000. Leachate Accountability Assessment at the Chaffee Landfill.

McMahon & Mann Consulting Engineers, P.C. and Terra-Dynamics, Inc, February 2005. Hydrogeologic Report for Chaffee Western Landfill Expansion – Part 360 Permit Modification Application.

McMahon & Mann Consulting Engineers, P.C. March 2009. Borrow Area Use Plan for the East and West Soil Borrow Area Chaffee Landfill.

State of New York Codes, Rules and Regulations, Title 6 Department of Environmental Conservation, Chapter IV. Quality Services, Subchapter B. Solid Wastes, Part 363 Landfills, Effective Date November 4, 2017.

Tables

Table 1. Boring/Test Pit Locations Encountering Clay Till Near Expansion Area
Site Investigation Plan
Chaffee Sanitary Landfill - Southern Expansion
Chaffee, New York

Boring/Test Pit ID	Northing	Easting	Ground Surface Elevation at Time of Drilling	2015 Ground Surface Elevation	Elevation Notes	Clay Till Thickness (feet)	Bottom of Clay Till Elevation	Total Depth of Boring (feet)	Bottom of Boring Elevation
MW-A(I)	939996.52	1169702.43	1461.58	NA	Landfill Constructed Over This Location	14.00	1447.58	38.0	1423.58
SB6-03	939976.51	1169910.24	1455.58	NA	Landfill Constructed Over This Location	11.20	1444.38	12.0	1443.58
MA-2	939480.83	1169780.91	1460.98	1454.48	Regraded for Leachate Tank Construction	5.00	1455.98	30.0	1430.98
MA-3	939556.80	1170261.71	1469.45	1458.00	Regraded for Sediment Basin #5	27.70	1441.75	35.0	1434.45
MW-50	939527.86	1169485.08	1459.85	NA	No Change	12.50	1447.35	40.0	1419.85
MW-3R2	939800.56	1171447.29	1498.00	1498.00	No Change	>57.5	>1440.5	>57.5	1440.50
MW-R4A	939812.35	1170811.34	1478.00	1487.65	Regraded for Berm Construction	36.50	1441.50	55.0	1423.00
MW-K(D)	939852.20	1170232.26	1496.50	1473.86	Regraded for Berm Construction	46.60	1449.90	96.0	1400.50
MW-R1A	939822.16	1171899.47	1485.00	1496.89	Regraded for Berm Construction	42.20	1442.80	54.0	1431.00
SB6-08	939308.23	1170614.27	1469.76	1455.16	Excavated for Borrow Area	22.90	1446.86	26.0	1443.76
SB7-08	939495.36	1171041.48	1490.92	1463.71	Excavated for Borrow Area	43.70	1447.22	48.0	1442.92
TP8-09	939120.70	1171532.29	1455.06	1447.95	Excavated for Borrow Area	7.00	1448.06	8.0	1447.06
MWBA-1	938980.00	1171539.30	1456.40	NA	No Change	18.70	1437.70	30.0	1426.40
MWBA-2	938960.83	1171294.50	1454.84	NA	No Change	16.90	1437.94	30.0	1424.84
MWBA-3	938954.21	1170987.10	1456.90	NA	No Change	8.00	1448.90	19.0	1437.90
SB1-17	939579.42	1171405.42	1475.95	NA	No Change	40.69	1435.25	44.0	1431.95
SB2-17	939152.95	1170989.21	1450.14	NA	No Change	8.50	1441.64	15.7	1434.44
SB12-17	939164.38	1170723.15	1457.96	NA	No Change	10.70	1447.26	14.0	1443.96
SB13-17	939260.93	1170682.16	1459.91	NA	No Change	15.70	1444.21	18.0	1441.91

Table 2. Sampling and Analysis Plan
Site Investigation Plan
Chaffee Sanitary Landfill – Southern Expansion
Chaffee, New York

BASELINE PARAMETERS

PARAMETER[1]	METHOD	SAMPLE COLLECTION[2] AND CONTAINER	SAMPLE[3,4] PRESERVATION	RECOMMENDED[5] HOLDING TIME
Alkalinity	310.2	100 ml P,G, zero headspace	Cool, 4°C	14 days
Ammonia	350.1	125 ml P,G	Cool, 4°C	28 days
Biochemical Oxygen Demand, 5d-BOD5	405.1	500 ml P,G	Cool, 4°C	48 hours
Boron	6010	100 ml P	Preserve in lab	6 months
Bromide	300.0	125 ml P,G	Cool, 4°C	28 days
Chemical Oxygen Demand (COD)	410.4	125 ml P,G	Cool, 4°C H_2SO_4 to pH <2	28 days
Chloride	300.0	125 ml P,G	Cool, 4°C	28 days
Color	110.2	125 ml P,G	Cool, 4°C	48 hours
Cyanide (Total)	9010	125 ml P,G	Cool, 4°C NaOH to pH >12	14 days
Hardness	130.1	100 ml P,G	HNO_3 to pH <2	6 months
Kjeldahl Nitrogen, Total	351.1	125 ml P,G	Cool, 4°C H_2SO_4 to pH <2	28 days
Metals		500 ml P,G	HNO_3 to pH <2	6 months
Aluminum (Total)	6010			
Antimony (Total)	6010			
Arsenic (Total)	6010			
Barium (Total)	6010			
Beryllium (Total)	6010			
Chromium (Total)	6010			
Chromium (Hexa.)	7196A			
Calcium (Total)	6010			
Cadmium (Total)	6010			
Cobalt (Total)	6010			
Copper (Total)	6010			
Iron (Total)	6010			
Lead (Total)	6010			
Magnesium (Total)	6010			
Manganese (Total)	6010			
Mercury (Total)	7470			
Nickel (Total)	6010			
Potassium (Total)	6010			
Selenium (Total)	6010			

Table 2. Sampling and Analysis Plan
Site Investigation Plan
Chaffee Sanitary Landfill – Southern Expansion
Chaffee, New York

BASELINE PARAMETERS (Continued)

PARAMETER[1]	METHOD	SAMPLE COLLECTION[2] AND CONTAINER	SAMPLE[3,4] PRESERVATION	RECOMMENDED[5] HOLDING TIME
Silver (Total)	6010			
Sodium (Total)	6010			
Thallium (Total)	6010			
Vanadium (Total)	6010			
Zinc (Total)	6010			
Nitrate	300.0	125 ml P,G	Cool, 4°C	48 hours
Phenols	9066	125 ml G only	Cool, 4°C H_2SO_4 to pH <2	28 days
Sulfate	300.0	125 ml P,G	Cool, 4°C	28 days
Total Dissolved Solids residue on evaporation (TDS/ROE) 180° C	160.1	500 ml P	Cool, 4°C	7 days
Total Organic Carbon (TOC)	9060	2-40 ml vial or 125 ml P	Cool, 4°C H_2SO_4 to pH <2	28 days
Volatile Organics	8260	2-40 ml vial w/septum caps	Cool, 4°C HCl to pH <2	14 days
Field Parameters				
Static water levels in wells		nearest 0.01 ft		
Specific Conductance	9050			
Temperature		nearest 0.5 ^{O} F		
Floaters and Sinkers (observation)				
pH	9040			
Eh				
Dissolved Oxygen				
Field Observations				
Turbidity	180.1			

Table 2. Sampling and Analysis Plan
Site Investigation Plan
Chaffee Sanitary Landfill – Southern Expansion
Chaffee, New York

EXPANDED PARAMETERS

PARAMETER[1]	METHOD	SAMPLE COLLECTION[2] AND CONTAINER	SAMPLE[3,4] PRESERVATION	RECOMMENDED[5] HOLDING TIME
Alkalinity	310.2	100 ml P,G, zero headspace	Cool, 4°C	14 days
Ammonia	350.1	125 ml P,G	Cool, 4°C	28 days
Biochemical Oxygen Demand, 5d-BOD5	405.1	500 ml P,G	Cool, 4°C	48 hours
Boron	6010	100 ml P	Preserve in lab	6 months
Bromide	300.0	125 ml P,G	Cool, 4°C	28 days
Chemical Oxygen Demand (COD)	410.4	125 ml P,G	Cool, 4°C H_2SO_4 to pH <2	28 days
Chloride	300.0	125 ml P,G	Cool, 4°C	28 days
Color	110.2	125 ml P,G	Cool, 4°C	48 hours
Cyanide (Total)	9010	125 ml P,G	Cool, 4°C NaOH to pH >12	14 days
Hardness	130.1	100 ml P,G	HNO_3 to pH <2	6 months
Kjeldahl Nitrogen, Total	351.1	125 ml P,G	Cool, 4°C H_2SO_4 to pH <2	28 days
Metals		500 ml P,G	HNO_3 to pH <2	6 months
Aluminum (Total)	6010			
Antimony (Total)	6010			
Arsenic (Total)	6010			
Barium (Total)	6010			
Beryllium (Total)	6010			
Chromium (Total)	6010			
Chromium (Hexa.)	7196A			
Calcium (Total)	6010			
Cadmium (Total)	6010			
Cobalt (Total)	6010			
Copper (Total)	6010			
Iron (Total)	6010			
Lead (Total)	6010			
Magnesium (Total)	6010			
Manganese (Total)	6010			
Mercury (Total)	7470			
Nickel (Total)	6010			
Potassium (Total)	6010			
Selenium (Total)	6010			
Silver (Total)	6010			

Table 2. Sampling and Analysis Plan
Site Investigation Plan
Chaffee Sanitary Landfill – Southern Expansion
Chaffee, New York

EXPANDED PARAMETERS (Continued)

PARAMETER[1]	METHOD	SAMPLE COLLECTION[2] AND CONTAINER	SAMPLE[3,4] PRESERVATION	RECOMMENDED[5] HOLDING TIME
Sodium (Total)	6010			
Thallium (Total)	6010			
Tin (Total)	6010			
Vanadium (Total)	6010			
Zinc (Total)	6010			
Nitrate	300.0	125 ml P,G	Cool, 4°C	48 hours
Phenols	9066	125 ml G only	Cool, 4°C H_2SO_4 to pH <2	28 days
Sulfate	300.0	125 ml P,G	Cool, 4°C	28 days
Sulfide	9030	500 ml P,G	Cool, 4°C NaOH, ZnOAc to pH >9	7 days
Total Dissolved Solids residue on evaporation (TDS/ROE) 180° C	160.1	100 ml P	Cool, 4°C	7 days
Total Organic Carbon (TOC)	9060	2-40 ml vial or 125 ml P	Cool, 4°C H_2SO_4 to pH <2	28 days
Volatile Organics	8260	4-40 ml glass vial w/septum caps	Cool, 4°C HCl to pH <2	14 days
Acid Extractables	8270	1000 ml Glass only (Amber) w/Teflon liner	Cool, 4°C	Extract within 7 days; analyze within 40 days
Base/Neutral Extractables	8270	1000 ml Glass only (Amber) w/Teflon liner	Cool, 4°C	Extract within 7 days; analyze within 40 days
Herbicides	8151	1000 ml Glass only (Amber) w/Teflon liner	Cool, 4°C	Extract within 7 days; analyze within 40 days
PCB	8082	1000 ml Glass only (Amber) w/Teflon liner	Cool, 4°C	Extract within 7 days; analyze within 40 days
Radium-226	903.1	1000 ml Glass (Amber)	Cool, 4HNO3 or HCl to pH < 2	6 mos
Radium-228	904.0	1000 ml Glass (Amber)	Cool, 4HNO3 or HCl to pH < 2	6 mos
Total Uranium	908.0	1000 ml Glass (Amber)	Cool, 4HNO3 or HCl to pH < 2	6 mos.

Table 2. Sampling and Analysis Plan
Site Investigation Plan
Chaffee Sanitary Landfill – Southern Expansion
Chaffee, New York

EXPANDED PARAMETERS (Continued)

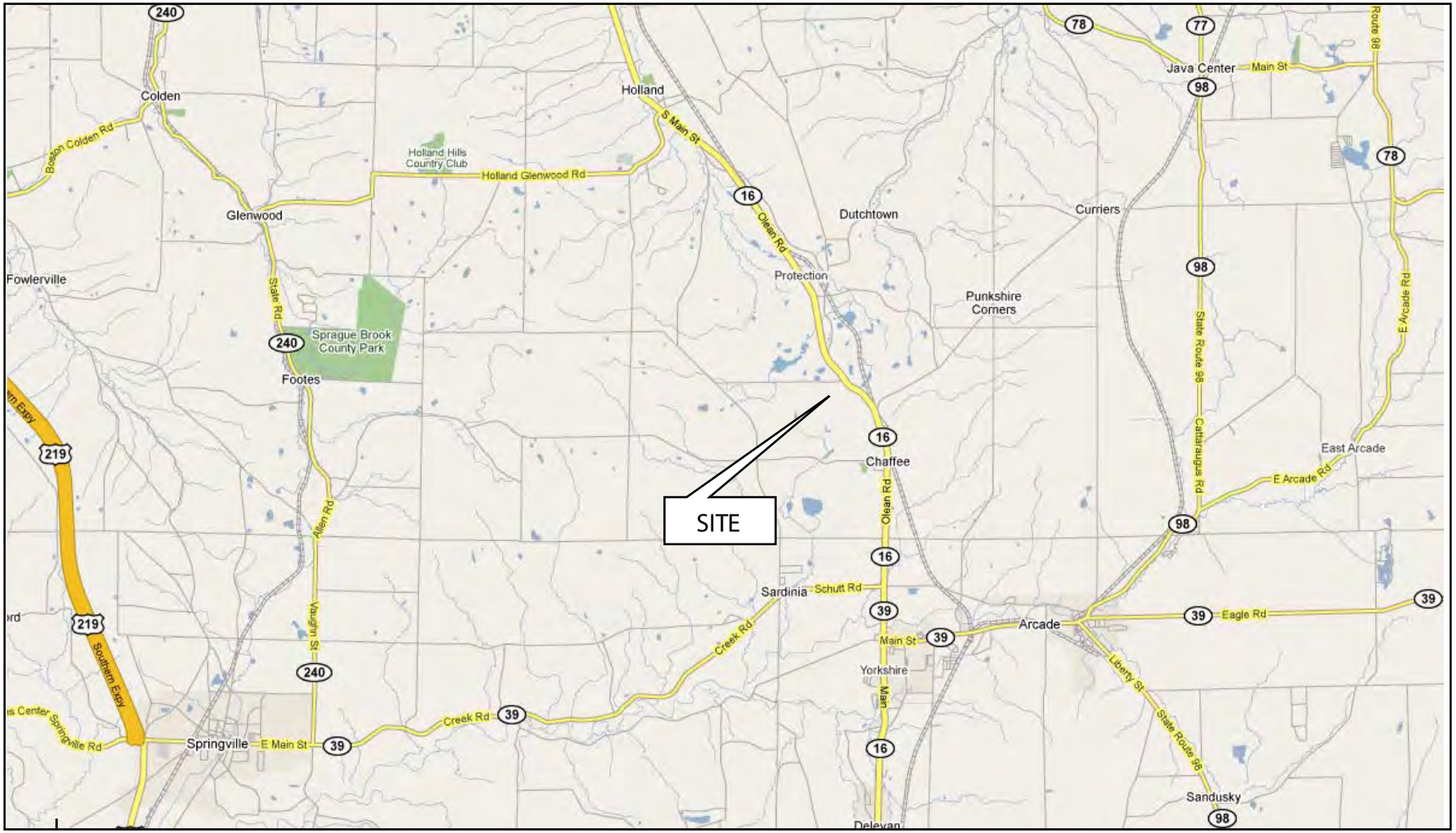
PARAMETER[1]	METHOD	SAMPLE COLLECTION[2] AND CONTAINER	SAMPLE[3,4] PRESERVATION	RECOMMENDED[5] HOLDING TIME
Pesticides	8081	1000 ml Glass only (Amber) w/Teflon liner	Cool, 4°C pH 5 - 9	Extract within 7 days; analyze within 40 days
Semi-volatile Organics	8270	1000 ml Glass only (Amber) w/Teflon liner	Cool, 4°C	Extract within 7 days; analyze within 40 days
Per- & polyfluoroalkyl Substances (PFAS)	537 MOD	P,G 250 mL	Trizma® at 5g/L	14 days
1,4-Dioxane	8270D SIM	1000 ml Glass only (Amber)	Cool, 4°C	Extract within 7 days; analyze within 40 days
Field Parameters				
Static water levels in wells		nearest 0.01 ft		
Specific Conductance	9050			
Temperature		nearest 0.5 ^{O} F		
Floaters and Sinkers (observation)				
pH	9040			
Eh				
Dissolved Oxygen				
Field Observations				
Turbidity	180.1			

Notes

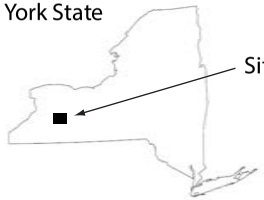
1. Table include Part 363-4 Baseline and Expanded list parameters.
2. Plastic (P) or Glass (G). For metals, polyethylene with a polypropylene cap (no liner) is preferred.
3. Sample preservation should be performed immediately upon sample collection. For composite samples, each aliquot should be preserved at the time of collection. When use of an automated sampler makes it impossible to preserve each aliquot, then samples may be preserved by maintaining at 4°C until compositing and sample splitting is completed.
4. When any sample is to be shipped by common carrier or sent through the United States mail, it must comply with the Department of Transportation Hazardous Materials Regulations (49 CFR Part 172). The person offering such material for transportation is responsible for ensuring such compliance. For the preservation requirements of Table 5-4, the Office of Hazardous Materials, Materials Transportation Bureau, Department of Transportation has determined that the Hazardous Materials Regulations do not apply to the following materials: Hydrochloric acid (HCI) in water solutions at concentrations of 0.04% by weight or less (pH about 1.96 or greater); Nitric acid (HNO_3) in water solutions at concentrations of 0.15% by weight or less (pH about 1.62 or greater); Sulfuric acid (H_2SO_4) in water solutions at concentrations of 0.35% by weight or less (pH about 1.15 or greater); Sodium hydroxide (NaOH) in water solutions at concentrations of 0.080% by weight or less (pH about 12.30 or less).
5. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still considered valid. Samples may be held for longer periods only if the permittee, or monitoring laboratory, has data on file to show that the specific types of sample under study are stable for the longer time, and has received a variance from the Regional Administrator. Some samples may not be stable for the maximum time period given in the table. A permittee, or monitoring laboratory, is obligated to hold the sample for a shorter time if knowledge exists to show this is necessary to maintain sample stability.

   Note: Many tests can be combined in bottles. For example, Chloride, Fluoride, Nitrate, Nitrite, pH, Sulfate, TDS, TSS will be collected in a 1 liter plastic bottle.

Figures



New York State



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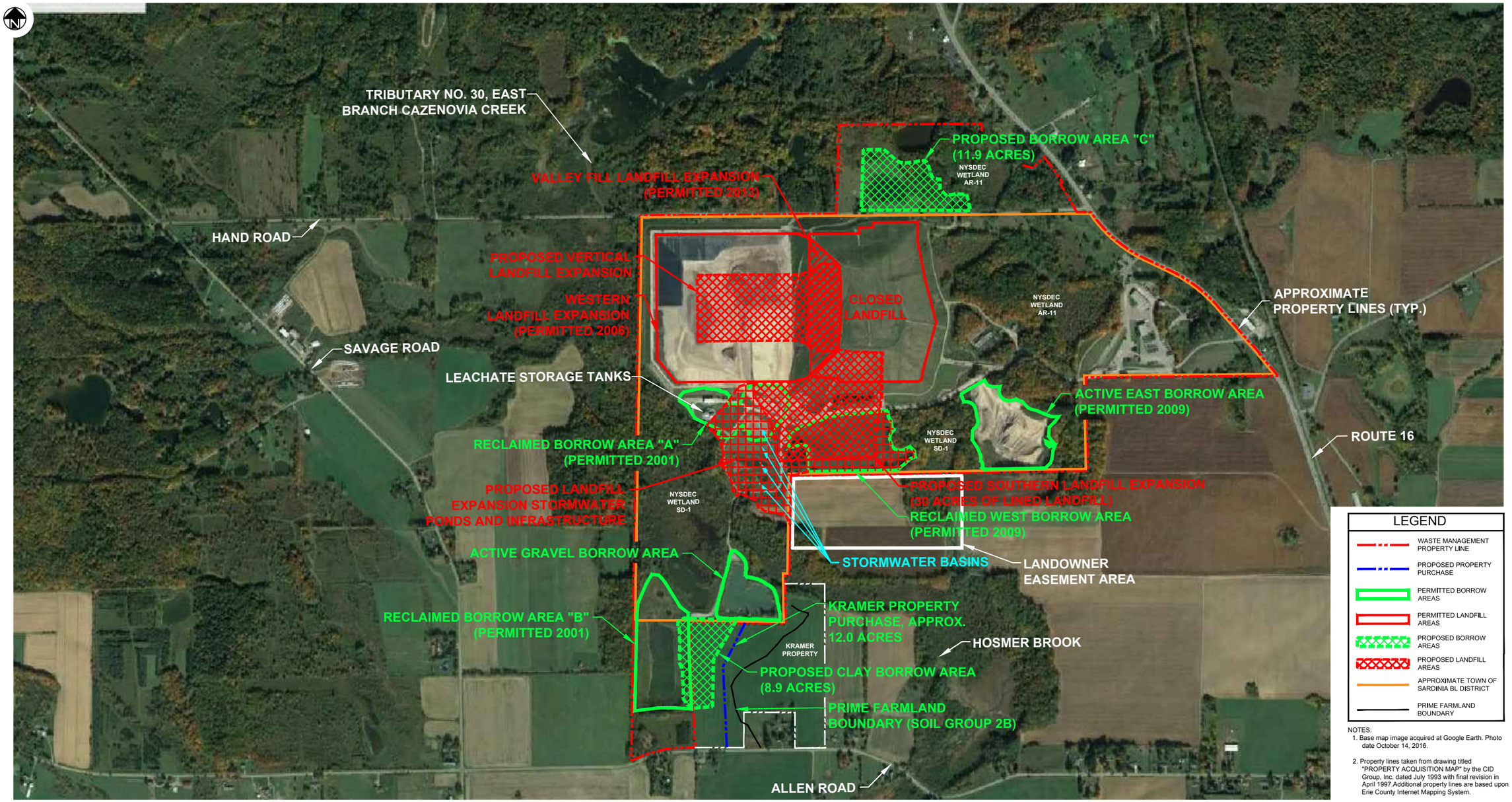
Scale in Miles (approximate)

Site Investigation Plan Chaffee Sanitary Landfill-Southern Expansion Chaffee, New York	GEI Consultants	SITE LOCATION	
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	February 2019	Fig. 1



LEGEND

- WASTE MANAGEMENT PROPERTY LINE
- PROPOSED PROPERTY PURCHASE
- PERMITTED BORROW AREAS
- PERMITTED LANDFILL AREAS
- PROPOSED BORROW AREAS
- PROPOSED LANDFILL AREAS
- APPROXIMATE TOWN OF SARDINIA BL DISTRICT
- PRIME FARMLAND BOUNDARY

NOTES:

1. Base map image acquired at Google Earth. Photo date October 14, 2016.
2. Property lines taken from drawing titled "PROPERTY ACQUISITION MAP" by the CID Group, Inc. dated July 1993 with final revision in April 1997.Additional property lines are based upon Erie County Internet Mapping System.
3. Property purchase limit based on survey completed by Wendel dated July 27, 2018.
4. BL district lines taken from Zoning Map included in the Town of Sardinia Zoning Ordinance adopted October 12, 2005.
5. Prime farmland boundary taken from Prime Farmland Soils Overlay District Map included in the Town of Sardinia Zoning Ordinance adopted October 12, 2005.

EXISTING AND PROPOSED EXPANSION AREAS

SCALE: 1" = 500'

500' 0 250' 500'

SOURCE:

1. PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO, N.Y., JANUARY 2019.

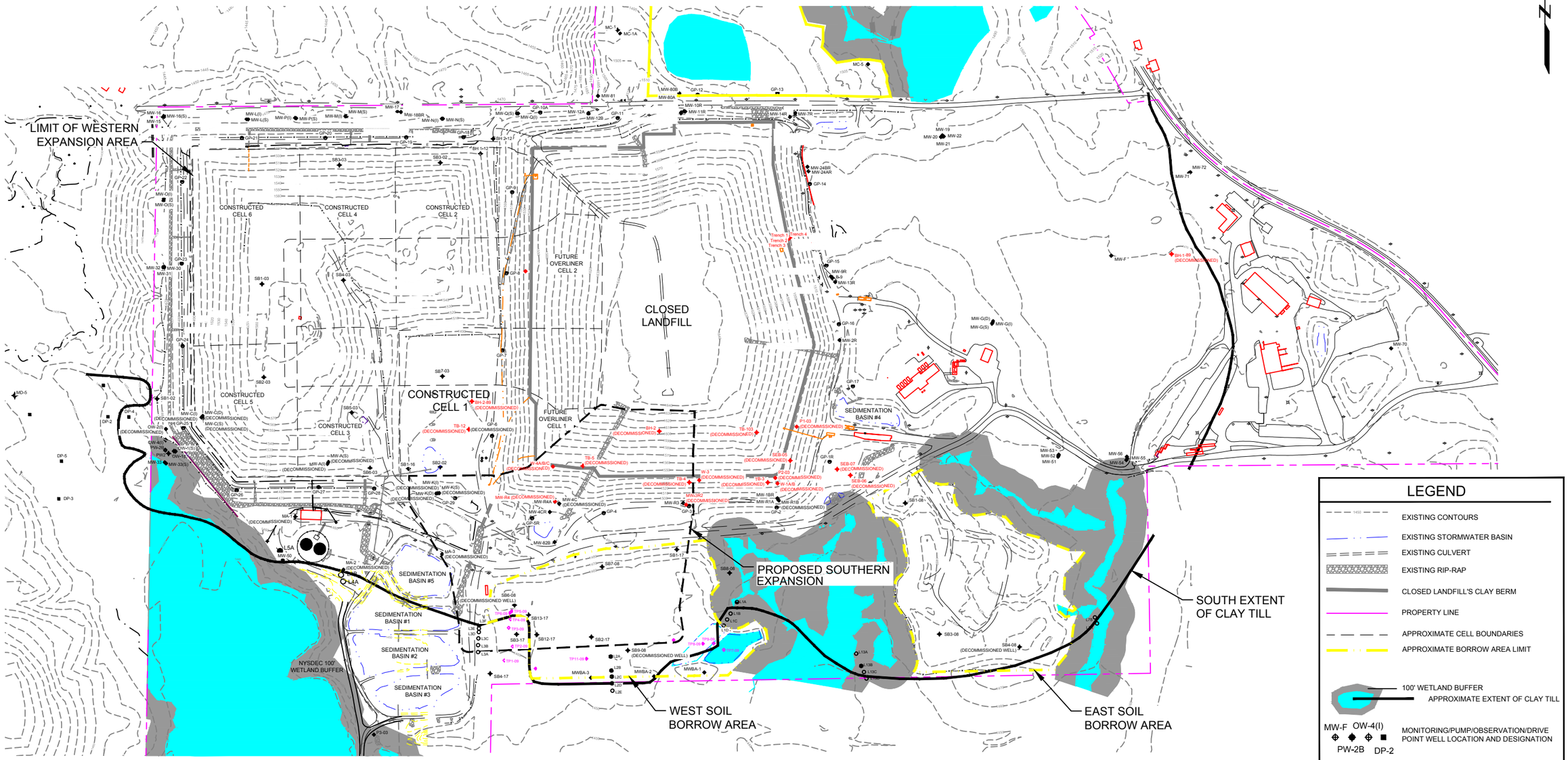
Site Investigation Plan
Chaffee Sanitary Landfill - Southern Expansion
Chaffee, New York

Waste Management of New York, L.L.C.
Chaffee, New York

GEI Consultants

SITE FEATURES

Project 1900192 | February 2019 | Fig. 2



0 500 1000

SCALE: 1" = 500'

SOURCE:

1. PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Site Investigation Plan
Chaffee Sanitary Landfill - Southern Expansion
Chaffee, New York

Waste Management of New York, L.L.C.
Chaffee, New York

GEI Consultants

SITE LAYOUT PLAN

Project 1900192 | February 2019 | Fig. 3

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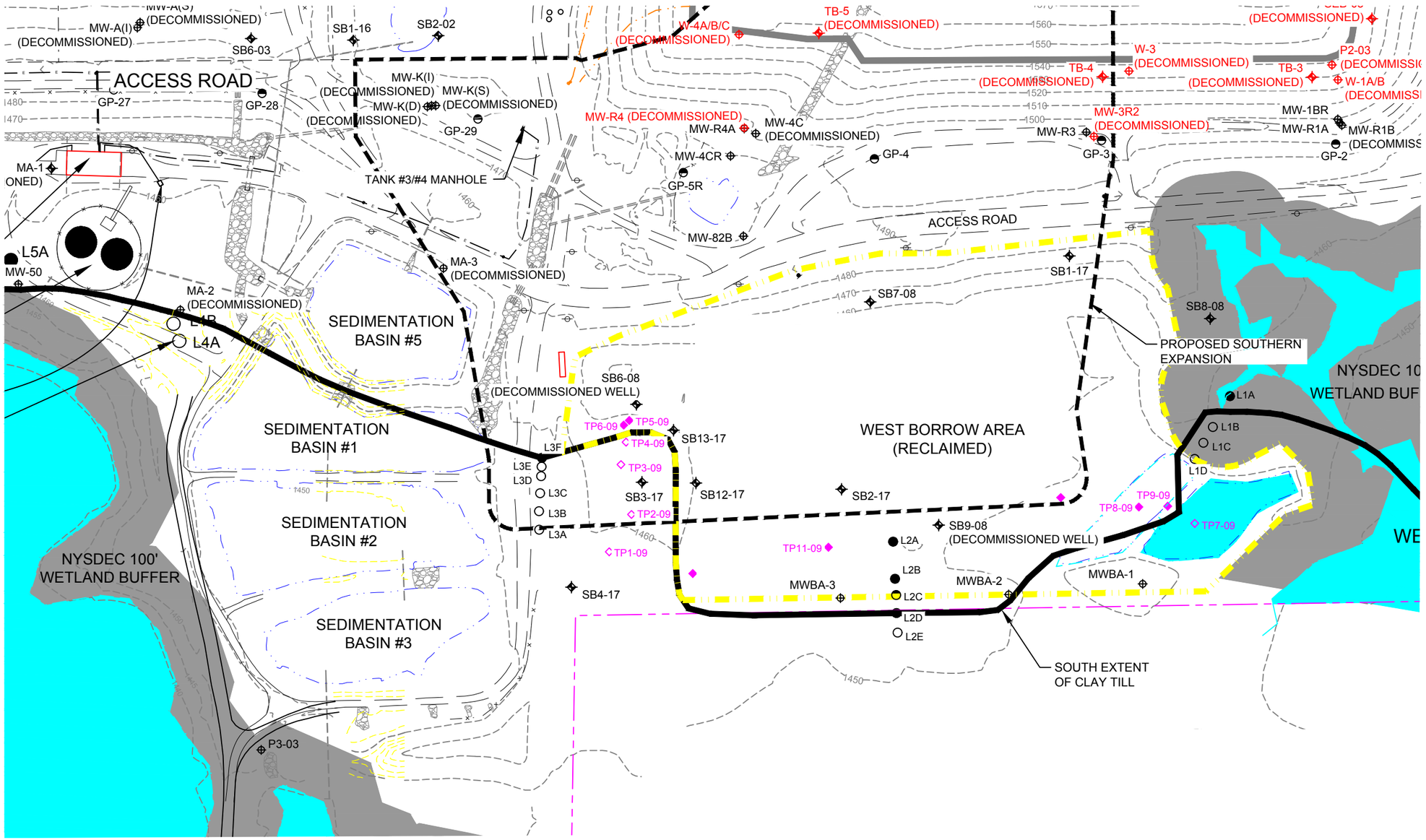


LEGEND

- EXISTING CONTOURS
- EXISTING STORMWATER BASIN
- EXISTING CULVERT
- EXISTING RIP-RAP
- CLOSED LANDFILL'S CLAY BERM
- PROPERTY LINE
- APPROXIMATE CELL BOUNDARIES
- APPROXIMATE BORROW AREA LIMIT
- 100' WETLAND BUFFER
- APPROXIMATE EXTENT OF CLAY TILL
- MW-F, OW-4(I), PW-2B, DP-2: MONITORING/PUMP/OBSERVATION/DRIVE POINT WELL LOCATION AND DESIGNATION
- B82-02, L3E, L3F: BORE HOLE LOCATION AND DESIGNATION
- TP11-09: TEST PIT LOCATION AND DESIGNATION
- GP-28: GAS PROBE LOCATION AND DESIGNATION

0 200 400

SCALE: 1" = 200'

SOURCE:

1. PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Site Investigation Plan
Chaffee Sanitary Landfill - Southern Expansion
Chaffee, New York

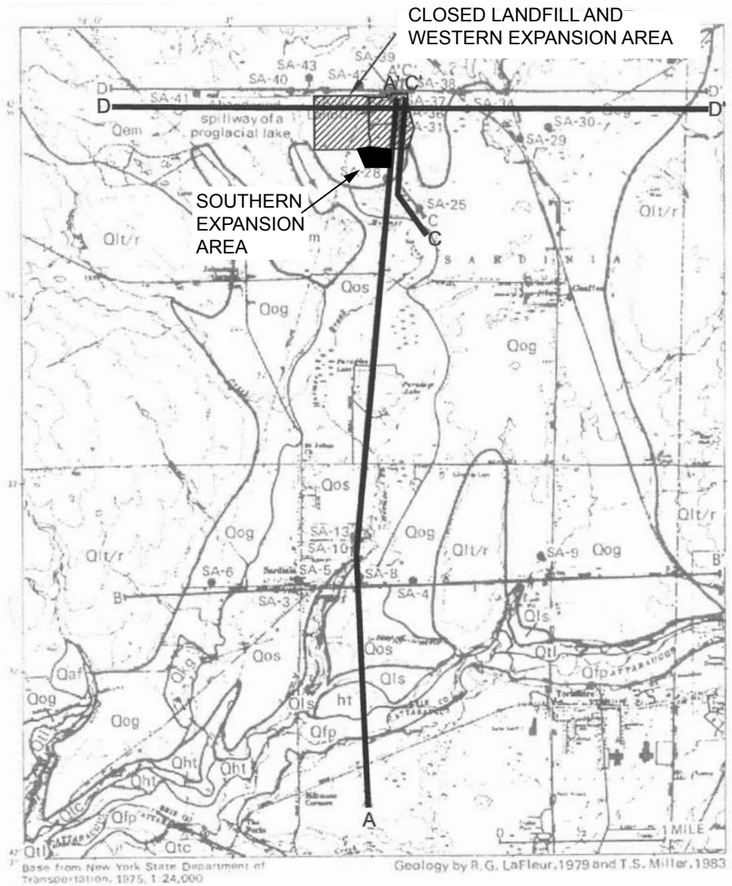
Waste Management of New York, L.L.C.
Chaffee, New York

GEI Consultants

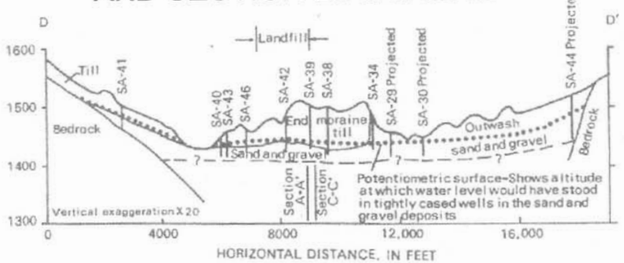
Project 1900192

PROPOSED
SOUTH EXPANSION FOOTPRINT
PLAN

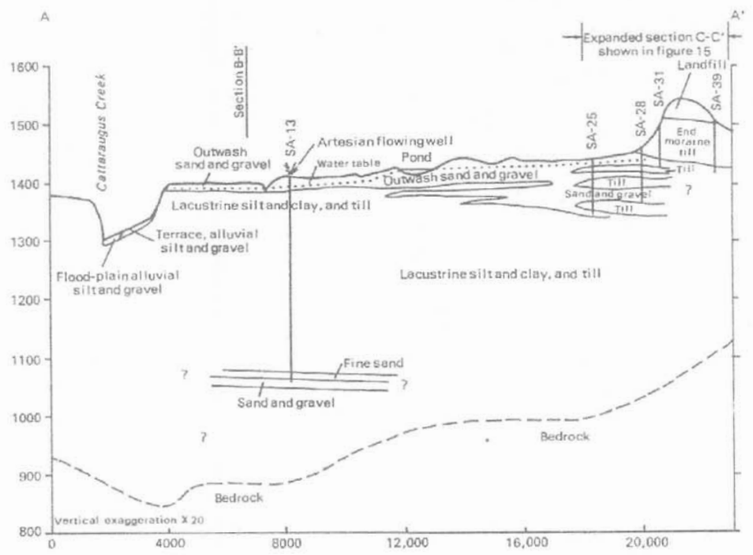
February 2019 Fig. 4



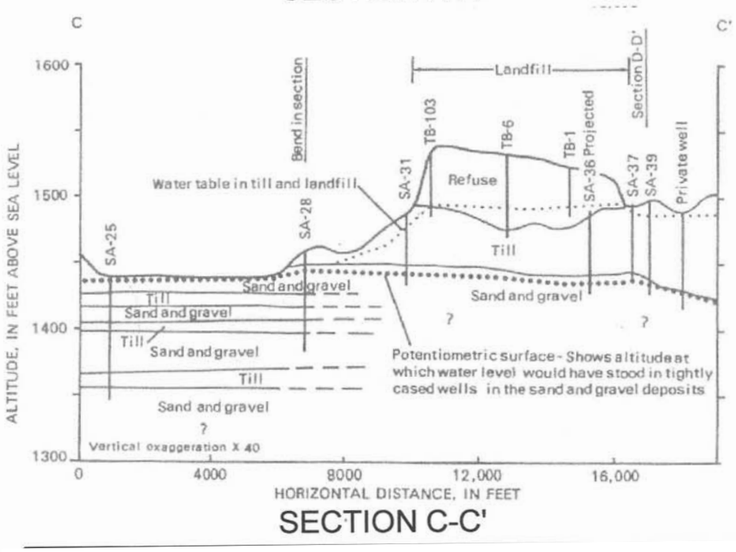
PLAN OF SURFICIAL GEOLOGY AND SECTION LOCATIONS



SECTION D-D'



SECTION A-A'



SECTION C-C'

SECTION DESCRIPTION

A-A'	NORTH-SOUTH SECTION THROUGH SARDINIA AREA
C-C'	NORTH-SOUTH SECTION IN LANDFILL VICINITY
D-D'	SECTION ALONG HAND ROAD

NOTES:
1. Drawings adapted from "Hydrogeologic Appraisal of Five Selected Aquifers in Erie County, New York," Miller and Staubitz, U.S. Geologic Survey, Water Resources Investigations Report 84-4334,1985.
2. Section B-B' not shown on figure.

SOURCE:
1. PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO, N.Y., JANUARY 2019.

Site Investigation Plan
Chaffee Sanitary Landfill - Southern Expansion
Chaffee, New York

Waste Management of New York, L.L.C.
Chaffee, New York

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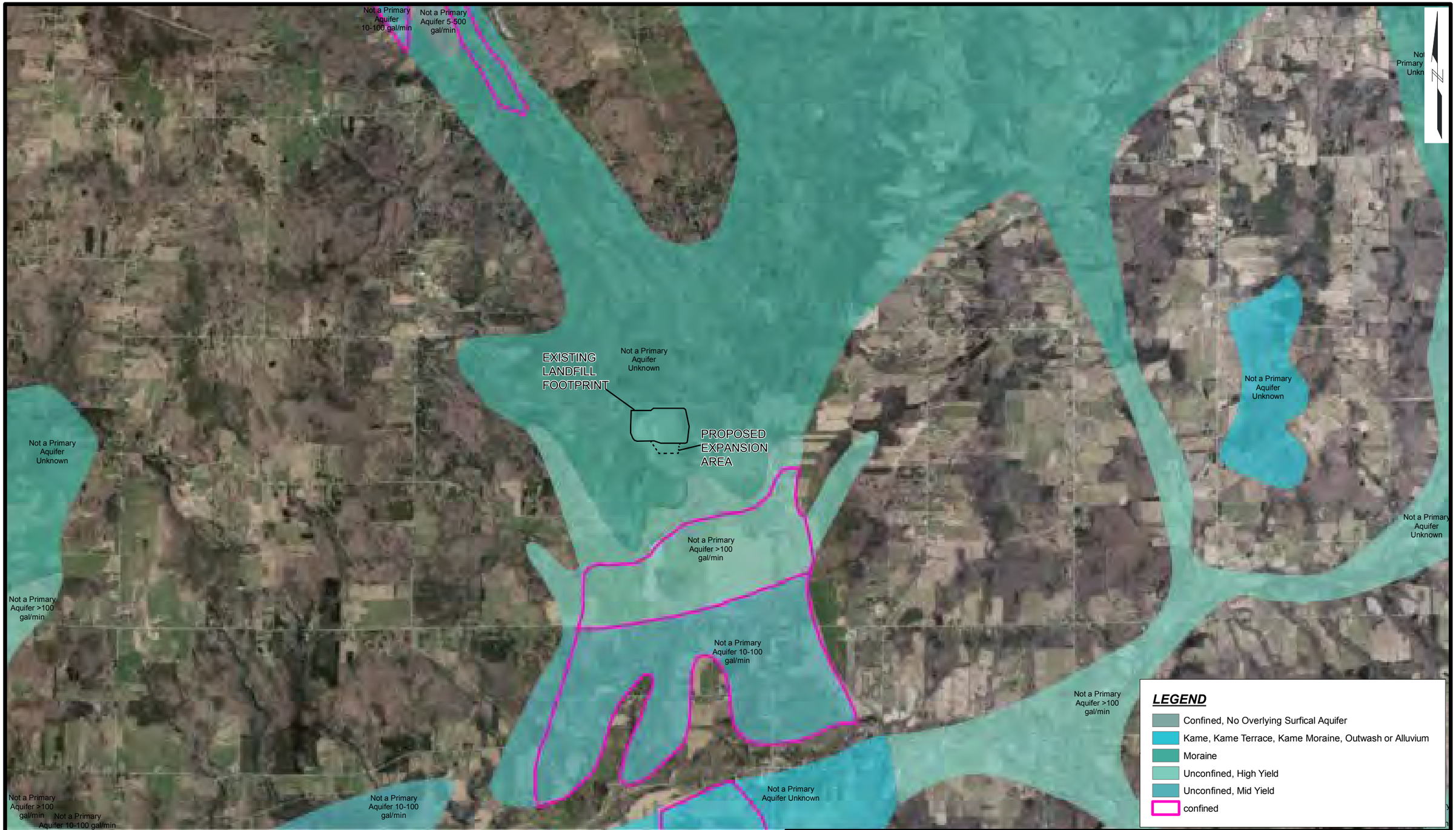
REGIONAL GEOLOGIC MAP AND CROSS-SECTIONS

February 2019 Fig. 5



SOURCE:
2011 ESRI WORLD IMAGERY ACCESSED VIA ARCGIS ONLINE *(www.arcgis.com)*.
2. AQUIFER DATA FROM U.S. GEOLOGICAL SURVEY AND THE NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION.

0 5,000 10,000
SCALE: 1" = 5,000'

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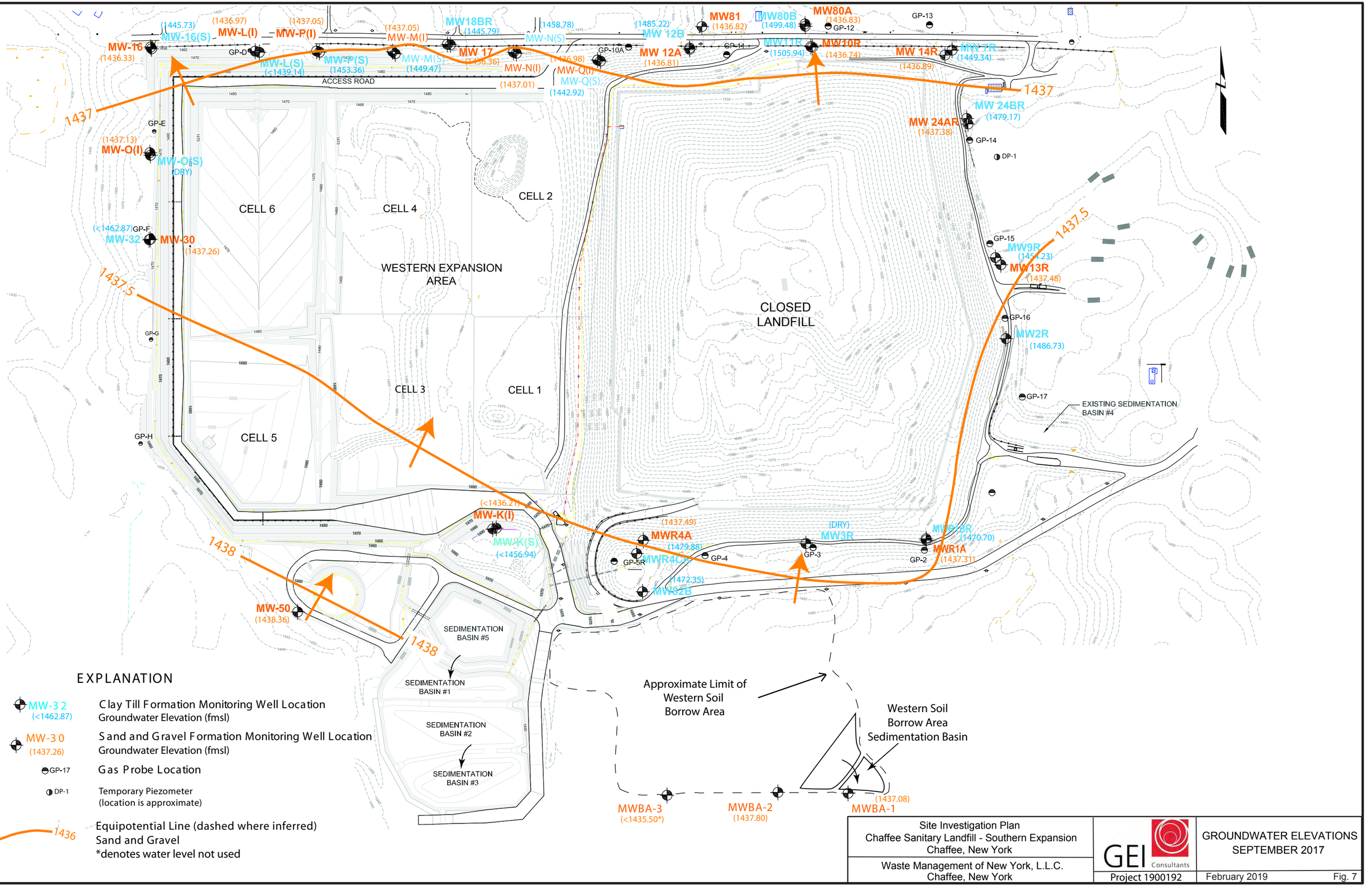
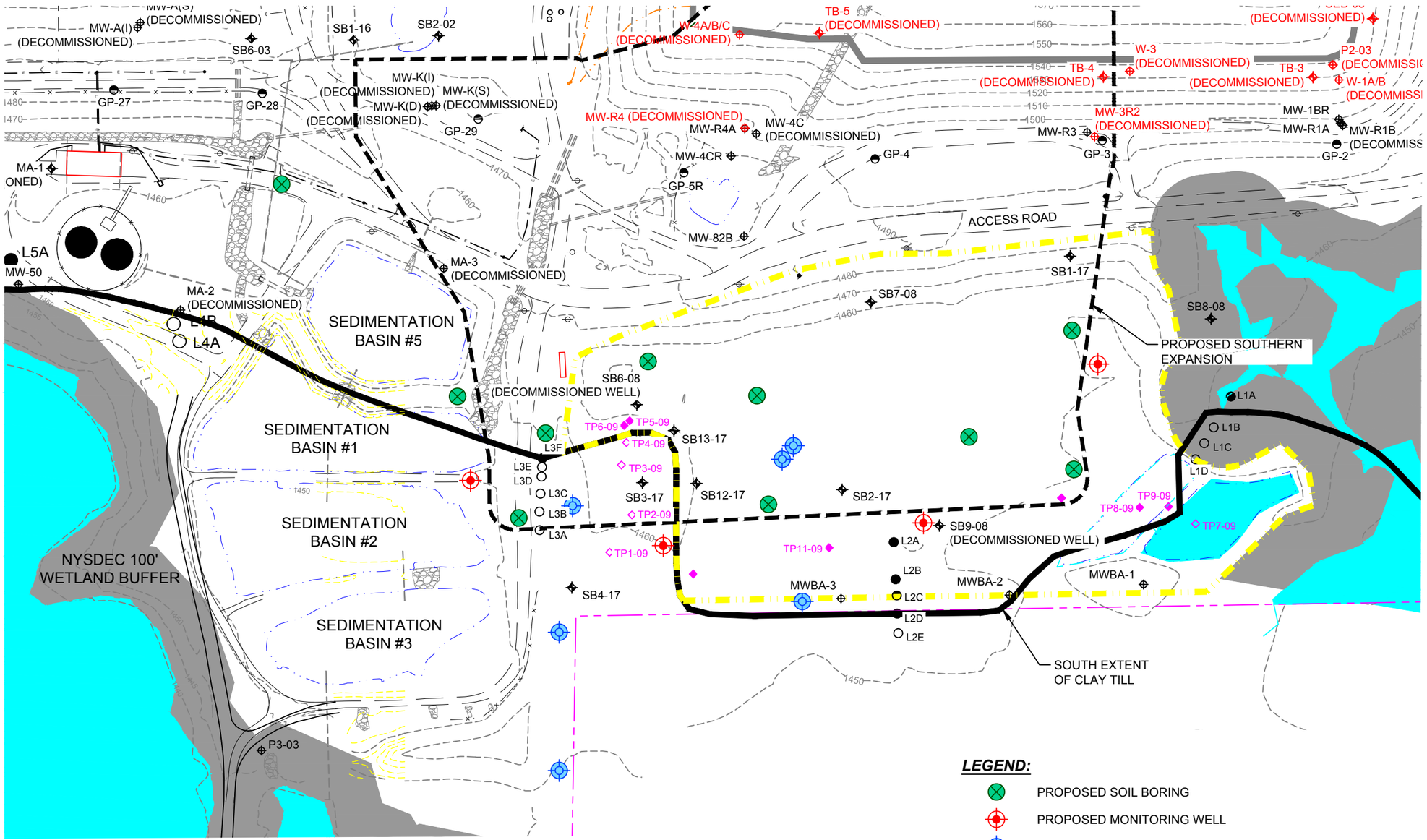
NYS AQUIFERS

Project 1900192 | February 2019 | Fig. 6



Site Investigation Plan Chaffee Sanitary Landfill - Southern Expansion Chaffee, New York	GEI Consultants	GROUNDWATER ELEVATIONS SEPTEMBER 2017
Waste Management of New York, L.L.C. Chaffee, New York	Project 1900192	February 2019 Fig. 7



LEGEND:

- PROPOSED SOIL BORING
- PROPOSED MONITORING WELL
- PROPOSED PIEZOMETER

LEGEND

- EXISTING CONTOURS
- EXISTING STORMWATER BASIN
- EXISTING CULVERT
- EXISTING RIP-RAP
- CLOSED LANDFILL'S CLAY BERM
- PROPERTY LINE
- APPROXIMATE CELL BOUNDARIES
- APPROXIMATE BORROW AREA LIMIT
- 100' WETLAND BUFFER
- APPROXIMATE EXTENT OF CLAY TILL
- MW-F, OW-4(I), PW-2B, DP-2 — MONITORING/PUMP/OBSERVATION/DRIVE POINT WELL LOCATION AND DESIGNATION
- SB2-02, L3E, L3F — BORE HOLE LOCATION AND DESIGNATION
- TP11-09 — TEST PIT LOCATION AND DESIGNATION
- GP-28 — GAS PROBE LOCATION AND DESIGNATION

0 200 400

SCALE: 1" = 200'

SOURCE:

1. PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Site Investigation Plan
Chaffee Sanitary Landfill - Southern Expansion
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Chaffee, New York

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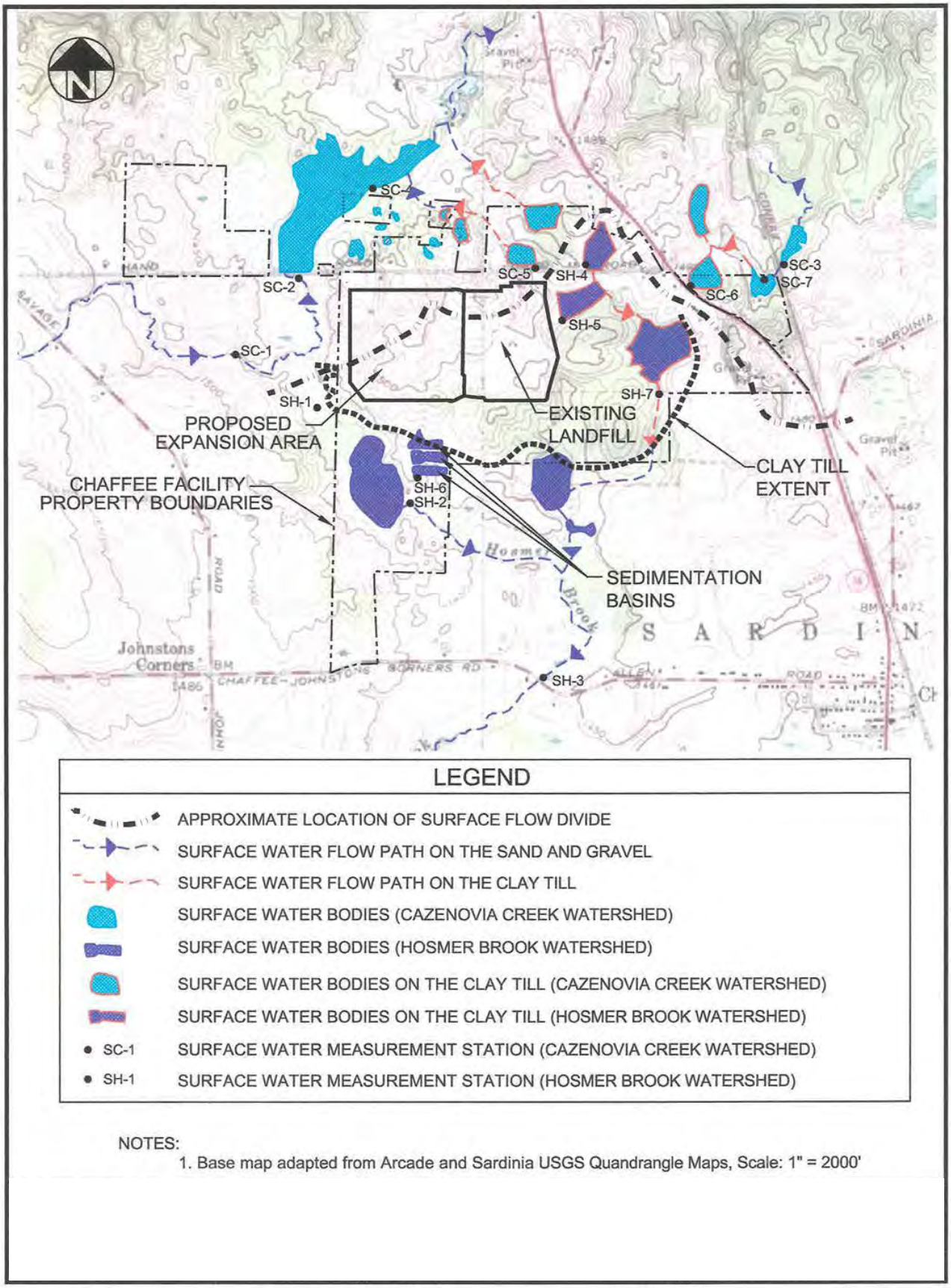
PROPOSED BORING/MONITORING WELL/PIEZOMETER LOCATION PLAN

February 2019 Fig. 8

\\geiconsulta B:\Working\WASTE MANAGEMENT\1900192 Chaffee Landfill Hydrogeo Investigation\00_CAD\Figures\SIWP\1900192-SIWP-Figs.dwg - 1/21/2019



NOTES:

1. Base map adapted from Arcade and Sardinia USGS Quandrangle Maps, Scale: 1" = 2000'

SOURCE:

1. DRAWING PREPARED BY McMAHON & MANN, BUFFALO, N.Y., February 2005.

Site Investigation Plan
Chaffee Sanitary Landfill - Southern Expansion
Chaffee, New York

Waste Management of New York, L.L.C.
Chaffee, New York

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SURFACE WATER FEATURES NEAR CHAFFEE LANDFILL

February 2019

Fig. 9

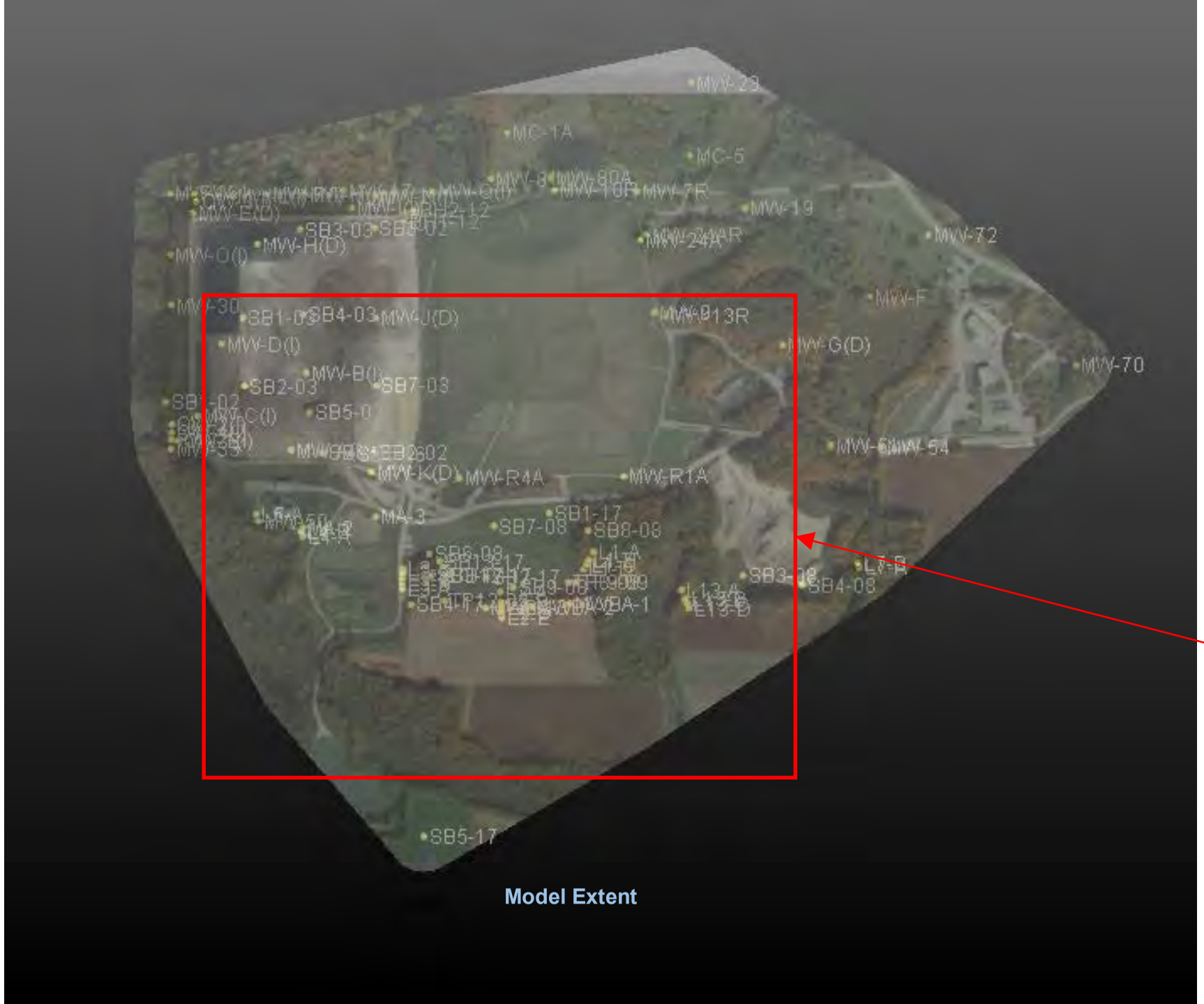
Appendix A

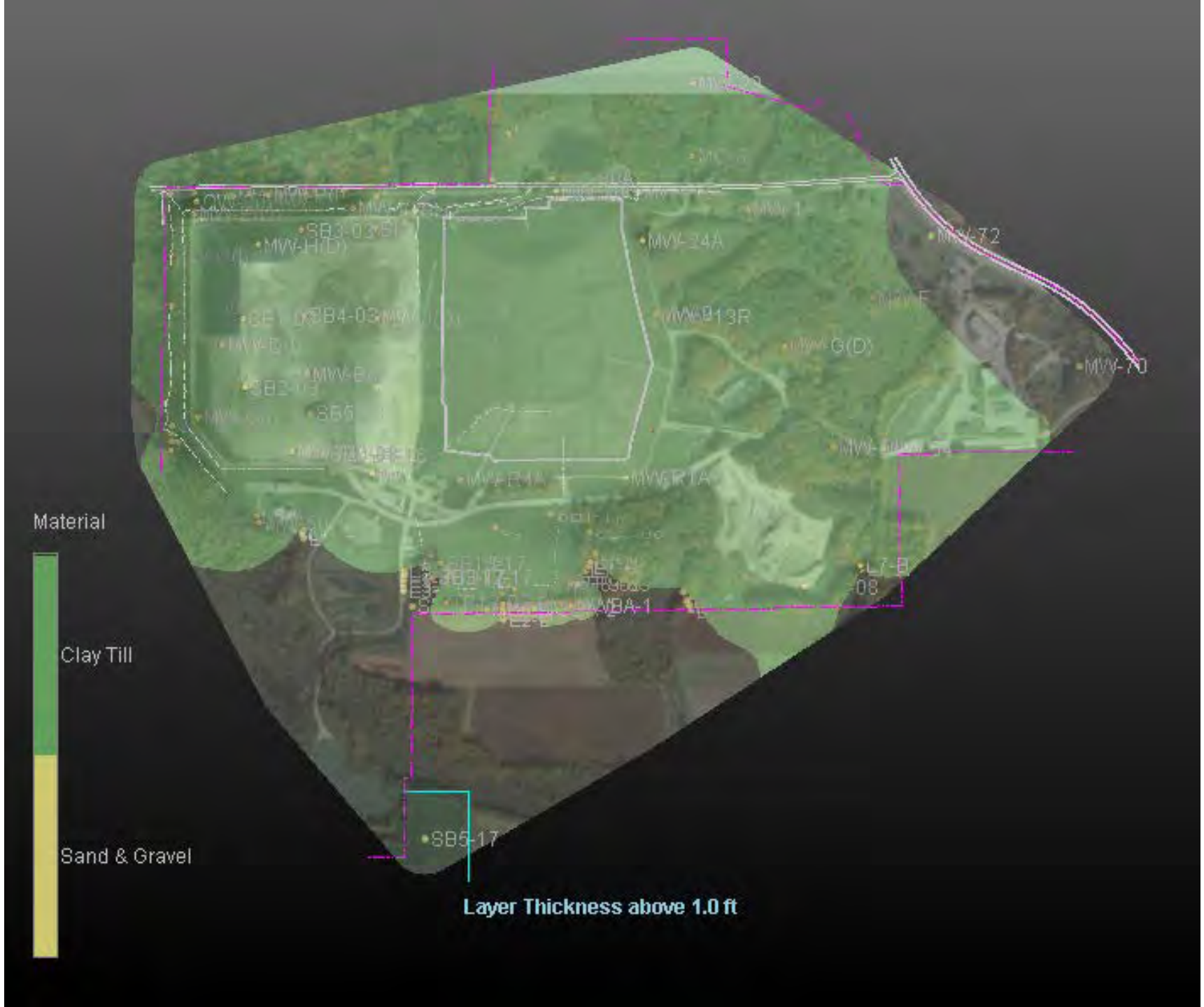
Clay Till Thickness Model

Chaffee Landfill
Lateral Extent of Clay Till

December 20, 2017

GEI Consultants


MW-23
MC-1A
MC-5
MW-19
MW-72
MW-F
MW-70
MW-G(D)
MW-13R
MW-R1A
MW-R4A
MW-K(D)
MW-D(I)
MW-H(D)
MW-J(D)
SB1-03
SB4-03
SB2-03
SB7-03
SB5-0
SB1-17
SB7-08
SB8-08
SB4-08
MA-3
SB5-17
Area of Focus
Model Extent


Material
Clay Till
Sand & Gravel
SB5-17
Layer Thickness above 1.0 ft


SB4-03
MW-B(I)
SB2-03
SB5-03
MW-R4A
MW-R4A
SB13-17
MWBA-1
Material
Clay Till
Sand & Gravel
Layer Thickness above 1.0 ft
Approximate South Expansion Area


SB4-03
MW-9
13R
MW-B(I)
SB2-03
SB5-03
MW-R4A
MW-R4A
SB13-17
MW-BA-1
Material
Clay Till
Sand & Gravel
Layer Thickness above 2.0 ft


SB4-03
MW-9
13R
MW-B(I)
SB2-03
SB5-03
MW-R4A
MW-R4A
SB13-17
L1-D
MW-BA-1
L2-E
Material
Clay Till
Sand & Gravel
Layer Thickness above 3.0 ft


SB4-03
MW-9
13R
MW-B(I)
SB2-03
SB5-03
MW-R4A
MW-R4A
SB13-17
MWBA-1
Material
Clay Till
Sand & Gravel
Layer Thickness above 4.0 ft


SB4-03
MW-9
MW-13R
MW-B(I)
SB2-03
SB5-03
MW-C(I)
MW-R4A
MW-R4A
SB13-17
L1-B
L1-D
L13-A
L13-B
L13-C
L13-D
SB4-17
MWBA-1
E2-E
Material
Clay Till
Sand & Gravel
Layer Thickness above 5.0 ft


SB4-03
MW-9
MW-13R
MW-B(I)
SB2-03
SB5-03
MW-R4A
MW-R4A
SB13-17
SB4-17
MW-BA-1
L13-A
L13-B
L13-D
Material
Clay Till
Sand & Gravel
Layer Thickness above 6.0 ft


SB4-03
MW-B(I)
SB2-03
SB5-03
MW-R4A
MW-R4A
SB13-17
SB4-17
MWBA-1
L2-E
L1-B
L1-D
L13-A
L13-B
L13-D
Material
Clay Till
Sand & Gravel
Layer Thickness above 7.0 ft


SB4-03
MW-9
13R
MW-B(I)
SB2-03
SB5-03
MW-R4A
MW-R4A
SB13-17
MW-50
L4-A
L1-B
L1-D
L13-A
L13-B
L13-D
SB4-17
TP12-09
MWBA-1
L2-E
Material
Clay Till
Sand & Gravel
Layer Thickness above 8.0 ft


SB4-03
MW-B(I)
SB2-03
SB5-03
MW-R4A
MW-R4A
MW-50
SB13-17
SB2
TP12-09
MWBA-1
L13-A
L13-B
L13-D
Material
Clay Till
Sand & Gravel
Layer Thickness above 9.0 ft


SB4-03
MW-9
13R
MW-B(I)
SB2-03
SB5-03
MW-C(I)
MW-R4A
MW-R4A
MW-50
SB13-17
SB4-17
TP12-09
MWBA-1
L1-A
L1-B
L1-D
L13-A
L13-B
L13-D
Material
Clay Till
Sand & Gravel
Layer Thickness above 10 ft


SB4-03
MW-9
MW-13R
MW-B(I)
SB2-03
SB5-03
MW-C(I)
MW-R4A
MW-R4A
MW-50
L5-A
L4-A
SB13-17
SB2-17
SB9-D8
L1-A
L1-B
L1-D
L2-A
L2-B
L2-E
SB4-17
TP12-09
MWBA-2
MWBA-1
L13-A
L13-B
L13-D
Material
Clay Till
Sand & Gravel
Layer Thickness above 15 ft


Material
Clay Till
Sand & Gravel
Layer Thickness above 20 ft
SB4-03
MW-B(I)
SB2-03
SB5-03
MW-R4A
MW-R4A
MW-50
MA-3
SB6-08
SB13-17
SB2-17
SB9-08
TP12-09
MWBA-2
MWBA-1
L1-A
L1-B
L1-D
L2-A
L2-B
L2-E
L13-A
L13-B
L13-D

Appendix B

Part 363 Expanded and Baseline Laboratory Analytical Parameter List

APPENDIX B. Part 363 Expanded and Baseline Parameter List
Site Investigation Plan
Chaffee Sanitary Landfill - Southern Expansion
Chaffee, New York

BASELINE PARAMETERS: Field Parameters, Leachate Indicators, and Inorganic Parameters[1]		
Field Parameters:	***Leachate Indicators:***	***Inorganic Parameters: (total unless otherwise noted):***
Static water level (in wells and sumps)	Total Kjeldahl Nitrogen	Aluminum
Specific Conductance	Ammonia	Antimony
Temperature	Nitrate	Arsenic
Floaters or Sinkers[3]	Chemical Oxygen Demand	Barium
pH	Biochemical Oxygen Demand (BOD5)	Beryllium
Eh	Total Organic Carbon	Cadmium
Dissolved Oxygen[4]	Total Dissolved Solids	Calcium
Field Observations[5]	Sulfate	Chromium
Turbidity	Alkalinity	Chromium (Hexavalent)[6]
	Phenols	Cobalt
	Chloride	Copper
	Bromide	Cyanide
	Total hardness as CaCO3	Iron
	Color	Lead
	Boron	Magnesium
		Manganese
		Mercury
		Nickel
		Potassium
		Selenium
		Silver
		Sodium
		Thallium
		Vanadium
		Zinc

Notes:

[1]This list contains parameters for which possible analytical procedures are provided in:
'Test Methods for Evaluating Solid Waste, Physical/Chemical Methods', EPA Publication SW-846 (Third Edition, (November 1986), as amended by Updates I (July 1992), II (September 1994), IIA (August 1993), IIB (January 1995), III (December 1996), IIIA (April 1998), document number 955-001-00000-1), incorporated by reference in section 360.3 of this Title.
'Methods for Chemical Analysis of Water and Wastes', USEPA-600/4-79-020, March, 1983, incorporated by reference in section 360.3 of this Title.

[2]Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals. "Total" indicates all species in the groundwater that contain this element.

[3]Any floaters or sinkers found must be analyzed separately for baseline parameters.

[4]Surface water only.

[5]Any unusual conditions (colors, odors, surface sheens, etc.) noticed during well development, purging, or sampling must be reported.

[6]The department may waive the requirement to analyze hexavalent chromium provided that total and hexavalent and trivalent chromium values do not exceed 0.05 mg/l.

APPENDIX B. Part 363 Expanded and Baseline Parameter List
Site Investigation Plan
Chaffee Sanitary Landfill - Southern Expansion
Chaffee, New York

BASELINE PARAMETERS: Organic Parameters[1]		
Organic Parameters:		
Acetone	1,1-Dichloroethane; Ethylidene chloride	Styrene
Acrylonitrile	1,2-Dichloroethane; Ethylene dichloride	1,1,1,2-Tetrachloroethane
Benzene	1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	1,1,2,2-Tetrachloroethane
Bromochloromethane	cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	Tetrachloroethylene; Tetrachloroethene; Perchloroethylene
Bromodichloromethane	trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	Toluene
Bromoform; Tribromomethane	1,2-Dichloropropane; Propylene dichloride	1,1,1-Trichloroethane; Methylchloroform
Carbon disulfide	cis-1,3-Dichloropropene	1,1,2-Trichloroethane
Carbon tetrachloride	trans-1,3-Dichloropropene	Trichloroethylene; Trichloroethene
Chlorobenzene	Ethylbenzene	Trichlorofluoromethane; CFC-11
Chloroethane; Ethyl chloride	2-Hexanone; Methyl butyl ketone	1,2,3-Trichloropropane
Chloroform; Trichloromethane	Methyl bromide; Bromomethane	Vinyl acetate
Dibromochloromethane; Chlorodibromomethane	Methyl chloride; Chloromethane	Vinyl chloride; Chloroethene
1,2-Dibromo-3-chloropropane; DBCP	Methylene bromide; Dibromomethane	Xylenes
1,2-Dibromoethane; Ethylene dibromide; EDB	Methylene chloride; Dichloromethane	
o-Dichlorobenzene; 1,2-Dichlorobenzene	Methyl ethyl ketone; MEK; 2-Butanone	
p-Dichlorobenzene; 1,4-Dichlorobenzene	Methyl Iodide; Iodomethane	
trans-1,4-Dichloro-2-butene	4-Methyl-2-pentanone; Methyl isobutyl ketone	

Notes:

[1]This list contains parameters for which possible analytical procedures are provided in:
'Test Methods for Evaluating Solid Waste, Physical/Chemical Methods', EPA Publication SW-846 (Third Edition, (November 1986), as amended by Updates I (July 1992), II (September 1994), IIA (August 1993), IIB (January 1995), III (December 1996), and IIIA (April 1998) document number 955-001-00000-1), incorporated by reference in section 360.3 of this Title.
'Methods for Chemical Analysis of Water and Wastes', USEPA-600/4-79-020, March, 1983, incorporated by reference in 360.3 of this Title.

[2]Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[3]Any floaters or sinkers found must be analyzed separately for baseline parameters.

[4]Surface water only.

[5]Any unusual conditions (colors, odors, surface sheens, etc.) noticed during well development, purging, or sampling must be reported.

APPENDIX B. Part 363 Expanded and Baseline Parameter List
Site Investigation Plan
Chaffee Sanitary Landfill - Southern Expansion
Chaffee, New York

EXPANDED PARAMETERS: Field Parameters, Leachate Indicators, Radionuclides, and Inorganic Parameters[1]			
Field Parameters:	***Leachate Indicators:***	***Inorganic Parameters: (total unless otherwise noted):***	***Radionuclides[7]***
Static water level (in wells and sumps)	Total Kjeldahl Nitrogen	Aluminum	Radium-226 per EPA 903.1
Specific Conductance	Ammonia	Antimony	Radium-228 per EPA 904.0
Temperature	Nitrate	Arsenic	Total Uranium per EPA 908.0
Floaters or Sinkers[3]	Chemical Oxygen Demand	Barium	
pH	Biochemical Oxygen Demand (BOD5)	Beryllium	
Eh	Total Organic Carbon	Cadmium	
Dissolved Oxygen[4]	Total Dissolved Solids	Calcium	
Field Observations[5]	Sulfate	Chromium	
Turbidity	Alkalinity	Chromium (Hexavalent)[6]	
	Phenols	Cobalt	
	Chloride	Copper	
	Bromide	Cyanide	
	Total hardness as CaCO3	Iron	
	Color	Lead	
	Boron	Magnesium	
		Manganese	
		Mercury	
		Nickel	
		Potassium	
		Selenium	
		Silver	
		Sodium	
		Thallium	
		Tin	
		Vanadium	
		Zinc	

[1]This list contains parameters for which possible analytical procedures are provided in:
'Test Methods for Evaluating Solid Waste, Physical/Chemical Methods', EPA Publication SW-846 (Third Edition, (November 1986), as amended by Updates I (July 1992), II (September 1994), IIA (August 1993), IIB (January 1995), III (December 1996), and IIIA (April 1998) document number 955-001-00000-1), incorporated by reference in section 360.3 of this Title.
'Methods for Chemical Analysis of Water and Wastes', USEPA-600/4-79-020, March 1983, incorporated by reference in 360.3 of this Title.
'Prescribed Procedures for Measurement of Radioactivity in Drinking Water', USEPA-600/4-80-032, August 1980, incorporated by reference in section 360.3 of this Title.

[2]Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals. "Total" indicates all species in the groundwater that contain this element.

[3]Any floaters or sinkers found must be analyzed separately for baseline parameters.

[4]Surface water only.

[5]Any unusual conditions (colors, odors, surface sheens, etc.) noticed during well development, purging, or sampling must be reported.

[6]The department may waive the requirement to analyze hexavalent chromium provided that total and hexavalent and trivalent chromium values do not exceed 0.05 mg/l.

[7]Two sets of samples must be collected: one filtered and one unfiltered. Filtered samples must be filtered using a 0.45 micron filter via standard techniques.

APPENDIX B. Part 363 Expanded and Baseline Parameter List
Site Investigation Plan
Chaffee Sanitary Landfill - Southern Expansion
Chaffee, New York

EXPANDED PARAMETERS: Organic Parameters[1]		
Organic Parameters:		
Acenaphthene	2,4-Dichlorophenol	Naphthalene
Acenaphthylene	2,6-Dichlorophenol	1,4-Naphthoquinone
Acetone	1,2-Dichloropropane; Propylene dichloride	1-Naphthylamine
Acetonitrile; Methyl cyanide	1,3-Dichloropropane; Trimethylene dichloride	2-Naphthylamine
Acetophenone	2,2-Dichloropropane; Isopropylidene chloride	o-Nitroaniline; 2-Nitroaniline
2-Acetylaminofluorene; 2-AAF	1,1-Dichloropropene	m-Nitroaniline; 3-Nitroaniline
Acrolein	cis-1,3-Dichloropropene	p-Nitroaniline; 4-Nitroaniline
Acrylonitrile	trans-1,3-Dichloropropene	Nitrobenzene
Aldrin	Dieldrin	o-Nitrophenol 2-Nitrophenol
Allyl chloride	Diethyl phthalate	p-Nitrophenol; 4-Nitrophenol
4- aminobiphenyl	0,0-Diethyl 0-2-pyrazinyl	N-Nitrosodi-n-butylamine
Anthracene	cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	N-Nitrosodiethylamine
Benzene	trans-1,2-Dichloroethylene	N-Nitrosodimethylamine
Benzo[a]anthracene; Benzanthracene	Phosphorothioate; Thionazin	N-Nitrosodiphenylamine
Benzo[b]fluoranthene	Dimethoate	N-Nitrosodipropylamine; N- Nitroso-N-dipropyl-amine; Di-n-propylni-trosamine
Benzo[k]fluoranthene	p-(Dimethylamino)azobenzene	N-Nitrosomethylethalamine
Benzo[ghi]perylene	7,12-Dimethylbenz[a]anthracene	N-Nitrosopiperidine
Benzo[a]pyrene	3,3[1]-Dimethylbenzidine	N-Nitrosopyrrolidine
Benzyl alcohol	2,4-Dimethylphenol; m-Xylenol	5-Nitro-o-toluidine
alpha-BHC	Dimethyl phthalate	Parathion
beta-BHC	m-Dinitrobenzene	Pentachlorobenzene
delta-BHC	4,6-Dinitro-o-cresol 4,6- Dinitro-2-methylphenol	Pentachloronitrobenzene
gamma-BHC; Lindane	2,4-Dinitrophenol	Pentachlorophenol
Bis(2-chloroethoxy)methane	2,4-Dinitrotoluene	Phenacetin
Bis(2-chloroethyl) ether; Dichloroethyl ether	2,6-Dinitrotoluene	Phenanthrene
Bis-(2-chloro-1-methyl- ethyl)ether; 2,2[1]-Dichlorodiisopropyl ether; DCIP[3]	Dinoseb; DNBP; 2-sec- Butyl-4,6- dinitrophenol	Phenol
Bis(2-ethylhexyl)phthalate	Di-n-octyl phthalate	p-Phenylenediamine
Bromochloromethane	Diphenylamine	Phorate
Bromodichloromethane	Disulfoton	Polychlorinated biphenyls; PCBs; Aroclors[5]

EXPANDED PARAMETERS: Organic Parameters (continued)[1]		
Organic Parameters (continued):		
Bromoform	Endosulfan I	Polychlorinated dibenzo-p-dioxins; PCDDs[6]
4-Bromophenyl phenyl ether	Endosulfan II	Polychlorinated dibenzo-furans; PCDFs[7]
Butyl benzyl phthalate; Benzyl butyl phthalate	Endosulfan sulfate	Pronamide
Carbon disulfide	Endrin	Propionitrile; Ethyl cyanide
Carbon tetrachloride	Endrin aldehyde	Pyrene
Chlordane[4]	Ethylbenzene	Safrole
p-Chloroaniline	Ethyl methacrylate	Silvex; 2,4,5-TP
Chlorobenzene	Ethyl methanesulfonate	Styrene
Chlorobenzilate	Famphur	2,4,5-T; 2,4,5-trichloro-phenoxyacetic acid
p-Chloro-m-cresol; 4-Chloro-3-methylphenol	Fluoranthene	1,2,4,5-Tetrachlorobenzene
Chloroethane; Ethyl chloride	Fluorene	2,3,7,8-Tetrachlorodi- benzo-p-dioxin; 2,3,7,8-TCDD
Chloroform; Trichloromethane	Heptachlor	1,1,1,2-Tetrachloroethane
2-Chloronaphthalene	Heptachlor epoxide	1,1,2,2-Tetrachloroethane
2-Chlorophenol	Hexachlorobenzene	Tetrachloroethylene; Tetrachloroethene; Perchloroethylene
4-Chlorophenyl phenyl ether	Hexachlorobutadiene	2,3,4,6-Tetrachlorophenol
Chloroprene	Hexachlorocyclopentadiene	Toluene
Chrysene	Hexachloroethane	o-Toluidine
m-Cresol; 3-methylphenol	Hexachloropropene	Toxaphene[8]
o-Cresol; 2-methylphenol	2-Hexanone; Methyl butyl ketone	1,2,4-Trichlorobenzene
p-Cresol; 4-methylphenol	Indeno(1,2,3-cd)pyrene	1,1,1-Trichloroethane; Methylchloroform
2,4-D; 2,4-Dichlorophen-oxyacetic acid	Isobutyl alcohol	1,1,2-Trichloroethane
4,4[1]-DDD	Isodrin	Trichloroethylene; Trichloroethene
4,4[1]-DDE	Isophorone	Trichlorofluoromethane; R-11
4,4[1]-DDT	Isosafrole	2,4,5-Trichlorophenol
Diallate	Kepone	2,4,6-Trichlorophenol
Dibenz[a,h]anthracene	Methacrylonitrile	1,2,3-Trichloropropane
Dibenzofuran	Methapyrilene	0,0,0-Triethyl phosphorothioate
Dibromochloromethane; Chlorodibromomethane	Methoxychlor	sym-Trinitrobenzene

APPENDIX B. Part 363 Expanded and Baseline Parameter List
Site Investigation Plan
Chaffee Sanitary Landfill - Southern Expansion
Chaffee, New York

EXPANDED PARAMETERS: Organic Parameters (continued)[1]		
Organic Parameters (continued):		
1,2-Dibromo-3-chloro- propane; DBCP	Methyl bromide; Bromomethane	Vinyl acetate
1,2-Dibromoethane; Ethylene dibromide; EDB	Methyl chloride; Chloromethane	Vinyl chloride; Chloroethene
Di-n-butyl phthalate	3-Methylcholanthrene	Xylene (total)
o-Dichlorobenzene; 1,2-Dichlorobenzene	Methyl ethyl ketone; MEK; 2-Butanone	Per- and polyfluoroalkyl substances[9]
m-Dichlorobenzene; 1,3-Dichlorobenzene	Methyl iodide; Iodomethane	1,4-Dioxane
p-Dichlorobenzene; 1,4-dichlorobenzene	Methyl methacrylate	
3,3[1]-Dichlorobenzidine	Methyl methanesulfonate	
trans-1,4-Dichloro- 2-butene	2-Methylnaphthalene	
Dichlorodifluoromethane; CFC 12	Methyl parathion; Parathion methyl	
1,1-Dichloroethane; Ethyldidene chloride	4-Methyl-2-pentanone; Methyl isobutyl ketone	
1,2-Dichloroethane; Ethylene dichloride	Methylene bromide; Dibromomethane	
1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	Methylene chloride; Dichloromethane	

Notes:

[1]This list contains parameters for which possible analytical procedures are provided in:
'Test Methods for Evaluating Solid Waste, Physical/Chemical Methods', EPA Publication SW-846 (Third Edition, (November 1986), as amended by Updates I (July 1992), II (September 1994), IIA (August 1993), IIB (January 1995), III (December 1996), and IIIA (April 1998) document number 955-001-00000-1), incorporated by reference in section 360.3 of this Title.
'Methods for Chemical Analysis of Water and Wastes', USEPA-600/4-79-020, March 1983, incorporated by reference in section 360.3 of this Title.

[2]Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[3]This substance is often called Bis(2-chloroisopropyl) ether, the name Chemical Abstracts Service applies to its noncommercial isomer, Propane, 2,2"-oxybis[2]-chloro- (CAS RN 39638-32-9).

[4]Chlordane: This entry includes alpha-chlordane (5103-71-9), beta-chlordane (5103-74-2), gamma-chlordane (5566-34-7), and constituents of chlordane (57-74-9; 12789-03-6).

[5]Polychlorinated biphenyls (1336-36-3): This category contains congener chemicals, including constituents of Aroclor 1016 (12674-11-2), Aroclor 1221 (11104-28-2), Aroclor 1232 (11097-69-1), and Aroclor 1260 (11096-82-5).

[6]Polychlorinated dibenzo-p-dioxins: This category contains congener chemicals, including tetrachlorodibenzo- p-dioxins, pentachlorodibenzo-p-dioxins, and hexachlorodibenzo-p-dioxins.

[7]Polychlorinated dibenzofurans: This category includes congener chemicals, including tetrachlorodibenzofurans, pentachlorodibenzofurans, and hexachlorodibenzofurans.

[8]Toxaphene: This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001-35-2), i.e., chlorinated camphene.

[9] Per- and polyfluoroalkyl substances (PFAS): This category contains congener chemicals, including but not limited to perfluorooctanoic acid, perfluorooctanesulfonic acid, perfluorononanoic acid, perfluorohexanesulfonic acid, perfluoroheptanoic acid, perfluorobutanesulfonic acid.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Materials Management, Region 9
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March 6, 2019

Richard Frappa, P.G.
Senior Consultant/Hydrogeologist
GEI Consultants, Inc., P.C.
90B John Muir Drive
Suite104
Amherst, New York 14228

Dear Mr. Frappa:

#15S14 Chaffee Landfill
Draft Site Investigation Plan for Southern Expansion comments

This office has reviewed the February 1, 2019 "Site Investigation Plan" submitted by GEI Consultants, Inc., P.C. The following comments have been generated:

Section 3.0 Hydrogeologic Setting

3.1 Geology

1. 1st paragraph, Figure 3 is referenced regarding clay till progression. Please confirm.

2. Please provide the boring log for MW-3R2.

3.2 Hydrogeology

1. Figure 6 presents a portion of the landfill footprint over the surficial sand & gravel unconfined aquifer. This is prohibited by Part 363-5.1(d)

2. The Miller and Staubitz paper suggest "a deep (100- to 200- ft) test boring to define the deeper subsurface hydrogeology." Has this been done during any of the hydrogeologic investigations?

3.2.1 Groundwater

1. How thick is the saturated sand and gravel unit?

2. What underlies the saturated sand and gravel unit?

4.1 Data Gaps

1. The overall understanding of the saturated sand and gravel aquifer requires a better understanding, not just the groundwater flow.

2. "A minimum separation distance of ten feet between the landfill base grade and the top of the saturated sand and gravel unit."

   This is a minimum requirement if the applicant can demonstrate that the expansion-site will have no significant adverse impact on groundwater.

   The Department is requesting a twenty-foot separation of low permeability soils between the landfill base and the sand and gravel aquifer unit.

4.2 Hydrogeologic Investigation Activity Outline

1. Incomplete regulation- Groundwater quality testing of the sand and gravel unit for water quality parameters as required in Part 363-4.**6(f)(9)(i-iii)**

5.4.1.1 Soil Borings

1. With the highly permeable sand and gravel unit at the surface and near surface throughout the proposed southern expansion, we would like to emphasize backfilling to ground surface using a cement-bentonite grout mixture.

2. Undisturbed permeability analysis should be analyzed at the same representative number as those sampled for Atterberg limits and grain size gradation as stated in Part 363-4.4(l)(2).

5.4.1.2 Piezometer Installations

1. Temporary piezometers are approved, as written, to deviated from Part 363-4.4(k)(2) construction clauses with the assurance that Part 363-4.4(k)(1)(ii) requirements will still be maintained.

5.4.2 Monitoring Well Installations and Development

1. What filter pack will be used on the sand and gravel monitoring wells?

5.5 Groundwater Elevation Monitoring and Hydraulic Testing

1. Piezometer P3-03 should be included in the monthly groundwater elevation monitoring for the sand and gravel unit.

2. #5 Is it three or two piezometers?

3. Is twice an hour sufficient for a high-producing aquifer?

5.6 Existing Groundwater Quality Testing

1. If the groundwater data indicates the groundwater divide is within the proposed southern landfill expansion, what will be used as an upgradient well?

Additional Comments

1. Special consideration should also be given to a sufficient distance between the landfill footprint and the surface exposure of the aquifer and the ability of the facility to prevent any surface spill from reaching the aquifer.

Sincerely,

Steven McDonnell
Engineering Geologist
Division of Materials Management

SM/dpp

ec: Peter Grasso, NYSDEC, Regional Materials Management Engineer
James Sacco, NYSDEC, Environmental Engineer II

*ELECTRONIC SUBMITTAL via EMAIL

March 25, 2019

Consulting
Engineers and
Scientists

Mr. Steven McDonnell
Engineering Geologist
Division of Materials Management
New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials, Region 9
270 Michigan Avenue
Buffalo, NY 14203-2999

Subject: **Chaffee Landfill #15S14**
Response to NYSDEC Correspondence dated March 6, 2019
Comments to Draft Site Investigation Plan for Southern Expansion

Dear Mr. McDonnell:

GEI Consultants, Inc., P.C. (GEI) has prepared this letter on behalf of Waste Management of New York, LLC (WMNY) to respond to the Department's correspondence regarding review of the Draft Site Investigation Plan for Southern Expansion. Each Department comment is provided below with a response to address the comment.

Section 3.0 Hydrogeologic Setting
3.1 Geology

Comment 1:
1st paragraph, Figure 3 is referenced regarding clay till progression. Please confirm.

Response:
Figure 3 is referred to correctly as it identifies the mapped southern extent of the Clay Till (southern clay till progression) associated with the end moraine on the WMNY property.

Comment 2:
Please provide the boring log for MW-3R2.

Response:
The boring log for MW-3R2 is appended to this letter.

3.2 Hydrogeology

Comment 1:
Figure 6 presents a portion of the landfill footprint over the surficial sand & gravel unconfined aquifer. This is prohibited by Part 363-5.1 (d).

Response:
As shown on Figure 6 of the SIP, the entire Chaffee Facility, including the proposed Southern Expansion Area is situated on an area mapped as "Moraine". The source of Figure 6 is NYSDEC

GEI Consultants, Inc., P.C.
90B John Muir Drive, Suite 104, Amherst, NY 14228
716.204.7154

GIS NY Aquifer Metadata mapping. For visual clarity, GEI modified the color of the mapped moraine and aquifers material shown on NYSDEC mapping presented in the SIP and has appended the revised Figure 6 to this correspondence. Part 363-5.1(d) refers to landfill siting over, "Primary water supply aquifers, principal aquifers, and public water supplies." As such, regulation Part 363-5.1 would not prohibit the siting of the landfill. The moraine includes Clay Till and interbedded sand and gravel with till. The mapping shows the expansion area is approximately 1,300 feet north of the mapped extent of a "High Yield Unconfined Aquifer."

Comment 2:
The Miller and Staubitz paper suggest "a deep (100- to 200- ft) test boring to define the deeper subsurface hydrogeology." Has this been done during any of the hydrogeologic investigations?

Response:
Table 2 of the Hydrogeologic Investigation Report for the Western Expansion Area summarizes soil borings (converted to wells or piezometers) completed during the prior site investigation and is appended for your information. Among the soil borings that extended below the Clay Till into the sand and gravel unit, five soil borings extended to depths in a range between 80 and 144 feet below grade to characterize deeper subsurface hydrogeology. Deeper borings/wells include: MW-D(D), MW-E(D), MW-H(D), MW-J(D), and MW-K(D).

GEI transmitted historic to documents to the Department on February 12, 2019 which included the geologic information for these deeper borings/borings.

3.2.1 Groundwater

Comment 1:
How thick is the saturated sand and gravel unit?

Response:
On page 24 of the Miller and Staubitz paper, it states the saturated thickness of the surficial aquifer (sand and gravel unit) ranges from 5 feet to more than 60 feet.

Comment 2:
What underlies the saturated sand and gravel unit?

Response:
Lacustrine silt and clay and till are reported to exist below the sand and gravel unit with till interbeds (see Figure 5 of the SIP).

4.1 Data Gaps

Comment 1:
The overall understanding of the saturated sand and gravel aquifer requires a better understanding, not just the groundwater flow.

Response:
The deep piezometer pair proposed in the Southern Expansion Area is planned to characterize the geologic characteristics and hydraulic properties of the sand and gravel deposits to a depth of 70 feet. The information from the drilling and sampling and hydraulic testing proposed, combined with data previously collected from hydrogeologic investigation of the Western Expansion Area, will address the data gap.

Comment 2:
"A minimum separation distance of ten feet between the landfill base grade and the top of the saturated sand and gravel unit."
This is a minimum requirement if the applicant can demonstrate that the expansion-site will have no significant adverse impact on groundwater.
The Department is requesting a twenty-foot separation of low permeability soils between the landfill base and the sand and gravel aquifer unit.

Response:
The siting requirements specified in Part 363-5.1(a) are met for the Southern Expansion Area. Specific to site geologic considerations, Part 363-5.1(a)(2) requires a minimum of ten feet of unconsolidated deposits beneath the proposed landfill site to minimize the migration of contaminants from the facility. More than 400 feet of unconsolidated deposits exist beneath the Chaffee Landfill Facility (including the Southern Expansion Area). While not a siting requirement, the conceptual design will maintain a minimum separation distance of more than 10 feet between the landfill base grade and the saturated sand and gravel unit.

Part 363-5.1(2)(ii) states, "at existing landfill sites active on or after November 4, 1992 operating under and in compliance with a current permit or order on consent, there are no soil type restrictions provided the applicant demonstrates that the expansion site will have no significant adverse impact on groundwater." As such, the siting requirements are met because the proposed engineering controls are designed to protect groundwater.

Environmental monitoring of landfills constructed in New York State with double composite liner systems has demonstrated that the current Part 360 engineered controls are protective of groundwater. As a site-specific example, the Western Expansion Area has operated since 2006. The NYSDEC-approved EMP requires routine sample collection and analysis of liquids in landfill groundwater protection systems. Of particular importance are sample analytical results for the secondary leachate collection systems (SLCS) at each of the six landfill cells of the Western Expansion Area which serve as leak detection systems for the primary liner systems. To date, none of the samples collected from the SLCS has exhibited impacts indicative of a leak from the primary LCS. Testing of liquid collected in the porewater drain at Cell 6 has not detected impacts from landfill leachate. These results indicate that the engineering controls currently in place are protective of groundwater. This is confirmed through decades of quarterly groundwater quality monitoring at the facility which have consistently shown no adverse impacts to groundwater. These findings are documented in groundwater and surface water quality monitoring reports submitted to the NYSDEC.

Landfill construction in the Southern Expansion Area will be similar in design (double composite liner system) with similar expected performance. For enhanced groundwater protection, the

minimum 10-feet of separation referred to above will be maintained by low permeability soil, further enhancing the double composite liner system.

Ongoing groundwater and surface water quality monitoring has demonstrated the performance of the engineered groundwater protection systems at the Chaffee Landfill Facility to prevent significant adverse impacts to groundwater and surface water. The same engineered groundwater protection systems will exist in the Southern Expansion Area. Given the demonstrated performance of the double composite liner system, ten feet of low permeability soils will provide more than adequate additional environmental protection, thus the 20-foot separation requested by the Department is not necessary.

4.2 Hydrogeologic Investigation Activity Outline

Comment 1:
Incomplete regulation – Groundwater quality testing of the sand and gravel unit for water quality parameters as required in Part 363-4.6(f)(9)(i-iii)

Response:
Comment acknowledged. The SIP tasks are inclusive of the requirements in Part 363-4.6(f)(9)(i-iii).

5.4.1.1 Soil Borings

Comment 1:
With the highly permeable sand and gravel unit at the surface and near surface throughout the proposed southern expansion, we would like to emphasize backfilling to ground surface using a cement-bentonite grout mixture.

Response:
Acknowledged. Backfilling with a cement-bentonite grout mixture will occur to grade. If grout settlement has been observed following a next day inspection, the borehole will be topped off to grade with additional grout. Borehole abandonment will be documented on the soil boring log.

Comment 2:
Undisturbed permeability analysis should be analyzed at the same representative number as those sampled for Atterberg limits and grain size gradation as stated in Part 363-4.4(1)(2).

Response:
Acknowledged. A minimum of 5 samples for undisturbed permeability analysis will be collected.

5.4.1.2 Piezometer Installations

Comment 1:
Temporary piezometers are approved, as written, to deviated from Part 363-4.4(k)(2)

construction clauses with the assurance that Part 363-4.4(k)(1)(ii) requirements will still be maintained.

Response:
Acknowledged.

5.4.2 Monitoring Well Installations and Development

Comment 1:
What filter pack will be used on the sand and gravel monitoring wells?

Response:
Based on recommendations from the driller, the following sand sizes will be used for piezometers having 20-slot (0.02") slot size and monitoring wells having 10-slot (0.01") slot size. Grain size distribution for the sand is appended.

Screen Slot	Morie Sand #
0.01"	00N
0.02"	0

A 00 sand size will be used for the choke sand.

5.5 Groundwater Elevation Monitoring and Hydraulic Testing

Comment 1:
Piezometer P3-03 should be included in the monthly groundwater elevation monitoring for the sand and gravel unit.

Response:
Piezometer P3-03 will be included in monthly water level monitoring.

Comment 2:
#5 Is it three or two piezometers?

Response:
It should refer to 2 piezometers. The proposed piezometer adjacent to MWBA-3 was considered for monitoring but will be too far away to be of value.

Comment 3:
Is twice an hour sufficient for a high-producing aquifer

Response:
As stated in the SIP, transducers will be the primary method of water level monitoring. The rate of water level recording by the transducer will occur at a frequency of one minute. The twice an hour hand measurement will only serve as a backup in case of transducer failure. The frequency of hand level measurements specified in the SIP is considered a minimum. In actuality, hand measurement frequency will be frequent (1 to 2 minute intervals) early in the pumping test after pump engagement and the frequency will gradually be reduced to a rate of no more than twice an hour.

5.6 Existing Groundwater Quality Testing

Comment 1:
If the groundwater data indicates the groundwater divide is within the proposed southern landfill expansion, what will be used as an upgradient well?

Response:
Upgradient monitoring wells are necessary for sites utilizing an interwell data comparison method where downgradient groundwater quality is compared to upgradient groundwater quality. The environmental monitoring program at the Chaffee Landfill utilizes an intrawell data evaluation method. The Environmental Monitoring Plan (EMP) for the Site will be revised with the permit application submittal. The EMP will be revised to appropriately monitor groundwater quality at the South Expansion Area in consideration of the site investigation findings.

Additional Comments

Comment 1:
Special consideration should also be given to a sufficient distance between the landfill footprint and the surface exposure of the aquifer and the ability of the facility to prevent any surface spill from reaching the aquifer.

Response:
WMNY recognizes its responsibility in protecting surface water and groundwater resources at the landfill facility. The current and future engineering controls at the Chaffee Facility are designed to address those concerns.

These responses to Department comments memorialize changes to the Site Investigation Plan dated February 2019 and will be incorporated into the Hydrogeologic Investigation Report with the SIP as an appendix.

If further discussion is required, please contact the undersigned at (716) 204-7156 or Mr. Jonathan Rizzo of WMNY. We will stay in contact with you regarding the schedule for investigation.

Sincerely yours,

GEI Consultants, Inc., P.C.

Richard H. Frappa, P.G.
Senior Hydrogeologist

cc. P. Grasso (NYSDEC Region 9)
J. Sacco (NYSDEC Region 9)
J. Rizzo (WMNY)
M. Mahar (WMNY)
C. Chapman (WMNY)

Enc.

Attachments

- Boring Log MW3R2

- Revised Figure 6

- Table 2. Western Expansion Area Well Summary

- Morie Sand Grain Size

Boring Location

NORTHING: Not Surveyed **EASTING:** Not Surveyed **STATION:** N/A **OFFSET:** N/A
HORIZONTAL DATUM: N/A **STATION CENTERLINE:** N/A
VERTICAL DATUM: N/A **GROUND SURFACE ELEVATION (FT):** Not Surveyed
LOCATION: Adjacent to MW3R

BORING

MW3R2

Drilling Information

DATE START / END: 6/11/2015 - 6/11/2015 **TOTAL DEPTH (FT):** 57.5
CONTRACTOR: Earth Dimensions **DRILLER:** Andy **LOGGED BY:** Mike Cummings
EQUIPMENT: Diedrich D-120 **BORING METHOD:** Hollow Stem Auger
AUGER ID/OD: 4.25 in / 8 in **CASING ID/OD:** 2 in / N/A
HAMMER TYPE: Automatic Hammer **HAMMER WEIGHT (lbs):** 140 **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): Dry
GENERAL NOTES: Monitoring well dry at 4pm on 6/11 and 10am on 6/15. Well properly abandoned June 15, 2015 after discussion with Mary McIntosh.

ABBREVIATIONS:
ID = Inside Diameter; OD = Outside Diameter; Pen. = Penetration Length; Rec. = Recovery Length
bpf = Blows per Foot; mpf = Minute per Foot; S = Split Spoon; DP = Direct Push Sample
U = Undistrubed Tube Sample; C = Rock Core; V = Field Vane Shear; SC = Sonic Core
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; OVM = Organic Vapor Meter
Q_P = Pocket Penetrometer Strength; S_v = Pocket Torvane Shear Strength; F_v = Field Vane Shear Strength
NA, NM = Not Applicable, Not Measured

Elev. (ft)	Depth (ft)	Casing Pen. (bpf) or Core Rate (mpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field Test Data	GRAPHIC LOG	Sample Description & Classification	WELL CONSTRUCTION DETAILS
			1		3 to 5	24/0	3-72-37-10			**(ML)** Tan brown to brown stiff clayey silt with trace fine sand and fine subangular gravel, moist, low plasticity fines (TILL).	
	5										
			2		8 to 10	24/21	7-12-17-21				
	10										Completed as temporary well. No grout installed.
			3		13 to 15	24/24	12-15-19-26				
	15		4		15 to 17	24/22	9-16-18-21				
			5		17 to 19	24/23	6-9-13-15			**(ML)** Brown silt with fine to medium sand and little medium subrounded gravel. Locally saturated (perched).	
			6		19 to 21	24/20	8-13-17-24			**(ML)** Grey to dark grey stiff clayey silt with trace medium sand and medium subrounded gravel, moist, low plasticity fines (TILL).	
	20		7		21 to 23	24/23	4-7-13-15				
			8		23 to 25	24/21	5-11-18-27				
	25		9		25 to 27	24/22	4-8-11-15				
			10		27 to 29	24/23	5-9-14-19				
			11		29	24/24	7-13-				

Strata lines represent the approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at times stated. Water levels may be different at other times.

CLIENT: WMNY
PROJECT NAME: Chaffee Landfill
CITY/STATE: Sardinia, New York
GEI PROJECT NUMBER: 1505890

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Suite 104
Amherst, NY 14228

Boring Location

NORTHING: Not Surveyed **EASTING:** Not Surveyed **STATION:** N/A **OFFSET:** N/A

HORIZONTAL DATUM: N/A **STATION CENTERLINE:** N/A

VERTICAL DATUM: N/A **GROUND SURFACE ELEVATION (FT):** Not Surveyed

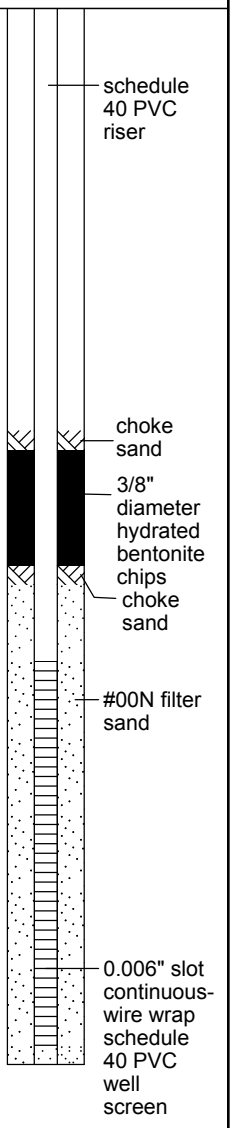
LOCATION: Adjacent to MW3R

BORING

MW3R2

Elev. (ft)	Depth (ft)	Casing Pen. (bpf) or Core Rate (mpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field Test Data	GRAPHIC LOG	Sample Description & Classification
					to 31		15-21			**(ML)** Till unit as above, with thin (0.01' thick) saturated fine sand lens at 30'bgs.
			12		31 to 33	24/23	4-11-16-24			
			13		33 to 35	24/22	5-9-14-19			
	35		14		35 to 37	24/24	4-8-11-16			**(ML)** Till unit as above, with thin (0.01' thick) saturated fine sand lens at 34.5' bgs.
			15		37 to 39	24/24	6-11-14-19			**(ML)** Till unit as above with saturated silty sand seam at 37.6-37.8' bgs.
			16		39 to 41	24/24	5-8-16-20			
	40		17		41 to 43	24/24	4-7-11-15			
			18		43 to 45	24/24	5-13-18-24			
	45		19		45 to 47	24/24	4-7-9-13			
			20		47 to 49	24/24	7-17-22-22			**(ML)** Till unit as above with saturated fine sand, silt and trace fine angular shale gravel seam 48.9-49.4' bgs.
			21		49 to 51	24/21	6-7-8-10			**(ML)** Grey-brown stiff silt with little fine sand and fine subangular gravel, wet at ~51' bgs.
	50		22		51 to 53	24/24	4-8-10-12			
			23		53 to 55	24/24	6-9-11-13			**(ML)** Till unit
			24		55 to 57	24/23	8-12-15-16			**(ML)** Grey-brown firm silt with little fine sand and fine subangular gravel, wet.
	55									**(ML)** Till unit
										(ML) Grey stiff silt with little fine sand, wet.
										End of Boring at 57.5 feet
	60									
	65									

WELL CONSTRUCTION DETAILS



Strata lines represent the approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at times stated. Water levels may be different at other times.

CLIENT: WMNY

PROJECT NAME: Chaffee Landfill

CITY/STATE: Sardinia, New York

GEI PROJECT NUMBER: 1505890

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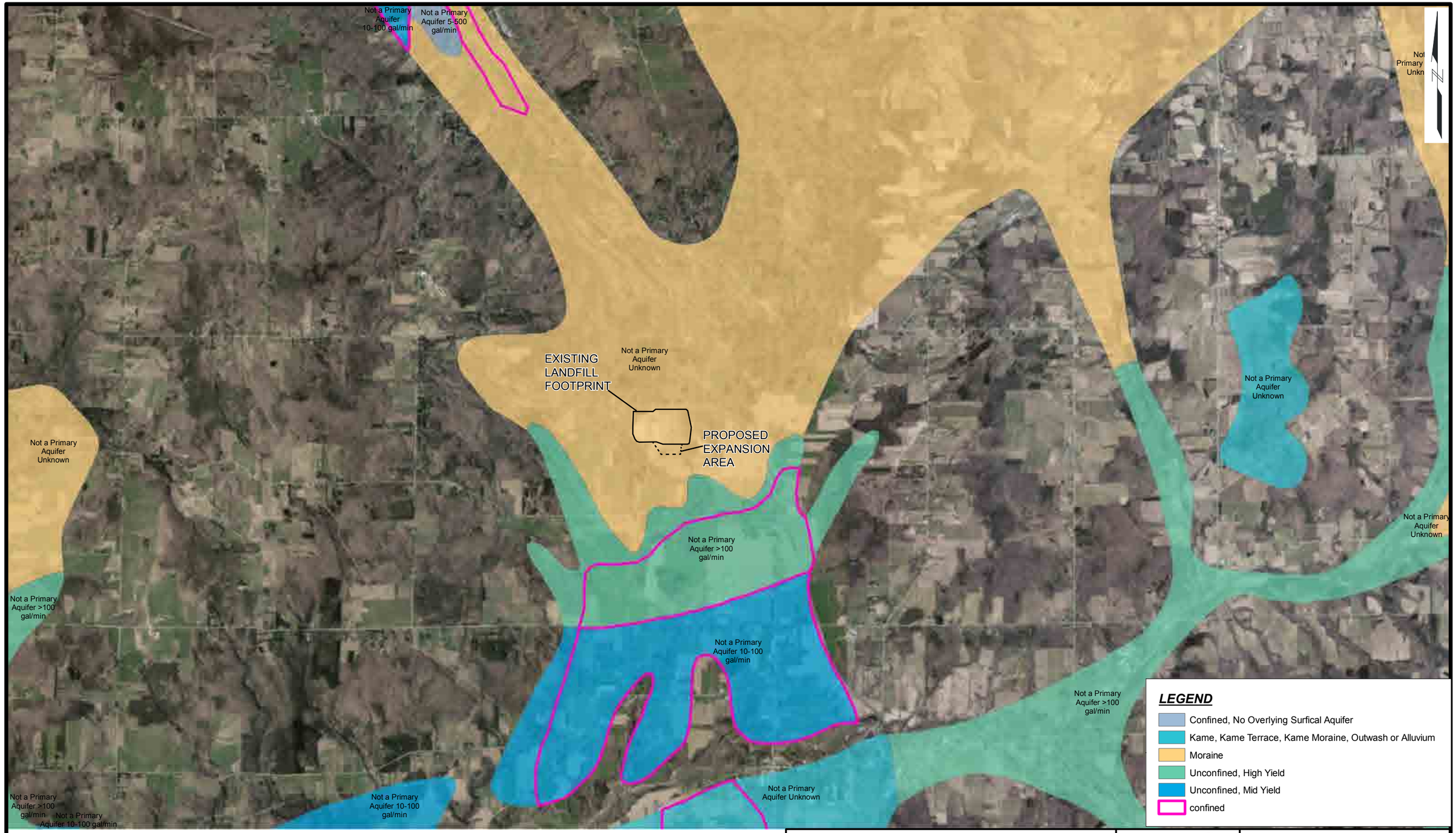


SOURCE:
2011 ESRI WORLD IMAGERY ACCESSED VIA ARCGIS ONLINE *(www.arcgis.com)*.
2. AQUIFER DATA FROM U.S. GEOLOGICAL SURVEY AND THE NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION.

0 5,000 10,000

SCALE: 1" = 5,000'

Chaffee Landfill Facility
Chaffee, New York

Waste Management of New York
Bergen, New York

GEI Consultants

Project 1900192

NYS AQUIFERS

March 2019 Fig. 6

\\GTB1V-FS01\gis\Projects\Waste Managment of New York\Chaffee Landfill Facility\Chaffee-Landfill Aquifers.mxd

Chaffee Facility
Western Landfill Expansion
Hydrogeologic Report

Table 2 - Monitoring Well Construction Details and Hydraulic Conductivity Data - Expansion Area Wells

Monitoring Well/Borehole Location	Ground Surface Elevation (ft.) (See Note 1)	Well Depth from Ground Surface (ft.) (See Note 2)	Well Depth from Ground Surface (ft.) at Time of Drilling	Bottom of PVC Screen Elevation (ft.)	Top of PVC Screen Elevation (ft.)	Monitoring Well Screen Location	Hydraulic Conductivity (cm/s)
MW-15	1453.66	38.6	39.0	1415.06	1420.06	Sand and gravel unit	1.18x10-2
MW-16(S)	1453.50	13.5	13.5	1440.00	1445.00	Clay till	3.32x10-6
MW-16	1453.70	27.4	28.0	1426.26	1431.26	Sand and gravel unit	5.27x10-3
MW-17	1459.30	39.4	39.8	1419.86	1424.86	Sand and gravel unit	3.20x10-2
MW-18	1458.80	19.4	20.0	1439.36	1444.36	Clay till	3.47x10-7
MW-18A	1460.40	24.5	24.5	1436 (approx)	1441 (approx)	Clay till	2.48x10-7
MW-30	1471.00	43.8	44.0	1427.21	1437.21	Sand and gravel unit	5.31x10-3
MW-31	1470.40	27.9	28.5	1442.50	1447.50	Clay till	dry
MW-32	1470.25	10.8	11.0	1459.40	1464.40	Clay till	1.69x10-6
MW-33(S)	1443.70	12.5	12.5	1431.20	1436.20	Clay till	4.72x10-6
MW-33	1443.70	30.0	30.0	1413.73	1428.73	Sand and gravel unit	2.62x10-3
MW-50	1460.30	25.0	24.5	1435.35	1445.35	Sand and gravel unit	1.30x10-3
MW-A(S)	1461.50	10.5	10.5	1451.00	1456.00	Clay till	dry
MW-A(I)	1461.60	35.0	35.0	1426.58	1431.58	Sand and gravel unit	2.46x10-3
MW-B(S)	1495.10	40.0	40.0	1455.07	1465.07	Clay till	dry
MW-B(I)	1495.10	59.3	59.5	1435.77	1445.77	Sand and gravel unit	1.54x10-2
MW-C(S)	1466.20	19.5	19.5	1446.70	1456.70	Clay till	3.15x10-6
MW-C(I)	1465.60	33.6	33.6	1431.99	1436.99	Sand and gravel unit	1.06x10-3
MW-C(D)	1465.10	73.0	73.0	1392.10	1402.10	Sand and gravel unit	2.25x10-3
MW-D(S)	1482.00	31.5	31.5	1450.50	1460.50	Clay till	2.07x10-6
MW-D(I)	1482.50	49.0	49.0	1433.52	1438.52	Sand and gravel unit	4.79x10-3
MW-D(D)	1481.80	80.0	80.0	1401.77	1406.77	Sand and gravel unit	1.06x10-2
MW-E(S)	1456.40	27.5	27.5	1428.90	1438.90	Clay till	1.27x10-6
MW-E(I)	1455.56	40.0	40.0	1415.56	1420.56	Sand and gravel unit	3.41x10-2
MW-E(D)	1455.40	144.0	144.0	1311.40	1321.40	Sand and gravel unit	1.04x10-4
MW-H(S)	1477.10	42.0	42.0	1435.10	1445.10	Clay till	3.13x10-6
MW-H(I)	1477.50	64.0	64.0	1413.50	1423.50	Sand and gravel unit	1.09x10-3
MW-H(D)	1477.32	97.5	97.5	1379.82	1384.82	Sand and gravel unit	2.95x10-3
MW-H(D)R	1475.90	98.0	98.0	1377.90	1382.90	Sand and gravel unit	
MW-I(S)	1496.40	48.0	48.0	1448.40	1458.40	Clay till	dry
MW-I(I)	1496.30	78.0	78.0	1418.30	1428.30	Sand and gravel unit	2.68x10-3
MW-J(S)	1462.20	27.5	27.5	1434.70	1439.70	Clay till	Insufficient Water
MW-J(I)	1462.12	50.5	50.5	1411.62	1421.62	Sand and gravel unit	9.82x10-4
MW-J(D)	1462.20	85.8	85.8	1376.40	1386.40	Sand and gravel unit	9.18x10-5
MW-K(S)	1496.60	41.5	41.5	1455.10	1460.10	Clay till	dry
MW-K(I)	1496.70	59.5	59.5	1437.20	1447.20	Sand and gravel unit	2.42x10-3
MW-K(D)	1496.50	95.5	95.5	1401.00	1411.00	Sand and gravel unit	2.32x10-2
PW-1	1455.6	41.0	41.0	1414.60	1429.60	Sand and gravel unit	
PW-2B	1450.3	33.2	33.2	1417.10	1427.10	Sand and gravel unit	
OW-1(S)	1452.9	14.5	14.5	1438.40	1448.40	Clay till	1.35x10-7
OW-1(I)	1452.7	32.0	32.0	1420.70	1430.70	Sand and gravel unit	
OW-2(I)	1453.2	22.0	22.0	1431.20	1441.20	Sand and gravel unit	1.61x10-5
OW-3(S)	1457.0	19.0	19.0	1438.00	1448.00	Clay till	1.1x10-5
OW-3(I)	1456.9	41.0	41.0	1415.90	1425.90	Sand and gravel unit	
OW-4(I)	1453.8	23.0	23.0	1430.80	1440.80	Sand and gravel unit	
MA-2	1461.0	28.0	28.0	1433.00	1443.00	Sand and gravel unit	6.8x10-4
MA-3	1469.45	34.5	34.5	1434.95	1444.95	Sand and gravel unit	1.5x10-4
P3-03	1448.9	20.0	20.0	1428.90	1438.90	Sand and gravel unit	3.3x10-3
P4-03	1440.4	18.0	18.0	1422.40	1432.40	Sand and gravel unit	1.2x10-2

Notes:

1. Monitoring well elevation data based on survey completed by Deborah A. Nabor, PLS, PC in March 2001 and July 2001 unless otherwise noted below:
   Monitoring well MW-E(I) elevation data based on survey completed by Deborah A. Nabor, PLS, PC. and submitted in "Data Report Hydrogeologic Studies, Chaffee Landfill Facility, Chaffee, New York," prepared by McMahon and Mann Consulting Engineers, P.C. dated September 2000.
   Wells MA-2 and MA-3 elevation data based on survey completed by M.J.R. Land Surveyor, PC on June 11, 2001.
   Monitoring well MW-H(D)R elevation data based on survey completed by Wendel Duchsherer Survey on September 25, 2002.
   Pump and observation well elevation data based on survey completed by Wendle Dushcherer Survey on November 27, 2001.
   Wells P3-03 and P4-03 elevation based on survey completed by Wendel Duchscherer Survey dated August 28, 2003.
2. Well depth refers to the measured ground surface elevation minus the bottom of screen elevation. The bottom of screen elevation was calculated by subtracting the well depth contained on the log from the ground surface elevation at the time of drilling.

MORIE SCREENINGS

Per Cent Passing

Sieve No.	Inches	MM	Grade #4	Grade #3	Grade #2	Grade #1	Grade #0	Grade #00N	Grade #00
1/4	.025	6.3	100.00						
4	.187	4.75	99.8	100.0					
6	.132	3.35	54.8	97.2	100.0				
8	.094	2.36	13.7	45.3	93.0				
10	.079	2.00	6.2	17.6	71.7	100.0			
12	.066	1.7	2.3	4.0	33.1	95.1			
14	.056	1.4	0.8	0.9	5.6	55.8	100.0		
16	.047	1.18	0.3	0.3	1.7	19.0	95.9		
18	.039	1.00	0.2	0.1	1.0	4.7	79.9	100.0	
20	.033	0.85	0.1	0.0	0.6	0.8	40.6	99.8	
25	.028	0.71	0.0	0.0	0.7	0.4	11.5	87.8	100.0
30	.023	9.6	0.0		0.7	0.1	2.4	54.1	98.4
35	.020	0.50			0.5	0.1	0.5	12.6	70.3
40	.017	0.43			0.4		0.3	5.5	43.6
50	.012	0.30			0.1		0.1	1.2	7.9
70	.008	0.212					0.0	0.4	2.0
PAN								0.0	0.0

All screen analysis and graphs are typical and are subject to changes over time. Current information is available by calling your "Sales Representative" or our Customer Service Department.

TYPICAL CHEMICAL ANALYSIS

Si02	99.23
Fe203	0.11
Cr203	0.0005
Al203	0.33
Ti02	0.12
Ca0	0.016
Mg0	0.007
Na20	0.012
K20	0.11
L.O.I.	0.16
Sp. Gravity	2.55-2.70
Acid Solubility	(1:1HCl) - Less Than .5%
Porosity	38 to 46%

NSF®

Certified to ANSI/NSF 61

WARNING: This product contains silica. Do not breath dust; may cause delayed lung injury (Silicosis). May also cause lung cancer; Follow OSHA guidelines for control of crystalline silica; for industrial use only see material safety data sheet for detailed information.. CAS No. 14808-60-7

DISCLAIMER: All products are sold without warranty expressed or implied and seller specifically does not warrant that these products are suitable for a particular purpose or purposes or are merchantable. Buyer agrees it does not rely on seller's skill or judgment to select or furnish these products. Buyer shall make its own test to determine the suitability of such products for its purposes. Caution should be exercised when exposing these products to the elements. Staining could occur because of varying levels of iron bearing minerals in the deposit.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Materials Management, Region 9
270 Michigan Avenue, Buffalo, NY 14203-2915
P: (716) 851-7220 | F: (716) 851-7226
www.dec.ny.gov

April 4, 2019

Richard H. Frappa, P.G.
Senior Hydrogeologist
GEI Consultants, Inc., P.C.
90B John Muir Drive
Suite 104
Amherst, New York 14228

Dear Mr. Frappa:

#15S14 Chaffee Landfill
Site Investigation Plan Approval

The New York State Department of Environmental Conservation (the Department) has reviewed your letter dated March 25, 2019, responding to the Department's correspondence dated March 6, 2019, which provided comments on the Draft Site Investigation Plan (SIP) for Southern Expansion.

The response under Section 3.2 Hydrogeology, comment 1 states "the proposed Southern Expansion Area is situated on an area mapped as 'Moraine'". The GIS NY Aquifer Metadata map (Figure 6 in the SIP) is used as evidence of the aquifer boundary. This is a small-scale map. The *Clay Till Extent Investigation* was conducted to clarify the site specific extant of the clay till. Figure 4 of the Draft SIP indicates Waste Management of New York and GEI Consultants are aware of the *Clay Till Extent Investigation.* There are numerous examples of differentiating between the clay till (Lake Escarpment Recessional Moraine) and the sand and gravel aquifer within each expansion investigation environmental monitoring plan.

The site-specific investigations will take precedence over the small-scale GIS NY Aquifer Metadata map. The landfill footprint directly over the surficial sand and gravel aquifer is a concern for the Department and prohibited by *Subpart 363-5.1(d).* A variance request *(Part 363-5.1(d)(1))* can be requested during the permitting process, where the Department will request 20 feet of low permeability soils beneath the landfill footprint and some low permeability soils surrounding the footprint as a safety measure to prevent surface water infiltration of leachate surrounding the footprint into the aquifer.

The Site Investigation Plan dated February 2019, with the Response to NYSDEC Correspondence dated March 25, 2019 as an appendix is approved with these comments noted moving forward.

If you have any questions, please contact this office at (716) 851-7220.

Sincerely,

Steven McDonnell
Geologist Trainee
Division of Materials Management

SM/dpp

ec.: Peter Grasso, NYSDEC, Regional Materials Management Engineer
James Sacco, NYSDEC, Environmental Engineer II
Vincent Fay, NYSDEC, Professional Geologist I
Michael Mahar, Waste Management of New York
Jonathan Rizzo, Waste Management of New York

July 24, 2019

Consulting
Engineers and
Scientists

Mr. Steven McDonnell
Engineering Geologist
Division of Materials Management
New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials, Region 9
270 Michigan Avenue
Buffalo, NY 14203-2999

Subject: **Chaffee Landfill #15S14**
Supplemental Site Investigation Scope of Work
Southern Expansion Hydrogeologic Investigation

Dear Mr. McDonnell:

GEI Consultants, Inc., P.C. (GEI) and Waste Management of New York, LLC (WMNY) appreciate the Department's time on July 15, 2019 to discuss the preliminary summary of findings from implementing the Chaffee Landfill Southern Expansion Site Investigation Plan (February 2019) which was approved on April 4, 2019. Following the presentation of findings at the meeting with Region 9 and Albany DEC staff (participating via conference call), the Department provided feedback regarding shallow soil conditions in the southwestern corner of the Southern Expansion Area where the Upper Silty Clay Unit (till) is not present above the Upper Silty Sand and Gravel Unit. In that portion of the expansion area, Silty Fill and/or Silty Reworked soil was found to be present above the Upper Silty Sand and Gravel Unit.

The Department expressed interest in further characterization of the soil conditions in that portion of the expansion area. Below is a description of a scope of work for supplemental investigation to collect additional site characterization data of soil conditions of unsaturated soils in the southwest corner of the expansion area.

Scope of Work

A track-mounted excavator will be used to excavate test pits at the approximate locations shown on Figure 1. The test pits will be excavated to a depth of 10 to 15 feet below ground surface. The excavator bucket will be used to collect soil for visual characterization by a professional geologist and soil will be described in accordance with the Unified Soil Classification System (USCS). Representative soil samples will be archived in glass jars and labeled with the test pit number, date, and sample collection depth. All soil samples will be packaged neatly for archive at the landfill facility.

Additional soil collected in 5-gallon buckets from each test pit will be submitted for grain size gradation (grain size distribution sieve and hydrometer analysis – ASTM D422). It is anticipated that one (1) or two (2) samples will be collected from each test pit location for grain size analysis.

GEI Consultants, Inc., P.C.
100 Sylvan Pkwy, Suite 400, Amherst, NY 14228
716.204.7154

At each test pit location, a Shelby tube sampler will be used to collect in-situ soil samples by method ASTM D1587 for soil density and for ASTM Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter by method D5084. The data will be used to estimate the vertical permeability of unsaturated soil where the Upper Silty Clay Unit is not present at the ground surface.

Schedule

WMNY will coordinate with the on-site contractor to support test pit excavation and plans to conduct the supplemental investigation on July 30, 2019.

We believe this scope of work will satisfy the Department's request for additional information from this area of the Expansion Area. Please contact the undersigned or Mr. Jonathan Rizzo of WMNY at (716) 286-0354 if you have questions.

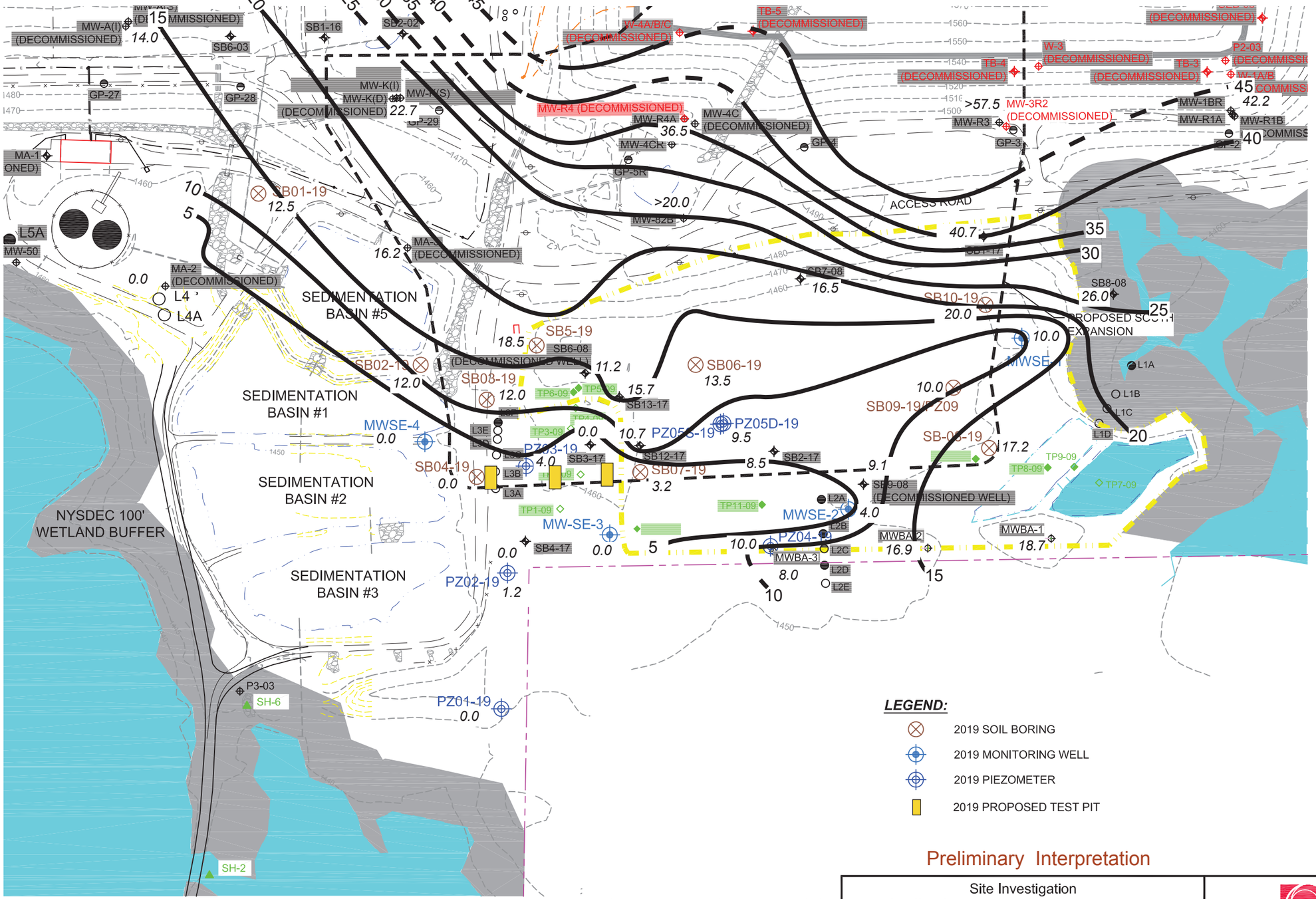
Sincerely yours,

GEI Consultants, Inc., P.C.

Richard H. Frappa, P.G.
Senior Hydrogeologist

cc. P. Grasso (NYSDEC Region 9)
J. Sacco (NYSDEC Region 9)
J. Rizzo (WMNY)
M. Mahar (WMNY)
C. Chapman (WMNY)

Enc. Figure 1 – Proposed Test Pit Locations



Preliminary Interpretation

SOURCE:

1. PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Site Investigation
Chaffee Sanitary Landfill - South Expansion
Chaffee, New York

Waste Management of New York, L.L.C.
Chaffee, New York

GEI Consultants

SILTY FILL AND UPPER SILTY CLAY UNIT ISOPACH WITH PROPOSED TEST PIT LOCATIONS

Project 1900192 | June 2019 | Fig. 1

September 30, 2019

Consulting
Engineers and
Scientists

Mr. Steven McDonnell
Engineering Geologist
Division of Materials Management
New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials, Region 9
270 Michigan Avenue
Buffalo, NY 14203-2999

Subject: Chaffee Landfill #15S14
Supplemental Site Investigation Scope of Work
Southern Expansion Hydrogeologic Investigation

Dear Mr. McDonnell:

GEI Consultants, Inc., P.C. (GEI) and Waste Management of New York, LLC (WMNY) met at the Chaffee Landfill on September 17, 2019 with NYSDEC geologists to discuss Site Investigation findings and conduct a walkover of the site investigation area. NYSDEC staff included yourself, Vince Fay (NYSDEC – Albany), and Dan Maeso (NYSDEC Region 8). Discussions included an overview of geologic and hydrogeologic conditions, the findings from September 2019 test pit excavations, and details about a deeper, more productive water-bearing deposit identified below a deeper till unit which is referred to as the Lower Silty Clay unit. Discussions with the Department concluded with general agreement that the uppermost water-bearing unit (Upper Silty Sand and Gravel) in the area of the expansion has moderate hydraulic conductivity (approximately 1 X 10-4 cm/s) and low yield (about 1.3 gpm), occurs under water-table conditions having a low hydraulic gradient with a very slow groundwater flow velocity (about 1 foot per year), and is covered by low permeability Silty Clay Till or gravelly Ablation Till.

The presence of a second layer of silty clay till (Lower Silty Clay or Deeper Till) below the upper water-bearing zone across the entire Expansion Area was also discussed. The Lower Silty Clay is characterized as an aquitard as it prevents the downward migration of groundwater from the upper water-bearing zone to potentially more productive deeper water-bearing deposits. The confining properties of the Lower Silty Clay are demonstrated by:

- vertical differences in head between the two water-bearing zones (head differential is approximately 3 feet in the downward direction),
- pumping test data which demonstrated no vertical hydraulic communication during pumping, and

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- grain size analysis of the Lower Silty Clay which classifies the material as a lean clay with sand with inherent low permeability.

Subsequent discussions between WMNY and the NYSDEC concluded with the Department indicating that further characterization of the extent of the aquitard in a southern direction from the footprint of the Expansion Area is necessary. Specifically, the Department is requesting verification of the presence of the Lower Silty Clay south of the landfill footprint, documentation of unit thickness, and assessment of hydraulic properties that verify its function as an aquitard.

GEI was able to obtain geologic boring information from USGS wells drilled and sampled in 1982 located south of the Expansion Area confirming the presence of the Lower Silty Clay south of the expansion area. Using this information in concert with existing site-specific data and input from NYSDEC and WMNY discussions, GEI has prepared this scope of work to investigate the aquitard south of the footprint of the Southern Expansion Area.

Scope of Work

The investigation of the aquitard south of the Expansion Area will include the drilling of six (6) soil borings with four (4) borings being converted to piezometers having well screens monitoring water-bearing deposits below the Lower Silty Clay aquitard. Investigation activities will utilize methods described in the NYSDEC-approved Site Investigation Plan (SIP) dated February 2019. Proposed soil borings and piezometer locations are shown on Figure 1.

Similar to other piezometers installed during the SI, the four piezometers will be constructed of SCH-40 PVC, 10-foot long, 20-slot well screens. Each will be paired with an existing monitoring well or piezometer allowing for the assessment of vertical hydraulic gradients between the Upper Silty Sand and Gravel and the Lower Silty Sand and Gravel.

At each soil boring location, continuous soil samples will be collected from split spoon samples where prior geologic data has not been obtained. Where shallower soil boring data are available, soil samples will be collected at standard split spoon sample intervals (5-foot intervals) to confirm existing geology. Soil borings not completed as piezometers will be sampled to a maximum depth of 4 feet below the bottom of the Lower Silty Clay. Borings converted to piezometers will be drilled to an approximate depth of 14 feet below the bottom of the Lower Silty Clay to allow for the installation of up to a 10-foot well screen (dependent on the thickness of the lower silty sand and gravel unit) and a minimum 3-foot thick bentonite seal above the screen's sand pack (including required choke sand layers).

At each boring location, soil samples will be collected and analyzed at the laboratory for the following:

Samples from the Lower Silty Clay (aquitard)

- Atterberg limits – ASTM D4318
- Grain Size Gradation (grain size distribution sieve and hydrometer analysis – ASTM D422)
- Shelby tube sampler collection of clay till soil by method ASTM D1587 for undisturbed permeability analysis by method ASTM D5856

Samples from the Lower Silty Sand and Gravel (deeper water-bearing zone)

- Grain Size Gradation (sieve only – ASTM D422)

The location and depth of each sample submitted for laboratory physical soil characterization will be noted on the field logs.

Each newly-installed piezometer will be developed no sooner than 3 days after installation as described in the SIP and will be tested for hydraulic conductivity by slug test methods. Heads in piezometer pairs will be collected on a frequent basis during the drilling program and incorporated into the monthly water level monitoring program for the Southern Expansion Area.

The data obtained from the investigation will be used to update the previously summarized hydrogeologic data and characterize the Critical Stratigraphic Section for the Expansion Area.

Schedule

Based on the driller's schedule of availability, drilling will begin on September 30, 2019 and is expected to continue for 2-weeks. GEI will contact you about drilling start-up and progress.

Please contact the undersigned or Mr. Jonathan Rizzo of WMNY at (716) 286-0354 if you have questions.

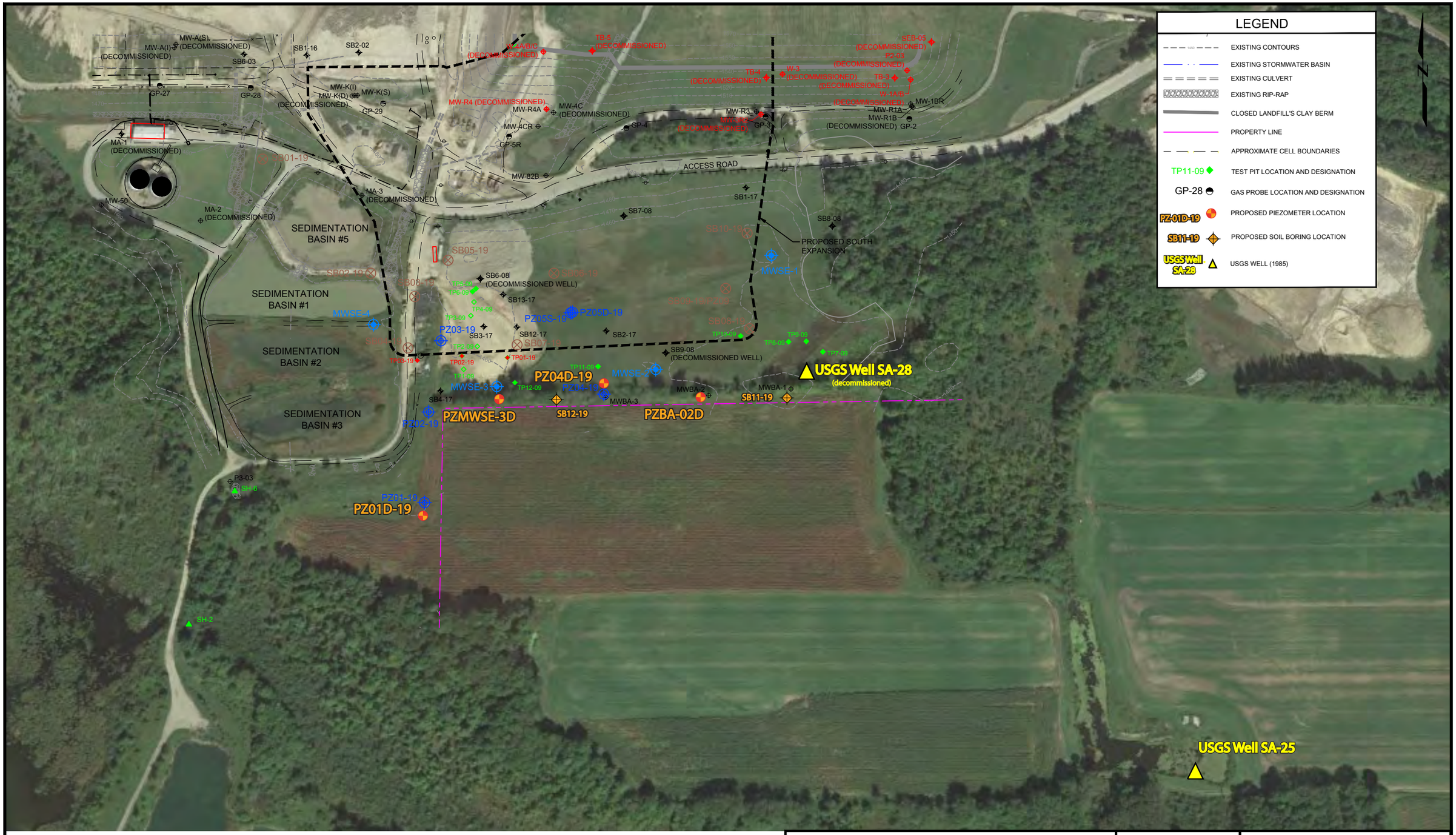
Sincerely yours,

GEI Consultants, Inc., P.C.

Richard H. Frappa, P.G.
Senior Hydrogeologist

Enc. Figure 1 - Proposed Soil Boring and Piezometer Locations

cc. V. Fay (NYSDEC Albany)
P. Grasso (NYSDEC Region 9)
J. Sacco (NYSDEC Region 9)
J. Rizzo (WMNY)
M. Mahar (WMNY)
C. Chapman (WMNY)



SOURCE:

1. PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

0 200 400

SCALE (approximate)

Site Investigation
Chaffee Sanitary Landfill - South Expansion
Chaffee, New York

Waste Management of New York, L.L.C.
Chaffee, New York

GEI Consultants

Project 1900192

PROPOSED PIEZOMETER AND SOIL BORING LOCATIONS

September 2019 Figure 1

Appendix B

Boring, Test Pit, Piezometer and Well Construction Logs

B.1 Area 7/8 Development 2019 Investigation Test Pit, Soil Boring, Piezometer, Monitoring Well logs and construction details with well development details and USGS Logs for Wells SA-28 and SA-25

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79ch HOLE NO. MWSE1-19 SURF. ELEVATION 1449.7

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939377.7 PVC Riser: 1451.92

Town of Sardinia, Erie County, NY Easting: 1171481.0

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/16/19 COMPLETED 04/17/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	1						Extremely moist brown (CLAYEY-SILT) topsoil with little organic matter and clay, trace sand, very soft, granular soil structure, (ML-CL).	(1)	(1) 4-inch locking steel protective casing 2.4 feet above ground surface, PVC stickup 2.2 feet above ground surface
	16		3			8				
				5						
					5					
	2	3						clear transition to 0.3		
	22		3			9		Moist to extremely moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, firm to stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
				6						
					7					
	3	2								
5	24		4			10				
				6						
					8					
	4	3								
	24		5			22		clear transition to 7.3		
				17				Moist faintly mottled to distinctly mottled, light brown to orangish brown, (SANDY-SILT) with some mostly very fine size sand with an occasional (SILTY-CLAY) lense, compact, thinly bedded, (ML) with an occasional thin (CL) interbed.		
					19					
	5	3								
	23		7			19				
				12						
10					17					
	6	8								
	19		19			41		grades downward to 9.4		
				22				Extremely moist brown (SILTY-SAND) with 3 to 7% gravel, little silt, compact, thinly bedded, (SM).		
					14					
	7	10								
	20		22			47		grades downward to 10.0		
				25				Moist brown (SILTY-SAND) with 20 to 30% gravel, trace to little silt, dense, stratified, (SM).		
					16					
	8	10								
15	17		10			23		grades downward to 14.0		
				13				Extremely moist brown gravelly (SILTY-SAND) with 30 to 50% gravel, trace to little silt, dense, stratified, (SM), (GM).		
					12					
	9	11								
	11		12			26		grades downward to 16.0		
				14				Wet brown gravelly (SILTY-SAND) with 20 to 40% gravel, trace to little silt, compact, stratified, (SM).		
					16					
	10	9								
	9		11			24				
				13						
20					13			grades downward to 20.0		

(2) 2-inch Schedule 40 FJT PVC Riser

(3) CEMENT BENTONITE GROUT

(4) #00N size morie sand pack

← 9.0'

← 9.5'

(2) #00 size choke sand

(3) Bentonite Seal (chips)

← 12.5'

← 13.0'

← 15.0'

(4) 2" schedule 40 PVC 0.010 slot continuous wrap screen

Water at approximately 15.5 feet below ground surface upon completion.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79ch HOLE NO. MWSE1-19 SURF. ELEVATION 1449.7

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939377.7 PVC Riser: 1451.92

Town of Sardinia, Erie County, NY Easting: 1171481.0

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/16/19 COMPLETED 04/17/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	14						Wet brownish gray gravelly (SILTY-SAND) with 30 to 50% gravel, trace to little silt, dense, stratified, (SM), (GM).		(5) 2" schedule 40 PVC 0.010 slot continuous wrap screen
	9		14			36				
				22						
					26					
	12	8								
	20		12			28				
				16						
					22					
	13	12								
25	20		14			30				← 25.0'
				16						
					20					← 26.0'
								Moist to extremely moist gray (SANDY-SILT) with 3 to 7% gravel, trace to little sand, compact, weakly thinly bedded, (ML).		
								grades downward to 25.0		
								Wet gray (SAND) mostly very fine to fine size, trace silt, dense, thinly bedded, (SP).		
								26.0		
								Boring completed at 26.0 feet.		
30										
35										
40										

(5) #60N size morie sand pack

Note: Advanced bore hole with 6 5/8" ID x 10" OD hollow stem auger casing with continuous split spoon sampling to 26.0 feet. Installed 2-inch PVC monitoring well according to NYS DEC regulations.

Cement Bentonite Grout

7.8 gallons water
94 lb portland cement
4 lb Bentonite

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

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(716) 655-1717 • FAX (716) 655-2915

2A79ch HOLE NO. MWSE2-19 SURF. ELEVATION 1449.9

PROJECT WMNY Chaffee Landfill – Southern Expansion LOCATION Northing: 939038.2 PVC Riser: 1452.25

Town of Sardinia, Erie County, NY Easting: 1171136.7

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/17/19 COMPLETED 04/18/19

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
1	2						Extremely moist brown (SANDY-SILT) topsoil with little sand and organic matter, very loose, granular soil structure, (ML).	(1)	(1) 4-inch locking steel protective casing 2.6 feet above ground surface, PVC sitckup 2.3 feet above ground surface
23		4			10		clear transition to 0.2		
			6				Moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		Note: Advanced bore hole with 6 5/8" ID x 10" OD hollow stem auger casing with continuous split spoon sampling to 26.0 feet. Installed a 2-inch monitoring well in completed bore hole according to NYS DEC regulations.
				7			clear transition to 3.4		
2	9						Moist brown (CLAYEY-SILT) with 3 to 7% gravel, little to some clay, trace sand, very stiff, weakly thinly laminated with very thin coarse silt lenses, (ML-CL).		
20		6			17		grades downward to 4.0		
			11				Moist grayish brown (SAND) with 3 to 7% gravel, mostly fine to medium size sand, compact, thinly bedded, (SP).		← 9.0'
				17			grades downward to 6.0		← 9.5'
3	11						Moist brown very gravelly (SILTY-SAND) with 30 to 50% gravel, occasional cobble, trace to little silt, compact to dense, stratified, (SM).		(2) #00 size choke sand
14		5					grades downward to 10.0		(3) Bentonite seal (chips)
			7		12		Moist brown very gravelly (SAND) with 40 to 60% gravel, occasional cobble, trace silt, compact, stratified, (SW).		← 12.5'
				17			grades downward to 11.7		← 13.0'
4	15						Extremely moist to wet brown gravelly (SAND) with 30 to 50% gravel, trace silt, compact to dense, stratified, (SW).		
11		13			25		grades downward to 14.0		← 15.0'
			12				Wet brown very gravelly (SAND) with 40 to 60% gravel, trace silt, compact to dense, stratified, (SW).		Sample 11 taken with 3-inch spoon due to low recovery.
				12			grades downward to 19.0		(4) 2-inch 0.010 slot continuous wrap screen
5	13						See next sheet		Water at approximately 15.0 feet below ground surface upon completion.
17		14			31				
			17						
				11					
6	19								
15		11			20				
			9						
				8					
7	10								
4		14			31				
			17						
				17					
8	5								
6		6			13				
			7						
				8					
9	10								
12		17			31				
			14						
				12					
10	5								
13		12			29				
			17						
				15					

WELL: (1) 4-inch Schedule 40 FJT PVC Riser; CEMENT BENTONITE GROUT; (2); (3); (4) #00N size morie sand pack

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79ch HOLE NO. MWSE2-19 SURF. ELEVATION 1449.9

PROJECT WMNY Chaffee Landfill – Southern Expansion LOCATION Northing: 939038.2 PVC Riser: 1452.25
Town of Sardinia, Erie County, NY Easting: 1171136.7

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/17/19 COMPLETED 04/18/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	24						Wet brown very gravelly (SILTY-SAND) with 40 to 60% gravel, trace to little silt, compact, stratified, (SM).		(5) 2-inch 0.010 slot continuous wrap screen
	16		13			24				
				11						
					13					
	12	10						grades downward to 21.0		
	9		8					Moist to extremely moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, very stiff, thinly laminated with very thin coarse silt lenses, (CL).		
				12		20				
					12					
	13	12								
25	2		17			30				← 25.0'
				13						
					15			26.0		← 26.0'
								Boring completed at 26.0 feet.		
30										
35										
40										

(5) #00N size morie sand pack

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79ch HOLE NO. MWSE3-19 SURF. ELEVATION 1457.2

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 938987.3 PVC Riser: 1459.29

Town of Sardinia, Erie County, NY Easting: 1170663.1

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/18/19 COMPLETED 04/22/19

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	1							(1)	(1) 4-inch locking steel protective casing 2.25 feet above ground surface, PVC stickup 2.1 feet above ground surface
	21		5			11		Moist to extremely moist gray (SILTY-SAND) fill with little silt, trace organic matter, very loose, massive soil structure, (SM).		
				6				0.2		
					10					
	2	5								Note: Advanced bore hole with 6 5/8" ID x 10" OD hollow stem auger casing with continuous split spoon sampling to 30.0 feet. Installed a 2-inch monitoring well in completed bore hole according to NYS DEC regulations.
	22		6			14		Moist to extremely moist brown (SILTY-SAND) with 3 to 7% gravel, little to some silt, trace organic matter, compact, weakly blocky soil structure, (SM).		
				8						
					10					
	3	8								
5	23		6			11		grades downward to 2.0		
				5						
					6					
	4	5								
	18		5			11		Moist brown (SILTY-SAND) with 5 to 15% gravel, little silt, compact, stratified, (SM).		
				6				grades downward to 4.0		
					8					
	5	2								
	17		3			6		Moist to extremely moist brown (SILTY-SAND) with 10 to 20% gravel, little to some silt, compact, stratified, (SM).		
				3						
					2					
10	6	3						grades downward to 8.0		
	10		6			13		Extremely moist brown gravelly (SILTY-SAND) with 20 to 40% gravel, little silt, loose to compact, stratified, (SM).		
				7						
					5					
	7	4								
	11		5			11				
				6						
					7					
	8	8								
15	4		9			20				
				11				grades downward to 16.0		
					9					
	9	4						Wet light brown gravelly (SILTY-SAND) with 20 to 40% gravel, little silt, loose to compact, stratified, (SM).		
	12		3			15				
				12						
					14					
	10	4								
	16		4			7				
				3						
20					2					

← 12.0'
← 12.5'
(2) #00 size choke sand
(3) Bentonite seal (chips)
← 15.5'
← 16.0'
(4) #00N size morie sand pack
← 18.0'
(5) 2-inch 0.010 slot continuous wrap screen

4-inch Schedule 40 FJT PVC Riser

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists. (cns)

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2A79ch HOLE NO. MWSE3-19 SURF. ELEVATION 1457.2

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 938987.3 PVC Riser: 1459.29

Town of Sardinia, Erie County, NY Easting: 1170663.1

CLIENT GEI Consultants Inc, P.C. DATE STARTED 04/18/19 COMPLETED 04/22/19

DEPTH IN FT	SN REC	0/6 BLOWS ON SAMPLER	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	6								
	11		4			7		Wet light brown gravelly (SILTY-SAND) with 20 to 40% gravel, little silt, loose to compact, stratified, (SM).		
				3						
					2					
	12	2								
	16		4			7				
				3						
					2					
	13	6								
25	8		8			14				
				6				grades downward to 26.0		
					7			Wet gray (SAND) with 3 to 7% gravel, mostly fine to coarse size sand, trace silt, compact, stratified, (SW).		
	14	12								
	12		9			18				
				9				grades downward to 28.0		← 28.0'
					11			Wet brown (SILTY-SAND) with 5 to 15% gravel, little silt, loose, stratified, (SM).		
	15	2								
	7		3			8				
				5						
30					6			30.0		← 30.0'
								Boring completed at 30.0 feet.		
35										
40										

WELL: 2-inch 0.010 slot continuous wrap screen; #00N size morie sand pack.

WATER TABLE AND REMARKS: Water at approximately 16.0 feet below ground surface upon completion.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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(716) 655-1717 • FAX (716) 655-2915

2A79ch HOLE NO. MWSE4-19 SURF. ELEVATION 1448.6

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939171.9 PVC Riser: 1450.59

Town of Sardinia, Erie County, NY Easting: 1170296.2

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/22/19 COMPLETED 04/22/19

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N
	1	4				
	15		5			12
				7		
					8	
	2	5				
	13		5			11
				6		
					6	
	3	8				
5	10		4			8
				4		
					6	
	4	5				
	9		5			11
				6		
					6	
	5	2				
	6		2			5
				3		
10					4	
	6	6				
	8		7			12
				5		
					3	
	7	7				
	9		2			5
				3		
					3	
	8	6				
15	13		5			10
				5		
					5	
	9	10				
	10		12			29
				17		
					9	
	10	11				
	15		12			30
				18		
20					21	

LITH

DESCRIPTION AND CLASSIFICATION

Moist to extremely moist brown (SILTY-SAND) fill with 5 to 15% gravel, little sand, trace organic matter, loose, massive soil structure, (ML). 0.3

Extremely moist brown gravelly (SILTY-SAND) with 20 to 40% gravel, little silt, loose to compact, stratified, (SM).

grades downward to 6.0

Wet brown gravelly (SILTY-SAND) with 20 to 40% gravel, little silt, loose to compact, stratified, (SM).

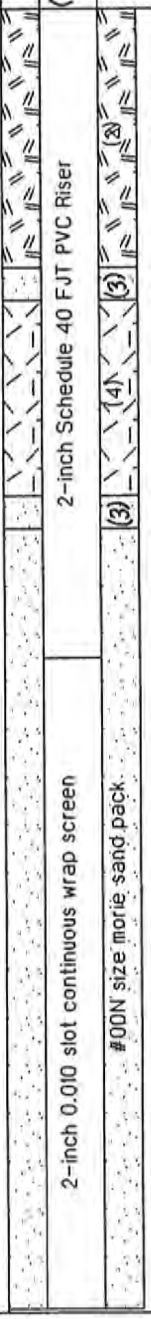
grades downward to 13.0

Wet gray (SAND) with mostly fine to medium size sand, trace silt, loose, weakly stratified, (SW).

grades downward to 14.0

Wet gray very gravelly (SAND) with 40 to 60% gravel, occasional cobble, trace silt, loose to compact, stratified, (SW), (GW).

WELL



WATER TABLE AND REMARKS

(1) 4-inch locking steel protective casing 2.2 feet above ground surface, PVC stickup 2.0 feet above ground surface

(2) Cement Bentonite Grout

← 4.0'

← 4.5'

(3) #00 size choke sand

(4) Bentonite chips (chips)

← 7.5'

← 8.0'

← 10.0'

Note: Advanced bore hole with 6 5/8" ID x 10" OD hollow stem auger casing with continuous split spoon sampling to 20.5 feet. Installed a 2-inch monitoring well in completed bore hole according to NYS DEC regulations.

Water at approximately 13.0 feet below ground surface upon completion.

← 20.0'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

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2A79ch HOLE NO. MWSE4-19 SURF. ELEVATION 1448.6

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939171.9 PVC Riser: 1450.59

Town of Sardinia, Erie County, NY Easting: 1170296.2

CLIENT GEI Consultants Inc, P.C. DATE STARTED 04/22/19 COMPLETED 04/22/19

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
								Wet gray very gravelly (SAND) with 40 to 60% gravel, occasional cobble, trace silt, loose to compact, stratified, (SW), (GW).	(5)	← 20.5'
								20.5		(5) #00N size morie sand pack
								Boring completed at 20.5 feet.		
25										
30										
35										
40										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

Table B-1 Monitoring Well Development Summary
Hydrogeologic Investigation Report
Chaffee Sanitary Landfill - Southern Expansion
Chaffee, New York

Well ID	Development Date	Volume Removed (gallons)*	pH (standard units)	Specific Conductance (uS/cm)	Temperature (°C)	Turbidity (ntu)	Comments
MWSE-1	06/13/19	15	7.80	680	10.5	6.40	185 gallons removed during initial filter pack development on 5/3/19 and 5/6/19
MWSE-2	06/12/19	13	7.60	850	12.7	7.10	100 gallons removed during initial filter pack development on 5/3/19
MWSE-3	06/12/19	23	7.40	620	13.9	6.11	110 gallons removed during initial filter pack development on 5/1/19
MWSE-4	06/12/19	14	7.30	350	14.8	5.56	100 gallons removed during initial filter pack development on 5/1/19

Notes:

*represents volume removed during final low-flow well development to satisfy water quality sampling requirements following initial high-flow development event in early May 2019 which developed sand filter pack after well installation.

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2A79ch HOLE NO. PZ01-19 SURF. ELEVATION 1453.7

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 938641.8 PVC Riser: 1455.38

Town of Sardinia, Erie County, NY Easting: 1170448.0

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/04/19 COMPLETED 04/04/19

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
	1	1						Moist to extremely moist brown (SILTY-SAND) fill with 3 to 7% gravel, little to some silt, loose, massive soil structure, (SM). (soil berm)		(1) Approximately 1.7 feet of 2-inch PVC stick up with J-Plug
	17		2			5				
				3						
					3					
	2	2								
	20		2			5				
				3						
					3					
	3	2								
5	20		2			5		5.4		
				3						
					1			Moist brown (SAND) with mostly fine to coarse size sand, trace silt, very loose, stratified, (SW).		
	4	4								
	14		2			4		grades downward to 6.0		
				2						
					1			Moist to extremely moist brown (SILTY-SAND) with 10 to 20% gravel, occasional cobble, little silt, loose, stratified, (SM).		Note: Two attempts were made to get better recovery for sample 5
	5	3								
	1		2			4		grades downward to 8.0		
				2						
10					1			Extremely moist brown (SILTY-SAND) with 15 to 25% gravel, little silt, very loose, stratified, (SM).		
	6	2								
	10		2			4		grades downward to 12.0		
				2						
					2			Extremely moist, wet below 15.0 feet, brown gravelly (SILTY-SAND) with 20 to 40% mostly subangular shale and dolostone gravel, little silt, loose, stratified, (SM).		
	7	2								
	8		5			7				← 13.0'
				2						
					2					
	8	5								
15	9		3			6				← 15.0'
				3						
					4					(2) 0.020 slot 2-inch PVC screen
	9	5								
	6		3			5				Water at approximately 15.5 feet below ground surface upon completion.
				2						
					2					
	10	2								
	2		2			4				
				2						
20					5			grades downward to 20.0		

WELL (1): 2-inch Schedule 40 FJT PVC Riser; BENTONITE SEAL (CHIPS); #0 size sand pack (2)

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79ch HOLE NO. PZ01-19 SURF. ELEVATION 1453.7

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 938641.8 PVC Riser: 1455.38

Town of Sardinia, Erie County, NY Easting: 1170448.0

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/04/19 COMPLETED 04/04/19

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
11	6						Wet brown (SILT) with trace very fine size sand, compact, thinly bedded, (ML).		Note: Took sample 13 and augered to 25.0 feet.
16		10			24		grades downward to 20.4		
			14				Wet brown gravelly (SILTY-SAND) with 20 to 40% gravel, trace to little silt, compact, stratified, (SM).		Note: Advanced bore hole with 4 1/4" ID x 8" OD hollow stem auger casing with continuous split spoon sampling to 26.0 feet. Installed a 2-inch standpipe piezometer in completed bore hole to 25.0 feet.
				14			grades downward to 22.0		
12	15						Wet brown very gravelly (SILTY-SAND) with 40 to 60% gravel, occasional cobble, trace to little silt, dense, stratified, (SM), (GM).	0.020 slot 2-inch PVC screen	← 25.0'
9		17			40		grades downward to 24.0	#0 size sand pack	← 26.0'
			23				Moist to extremely moist gray high plasticity (SILTY-CLAY) with 3 to 7% gravel, trace sand, stiff, thinly laminated with very thin coarse silt lenses, (CL).		
				24			26.0		
13	3						Boring completed at 26.0 feet.		
13		5			14				
			9						
				16					

25

30

35

40

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79ch HOLE NO. PZ02-19 SURF. ELEVATION 1457.2

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 938911.5 PVC Riser: 1458.68

Town of Sardinia, Erie County, NY Easting: 1170460.2

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/05/19 COMPLETED 04/08/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	1								
	18		2			5		Extremely moist grayish brown (SILTY-SAND) fill with 15 to 25% gravel, some silt, trace organic matter, loose, massive soil structure, (SM).		(1) Approximately 1.8 feet of 2-inch PVC stick up with J-Plug
				3						
					3					
	2	2								
	16		2			6				
				4						
					4					
	3	3								
	14		4			10		clear transition to 5.0		
5				6				Extremely moist to moist brownish gray gravelly (SILTY-SAND) with 15 to 25% gravel, very fine to very coarse size sand, little silt, loose, stratified, (SM).		
					4					
	4	3								
	12		3			6				
				3						
					4					
	5	3								
	12		4			8		clear transition to 9.5		
				4						
					7			Extremely moist brown (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, weakly thinly laminated, (CL).		
10	6	3								
	14		4			10		clear transition to 9.8		
				6						
					4			Extremely moist brownish gray (SANDY-SILT) with 5 to 10% gravel, some fine to coarse size sand, trace clay, loose, weakly stratified, (ML).		
	7	5								
	13		4			9		clear transition to 10.7		
				5						
					9			Extremely moist brownish gray gravelly (SILTY-SAND) with 20 to 40% mostly subangular shale and dolostone gravel, occasional cobble, very fine to very coarse size sand, little to some silt, loose, stratified, (SM) tending toward (SM), (GM).		
	8	3								
	9		5			10				
15				5						
					8					
	9	8								
	7		12			20				
				8						
					16			grades downward to 16.0		
20								See next sheet		

2-inch Schedule 40 FJT PVC Riser

BENTONITE SEAL (CHIPS)

(1)

(2)

(3)

Water at approximately 18.0 feet below ground surface upon completion.

← 16.0'

(2) #0 size sandpack

← 18.0'

(3) 0.020 slot 2-inch PVC screen

Note: No sample number 10 due to boulder.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

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(716) 655-1717 • FAX (716) 655-2915

2A79ch HOLE NO. PZ02-19 SURF. ELEVATION 1457.2

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 938911.5 PVC Riser: 1458.68

Town of Sardinia, Erie County, NY Easting: 1170460.2

CLIENT GEI Consultants Inc, P.C. DATE STARTED 04/05/19 COMPLETED 04/08/19

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	6								
	6		5			9		Extremely moist brownish gray gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble and boulder, trace to little silt, compact, stratified, (SM) tending toward (SM), (GM).		Note: Advanced bore hole with 4 1/4" ID x 8" OD hollow stem auger casing with continuous split spoon sampling to 38.0 feet. Installed a 2-inch standpipe piezometer in completed bore hole to 28.0 feet.
				4						
					6					
	12	4						18.0		
	5		3			5		Boulder.		
				2				19.0		
					4			Wet brownish gray gravelly (SILTY-SAND) with 20 to 40% gravel, trace to little silt, loose, stratified, (SM).		
	13	3								
25	6		6			11				
				5						
					12					
	14	13								
	8		10			19				
				9						
					12			28.0		← 28.0'
	15	5						Wet to extremely moist gray high plasticity (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, thinly laminated with very thin coarse silt lenses, (CL).		
	14		6			14				← 29.0'
				8						
30					11					Note: Two attempts to collect sample number 16 (12" recovery is from second spoon).
	16	13								
	12		14			31				
				17						
					18					
	17	8								
	22		7			17				
				10						
					13					
	18	5								
35	20		7			17				
				10						
					13					
	19	5								
	20		8			17		clear transition to 37.5		
				9						
					13			Wet gray gravelly (SAND) with 15 to 25% gravel, very fine to very coarse size sand, trace silt, compact, stratified, (SW).		← 38.0'
								38.0		
40								Boring completed at 38.0 feet.		

0.020 SLOT 2-INCH PVC SCREEN

#0 SIZE SANDPACK

BENTONITE SEAL (CHIPS)

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79ch HOLE NO. PZ03-19 SURF. ELEVATION 1457.4

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939121.1 PVC Riser: 1459.04

Town of Sardinia, Erie County, NY Easting: 1170496.2

CLIENT GEI Consultants Inc, P.C. DATE STARTED 04/03/19 COMPLETED 04/04/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
	1	1								
	18		2			6		Moist brown (SILTY-SAND) fill with 5 to 15% gravel, little silt, trace organic matter, loose, massive soil structure, (SM).		(1) Approximately 1.7 feet of 2-inch PVC stick up with J-Plug
				4						
					4					
	2	4						2.0		
	17		4			8		Moist brown (SANDY-SILT) with 5 to 15% gravel, little silt, loose, stratified, (SM).		
				4						
					4					
	3	4								
5	17		4			9				
				5				grades downward to 6.0		
					4					
	4	2						Wet brownish gray (SILTY-SAND) with 5 to 15% gravel, little silt, loose, stratified, (SM).		
	13		3			5				
				2						
					1					
	5	1								
	10		2			7		grades downward to 9.0		
				5						
					6					
10	6	5						Moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, stiff to very stiff, thinly laminated with very thin coarse silt lenses, (CL).		
	22		6			16				
				10						
					9					
	7	5								
	24		7			16		grades downward to 13.0		
				9						
					9			Moist, wet below 19.0 feet, grayish brown to brownish gray (SILTY-SAND) with 15 to 25% gravel, little silt, compact, stratified, (SM).		
	8	5								
15	16		7			14				
				7						
					7					
	9	5								
	8		8			19				
				11						
					9					
	10	2								
	11		4			8				
				4						
20					2			grades downward to 20.0		

WELL (1): 2-inch Schedule 40 FJT PVC Riser; BENTONITE SEAL (CHIPS) (2); (3)

← 16.0'

(2) #0 size sandpack

← 18.0'

(3) 0.020 slot 2-inch PVC screen

Water at approximately 19.0 feet below ground surface upon completion.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79ch HOLE NO. PZ03-19 SURF. ELEVATION 1457.4

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939121.1 PVC Riser: 1459.04

Town of Sardinia, Erie County, NY Easting: 1170496.2

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/03/19 COMPLETED 04/04/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	3								
	10		5			13		Wet grayish brown to brownish gray (SILTY-SAND) with 20 to 30% mostly subrounded to subangular gravel, little silt, compact, stratified, (SM).		Note: Advanced bore hole with 4 1/4" ID x 8" OD hollow stem auger casing with continuous split spoon sampling to 34.0 feet. Installed a 2-inch standpipe piezometer in completed bore hole to 28.0 feet.
				8						
					10					
	12	5								
	8		6			11				
				5						
					5					
	13	3								
25	10		15			30				
				15				grades downward to 25.8		
					14			Moist gray high plasticity (SILTY-CLAY) with 3 to 7% gravel, trace sand, very stiff, thinly laminated with very thin coarse silt lenses, (CL).		
	14	6								
	13		9			19				
				10						
					13					← 28.0'
	15	5								
	21		10			23				← 29.0'
				13						
30					16					
	16	4								
	22		8			18				
				10						
					13					
	17	4						clear transition to 32.9		
	24		8			16		Wet (SAND) mostly fine to medium size, trace silt, compact, thinly bedded, (SP).		
				8						
					12			34.0		← 34.0'
35								Boring completed at 34.0 feet.		
40										

0.020 SLOT 2-INCH PVC SCREEN

#0 SIZE SANDPACK

BENTONITE SEAL (CHIPS)

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79ch HOLE NO. PZ04-19 SURF. ELEVATION 1456.3

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 938964.9 PVC Riser: 1457.79

Town of Sardinia, Erie County, NY Easting: 1170982.2

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/08/19 COMPLETED 04/09/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
	1	WH						Extremely moist dark gray (SANDY-SILT) topsoil with little organic matter, trace to little sand, trace clay, very loose, granular soil structure, (ML).		(1) Approximately 1.5 feet of 2-inch PVC stick up with J-Plug
	18		1			3		clear transition to 0.7		
				2				Moist light brown (SILTY-CLAY) with 3 to 7% gravel, trace sand, firm, blocky soil structure, (CL).		WH: Sampler penetration with weight of rods and hammer.
					5			grades downward to 3.5		
	2	5						Moist to extremely moist brown (SILTY-SAND) with 10 to 20% gravel, little sand, trace clay, compact, stratified, (SM).		Note: Advanced bore hole with 4 1/4" ID x 8" OD hollow stem auger casing with continuous split spoon sampling to 32.0 feet. Installed a 2-inch standpipe piezometer in completed bore hole to 28.0 feet.
	20		6			13		grades downward to 5.2		
				7				Moist to extremely moist gray (SILTY-CLAY) with trace sand, firm, weakly thinly laminated with very thin coarse silt lenses, (CL).		
					8			clear transition to 7.3		
	3	1						Moist to extremely moist light brown (SILTY-CLAY) with trace sand, very stiff, thinly laminated with very thin coarse silt lenses, (CL).		
5	17		3			6		grades downward to 8.0		
				3				Moist (SAND) mostly very fine to coarse size, compact, stratified, (SW).		
					4			grades downward to 10.0		
	4	3						Moist (SILTY-SAND) with 20 to 30% gravel, occasional cobble, trace silt, dense, stratified, (SW).		
	24		5			13		10.5		← 16.0'
				8				Moist very gravelly (SAND) with 40 to 60% gravel, occasional cobble, trace silt, dense to very dense, stratified, (SW), (GW).		(2) #0 size sandpack
					11			grades downward to 18.0		← 18.0'
	5	5								(3) 0.020 slot 2-inch PVC screen
	18		7			16				Water at approximately 18.0 feet below ground surface upon completion.
				9						
10					32					
	6	10								
	16		15			45				
				30						
					36					
	7	37								
	20		29			59				
				30						
					32					
	8	45								
15	2		36			71				
				35						
					25					
	9	11								
	8		12			27				
				15						
					12					
	10	11								
	13		11			19				
				8						
20					3			See next sheet		

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

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2A79ch HOLE NO. PZ04-19 SURF. ELEVATION 1456.3

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 938964.9 PVC Riser: 1457.79

Town of Sardinia, Erie County, NY Easting: 1170982.2

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/08/19 COMPLETED 04/09/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	5								
	9		4			9		Wet brown very gravelly (SILTY-SAND) with 40 to 60% gravel, trace to little silt, compact, stratified, (SM), (GM).		
				5						
					5					
	12	5						grades downward to 20.0		
	10		6			11		Wet brown very gravelly (SILTY-SAND) with 40 to 60% gravel, trace to little silt, loose, compact below 22.0 feet, stratifed, (SM).		
				5						
					6					
	13	8								
25	7		7			16				
				9						
					8					
	14	10								
	8		11			21				
				10						
					8					
	15	7								
	6		8			17				
				9						
					11			grades downward to 30.0		
30	16	8						Wet gray (SAND) mostly very fine to fine size, trace silt, compact, weakly thinly bedded, (SP).		
	16		5			14				
				9						
					10			32.0		
								Boring completed at 32.0 feet.		
35										
40										

WELL: 0.020 SLOT 2-INCH PVC SCREEN; #0 SIZE SANDPACK; (4) Bentonite Seal (Chips)

← 28.0'

← 29.0'

← 32.0'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists. (cns)

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2A79ch HOLE NO. PZ05D-19 SURF. ELEVATION 1451.5

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939206.8 PVC Riser: 1453.89

Town of Sardinia, Erie County, NY Easting: 1170882.9

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/09/19 COMPLETED 04/12/19

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
1	3						Extremely moist brown (CLAYEY-SILT) topsoil with little organic matter and clay, trace sand, soft, granular soil structure, (ML-CL).		(1) Approximately 2.4 feet of 4-inch PVC stick up with J-Plug
24		5			11		clear transition to 0.3		
			6				Extremely moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		Note: Water level at 17.0 feet below ground surface after augers left at 56.0 feet for 12 hours.
				6					
2	3								Note: Sample numbers 31, 32, 33, 34, and 35 were taken with a 3" spoon.
21		3			7				
			4						
				6					
3	1								
22		3			7				
			4						
				7					
4	2								Note: Advanced bore hole with 6 5/8" ID x 10" OD hollow stem auger casing with continuous split spoon sampling to 70.0 feet. Installed a 4-inch standpipe piezometer in completed bore hole to 62.5 feet.
23		4			9				
			5						
				6					
5	4								
24		9			21		clear transition to 9.3		
			12				Wet brown (SILTY-SAND) with mostly very fine to fine size sand, little silt, compact, thinly bedded, (SM).		
				20					
6	8						clear transition to 9.5		
18		8			24				
			16				Moist brown gravelly (SAND) with 20 to 30% gravel, trace silt, compact, stratified, (SW).		
				16					
7	7						grades downward to 10.0		
17		15			35				
			20				Moist brown (SAND) with 5 to 15% gravel, trace silt, compact, stratified, (SW).		
				28					
8	14						grades downward to 11.4		
24		26			60				
			34				Moist brown gravelly (SAND) with 20 to 40% gravel, trace silt, compact, stratified, (SW).		
				50					
9	6						grades downward to 14.0		
10		14			28				
			14						
				13					
10	6								
11		10			25				
			15						
				17			See next sheet		

4-inch Schedule 40 FJT PVC Riser

BENTONITE SEAL (CHIPS)

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

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2A79ch HOLE NO. PZ05D-19 SURF. ELEVATION 1451.5

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939206.8 PVC Riser: 1453.89

Town of Sardinia, Erie County, NY Easting: 1170882.9

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/09/19 COMPLETED 04/12/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	15						Wet brown very gravelly (SILTY-SAND) with 40 to 60% mostly subangular shale and dolostone gravel, occasional cobble, trace to little silt, very dense, stratified, (SM), (GM).		
	13		16			30				
				14						
					12					
	12	8								
	13		12							
				14		26				
					16					
	13	13								
25	11		14							
				12		26				
					10					
	14	5								
	10		17							
				26		43				
					21					
								grades downward to 28.2		
	15	8						Extremely moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, very stiff to hard, weakly thinly laminated with very thin coarse silt lenses, (CL).		
	8		9							
				12		21				
					17					
30	16	14								
	22		16							
				23		39				
					29					
	17	9								
	13		8							
				7		15				
					6					
	18	7								
	17		8							
35				12		20				
					16					
	19	7								
	17		11							
				13		24				
					14					
	20	4								
	16		8							
				11		19				
40					13					

grades downward to 16.0

Wet brown gravelly (SILTY-SAND) with 30 to 50% gravel, little silt, compact, stratified, (SM), (GM).

grades downward to 20.0

Wet brown very gravelly (SILTY-SAND) with 40 to 60% gravel, occasional cobble, little silt, very dense, stratified, (SM), (GM).

grades downward to 31.3

Wet gray very gravelly (SILTY-SAND) with 40 to 60% gravel, trace to little silt, dense, stratified, (SM), (GM).

grades downward to 33.3

Extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, firm, thinly laminated with very thin coarse silt lenses, (CL).

WELL: 4-inch Schedule 40 FJT PVC Riser; BENTONITE SEAL (CHIPS)

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

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2A79ch HOLE NO. PZ05D-19 SURF. ELEVATION 1451.5

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939206.8 PVC Riser: 1453.89

Town of Sardinia, Erie County, NY Easting: 1170882.9

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/09/19 COMPLETED 04/12/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	21	8						Extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, firm, thinly laminated with very thin coarse silt lenses, (CL).		
	18		11			26				
				15						
					17					
	22	5								
	15		11			28				
				17						
					19					
	23	3								
45	16		9			22		grades downward to 45.4		
				13				Wet gray (SANDY-SILT) with some mostly very fine to fine size sand, compact, thinly bedded, (ML) tending toward (SM).		
					18					
	24	7						grades downward to 45.7		
	15		7			21				
				14				Wet gray (SAND) with 3 to 7% gravel, mostly fine to coarse size sand, trace silt, compact, stratified, (SW).		
					16					
	25	11						clear transition to 58.8		
	16		11			27				
				16				Moist to extremely moist gray (SILTY-CLAY) with trace sand, very stiff, thinly laminated with very thin coarse silt lenses, (CL).		
					22					
50	26	13						clear transition to 49.1		
	24		12			26				
				14				Wet gray (SANDY-SILT) with some very fine to fine size sand, compact, thinly bedded, (ML).		
					14					
	27	10						grades downward to 50.0		
	17		17			36				
				19				Wet gray (SILTY-SAND) with mostly fine to medium size sand, trace to little silt, compact, thinly bedded, (SM).		
					22					
	28	21						grades downward to 50.9		
55	16		17			32				
				15				Wet gray (SANDY-SILT) with little mostly very fine size sand, compact, thinly bedded, (SM).		
					16					
	29	22						grades downward to 51.7		
	16		23			51				
				28						
					30					
	30	29								
	10		20			33				
				13						
60					20			See next sheet.		

WELL: 4-inch Schedule 40 FJT PVC Riser; BENTONITE SEAL (CHIPS); #0 SIZE SAND PACK; (2)

WATER TABLE AND REMARKS: ← 50.5'; ← 52.5'; (2) 4-inch Schedule 40 0.020 slot PVC FJT screen

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

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2A79ch HOLE NO. PZ05D-19 SURF. ELEVATION 1451.5

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939206.8 PVC Riser: 1453.89

Town of Sardinia, Erie County, NY Easting: 1170882.9

CLIENT GEI Consultants Inc, P.C. DATE STARTED 04/09/19 COMPLETED 04/12/19

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	31	18						Moist to extremely moist gray (SILTY-CLAY) with trace sand, very stiff, thinly laminated with very thin coarse silt lenses, (CL).		
	6		15			30		grades downward to 52.0		
				15						
					20					
	32	18								
	24		28			88		Wet gray very gravelly (SILTY-SAND) with 40 to 60% gravel, trace to little silt, dense, stratified, (SM), (GM).		
				60				grades downward to 54.0		
					65					
	33	12						Wet (SAND) with 3 to 7% gravel, trace silt, dense, stratified, (SW).		
65	17		14			30		grades downward to 56.0		
				16						
					10					
	34	51						Wet gray (SILTY-SAND) with mostly medium to fine size sand, little silt, very dense, stratified, (SM).		
	16		20			42		grades downward to 58.0		
				22						
					23					
	35	3						Wet gray gravelly (SILTY-SAND) with 30 to 50% gravel, little silt, dense, stratified, (SM), (GM).		
	15		12			19		grades downward to 62.0		
				7						
70					11					
								Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, little to some clay, very stiff, thinly laminated with very thin coarse silt lenses, (ML-CL).		
								grades downward to 62.7		
								Wet gray (SILTY-SAND) uniform fine sand, some silt, very dense, thinly bedded, (SM).		
								70.0		
75								Boring completed at 70.0 feet.		
80										

(3) 4-inch Schedule 40 0.020 slot PVC FJT screen

#0 SIZE SAND PACK

BENTONITE SEAL (CHIPS)

← 62.5'

← 64.0'

← 70.0'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79ch HOLE NO. PZ05S-19 SURF. ELEVATION 1451.6

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939208.4 PVC Riser: 1453.95

Town of Sardinia, Erie County, NY Easting: 1170888.7

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/12/19 COMPLETED 04/14/19

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
							Advanced augers without split spoon sampling to 22.5 feet.	4-inch Schedule 40 FJT PVC Riser; BENTONITE CHIPS; #0 Size sandpack; (2)	(1) Approximately 2.0 feet of 4-inch PVC stick up with locking Royer cap Note: Advanced bore hole with 6 5/8" ID x 10" OD hollow stem auger casing without sampling to 22.5 feet. Collected a 3-inch diameter split spoon sample from 22.5 to 24.5 feet and completed with 6 5/8" ID x 10" OD hollow stem auger casing without sampling to 29.0 feet. Installed a 4-inch diameter standpipe piezometer in completed bore hole to 28.0 feet. Water at approximately 13.5 feet below ground surface upon completion. ← 16.0' ← 18.0' (2) 0.020 slot 4-inch PVC screen

5

10

15

20

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

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2A79ch HOLE NO. PZ05S-19 SURF. ELEVATION 1451.6

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939208.4 PVC Riser: 1453.95

Town of Sardinia, Erie County, NY Easting: 1170888.7

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/12/19 COMPLETED 04/14/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
								Advanced augers without split spoon sampling to 22.5 feet.		
								22.5		
	1	8						Wet gray gravelly (SILTY-SAND) with 30 to 50% gravel, trace to little silt, dense, stratified, (SM), (GM).		Note: Sample 1 taken from 22.5 to 24.5 feet with 3" spoon for seive analysis.
	22		15			41				
				26						
					32			24.5		
25								Advanced augers without split spoon sampling to 29.0 feet.	0.020 slot PVC FJ screen; #0 size sandpack	← 28.0'
								29.0		← 29.0'
								Boring completed at 29.0 feet.		
30										
35										
40										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79ch HOLE NO. SB01-19 SURF. ELEVATION 1459.3

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939664.5

Town of Sardinia, Erie County, NY Easting: 1169965.7

CLIENT GEI Consultants Inc. P.C. DATE STARTED 05/03/19 COMPLETED 05/03/19

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
1	2						Extremely moist to wet dark brown (SAND-SILT-CLAY) topsoil fill with 0 to 3% gravel, little sand, trace to little clay and organic matter, soft, massive soil structure, (ML-CL).		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to 18.0 feet. Bore hole was tremie grouted to ground surface upon completion.
20		5			12		0.3		
			7				Moist to extremely moist brown gravelly (SAND-SILT-CLAY) fill with 25 to 50% gravel, occasional cobble, little sand and clay, stiff to hard, (ML-CL) tending toward (SC), (GC).		No water at completion.
				9					
2	18								
18		17			33				
			16						Cement Bentonite Grout Mix
				11					---
3	4								7.8 gal water
22		9							4 lb granular bentonite
5			15		24		grades downward to 4.2		94 lb portland cement
				17					
4	5						Extremely moist brownish gray to gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, stiff to very stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
24		6			13				
			7						
				9					
5	5								
24		6			13				
			7						
				8					
10									
6	3								
22		3			9				
			6						
				7					
7	16						clear transition to 12.5		
22		24			68		Dry to moist grayish brown very gravelly (SAND) with 40 to 60% mostly angular to subangular gravel and flat sided shale stone fragments, occasional cobble, trace silt, very dense, stratified, (SW), (GW).		
			44						
				43					
8	29								
12		36			69				
15			33						
				35					
9	19								
6		41			85				
			44						
				29			18.0		← 18.0'
							Boring completed at 18.0 feet.		
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists. (cns) SHEET 1 OF 1

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2A79ch HOLE NO. SB02-19 SURF. ELEVATION 1453.6

PROJECT WMNY Chaffee Landfill – Southern Expansion LOCATION Northing: 939324.6

Town of Sardinia, Erie County, NY Easting: 1170287.8

CLIENT GEI Consultants Inc. P.C. DATE STARTED 05/02/19 COMPLETED 05/02/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	4						Extremely moist olive brown to grayish brown (CLAYEY-SILT) fill with 0 to 3% gravel, some clay, trace sand and organic matter, firm to stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 36.0 feet. Bore hole was tremie grouted to ground surface upon completion.
	22		4			10				
				6						
					8					
	2	6								
	24		9			21				
				12						
					17					
	3	9								
5	24		12			24				
				12						
					16					
	4	11								
	24		15			27				
				12						
					15					
	5	10								
	24		14			30				
				16						
10					17					
	6	8								
	12		7			18				
				11						
					15					
	7	9								
	14		11			33				
				22						
					28					
	8	9								
	12		6			10				
15				4						
					8					
	9	2								
	12		3			9				Water level at 17.0 feet below ground surface at completion.
				6						
					3					
	10	3								
	8		3			5				
				2						
20					4			See next sheet		

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists, (cns)

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2A79ch HOLE NO. SB02-19 SURF. ELEVATION 1453.6

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939324.6

Town of Sardinia, Erie County, NY Easting: 1170287.8

CLIENT GEI Consultants Inc, P.C. DATE STARTED 05/02/19 COMPLETED 05/02/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	1						Wet brown gravelly (SAND-SILT-CLAY) with 10 to 25% mostly subrounded to rounded gravel with flat sided shale stone fragments, some silt, trace to little clay, stiff, weakly thinly bedded to weakly stratified, (ML-CL).		Cement Bentonite Grout Mix
	10		3			6				7.8 gal water
				3						4 lb granular bentonite
					6					94 lb portland cement
	12	3								
	18		5			8				
				3						
					4					
	13	10								
25	20		20			32				
				12						
					7					
	14	6								
	10		1			2				
				1						
					1					
	15	14								
	20		16			65				
				49						
30					66					
	16	18								
	18		27			46				
				19						
					14					
	17	14								
	24		12			22				
				10						
					11					
	18	5								
35	14		9			23				
				14						
					13					
								Extremely moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, very stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
								36.0		
								Boring completed at 36.0 feet.		
40										

CEMENT BENTONITE GROUT

← 36.0'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists, (cns)

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2A79ch HOLE NO. SB03-19 SURF. ELEVATION 1460.1

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939255.3

Town of Sardinia, Erie County, NY Easting: 1170418.8

CLIENT GEI Consultants Inc. P.C. DATE STARTED 05/01/19 COMPLETED 05/02/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	8						Moist to extremely moist grayish brown gravelly (SILTY-SAND) FILL with 30 to 50% gravel, occasional cobble, little silt, compact, massive soil structure, (SM).		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 52.0 feet. Bore hole was tremie grouted to ground surface upon completion.
	24		12			25				
				13						
					16					
	2	5								
	24		10			24				
				14						
					10					
	3	3								
5	24		4			10				
				6						
					7					
	4	5								
	4		7			17				
				10						
					10					
	5	4								
	8		4			12				
				8						
					8					
10	6	3								
	24		4			9				
				5						
					5					
	7	4								
	20		5			9				
				4						
					5					
	8	2								
15	20		2			5				
				3						
					3					
	9	4								
	6		4			11				
				7						
					10					
	10	10								
	14		5			10				
				5						
20					5					

Moist to extremely moist grayish brown (CLAYEY-SILT) FILL with 10 to 20% gravel, little to some clay, trace sand, very stiff, massive soil structure, (ML-CL). — 3.5

grades downward to — 4.3

Extremely moist grayish brown (CLAYEY-SILT) with 5 to 10% gravel, some clay, stiff, weakly thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks, (CL).

grades downward to — 9.8

Extremely moist gray (SILTY-CLAY) stiff, weakly thinly laminated with very coarse silt lenses, (CL).

grades downward to — 10.2

Extremely moist light grayish brown (SILTY-SAND) with mostly very fine to fine size sand, some silt, loose, thinly bedded, (SM).

grades downward to — 11.0

Moist to extremely moist (SAND) with 5 to 15% gravel, mostly fine size sand, trace to little silt, loose, thinly bedded to weakly stratified, (SM).

grades downward to — 11.5

Extremely moist grayish brown (SILTY-CLAY) stiff, thinly laminated with very thin coarse silt lenses, (CL).

grades downward to — 12.0

See next sheet

CEMENT BENTONITE GROUT

Cement Bentonite Grout Mix

7.8 gal water
4 lb granular bentonite
94 lb portland cement

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists, (cns)

EARTH DIMENSIONS, INC.

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2A79ch HOLE NO. SB03-19 SURF. ELEVATION 1460.1

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939255.3

Town of Sardinia, Erie County, NY Easting: 1170418.8

CLIENT GEI Consultants Inc, P.C. DATE STARTED 05/01/19 COMPLETED 05/02/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	3						Extremely moist brown gravelly (SILTY-SAND) with 15 to 30% gravel and flat sided shale stone fragments, little silt, loose, weakly stratified, (SM).		
	6		3			7				
				4						
					4					
	12	2								
	14		2			5				
				3						
					3					
	13	3								
25	20		5			13				
				8						
					4					
	14	10								
	14		6			11				
				5						
					4					
	15	3								
	22		7			10				
				3						
					5					
30	16	4								
	20		5			13				
				8						
					10					
	17	3								
	24		4			10				
				6						
					9					
	18	4								
	24		5			12				
35				7						
					8					
	19	4								
	12		5			12				
				7						
					8					
	20	2								
	24		4			9				
				5						
40					5					

13.5 — Moist to extremely moist light brown (SAND) mostly fine to very fine size sand, trace silt, loose, weakly thinly bedded, (SM).

14.5 — Extremely moist dark grayish brown (SAND) with 5 to 10% gravel, trace silt, loose, stratified, (SM).

grades downward to 15.2

Extremely moist brown gravelly (SILTY-SAND) with 20 to 40% gravel and flat sided shale stone fragments, occasional cobble, trace to little silt, loose to compact, weakly stratified, (SM) tending toward (SM), (GM).

grades downward to 18.5

Wet brown gravelly (SILTY-SAND) with 25 to 50% gravel and flat sided shale stone fragments, occasional cobble, little to some silt, loose to compact, weakly stratified, (SM) tending toward (SM), (GM).

grades downward to 29.0

Extremely moist olive brown to gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).

WELL: CEMENT BENTONITE GROUT

Water level at 21.6 feet below ground surface after augers left in overnight at 50.0 feet.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists, (cns)

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2A79ch HOLE NO. SB03-19 SURF. ELEVATION 1460.1

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939255.3

Town of Sardinia, Erie County, NY Easting: 1170418.8

CLIENT GEI Consultants Inc. P.C. DATE STARTED 05/01/19 COMPLETED 05/02/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	21	2						Extremely moist olive brown to gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).	CEMENT BENTONITE GROUT	
	24		5			11				
				6						
					7					
	22	3								
	24		5			11				
				6						
					9					
	23	2								
45	24		5			13				
				8						
					9					
	24	5								
	24		8			18				
				10						
					13					
	25	3						grades downward to 49.0		
	24		6			20		Moist to extremely moist grayish brown (SILTY-CLAY) with 0 to 3% gravel, trace sand, very stiff to hard, weakly thinly laminated with very thin coarse silt lenses, (CL).		
				14						
50					19					
	26	6								
	20		10			25				
				15				grades downward to 51.3		
					16			Wet gray gravelly (SILTY-SAND) with 10 to 25% mostly subrounded to rounded gravel, trace to little silt, compact to dense, stratified, (SM).		← 52.0'
								52.0		
								Boring completed at 52.0 feet.		
55										
60										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists, (cns) SHEET 3 OF 3

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2A79ch HOLE NO. SB04-19 SURF. ELEVATION 1455.4

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939102.4

Town of Sardinia, Erie County, NY Easting: 1170398.9

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/30/19 COMPLETED 05/01/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	10						Extremely moist to moist brownish gray gravelly (SILTY-SAND) FILL with 30 to 50% gravel, occasional cobble, little silt, dense, massive soil structure, (SM). (Gravel Road Base)		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 40.0 feet. Bore hole was tremie grouted to ground surface upon completion.
	18		21			38				
				17						
					20					
	2	8						2.0		
	20		8			19		Moist brown and gray mixed gravelly (SILTY-SAND) FILL with 15 to 25% gravel, some silt, compact, massive soil structure, (SM).		Note: Sample #7 recovery repeat with 3-inch spoon.
				11						
					13					
	3	10								Cement Bentonite Grout Mix
5	18		10			20				7.8 gal water
				10						4 lb granular bentonite
					9			6.0		94 lb portland cement
	4	7						Extremely moist faintly mottled brownish gray gravelly (SILTY-SAND) with 20 to 40% mostly angular to subangular gravel, occasional cobble, very fine to very coarse size sand, little silt, trace clay, compact, stratified, (SM) tending toward (SM), (GM).		
	16		8			15				
				7						
					6					
	5	7								
	5		6			11				
				5						
10					4					
	6	4								
	14		5			11				
				6						
					33					
	7	18						13.0		
	16		12			22		Extremely moist brown, gray, and light brown mixed, (SAND-SILT-CLAY) with 5 to 15% gravel, little sand and clay, very stiff, weakly stratified, (ML-CL), (SC).		
				10						
					8					
	8	2								
15	14		3			6				
				3						
					3			grades downward to 14.0		
	9	2						Extremely moist grayish brown gravelly (SAND-SILT-CLAY) with 15 to 25% gravel, little sand and clay, firm, weakly stratified to massive soil structure, (SC).		
	10		2			4				
				2						
					5					
	10	1								
	8		3			8				
				5						
20					6			See next sheet		

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79ch HOLE NO. SB04-19 SURF. ELEVATION 1455.4

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939102.4

Town of Sardinia, Erie County, NY Easting: 1170398.9

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/30/19 COMPLETED 05/01/19

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	1						Extremely moist to wet brownish gray gravelly (SILTY-SAND) with 20 to 40% mostly rounded to subrounded gravel, occasional cobble, little silt, trace clay, loose to very loose, weakly stratified, (SM) tending toward (SM), (GM).		
	21		5			7				
				2						
					3					
	12	3								Note: Sample #12 recovery repeat with 3-inch spoon.
	18		3			8				
				5						
					8					
	13	2								
25	12		3			9				
				6						
					9					
	14	6								
	22		7			14				
				7						
					11					
	15	4								
	24		6			14				
				8						
30					11					
	16	3								
	24		4			13				
				9						
					11					
	17	4								
	24		12			24				
				12						
					14					
	18	8								
35	22		12			24				
				12						
					16					
	19	15								
	22		14			28				
				14						
					15					
	20	20								
	18		12			22				
				10						
40					11					

Wet grayish brown to brownish gray gravelly (SILTY-SAND) with 15 to 25% gravel, very fine to very coarse size sand, little silt, loose, stratified, (SM).

grades downward to 20.0

clear transition to 22.8

Extremely moist to moist gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).

grades downward to 26.0

Extremely moist gray (SAND-SILT-CLAY) with little sand and clay, stiff, weakly thinly laminated and weakly stratified, (ML-CL).

clear transition to 26.7

Extremely moist to moist gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).

clear transition to 33.0

Wet gray very gravelly (SAND) with 40 to 60% rounded to subrounded gravel, very fine to very coarse size sand, trace to little silt, compact, stratified, (SW), (GW).

grades downward to 36.0

Wet gray gravelly (SAND) with 15 to 30% mostly subrounded to rounded gravel, trace to little silt, compact, stratified, (SW).

Boring completed at 40.0 feet. 40.0

CEMENT BENTONITE GROUT

← 40.0'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists. (cns)

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2A79ch HOLE NO. SB05-19 SURF. ELEVATION 1461.9

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939363.3

Town of Sardinia, Erie County, NY Easting: 1170518.0

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/25/19 COMPLETED 04/25/19

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	1						Mostly #1 to #2 size rounded to subrounded gravel FILL with trace sand.		Note: Sample Number 2 and Sample Number 3 were taken with a 3-inch spoon.
	4		2			4				
				2						
					3			1.8		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to 32.0 feet. Bore hole was tremie grouted to ground surface upon completion.
	2	7						Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, little clay, trace sand and organic matter, very stiff, blocky soil structure, (ML-CL).		
	17		7			16				
				9						
					10					
	3	4						grades downward to 3.0		Cement Bentonite Grout Mix
5	17		10			19				7.8 gal water
				9				Moist to extremely moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, very stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		4 lb granular bentonite
					10					94 lb portland cement
	4	4								
	14		6			15				
				9						
					9			grades downward to 5.2		
	5	4								
	17		6			14		Extremely moist to wet brownish gray (SILTY-SAND) with 10 to 20% gravel, little to some silt, compact, stratified, (SM).		
				8						
					9					
10	6	4						grades downward to 5.6		
	18		7			21				
				14				Moist to extremely moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, very stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
					10					
	7	4								
	20		5			11				
				6						
					10					
	8	5								
15	15		5			11				
				6						
					8					
	9	6								
	22		6			14				
				8						
					10			grades downward to 18.5		
	10	5								
	17		16			40				
				24						
20					26			See next sheet		

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

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(716) 655-1717 • FAX (716) 655-2915

2A79ch HOLE NO. SB05-19 SURF. ELEVATION 1461.9

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939363.3

Town of Sardinia, Erie County, NY Easting: 1170518.0

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/25/19 COMPLETED 04/25/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	20						Moist brown very gravelly (SILTY-SAND) with 40 to 60% gravel, trace to little silt, dense, stratified, (SM), (GM).		
	17		30							
				100/3						
								grades downward to 22.0		
	12	8						Wet brown gravelly (SILTY-SAND) with 20 to 40% gravel, little silt, compact, stratified, (SM).		
	9		7			14				
				7						
					7					
	13	5								
25	14		6			11				
				5						
					6					
	14	5								
	9		6			14				
				8						
					7					
	15	4								
	14		5			10				
				5						
					6					
30	16	5								
	17		5			12				
				7						
					8					
								grades downward to 28.9		
								Extremely moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
								32.0		← 32.0'
								Boring completed at 32.0 feet.		
35										
40										

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns) SHEET 2 OF 2

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2A79ch HOLE NO. SB06-19 SURF. ELEVATION 1451.6

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939324.5

Town of Sardinia, Erie County, NY Easting: 1170833.5

CLIENT GEI Consultants Inc. P.C. DATE STARTED 05/03/19 COMPLETED 05/03/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	3						Extremely moist to wet dark brown (SAND-SILT-CLAY) topsoil fill with little sand, trace to little clay and organic matter, firm, massive soil structure, (ML-CL).		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to 16.0 feet. Bore hole was tremie grouted to ground surface upon completion.
	20		3			8		0.4		
				5				Extremely moist brown (SAND-SILT-CLAY) fill with 0 to 5% gravel, little sand and clay, trace organic matter, frim, massive soil structure, (ML-CL).		No water at completion.
					12			1.0		
	2	10						Extremely moist brownish gray to gray (CLAYEY-SILT) with 0 to 3% gravel, some clay, trace sand, very stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		Cement Bentonite Grout Mix
	24		11			22		grades downward to 4.0		7.8 gal water
				11				Extremely moist gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, weakly thinly laminated with very thin coarse silt lenses, (CL).		4 lb granular bentonite
					13			clear transition to 5.0		94 lb portland cement
	3	3						Extremely moist brown (SAND-SILT-CLAY) with 0 to 5% gravel and flat sided shale stone fragments, little mostly very fine to fine size sand, trace to little clay, very stiff, weakly thinly laminated to weakly thinly bedded, (ML-CL).		
5	24		5			14		clear transition to 5.6		
				9				Dry to moist grayish brown very gravelly (SAND) with 40 to 60% mostly subrounded to rounded gravel, trace silt, compact, stratified, (SW), (GW).		
					15			clear transition to 6.5		
	4	11						Extremely moist grayish brown (SAND-SILT-CLAY) with 5 to 15% gravel, little sand and clay, stiff, weakly thinly laminated to weakly thinly bedded, (ML-CL).		
	22		6			11				
				5						
					7					
	5	3								
	18		5			18				
				13						
					8					
10	6	6								
	20		10			20				
				10						
					10					
	7	3								
	24		5			10				
				5						
					32					
	8	4								
15	24		26			59				
				33						
					32					
20										

← 16.0'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists. (cns)

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2A79ch HOLE NO. SB06-19 SURF. ELEVATION 1451.6

PROJECT WMNY Chaffee Landfill – Southern Expansion LOCATION Northing: 939324.5

Town of Sardinia, Erie County, NY Easting: 1170833.5

CLIENT GEI Consultants Inc. P.C. DATE STARTED 05/03/19 COMPLETED 05/03/19

DEPTH IN FT | BLOWS ON SAMPLER | SN REC | 0/6 | 6/12 | 12/18 | 18/24 | N | LITH | DESCRIPTION AND CLASSIFICATION | WELL | WATER TABLE AND REMARKS

Extremely moist grayish brown (SAND-SILT-CLAY) with 5 to 15% gravel, little sand and clay, stiff, weakly thinly laminated to weakly thinly bedded, (ML-CL).

clear transition to 7.2

Extremely moist gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).

grades downward to 8.5

Moist to extremely moist faintly mottled brown (SAND-SILT-CLAY) with 5 to 15% gravel, little sand and clay, very stiff, weakly thinly laminated to weakly thinly bedded, (ML-CL).

grades downward to 9.5

Extremely moist brownish gray (SILTY-SAND) with 10 to 20% gravel, trace to little silt, compact, weakly thinly bedded to weakly stratified, (SM).

grades downward to 11.3

Moist to extremely moist brown (SAND-SILT-CLAY) with 5 to 15% gravel, little sand and clay, very stiff, weakly thinly laminated to weakly thinly bedded, (ML-CL).

grades downward to 11.7

Extremely moist gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, very stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).

clear transition to 13.5

Moist grayish brown (SAND) with 40 to 60% mostly subangular to subrounded gravel with flat sided shale stone fragments, occasional cobble, trace silt, very dense, stratified, (SW), (GW).

16.0

Boring completed at 16.0 feet.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists. (cns)

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2A79ch HOLE NO. SB07-19 SURF. ELEVATION 1462.5

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939111.6

Town of Sardinia, Erie County, NY Easting: 1170723.7

CLIENT GEI Consultants Inc. P.C. DATE STARTED 05/06/19 COMPLETED 05/07/19

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
								Boring on eastern flank of soil stockpile. Augered without sampling to 8.0 feet.		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing without sampling to 8.0 feet. Continued below with continuous split spoon sampling to end of boring at 50.0 feet. Bore hole was tremie grouted to ground surface upon completion.
								8.0		
	1	4						Extremely moist brown (SAND-SILT-CLAY) fill with 10 to 20% gravel, little to some sand, trace to little clay, stiff, massive soil structure, (ML-CL).		
	4		4			9				
				5						
10					5					
	2	2								
	24		4			15				
				11						
					12					
	3	22								
	20		10			18				
				8						
					13					
	4	21								
15	24		32			51				
				19						
					18					
	5	26								
	24		13			25				
				12						
					13					
	6	23								
	24		27			58				
				31						
20					38			See next sheet		

Extremely moist gray (SILTY-CLAY) firm, thinly laminated with very thin coarse silt lenses, (CL). — grades downward to 10.0

clear transition to 11.2

Extremely moist brown (SILTY-CLAY) very stiff, thinly laminated with very thin coarse silt lenses, (CL). — clear transition to 11.6

Dry to moist grayish brown gravelly (SILTY-SAND) with 20 to 40% mostly subrounded to rounded gravel with flat sided shale stone fragments, occasional cobble, trace to little silt, compact, stratified, (SW) tending toward (SM), (GM). — grades downward to 13.0

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists, (cns)

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2A79ch HOLE NO. SB07-19 SURF. ELEVATION 1462.5

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939111.6

Town of Sardinia, Erie County, NY Easting: 1170723.7

CLIENT GEI Consultants Inc. P.C. DATE STARTED 05/06/19 COMPLETED 05/07/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	7	38						Extremely moist brown (CLAYEY-SILT) with little to some clay, trace sand, very stiff, thinly laminated with very thin coarse silt lenses, (ML-CL) tending toward (CL).		
	22		38			98				
				60						
					90					
	8	30								
	22		16			31				
				15						
					9					
	9	16								
25	12		11			22		grades downward to 13.5		
				11				Dry to moist grayish brown very gravelly (SAND) with 40 to 60% mostly subangular to angular gravel and flat sided shale stone fragments, occasional cobble, trace silt, dense to very dense, stratified, (SW), (GW).		
					7					
	10	39								
	14		17			30				
				13						
					9					
	11	14								
	12		15			30				
				15						
					14					
30	12	23						grades downward to 16.8		
	20		24			59		Moist brown (CLAYEY-SILT) with 0 to 3% gravel, little to some clay, trace sand, very stiff, weakly thinly laminated with very thin coarse silt lenses, (ML-CL) tending toward (CL).		Water level at 26.0 feet below ground surface at completion.
				35						
					23					
	13	26								
	20		14			30				
				16						
					20					
	14	42								
35	18		37			64		clear transition to 17.2		
				27				Extremely moist gray to brownish gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, very stiff to hard, weakly thinly laminated with very thin coarse silt lenses, (CL).		
					21					
	15	13								
	24		7			18				
				11						
					14					
	16	6								
	22		9			23		clear transition to 19.2		
				14				Dry to moist grayish brown very gravelly (SAND) with 40 to 60% mostly subangular to angular gravel with flat sided shale stone fragments, occasional cobble, trace silt, dense to very dense, stratified, (SW), (GW).		
					18					
40								grades downward to 25.0		
								Wet grayish brown very gravelly (SILTY-SAND) with 40 to 60% mostly subrounded to subangular gravel, flat sided shale stone fragments, occasional cobble, little silt, compact to very dense, stratified, (SM), (GM).		
								clear transition to 36.2		
								See next sheet		

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists, (cns)

EARTH DIMENSIONS, INC.

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2A79ch HOLE NO. SB07-19 SURF. ELEVATION 1462.5

PROJECT WMNY Chaffee Landfill – Southern Expansion LOCATION Northing: 939111.6

Town of Sardinia, Erie County, NY Easting: 1170723.7

CLIENT GEI Consultants Inc. P.C. DATE STARTED 05/06/19 COMPLETED 05/07/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	17	11						Extremely moist gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, very stiff to hard, weakly thinly laminated with very thin coarse silt lenses, (CL).		Cement Bentonite Grout Mix
	24		7			18		clear transition to 39.0		7.8 gal water
				11				Extremely moist gray (SANDY-SILT) with mostly very fine to fine size sand, trace clay, dense, thinly bedded, (ML).		4 lb granular bentonite
					15			clear transition to 40.3		94 lb portland cement
	18	5						Extremely moist gray to brownish gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, very stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
	24		5			13		grades downward to 44.1		
				8				Wet brownish gray (SILTY-SAND) with mostly very fine to fine size sand, trace to little silt, compact, weakly thinly bedded, (SM).		
					10			grades downward to 45.0		
	19	3						Wet brownish gray gravelly (SILTY-SAND) with 20 to 40% mostly subrounded to rounded gravel, trace to little silt, compact, stratified, (SM) tending toward (SM), (GM).		
45	20		10			24		clear transition to 45.8		
				14				Extremely moist brownish gray (CLAYEY-SILT) with 0 to 3% gravel, some clay, trace sand, hard, weakly thinly laminated with very thin coarse silt lenses, (CL).		
					17			grades downward to 46.0		
	20	20						Extremely moist brownish gray (SILTY-SAND) with 3 to 7% gravel, mostly very fine to fine size sand, some silt, trace clay, dense, weakly thinly bedded, (SM).		
	20		23			54		grades downward to 47.0		
				31						
					36					
	21	10								
	20		15			32				
				17						
50					26					← 50.0'
55										
60								See next sheet		

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists, (cns)

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2A79ch HOLE NO. SB07-19 SURF. ELEVATION 1462.5

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939111.6

Town of Sardinia, Erie County, NY Easting: 1170723.7

CLIENT GEI Consultants Inc. P.C. DATE STARTED 05/06/19 COMPLETED 05/07/19

DEPTH IN FT	SN / REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
								Extremely moist to wet brownish gray gravelly (SILTY-SAND) with 20 to 40% mostly subrounded to rounded gravel and flat sided shale stone fragments, occasional cobble, little silt, dense, stratified, (SM), (GM).		
50.0								Boring completed at 50.0 feet.		

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists, (cns)

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2A79ch HOLE NO. SB08-19 SURF. ELEVATION 1448.7

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939159.4

Town of Sardinia, Erie County, NY Easting: 1171416.2

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/26/19 COMPLETED 04/26/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	2						Extremely moist grayish brown (SAND-SILT-CLAY) fill with 3 to 7% gravel, little sand and clay, trace organic matter, very loose, weakly granular soil structure, (ML-CL).		Note: No water in auger until taking sample number 9.
	21		3			9				
				6						Water level at 12.0 feet below ground surface at completion.
					9					
	2	7						1.0		
	24		7			13		Extremely moist to moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to 38.0 feet. Bore hole was tremie grouted to ground surface upon completion.
				6						
					7					
	3	4								
5	20		6			11				
				5						
					10			grades downward to 6.0		Cement Bentonite Grout Mix
	4	4								
	22		6			12		Moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses and an occasional thin (SILTY-SAND) lense with little silt (CL) lense and occasional thin (SM) interbed.		7.8 gal water
				6						4 lb granular bentonite
					8					94 lb portland cement
	5	2								
	24		5			11				
				6				grades downward to 9.0		
					7					
10	6	2						Moist to extremely moist gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, stiff, thinly laminated with very thin coarse silt lenses, (CL).		
	24		3			9				
				6						
					7					
	7	3								
	24		4			11				
				7						
					8					
	8	3								
15	24		4			11				
				7						
					8					
	9	3								
	20		7			17		clear transition to 17.2		
				10						
					15			Wet brownish gray gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, very fine to very coarse size sand, little silt, compact to loose, (SM) tending toward (SM), (GM).		
	10	3								
	10		8			14				
				6						
20					5					

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79ch HOLE NO. SB08-19 SURF. ELEVATION 1448.7

PROJECT WMNY Chaffee Landfill – Southern Expansion LOCATION Northing: 939159.4

Town of Sardinia, Erie County, NY Easting: 1171416.2

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/26/19 COMPLETED 04/26/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	5								
	8		4			7		Wet brownish gray gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, very fine to very coarse size sand, little silt, compact to loose, (SM) tending toward (SM), (GM).		
				3						
					4					
	12	2								
	5		4			8				
				4						
					5					
	13	1								
25	12		2			6				
				4						
					4			grades downward to 26.0		
	14	21						Wet brownish gray very gravelly (SAND) with 40 to 60% gravel, occasional cobble, very fine to very coarse size sand, trace silt, compact, dense below 30.0 feet, stratified, (SW), (GW).		
	10		10			24				
				14						
					20					
	15	7								
	15		10			25				
				15						
30					22					
	16	44								
	14		21			36		clear transition to 31.0		
				15				Wet gray (SAND) with 3 to 7% gravel, fine to coarse size sand, trace silt, dense, stratified, (SW).		
					15					
	17	11						33.0		
	16		21			42		Wet gray gravelly (SILTY-SAND) with 20 to 40% gravel, very fine to very coarse size sand, little silt, dense, stratified, (SM).		
				21						
					41					
	18	10								
35	11		18			40		35.0		
				22				Wet to extremely moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, hard, weakly thinly laminated, (CL).		
					37					
	19	16								
	24		15			33				
				18						
					22			38.0		
								Boring completed at 38.0 feet.		
40										

WELL: CEMENT BENTONITE GROUT ← 38.0'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

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2A79ch HOLE NO. SB09-19 SURF. ELEVATION 1449.3

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939279.3

Town of Sardinia, Erie County, NY Easting: 1171345.1

CLIENT GEI Consultants Inc, P.C. DATE STARTED 04/29/19 COMPLETED 04/30/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	1						Moist to extremely moist brown (SANDY-SILT) topsoil fill with 3 to 7% gravel, little sand and organic matter, trace clay, very loose, massive soil structure, (ML).		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 50.0 feet. Bore hole was tremie grouted to ground surface upon completion.
	23		3			6		0.5		
				3				Extremely moist brown (CLAYEY-SILT) with little clay, trace organic matter and sand, firm, blocky soil structure, (ML-CL).		
					5			grades downward to 1.5		
	2	6						Moist to extremely moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
	4		6			11				
				5						
					7					
	3	4								
5	17		5			11				
				6						
					7					
	4	3								
	20		5			12				
				7						
					10					
	5	3								
	23		5			12		clear transition to 9.6		
				7				Extremely moist light brown (SAND-SILT-CLAY) with little mostly very fine size sand and clay, stiff, weakly thinly laminated to thinly bedded, (ML-CL).		
					8			grades downward to 10.0		
10	6	4						Moist, extremely moist to wet below 13.0 feet, brown very gravelly (SITLY-SAND) with 30 to 50% gravel, occasional cobble, trace to little silt, dense, stratified, (SM).		
	17		17			37				
				20						
					21					
	7	15								
	16		20			44				
				24						
					22					
	8	7								
15	4		14			31				
				17						
					12					
	9	12								
	20		15			31				
				16						
					21					
	10	12								
	12		22			46				
				24						
20					31					

CEMENT BENTONITE GROUT

Water level at 14.0 feet below ground surface at completion.

Cement Bentonite Grout Mix

7.8 gal water
4 lb granular bentonite
94 lb portland cement

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79ch HOLE NO. SB09-19 SURF. ELEVATION 1449.3

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939279.3

Town of Sardinia, Erie County, NY Easting: 1171345.1

CLIENT GEI Consultants Inc, P.C. DATE STARTED 04/29/19 COMPLETED 04/30/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	21						Moist, extremely moist to wet below 13.0 feet, brown very gravelly (SITLY-SAND) with 30 to 50% gravel, occasional cobble, trace to little silt, dense, stratified, (SM).		
	15		21			38				
				17						
					13					
	12	13								
	10		20			41				
				21						
					17			grades downward to 24.0		
	13	14						Wet gray gravelly (SAND) with 20 to 40% gravel, trace silt, dense, stratified, (SW).		
25	17		18			38				
				20						
					17					
	14	8								
	16		14			36				
				22						
					16					
	15	7								
	17		12			19		grades downward to 29.0		
				7				Moist to extremely moist (SILTY-CLAY) with 3 to 7% gravel, trace sand, very stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
30					10					
	16	5								
	17		7			16				
				9						
					21					
	17	7								
	16		14			35		grades downward to 33.0		
				21				Wet gray gravelly (SILTY-SAND) with 20 to 40% gravel, trace silt, dense, stratified, (SW).		
					21					
	18	21								
35	13		14			30		grades downward to 35.4		
				16				Moist to extremely moist gray (CLAYEY-SILT) with some clay, trace sand, very stiff to hard, thinly laminated, (ML-CL) tending toward (CL).		
					13					
	19	10								
	14		14			30				
				16						
					20					
	20	4								
	23		7			18				
				11						
40					14					

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79ch HOLE NO. SB09-19 SURF. ELEVATION 1449.3

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939279.3

Town of Sardinia, Erie County, NY Easting: 1171345.1

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/29/19 COMPLETED 04/30/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	21	10								
	24		13			26				
				13						
					13					
	22	3								
	24		8			18				
				10						
					15					
	23	3								
45	23		6			16				
				10						
					10					
	24	3								
	19		7			17		Moist to extremely moist gray (CLAYEY-SILT) with some clay, trace sand, very stiff to hard, thinly laminated, (ML-CL) tending toward (CL).		
				10						
					17					
	25	11						47.0		
	9		13			29		Wet gray very gravelly sand with 30 to 50% gravel, trace silt, compact, stratified, (SM), (GM).		
				16						
					22			50.0		
50								Boring completed at 50.0 feet.		← 50.0'
55										
60										

WELL: CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79ch HOLE NO. SB10-19 SURF. ELEVATION 1449.8

PROJECT WMNY Chaffee Landfill – Southern Expansion LOCATION Northing: 939443.5

Town of Sardinia, Erie County, NY Easting: 1171408.7

CLIENT GEI Consultants Inc. P.C. DATE STARTED 05/06/19 COMPLETED 05/06/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	2						Extremely moist to wet dark brownish gray (SAND-SILT-CLAY) topsoil fill with 0 to 3% gravel, little to some clay, trace to little sand and organic matter, soft, massive soil structure, (ML-CL) tending toward (CL).		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 22.0 feet. Bore hole was tremie grouted to ground surface upon completion.
	22		4			10				
				6						
					6					
	2	5								
	24		5			12				
				7						
					10					
	3	7								
5	22		8			20				
				12						
					15					
	4	9								
	22		15			26				
				11						
					10					
	5	11								
	22		8			17				
				9						
					9					
10	6	8								
	24		6			14				
				8						
					11					
	7	16								
	24		16			36				
				20						
					21					
	8	4								
15	22		5			13				
				8						
					12					
	9	28								
	24		31			63				
				32						
					18					
20										

clear transition to 6.5

Moist to extremely moist dark gray gravelly (SANDY-SILT) with 15 to 30% mosity subrounded to rounded gravel, little to some sand, compact, weakly thinly bedded to weakly stratified, (ML).

clear transition to 7.0

Extremely moist brownish gray (CLAYEY-SILT) with 0 to 3% gravel, some clay, trace sand, stiff to very stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).

grades downward to 17.0

Wet grayish brown gravelly (SILTY-SAND) with 15 to 30% gravel, trace to little silt, very dense, stratified, (SM).

grades downward to 17.7

Extremely moist gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, stiff to very stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).

0.3

WELL: CEMENT BENTONITE GROUT

Water level at 14.0 feet below ground surface at completion.

No water prior to taking sample number 9 from 16.0 to 18.0 feet.

Note: Poor recovery for sample number 7 and sample number 9, a 3" split spoon sample was taken for better recovery for both samples.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists. (cns)

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2A79ch HOLE NO. SB10-19 SURF. ELEVATION 1449.8

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION Northing: 939443.5

Town of Sardinia, Erie County, NY Easting: 1171408.7

CLIENT GEI Consultants Inc, P.C. DATE STARTED 05/06/19 COMPLETED 05/06/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	10	16				68		Wet grayish brown to gray (SANDY-SILT) with little to some mostly very fine to fine size sand, trace clay, dense, weakly thinly bedded, (ML).	(1) Cement Bentonite Grout	
	22		35					grades downward to 20.0	← 22.0'	
				33				Wet gravelly (SILTY-SAND) with 20 to 40% mostly subrounded to subangular gravel, occasional cobble, little silt, very dense, stratified, (SM).		Cement Bentonite Grout Mix
					30			22.0		7.8 gal water
25								Boring completed at 22.0 feet.		4 lb granular bentonite
										94 lb portland cement
30										
35										
40										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists, (cns) SHEET 2 OF 2

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2A79ch HOLE NO. SB03ST-19 SURF. ELEVATION 1460.1

PROJECT WMNY Chaffee Landfill – Southern Expansion LOCATION at SB03-19
Town of Sardinia, Erie County, NY

CLIENT GEI Consultants Inc. P.C. DATE STARTED 05/02/19 COMPLETED 05/02/19

DEPTH IN FT	SN / REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
5	ST	#1						Advanced augers without split spoon sampling.	CEMENT BENTONITE GROUT	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing without sampling to 5.0 feet. Pushed a Shelby Tube sample to 7.0 feet. Bore hole was tremie grouted to ground surface upon completion.
								7.0		ST #1: Shelby Tube Sample #1 5.0 to 7.0 feet recovery = 21/24
								Boring completed at 7.0 feet.		← 7.0'
10										Cement Bentonite Grout Mix --- 7.8 gal water 4 lb granular bentonite 94 lb portland cement
										No water at completion.
15										
20										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Kyle Shearing, Geologists, (cns) SHEET 1 OF 1

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2A79ch HOLE NO. SB05ST-19 SURF. ELEVATION 1461.9

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION at SB05-19

Town of Sardinia, Erie County, NY

CLIENT GEI Consultants Inc, P.C. DATE STARTED 04/25/19 COMPLETED 04/25/19

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
							Advanced augers without split spoon sampling.	CEMENT BENTONITE GROUT	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing without sampling to 5.0 feet. Continued below with 3" spoon to 6.0 feet and pushed a Shelby Tube to refusal at 7.3 feet. Bore hole was tremie grouted to ground surface upon completion.
ST	#1						7.3		ST #1: Shelby Tube Sample #1 6.0 to 7.3 feet recovery = 14/16
							Boring completed at 7.3 feet.		← 7.3'
									Cement Bentonite Grout Mix ---------- 7.8 gal water 4 lb granular bentonite 94 lb portland cement

5

10

15

20

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns) SHEET 1 OF 1

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2A79ch HOLE NO. SB08ST-19 SURF. ELEVATION 1448.7

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION at SB08-19

Town of Sardinia, Erie County, NY

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/29/19 COMPLETED 04/29/19

DEPTH IN FT	SN / REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
								Advanced augers without split spoon sampling.	CEMENT BENTONITE GROUT	Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing without sampling to 4.0 feet. Pushed a Shelby Tube sample to 6.0 feet. Bore hole was tremie grouted to ground surface upon completion.
	ST	#1								ST #1: Shelby Tube Sample #1 4.0 to 6.0 feet recovery = 17/24
5								6.0		← 6.0'
								Boring completed at 6.0 feet.		Cement Bentonite Grout Mix --- 7.8 gal water 4 lb granular bentonite 94 lb portland cement
10										
15										
20										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists. (cns) SHEET 1 OF 1

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2A79ch HOLE NO. SB09-19/PZ09 SURF. ELEVATION 1449.3

PROJECT WMNY Chaffee Landfill - Southern Expansion LOCATION at SB09-19

Town of Sardinia, Erie County, NY

CLIENT GEI Consultants Inc. P.C. DATE STARTED 04/30/19 COMPLETED 04/30/19

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
								Advanced bore hole without split spoon sampling to 7.5 feet.	(1) (3) (2) (5) (4)	(1) Approximately 2.0 feet of 1-inch PVC stick up ST #1: Shelby Tube Sample #1 4.0 to 6.0 feet recovery = 23/24
	ST	#1								← 4.5'
5										← 5.5'
								7.5		← 7.5'
								Boring completed at 7.5 feet.		(2) Bentonite seal (chips) (3) 1-inch FJT Schedule 40 Riser (4) #00N morie sand pack (5) 0.010 slot 1-inch PVC screen Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing without sampling to 4.0 feet. Collected Shebly Tube sample from 4.0 to 6.0 feet. Continued below with hollow stem auger casing to 7.5 feet and installed a temporary 1-inch piezometer in completed bore hole.
10										
15										
20										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79cj HOLE NO. PZ04D-19 SURF. ELEVATION 1456.1

PROJECT Chaffee Landfill – Southern Expansion LOCATION Northing: 938969.66 PVC Riser: 1458.20

Town of Sardinia, Erie County, NY Easting: 1170977.32

CLIENT GEI Consultants, Inc. PC DATE STARTED 10/10/19 COMPLETED 10/11/19

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
1	1								
22		2			7		Extremely moist dark brown (SANDY-SILT) topsoil fill with 0 to 3% gravel, little sand and organic matter, trace clay, very loose, granular soil structure, (ML).		(1) 2-inch PVC stick up: 2.1 feet
			5				0.7		
				8			Moist faintly mottled brown (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, blocky soil structure, (CL).		
2	4						5.0		
19		6			13		Moist grayish brown to brownish gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, stiff, thinly laminated, (CL).		
			7						
				9					
							10.0		
3	11						Moist brownish gray very gravelly (SAND) with 40 to 60% gravel, occasional cobble, trace silt, very dense, (SW), (GW).		
15		26			64				
			38						
				54					
							grades downward to 15.0		
4	10						Moist brownish gray gravelly (SAND) with 20 to 40% gravel, occasional cobble, trace silt, dense, (SW) tending toward (SW), (GW).		
10		17			34				
			17						
				19					
							20.0		

2-inch Schedule 40 FJT PVC Riser

BENTONITE SEAL

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

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2A79cj HOLE NO. PZ04D-19 SURF. ELEVATION 1456.1

PROJECT Chaffee Landfill - Southern Expansion LOCATION Northing: 938969.66 PVC Riser: 1458.20

Town of Sardinia, Erie County, NY Easting: 1170977.32

CLIENT GEI Consultants, Inc. PC DATE STARTED 10/10/19 COMPLETED 10/11/19

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
5	9								
12		6			13		Wet grayish brown gravelly (SILTY-SAND) with 20 to 40% mostly angular to subangular gravel, occasional cobble, fine to coarse size sand, little silt, compact, (SM) tending toward (SM), (GM).		
			7						
				7					
6	7								
14		7			12				
			5						
				6					
							grades downward to 30.0		
7	5						Wet gray (SAND) mostly fine size, trace silt, compact, tends to liquefy when disturbed, thinly bedded, (SP).		
20		7			15				
			8						
				8					
8	5								
21		7			14				
			7						
				12					
9	27								
17		34			67				
			33						
				29					
							35.7		
10	11						Wet gray gravelly (SILTY-SAND) with 20 to 40% mostly angular to subangular gravel, little silt, very dense, (SM), (GM).		
22		13			28				
			15						
				17			36.5		
ST	#1						Extremely moist brownish gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, very stiff, weakly thinly laminated, (CL).		Sample Number 11: ST #1: Shelby Tube sample #1 38.0 to 40.0 feet recovery 24/24

2-inch Schedule 40 FJT PVC Riser

BENTONITE SEAL

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

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Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79cj HOLE NO. PZ04D-19 SURF. ELEVATION 1456.1

PROJECT Chaffee Landfill – Southern Expansion LOCATION Northing: 938969.66 PVC Riser: 1458.20

Town of Sardinia, Erie County, NY Easting: 1170977.32

CLIENT GEI Consultants, Inc. PC DATE STARTED 10/10/19 COMPLETED 10/11/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	12	6						Extremely moist brownish gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, very stiff, weakly thinly laminated, (CL).		Grain size and Atterburg Sample: 36.5 to 42 feet
	16		8			21				
				13						
					16					
	13	5								
	20		6			30		clear transition to 43.3		
				24				Wet brownish gray to gray gravelly (SILTY-SAND) with 30 to 50% gravel, occasional cobble, fine to coarse size sand, little silt, dense and very dense, stratified, (SM), (GM).		
					25					
	14	16								
45	22		21			45				← 45.0'
				24						
					27					
	15	14								
	10		24					grades downward to 47.0		
				21		45		Wet gray fine to coarse size sand with 5 to 10% gravel, trace silt, dense and compact, (SW).		
					20					← 48.0'
	16	11								
	18		16			31				Grain size sample: 43.3 to 60 feet
				15						
50					15					
	17	9								
	12		12			27				
				15						
					16					
	18	8								
	10		10			23				
				13						
					15					
	19	17								
55	15		14			29				
				15						
					16			grades downward to 56.0		
	20	7						Wet gray (SAND) fine to coarse size with 10 to 20% mostly rounded to subrounded gravel, dense, stratified, (SW).		
	18		12			31				
				19						
					25					← 58.0'
	21	8								
	22		13			37				
				24						
60					29			60.0		← 60.0'

WELL: 2-inch Schedule 40 FJT PVC Riser; BENTONITE SEAL; 0.020 Slot 2-inch PVC Screen; #0 size morie sand pack

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

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2A79cj HOLE NO. PZSB11-19 SURF. ELEVATION 1455.4

PROJECT Chaffee Landfill – Southern Expansion LOCATION Northing: 938995.97 PVC Riser: 1457.72

Town of Sardinia, Erie County, NY Easting: 1171525.62

CLIENT GEI Consultants, Inc. PC DATE STARTED 10/03/19 COMPLETED 10/07/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
	1	2						Extremely moist dark brown (SANDY-SILT) topsoil fill with little sand and organic matter, trace wood fiber, very loose, granluar soil structure, (ML).		(1) Approximately 2.0 feet over 1-inch PVC stickup
	18		3			9		0.7		
				6				Extremely moist to moist faintly mottled brown (SAND-SILT-CLAY) with 0 to 3% gravel, little sand and clay, stiff, weakly blocky soil structure, (ML-CL).		
					7			grades downward to 4.0		
	2	3						Moist brown (CLAYEY-SILT) with 0 to 3% gravel, some clay, trace sand, stiff, weakly thinly laminated, (CL).		
5	20		3			8				
				5						
					7					
								grades downward to 9.0		
	3	7						Moist brown (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, very stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
	22		9			22				
10				13						
					18					
								grades downward to 14.0		
	4	5						Extremely moist brownish gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
	24		8			17				
15				9						
					9					
								grades downward to 19.0		
	5	5						See next sheet		
20	17		4			8				

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79cj HOLE NO. PZSB11-19 SURF. ELEVATION 1455.4

PROJECT Chaffee Landfill – Southern Expansion LOCATION Northing: 938995.97 PVC Riser: 1457.72

Town of Sardinia, Erie County, NY Easting: 1171525.62

CLIENT GEI Consultants, Inc. PC DATE STARTED 10/03/19 COMPLETED 10/07/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
				4				Extremely moist, wet below 20.0 feet, grayish brown (SAND) mostly fine size, trace silt, loose, weakly thinly bedded, (SP).		
					2					
								grades downward to 24.0		
	6	6						Wet grayish brown gravelly (SILTY-SAND) with 20 to 40% gravel, fine to coarse size sand, little silt, loose, (SM).		
25	8		5			9				
				4						
					5					
	7	16						grades downward to 26.0		
	15		15			29		Wet grayish brown gravelly (SILTY-SAND) with 30 to 50% mostly angular to subangular gravel, occasional cobble, fine to coarse size sand, little silt, (SM), (GM).		
				14						
					22					
	8	13								
	10		12			26				
				14						
					17					
30	9	31								
	13		19			38				
				19						
					17					
	10	14								
	16		15			28				
				13						
					10					
	11	25								
35	8		21			36				
				15						
					15					
								36.0		
	12	10						Extremely moist brownish gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, very stiff, weakly thinly laminated, (CL).		
	14		8			19				
				11						
					22					
								38.5		
	13	21								
	15		19			33		Wet gray (SILTY-SAND) with 15 to 30% gravel, little silt, trace clay, dense, (SM).		
				14						
40					16					

1-inch Schedule 40 FJT PVC Riser

BENTONITE SEAL

Note: Sample # 11 used 3-inch spoon.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79cj HOLE NO. PZSB11-19 SURF. ELEVATION 1455.4

PROJECT Chaffee Landfill - Southern Expansion LOCATION Northing: 938995.97 PVC Riser: 1457.72

Town of Sardinia, Erie County, NY Easting: 1171525.62

CLIENT GEI Consultants, Inc. PC DATE STARTED 10/03/19 COMPLETED 10/07/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	14	14								
	14		7			14		Wet gray (SILTY-SAND) with 15 to 30% gravel, little silt, trace clay, dense, (SM).		
				7				39.5		
					8			Extremely moist grayish brown to gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, hard, massive soil structure, (CL).		
	15	15						clear transition to 40.3		
	13		14			30		Wet gray gravelly (SAND) with 20 to 40% mostly angular to subangular gravel, fine to coarse size sand, trace silt, compact, (SW).		
				16				41.2		
					19			Extremely moist brownish gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, very stiff, weakly thinly laminated, (CL).		
	16	25						43.0		
45	18		24			51		Wet brownish gray gravelly (SILTY-SAND) with 20 to 40% gravel, fine to coarse size sand, little silt, compact, (SM).		
				27				44.0		
					35			Wet gray (SAND) with 5 to 10% gravel, mostly fine size sand, very dense in place, loose when disturbed, (SW) tending toward (SP).		
	17	16						grades downward to 46.0		
	14		15			31		Wet gray (SAND) with 5 to 15% gravel, fine to coarse size sand, trace silt, dense and compact, stratified, (SW).		
				16				clear transition to 47.5		
					14			Extremely moist brownish gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, very stiff, weakly thinly laminated, (CL).		
	18	8								
	8		16			27				
				11						
					12					
50	19	8								
	21		10			22				
				12						
					13					
	20	7								
	24		12			31				
				19						
					18					
	21	11								
55	24		15			47				
				32						
					42					
	22	18								
	17		22			56				
				34						
					47					
	23	24								
	20		24			52				
				28						
60					36					

1-inch Schedule 40 FJT PVC Riser

BENTONITE SEAL

From 38 to 47.5 alternating sequence of till and silty sand and gravel layers

Note: Sample # 21 used 3-inch spoon.

47.5 to 61 feet: Uniform silty clay

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

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2A79cj HOLE NO. PZSB11-19 SURF. ELEVATION 1455.4

PROJECT Chaffee Landfill – Southern Expansion LOCATION Northing: 938995.97 PVC Riser: 1457.72

Town of Sardinia, Erie County, NY Easting: 1171525.62

CLIENT GEI Consultants, Inc. PC DATE STARTED 10/03/19 COMPLETED 10/07/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	24	7								
	18		16			38		Extremely moist brownish gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, very stiff, weakly thinly laminated, (CL).		
				22						
					18					
	25	19						61.0		← 61.0'
	11		24			44		Wet gray gravelly (SAND) with 20 to 40% mostly rounded to subrounded gravel, fine to coarse size sand, trace silt, dense, stratified, (SW).		
				20						
					18					
	26	11						clear transition to 64.5		← 62.0'
65	15		10			26		Wet grayish brown (SAND) mostly fine size, trace silt, compact, weakly thinly bedded, (SP).		(2) 1-inch Schedule 40 FJT PVC Riser
				16						
					24					(3) Bentonite Seal
	27	8						grades downward to 66.5		
	11		12			26		Wet gray (SAND) fine to coarse size with 5 to 15% gravel, trace silt, compact, stratified, (SW).		
				14						
					22					
	28	7						70.0		← 70.0'
	8		9			25		Boring completed at 70.0 feet.		
				16						
70					25					
75										
80										

(2) 0.010 Slot 1-inch PVC Screen

(3) #00N size morie sand pack

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

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2A79cj HOLE NO. SB12-19 SURF. ELEVATION 1454.8

PROJECT Chaffee Landfill – Southern Expansion LOCATION Northing: 938985.35

Town of Sardinia, Erie County, NY Easting: 1170846.52

CLIENT GEI Consultants, Inc. PC DATE STARTED 10/08/19 COMPLETED 10/09/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	2						Wet to extremely moist dark brown (SANDY-SILT) topsoil with 0 to 3% gravel, little sand, trace to little organic matter, very loose, granular soil structure, (ML).		Cement Bentonite Grout Mix
	13		4			11		0.3		7.8 gal Water
				7				Extremely moist faintly mottled brown gravelly (SILTY-SAND) with 20 to 40% mostly angular to subangular gravel, occasional cobble, fine to coarse size sand, little silt, (SM) tending toward (SM), (GM).		94 lb Portland Type I/II
					7			clear transition to 2.0		4 lb Bentonite
	2	7						Moist grayish brown to brownish gray (CLAYEY-SILT) with 0 to 3% gravel, some clay, trace sand, stiff, very stiff below 6.0 feet, weakly thinly laminated, (CL).		
	20		8			13		clear transition to 8.7		
				7				Moist brownish gray gravelly (SAND) with 15 to 25% gravel, fine to coarse size sand, trace silt, compact, (SW).		
					9			9.5		
	3	5						Moist brown (CLAYEY-SILT) with some clay, trace sand, very stiff, weakly thinly laminated, (CL).		
5	17		8			17		10.6		
				9				Moist brownish gray very gravelly (SAND) with 40 to 60% mostly angular to subangular gravel, occaisonal cobble, fine to coarse size sand, trace silt, dense and very dense, (SW), (GW).		
					13					
	4	11								
	12		10			23				
				13						
					14					
	5	15								
	18		15			29				
				14						
					9					
10	6	8								
	16		26			53				
				27						
					25					
	7	29								
	18		25			52				
				27						
					23					
	8	100/2								
15	2									
	9	24								
	15		16			37				
				21						
					23			grades downward to 18.0		
	10	20								
	17		17			35				
				18						
20					21			See next sheet		

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

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Soil and Hydrogeologic Investigations • Wetland Delineations
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(716) 655-1717 • FAX (716) 655-2915

2A79cj HOLE NO. SB12-19 SURF. ELEVATION 1454.8

PROJECT Chaffee Landfill - Southern Expansion LOCATION Northing: 938985.35
Town of Sardinia, Erie County, NY Easting: 1170846.52

CLIENT GEI Consultants, Inc. PC DATE STARTED 10/08/19 COMPLETED 10/09/19

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	17						Extremely moist, wet below 19.5 feet, gravelly (SILTY-SAND) with 20 to 40% mostly angular to subangular gravel, little silt, dense to compact, (SM) tending toward (SM), (GM).	CEMENT BENTONITE GROUT	Sample Number 16: ST #1: Shelby Tube sample #1 30.0 to 32.0 feet recovery = 0/24 crushed tube
	10		11			24				
				13						
					22					
	12	13								
	14		18			40				
				22						
					24					
	13	11						clear transition to 25.0		
25	18		12			25		Wet grayish brown (SAND) mostly fine size, trace silt, compact, weakly thinly bedded, (SP).		
				13				clear transition to 25.8		
					18					
	14	12								
	20		11			19		Wet brownish gray gravelly (SILTY-SAND) with 15 to 25% gravel, fine to coarse size sand, trace to little silt, compact, (SM).		
				8				clear transition to 27.0		
					9					
	15	6								
	24		8			16				
				8						
					11					
30	ST	#1						Wet to extremely moist brownish gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, very stiff, weakly thinly laminated, (CL).		Grain size and Atterburg Sample: 28 to 37.5 feet
	17	9								
	22		11			24				
				13						
					17					
	ST	#2								Sample Number 18: ST #2: Shelby Tube sample #2 34.0 to 36.0 feet recovery = 0/24 crushed tube
35										
	19	12								
	21		15			32				
				17				37.2		
					22			Wet gray (SAND) fine to coarse size with 10 to 20% gravel, trace silt, (SW).		
	20	53						38.0		
	16		23			47				
				24				See next sheet		
40					25					

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

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2A79cj HOLE NO. SB12-19 SURF. ELEVATION 1454.8

PROJECT Chaffee Landfill - Southern Expansion LOCATION Northing: 938985.35

Town of Sardinia, Erie County, NY Easting: 1170846.52

CLIENT GEI Consultants, Inc. PC DATE STARTED 10/08/19 COMPLETED 10/09/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	21	9								
	20		12			19		Wet gray (SILTY-SAND) with mostly fine size sand, little silt, dense, weakly thinly bedded, (SM).		
				7						
					26			grades downward to 41.0		
	22	21								
	22		18					Wet gray (SILTY-SAND) with 10 to 20% gravel, fine to coarse size sand, trace to little silt, compact, (SM).		
				22		40				
					19					
	23	18								
45	15		16							
				19		35				
					15			grades downward to 46.0		
	24	12								
	18		9					Wet gray (SAND) mostly fine size, trace silt, compact, weakly thinly bedded, (SP).		
				12		21				
					11			grades downward to 48.0		
	25	9								
	14		12					Wet gray (SAND) with 3 to 7% gravel, fine to coarse size sand, trace silt, compact, stratified, (SW).		
				14		26				
					12					
50	26	7								
	13		7					51.3		
				9		16				
					12			Wet light grayish brown (SILT) with litite mosity fine size sand, compact, thinly bedded, (ML).		
	27	16						51.6		
	18		20					Wet gray (SAND) with 5 to 15% gravel, fine to coarse size sand, trace silt, compact, granular soil structure and stratified, (SW).		
				20		40				
					18					
	28	15								
55	19		12							
				18		30				
					48					
	29	18								
	12		17							
				21		38				
					25			clear transition to 58.2		
	30	19								
	22		21							
				26		47				
60					27			See next sheet		

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

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2A79cj HOLE NO. SB12-19 SURF. ELEVATION 1454.8

PROJECT Chaffee Landfill – Southern Expansion LOCATION Northing: 938985.35

Town of Sardinia, Erie County, NY Easting: 1170846.52

CLIENT GEI Consultants, Inc. PC DATE STARTED 10/08/19 COMPLETED 10/09/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	31	13	17	24	28	41		Wet to extremely moist brownish gray (CLAYEY-SILT) with little to some clay, trace sand, hard, weakly thinly laminated, (ML-CL) tending toward (CL).	(1) Cement Bentonite Grout	← 62.0'
								grades downward to 60.0		
65								Extremely moist brownish gray (CLAYEY-SILT) with some clay, weakly thinly laminated with very thin coarse silt lenses, (CL). 62.0		
								Boring completed at 62.0 feet.		
70										
75										
80										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

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(716) 655-1717 • FAX (716) 655-2915

2A79cj HOLE NO. SBPZ01D-19 SURF. ELEVATION 1453.2

PROJECT Chaffee Landfill – Southern Expansion LOCATION Northing: 938648.41

Town of Sardinia, Erie County, NY Easting: 1170445.15

CLIENT GEI Consultants, Inc. PC DATE STARTED 09/30/19 COMPLETED 10/02/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	2						Extremely moist dark brown (SANDY-SILT) topsoil fill with little sand, trace to little organic matter, very loose, granular soil structure, (ML).		Cement Bentonite Grout Mix
	12		4			8		0.3		7.8 gal Water
				4				Moist brown (SILTY-SAND) fill with 3 to 7% gravel, little silt, loose, massive soil structure, (SM). (Soil Berm)		94 lb Portland Type I/II
					5			5.0		5 lb Bentonite
5	2	5						Moist grayish brown (SAND) fine to coarse size, trace silt, compact, (SW).		
	15		5			11		5.5		
				6				Moist to extremely moist grayish brown to brownish gray gravelly (SILTY-SAND) with 15 to 25% gravel, occasional cobble, fine to coarse size sand, little silt, compact, (SM).		
					4					
10	3	10								
	18		10			21				
				11						
					13					
								grades downward to 15.0		
15	4	6						Extremely moist, wet below 17.3 feet, gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, little to some silt, compact, dense below 20.0 feet, (SM) tending toward (SM), (GM).		
	10		8			14				
				6						
					7					
20										

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
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2A79cj HOLE NO. SBPZ01D-19 SURF. ELEVATION 1453.2

PROJECT Chaffee Landfill – Southern Expansion LOCATION Northing: 938648.41
Town of Sardinia, Erie County, NY Easting: 1170445.15

CLIENT GEI Consultants, Inc. PC DATE STARTED 09/30/19 COMPLETED 10/02/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	5	65						Extremely moist, wet below 17.3 feet, gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, little to some silt, compact, dense below 20.0 feet, (SM) tending toward (SM), (GM).		Note: High blow counts sample #5 due to cobble.
	15		21			48				
				27						
					31					
	6	7								
	10		9			23				
				14						
					15					
								24.5		
	7	3								
25	18		5			11		Moist to extremely moist (SILTY-CLAY) with 0 to 3% gravel, trace sand, stiff, thinly laminated with very thin coarse silt lenses, (CL).		
				6						
					14					
	8	21						25.5		
	14		12			25		Wet brownish gray gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, fine to coarse size sand, little silt, trace clay, compact, (SM) tending toward (SM), (GM).		
				13						
					10					
	9	7								
	6		12			22				
				10						
30					15			clear transition to 30.5		
	10	17								
	18		16			29		Wet gray gravelly (SAND) with 20 to 30% gravel, fine to coarse size sand, trace to little silt, compact, (SM).		
				13						
					17			grades downward to 32.0		
	11	53								
	10		16			31		Wet gray gravelly (SAND) with 15 to 25% gravel, trace silt, dense, stratified, (SP).		
				15						
					20					
	12	31								
35	18		26			49				Grain size and Atterburg Sample: 36 to 38 feet
				23						
					14			35.7		
	13	8						Extremely moist grayish brown (CLAYEY-SILT) with 5 to 10% gravel, some clay, trace sand, very stiff, weakly thinly laminated, (CL).		
	22		11			27				
				16						
					19					ST #1: Shelby Tube sample #1 38.0 to 40.0 feet recovery = 8/24
	ST	#1						38.6		
								See next sheet		
40										

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

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2A79cj HOLE NO. SBPZ01D-19 SURF. ELEVATION 1453.2

PROJECT Chaffee Landfill – Southern Expansion
Town of Sardinia, Erie County, NY

LOCATION Northing: 938648.41
Easting: 1170445.15

CLIENT GEI Consultants, Inc. PC

DATE STARTED 09/30/19 COMPLETED 10/02/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	15	4						Wet brownish gray gravelly (SILTY-SAND) with 20 to 40% mostly subangular gravel, occasional cobble, fine to coarse size sand, little silt, compact, (SM) tending toward (SM), (GM).		
	10		10			24				
				14						
					15					
	16	8								
	13		12			28				
				16						
					25					
	17	7								
45	20		11			28				
				17						
					22					
	18	7								
	11		10			24				
				14						
					21					
	19	8								
	24		11			27				
				16						
50					22					
	20	5								
	24		6			17				
				11						
					13					
	21	7								
	19		9			22				
				13						
					14					
	22	7								
55	17		10			26				
				16						
					19					
	23	8								
	22		18			39				
				21						
					26					
	24	6								
	17		8			21				
				13						
60					18					

clear transition to 41.8

Extremely moist brownish gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, very stiff, thinly laminated, (CL).

grades downward to 48.0

Extremely moist gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, very stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).

clear transition to 51.5

Wet gray (SAND) fine to coarse size with 5 to 10% gravel, compact, stratified, (SW).

clear transition to 52.5

Extremely moist brownish gray (CLAYEY-SILT) with 0 to 3% gravel, some clay, trace sand, very stiff to hard, thinly laminated with very thin coarse silt lenses, (CL).

CEMENT BENTONITE GROUT

Note: No recovery sample # 23 with 2-inch spoon. Used 3-inch spoon for 22 inches of recovery.

Grain size and Atterburg Sample: 56 to 58 feet.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

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2A79c)

HOLE NO. SBPZ01D-19

SURF. ELEVATION 1453.2

PROJECT Chaffee Landfill – Southern Expansion

Town of Sardinia, Erie County, NY

LOCATION Northing: 938648.41

Easting: 1170445.15

CLIENT GEI Consultants, Inc. PC

DATE STARTED 09/30/19 COMPLETED 10/02/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	25	8						Extremely moist brownish gray (CLAYEY-SILT) with 0 to 3% gravel, some clay, trace sand, very stiff to hard, thinly laminated with very thin coarse silt lenses, (CL).		
	23		8			20				
				12						
					16					
	26	8								
	20		10			22		grades downward to 62.0		
				12				Wet gray (SAND-SILT-CLAY) with little fine size sand and clay, very stiff, thinly bedded and thinly laminated, (ML-CL).		
					12					
	27	10								Note: Sample # 27 used 3-inch spoon.
65	24		19			41		grades downward to 65.0		
				22				Wet to extremely moist brownish gray (CLAYEY-SILT) with little to some clay, trace sand, hard, thinly laminated with very thin coarse silt lenses, (ML-CL) tending toward (CL).		
					29					
	28	15								
	24		22			51				
				29				clear transition to 67.5		
					24					
	29	13						Extremely moist brownish gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, hard, thinly laminated with very thin coarse silt lenses, (CL).		
	18		17			41				
				24						
70					28					
	30	11								
	24		19			42				
				23						
					25					
	31	12								
	18		16			33				
				17						
					17					Note: Sample # 32 used 3-inch spoon.
	32	6								
75	24		18			48				
				30						
					46					
	33	13						grades downward to 77.0		
	22		18			39				
				21				Extremely moist (SAND-SILT-CLAY) with little clay, trace to little sand, hard, thinly laminated, (ML-CL).		
					21					
	34	4						grades downward to 78.0		
	18		10			26				
				16						
80					24			See next sheet		

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79cj HOLE NO. SBPZ01D-19 SURF. ELEVATION 1453.2

PROJECT Chaffee Landfill – Southern Expansion LOCATION Northing: 938648.41

Town of Sardinia, Erie County, NY Easting: 1170445.15

CLIENT GEI Consultants, Inc. PC DATE STARTED 09/30/19 COMPLETED 10/02/19

DEPTH IN FT	SN / REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL / WATER TABLE AND REMARKS
								Moist brownish gray (CLAYEY-SILT) with some clay, hard, weakly thinly laminated with very thin coarse silt lenses, (CL).	
80								80.0 Boring completed at 80.0 feet.	
85									
90									
95									
100									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

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2A79cj

HOLE NO. PZBA02D-19

SURF. ELEVATION 1453.3

PROJECT Chaffee Landfill – Southern Expansion

Town of Sardinia, Erie County, NY

LOCATION Northing: 938973.68 PVC Riser: 1455.09

Easting: 1171294.18

CLIENT GEI Consultants, Inc. PC

DATE STARTED 10/15/19 COMPLETED 10/17/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
	1	1								(1) 2-inch PVC stickup: 1.7 feet
	22		4			9		Extremely moist dark brown (SANDY-SILT) topsoil with 0 to 3% gravel, little sand and organic matter, trace clay, very loose, granular soil structure, (ML).		
				5				0.4		
					9					
	2	2						Moist faintly mottled light grayish brown (SANDY-SILT) with little mostly fine size sand, trace clay, loose, blocky soil structure, (ML).		
	24		2			8		1.0		
				6				Moist brown (CLAYEY-SILT) with 0 to 3% gravel, some clay, trace sand, stiff, blocky soil structure, (CL).		
5					7			grades downward to 3.0		
	3	5						Moist brown (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
	22		7			16		grades downward to 8.0		
				9				Moist grayish brown to brownish gray (SILTY-CLAY) very stiff to stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
10					10					
	4	4								
	22		6			13				
				7						
15					10					
	5	7								
	19		11			26		19.0		
				15				See next sheet		
20					16					

2-inch Schedule 40 FJT PVC Riser

BENTONITE SEAL

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79cj HOLE NO. PZBA02D-19 SURF. ELEVATION 1453.3

PROJECT Chaffee Landfill – Southern Expansion LOCATION Northing: 938973.68 PVC Riser: 1455.09

Town of Sardinia, Erie County, NY Easting: 1171294.18

CLIENT GEI Consultants, Inc. PC DATE STARTED 10/15/19 COMPLETED 10/17/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
								Extremely moist to wet brown (SAND) mostly fine size, trace silt, compact, thinly bedded with an occasional thin (SILTY-CLAY) lense, (SP) with an occasional thin (CL) interbed.		
								21.5		
	6	12						Wet brown gravelly (SILTY-SAND) with 20 to 50% gravel, occasional cobble, little silt, dense to very dense, (SM), (GM).		
	10		20			45				
				25						
25					45					
	7	8								
	18		34			67				
				33				29.8		
30					32			Boulder nestled in clayey soil.		
	8									
	9	100/4								
	0									
	10	99								
35	2		99			198				
				99						
					99					
	11	30								
	12		23			40				
				17						
					16			38.0		
	12	3						Extremely moist brownish gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, stiff, weakly thinly laminated, (CL).		
	24		6			15				
				9						
40					11					

2-inch Schedule 40 FJT PVC Riser

BENTONITE SEAL

Note: No sample number 8 taken due to boulder.

Note: Sample # 10 used 3-inch spoon.

Note: Drilled into boulder and carried it down hole with auger from 29.8 to 38.0 feet.

Grain size and Atterburg Sample: 34 to 43.5 feet.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

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(716) 655-1717 • FAX (716) 655-2915

2A79c]

HOLE NO. PZBA02D-19

SURF. ELEVATION 1453.3

PROJECT Chaffee Landfill – Southern Expansion

Town of Sardinia, Erie County, NY

LOCATION Northing: 938973.68 PVC Riser: 1455.09

Easting: 1171294.18

CLIENT GEI Consultants, Inc. PC

DATE STARTED 10/15/19 COMPLETED 10/17/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	ST	#1						Extremely moist brownish gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, stiff, weakly thinly laminated, (CL).		Sample Number 13: ST #1: Shelby Tube sample #1 40.0 to 42.0 feet recovery 24/24
	14	9								
	22		7							
				19		26				
					29					
	15	13								
45	22		17							
				44		61				
					38					
	16	19								
	6		22							
				14		36				
					15			43.3		
	17	7						Wet gray very gravelly (SILTY-SAND) with 40 to 60% mostly rounded to subrounded gravel, occasional cobble, trace to little silt, dense to very dense, weakly stratified, (SM), (GM). Glaciofluvial type deposition		
	18		9							
				13		22				
50					16					
	18	6								
	17		9							
				23		32				
					21			48.0		
	19	12						Extremely moist brownish gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, very stiff, weakly thinly laminated, (CL).		
	16		27							
				24		51				
					22			51.0		
	20	16						Wet gray gravelly (SILTY-SAND) with 20 to 40% mostly rounded to subrounded gravel, occasional cobble, trace to little silt, dense and very dense, weakly stratified, (SM) tending toward (SM), (GM).		
55	14		22			48				
				26						
					41					
	21	22								
	10		54			74				
				20						
					25					
	22	60								
	0		48			98				
				50				59.5		
60					39			See next sheet		

WELL: 2-inch Schedule 40 FJT PVC Riser; BENTONITE SEAL; 0.020 Slot 2-inch PVC Screen; #0 size morie sand pack

← 49.0'

← 50.0'

Grain size sample: 52 to 58 feet

Note: Used 2-inch and 3-inch spoon from 58.0 to 60.0 feet.

Note: Poor recovery and high blow counts from 58.0 to 61.0 feet due to cobble.

← 60.0'

Grain size sample: 44 to 48 feet

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

EARTH DIMENSIONS, INC.

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2A79c)

HOLE NO. PZBA02D-19

SURF. ELEVATION 1453.3

PROJECT Chaffee Landfill – Southern Expansion

Town of Sardinia, Erie County, NY

LOCATION Northing: 938973.68 PVC Riser: 1455.09

Easting: 1171294.18

CLIENT GEI Consultants, Inc. PC

DATE STARTED 10/15/19 COMPLETED 10/17/19

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	23	55						Extremely moist brownish gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, stiff, weakly thinly laminated, (CL).	BENTONITE SEAL	Note: Change in soil composition at 59.5 feet determined by clayey soil on outside of spoon and change felt during augering.
	0		68							
	24	18								Note: Sample # 23 used 3-inch spoon.
	18		11			27				
				16						
					17					
								64.0		← 64.0'
65								Boring completed at 64.0 feet.		
70										
75										
80										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

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(716) 655-1717 • FAX (716) 655-2915

2A79cj HOLE NO. PZMWSE3D-19 SURF. ELEVATION 1457.2

PROJECT Chaffee Landfill – Southern Expansion LOCATION Northing: 938989.99 PVC Riser: 1459.15

Town of Sardinia, Erie County, NY Easting: 1170673.87

CLIENT GEI Consultants, Inc. PC DATE STARTED 10/14/19 COMPLETED 10/15/19

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
	1	4								
	21		7			15		Extremely moist grayish brown gravelly (SAND) fill with 20 to 40% gravel, occasional cobble, little silt, loose, massive soil structure, (SM).		(1) 2.0 feet of 2-inch PVC stickup
				8				0.4		
					11			Moist grayish brown to brownish gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, weakly thinly laminated, (CL).		
	2	3								
	19		5			13				
				8						
5					10			grades downward to 3.0		
								Moist brown (SILTY-SAND) with 5 to 15% gravel, fine to coarse size sand, little silt, compact, (SM). (Ablation till)		
								grades downward to 8.0		
	3	4								
	14		5			11		Moist to extremely moist faintly mottled grayish brown gravelly (SILTY-SAND) with 15 to 25% mostly angular to subangular gravel, fine to coarse size sand, little silt, compact, (SM). (Ablation till)		
				6						
10					5			clear transition to 11.5		
								Extremely moist grayish brown gravelly (SILTY-SAND) with 20 to 40% mostly angular to subangular gravel, occasional cobble, fine to coarse size sand, little silt, (SM) tending toward (SM), (GM).		
	4	8								
	10		7			12				
				5						
15					5					
	5	4								
	15		6			13				
				7						
20					6					

2-inch Schedule 40 FJT PVC Riser

BENTONITE SEAL

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • FAX (716) 655-2915

2A79cj HOLE NO. PZMWSE3D-19 SURF. ELEVATION 1457.2

PROJECT Chaffee Landfill – Southern Expansion
Town of Sardinia, Erie County, NY

LOCATION Northing: 938989.99 PVC Riser: 1459.15
Easting: 1170673.87

CLIENT GEI Consultants, Inc. PC

DATE STARTED 10/14/19 COMPLETED 10/15/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
								Extremely moist grayish brown gravelly (SILTY-SAND) with 20 to 40% mostly angular to subangular gravel, occasional cobble, fine to coarse size sand, little silt, (SM) tending toward (SM), (GM).		
	6	5						grades downward to 23.0		
	13		8			17		Wet grayish brown gravelly (SILTY-SAND) with 30 to 50% gravel, occasional cobble, fine to coarse size sand, little silt, compact, (SM), (GM).		
				9						
25					12					
	7	8								
	6		11			24				
				13						
30					15					
	8	5								
	17		9			20				
				11						
					14			clear transition to 32.3		
	9	8						Extremely moist brownish gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, hard, weakly thinly laminated, (CL).		
	24		25			62				
				37						
					41			33.5		
	10	22						Wet gray gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, fine to coarse size sand, little silt, dense and very dense, (SM).		
35	18		24			43				
				19						
					21					
	11	9								
	12		19			42				
				23						
					18			grades downward to 38.0		
	12	7						Wet gray (SILTY-SAND) with 5 to 15% gravel, little silt, compact, (SM).		
	15		10			23				
				13						
40					16					

WELL: 2-inch Schedule 40 FJT PVC Riser; BENTONITE SEAL

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

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2A79cj HOLE NO. PZMWSE3D-19 SURF. ELEVATION 1457.2

PROJECT Chaffee Landfill – Southern Expansion
Town of Sardinia, Erie County, NY

LOCATION Northing: 938989.99 PVC Riser: 1459.15
Easting: 1170673.87

CLIENT GEI Consultants, Inc. PC

DATE STARTED 10/14/19 COMPLETED 10/15/19

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	13	15								
	10		22			38		Wet gray (SILTY-SAND) with 5 to 15% gravel, little silt, compact, (SM).		Grain size and Atterburg Sample: 41.7 to 46 feet
				16				clear transition to 41.7		
					12			Extremely moist brownish gray (SILTY-CLAY) with 0 to 3% gravel, trace sand, very stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
	14	5								
	22		7			19				
				12						
					16					
	ST	#1								Sample Number 15: ST #1: Shelby Tube sample #1 44.0 to 46.0 feet recovery 12/24
45										
								46.0		
	16	11						Wet gray gravelly (SILTY-SAND) with 20 to 40% gravel, fine to coarse size sand, little silt, dense, (SM).		
	18		26			50				← 47.0'
				24						
					15			47.5		
	17	10						Extremely moist gray (SILTY-CLAY) with 5 to 15% gravel, trace sand, hard, weakly thinly laminated, (CL).		
	16		17			51				← 49.0'
				34						Grain size Sample: 49 to 53 feet
					35			49.0		
50	18	10						Wet gray gravelly (SILTY-SAND) with 15 to 25% gravel, fine to coarse size sand, trace to little silt, compact, stratified, (SM).		
	11		13			29				
				16						
					14					
	19	8								
	14		12			27				
				15						
					21			53.0		
	20	97						Extremely moist brownish gray (CLAYEY-SILT) with 5 to 10% gravel, some clay, trace sand, very stiff, weakly thinly laminated, (CL).		← 54.0'
55	18		18			43				
				25				clear transition to 55.5		Grain size and Atterburg Sample: 58 to 60 feet
					31			Extremely moist to wet gravelly (SAND-SILT-CLAY) with 15 to 25% gravel, little sand and clay, hard, massive soil structure, (ML-CL).		
	21	12								
	17		17			37				
				20				grades downward to 56.0		
					26					
	22	19						Extremely moist to wet brownish gray (SAND-SILT-CLAY) with 3 to 7% gravel, little sand and clay, hard, very weakly thinly bedded, (ML-CL).		
	16		25			57				
				32						
60					34					

WELL: 2-inch Schedule 40 FJT PVC Riser; BENTONITE SEAL; 0.020 Slot 2-inch PVC Screen; #0 size morie sand pack

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

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Soil and Hydrogeologic Investigations • Wetland Delineations
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2A79c)

HOLE NO. PZMWSE3D-19

SURF. ELEVATION 1457.2

PROJECT Chaffee Landfill – Southern Expansion
Town of Sardinia, Erie County, NY

LOCATION Northing: 938989.99 PVC Riser: 1459.15
Easting: 1170673.87

CLIENT GEI Consultants, Inc. PC

DATE STARTED 10/14/19 COMPLETED 10/15/19

DEPTH IN FT	SN / REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL / WATER TABLE AND REMARKS
								Extremely moist to wet brownish gray (SAND-SILT-CLAY) with 3 to 7% gravel, little sand and clay, hard, very weakly thinly bedded, (ML-CL). grades downward to 58.0	
								Extremely moist brownish gray (CLAYEY-SILT) with 0 to 3% gravel, some clay, trace sand, hard, weakly thinly laminated, (CL). 60.0	
65								Boring completed at 60.0 feet.	
70									
75									
80									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron, (cns)

Test Pit Log

TP01-19

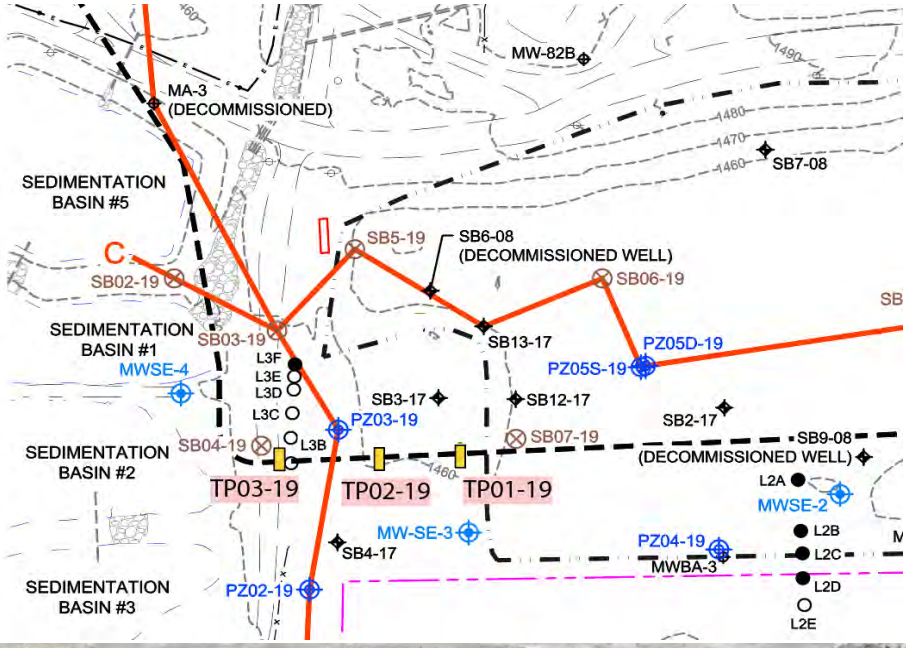
GEI PROJECT NO: 1900192	TEST PIT DESIGNATION: TP01-19	SURFACE ELEVATION END NAVD88: 1461.0
CLIENT: Waste Management of NY	SITE LOCATION OR AREA: SW Expansion Area	SURFACE ELEVATION CENTER NAVD88:
SITE NAME: Chaffee Sanitary Landfill	EQUIPMENT USED: 320 Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: Rick Frappa	EARTHWORK SUBCONTRACTOR: Waste Management	NORTHING NAD83: 939073.42
DEPTH WATER ENCOUNTERED: None	OPERATOR:	EASTING NAD83:1170695.09
START DATE: 7/30/19	START TIME: 9:15 AM	LATITUDE:
FINISH DATE: 7/30/19	FINISH TIME: 11:00 AM	LONGITUDE:

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
0	NA				0-0.7'- Loose stockpile soil, brown silty fine to medium **SAND**, little fine to coarse gravel, dry.	
1					0-3.1'- Brown firm sandy **SILT** with trace clay, moist (ML)	
2						
3						
4					3.1-3.8'- Brown loose silty fine **SAND**, little gravel (subrounded to subangular) (SM) with black shale fragments, slight plasticity	
5		4.5' (1), (2), (3)			3.8-4.0'- Brown firm sandy **SILT**, moist (ML-CL)	
6					4.0-7.0'- Firm brown sandy **SILT**, little clay, trace gravel. Moderate plasticity. High angle gray-stained dessication fracture, 2.5' in length (closed ended), moist (CL)	
7						
8					7.0-9.2'- Firm brown sandy **SILT** and clay, trace gravel, occasional black shale fragment, no visible fractures moderate plasticity, moist (CL)	
9						
10					9.2'- Loose silty brown **SAND** with gravel and cobbles, dry (SM-GM)	
11						
12						
13					BOTTOM OF TEST PIT EXCAVATION	
14						

Comments: TEST PIT LENGTH: 15 feet
TEST PIT WIDTH: 5 feet
TEST PIT BACKFILL: Excavated soil compacted in 2 foot lifts
LABORATORY ANALYSES: (1) Grainsize analysis
(2) Shelby tube for permeability testing
(3) Organic content by Walkley Black method

GEI Consultants, Inc., P.C.
100 Sylvan Parkway
Suite 400
Amherst, NY 14228

GEI Consultants	Test Pit Location and Photographs	TP01-19



Test Pit Log

TP02-19

GEI PROJECT NO: 1900192	TEST PIT DESIGNATION: TP02-19	SURFACE ELEVATION END NAVD88:
CLIENT: Waste Management of NY	SITE LOCATION OR AREA: SW Expansion Area	SURFACE ELEVATION CENTER NAVD88: 1458.32
SITE NAME: Chaffee Sanitary Landfill	EQUIPMENT USED: 320 Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: Rick Frappa	EARTHWORK SUBCONTRACTOR: Waste Management	NORTHING NAD83: 939078.33
DEPTH WATER ENCOUNTERED: None	OPERATOR:	EASTING NAD83: 1170559.35
START DATE: 7/30/19	START TIME: 11:15	LATITUDE:
FINISH DATE: 7/30/19	FINISH TIME: 12:10 PM	LONGITUDE:

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	NA				0-1.5'- Loose stockpile soil, brown silty fine to medium **SAND**, little fine to coarse gravel, dry.	
2					1.5-3.5'- Compact brown fine to medium **SAND** and silt, little subrounded to subangular gravel, no plasticity, dry to moist (SM). (Ablation TILL)	
3						
4						
5					3.5 to 7.0'- Dense brown fine to medium **SAND**, trace to little silt, some fine to coarse subrounded to subangular gravel, occasional cobbles, random gravel fabric, moist (SM). (Ablation TILL)	
6		5.0-7.0' (1), (2), (3)				
7						
8					7.0-10.0'- Loose brown fined to medium **SAND**, little silt, trace clay, some gravel and cobbles, moist to wet (SM-GM)	
9						
10		9.5' (3)				
11					BOTTOM OF TEST PIT EXCAVATION	
12						
13						
14						

Comments: TEST PIT LENGTH: 15 feet
TEST PIT WIDTH: 5 feet
TEST PIT BACKFILL: Excavated soil compacted in 2 foot lifts
LABORATORY ANALYSES: (1) Grainsize analysis
(2) Shelby tube for permeability testing
(3) Organic content by Walkley Black method

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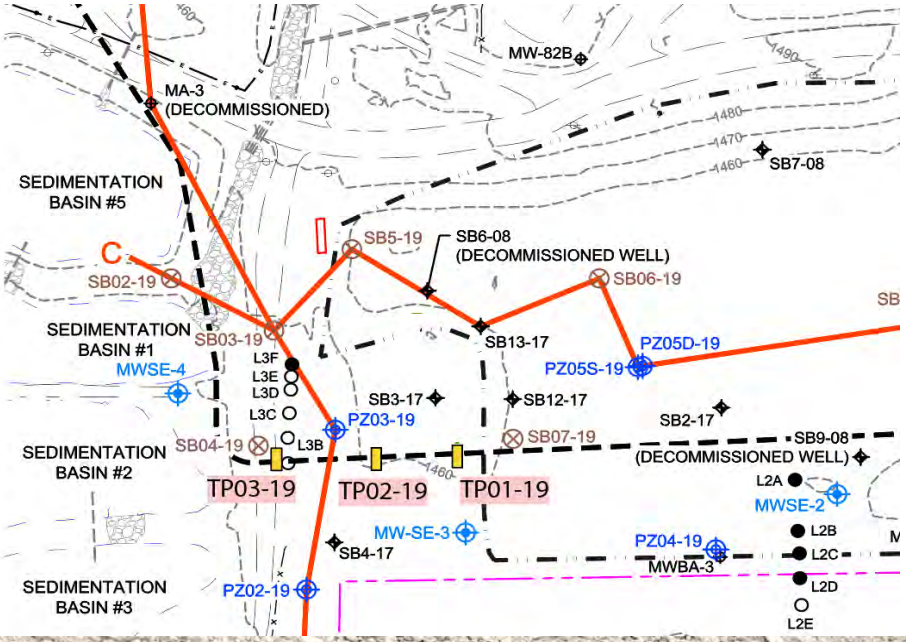
100 Sylvan Parkway
Suite 400
Amherst, NY 14228

GEI Consultants	Test Pit Location and Photographs	TP02-19



Test Pit Log

TP03-19

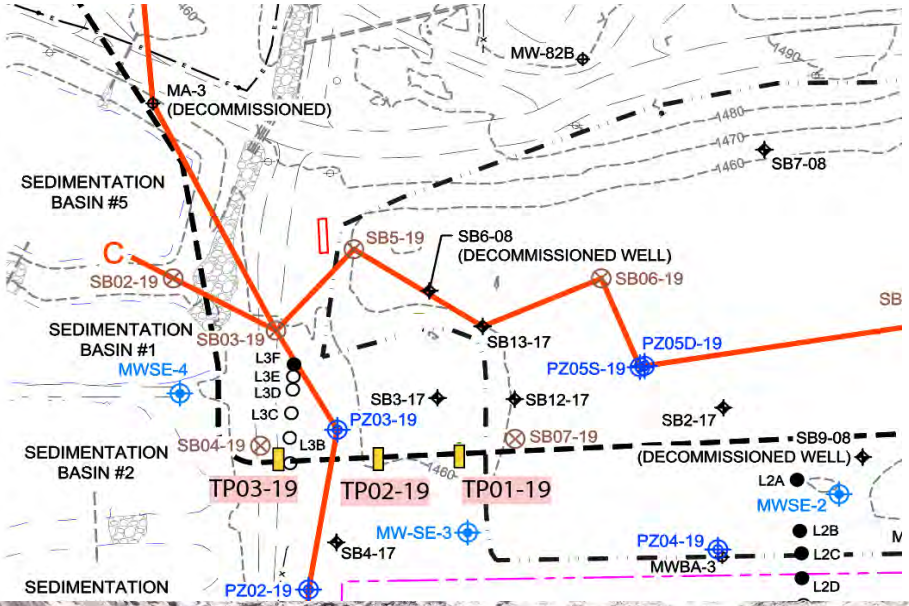
GEI PROJECT NO: 1900192	TEST PIT DESIGNATION: TP03-19	SURFACE ELEVATION END NAVD88:
CLIENT: Waste Management of NY	SITE LOCATION OR AREA: SW Expansion Area	SURFACE ELEVATION CENTER NAVD88: 1454.86
SITE NAME: Chaffee Sanitary Landfill	EQUIPMENT USED: 320 Excavator	SURFACE ELEVATION END NAVD88:
GEOLOGIST: Rick Frappa	EARTHWORK SUBCONTRACTOR: Waste Management	NORTHING NAD83: 939065.09
DEPTH WATER ENCOUNTERED: None	OPERATOR:	EASTING NAD83: 1170426.45
START DATE: 7/30/19	START TIME: 13:00	LATITUDE:
FINISH DATE: 7/30/19	FINISH TIME: 14:15	LONGITUDE:

DEPTH (FEET)	PID HEADSPACE (PPM)	LABORATORY SAMPLE (FEET)	VISUAL OBSERVATIONS	SOIL LITHOLOGY USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
0	NA				0-3.5'- Very dense brown silt and fine to medium **SAND**, little gravel, some gray clay, dry (recompacted fill).	
3.5		3.5' to 5.0' (1), (2), (3)			3.5'-5.0'- Compact brown silty **SAND** and **GRAVEL** mixture, occasional cobble, random fabric, trace rootlets, moist (SM) (Ablation TILL)	
5					5.0'-11.0'- High-density brown fine to coarse **SAND**, little silt, some fine to coarse subrounded to subangular gravel and cobbles, moist (SM) (Ablation TILL)	
8.5		8.5' (2)				
11		11.0' to 11.5' (3)			11.0'- Loose, Gray cobbles and gravel in a fine sand matrix with silt, tr clay, wet (GP)	
12					BOTTOM OF TEST PIT EXCAVATION	

Comments: TEST PIT LENGTH: 15 feet
TEST PIT WIDTH: 5 feet
TEST PIT BACKFILL: Excavated soil compacted in 2 foot lifts
LABORATORY ANALYSES: (1) Grainsize analysis
(2) Shelby tube for permeability testing
(3) Organic content by Walkley Black method

GEI Consultants, Inc., P.C.
100 Sylvan Parkway
Suite 400
Amherst, NY 14228

GEI Consultants	Test Pit Location and Photographs	TP03-19



Hydrogeologic appraisal of five selected aquifers in Erie County, New York
USGS Water-Resources Investigations Report 84-4334
By: Todd S. Miller and W.W. Staubitz (1985)

USGS Well SA-25 and SA-28 Locations and Well logs

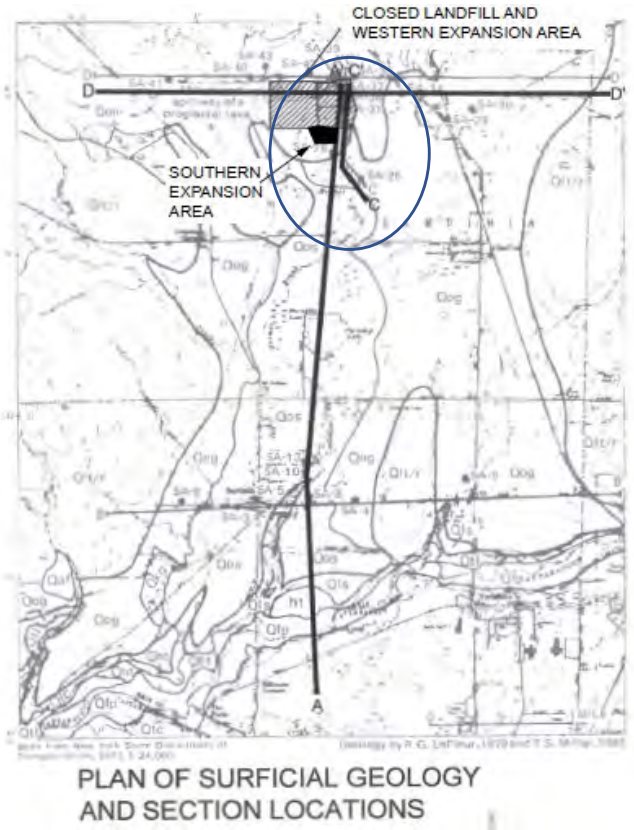


Figure 10 from Miller and Staubitz (1985)

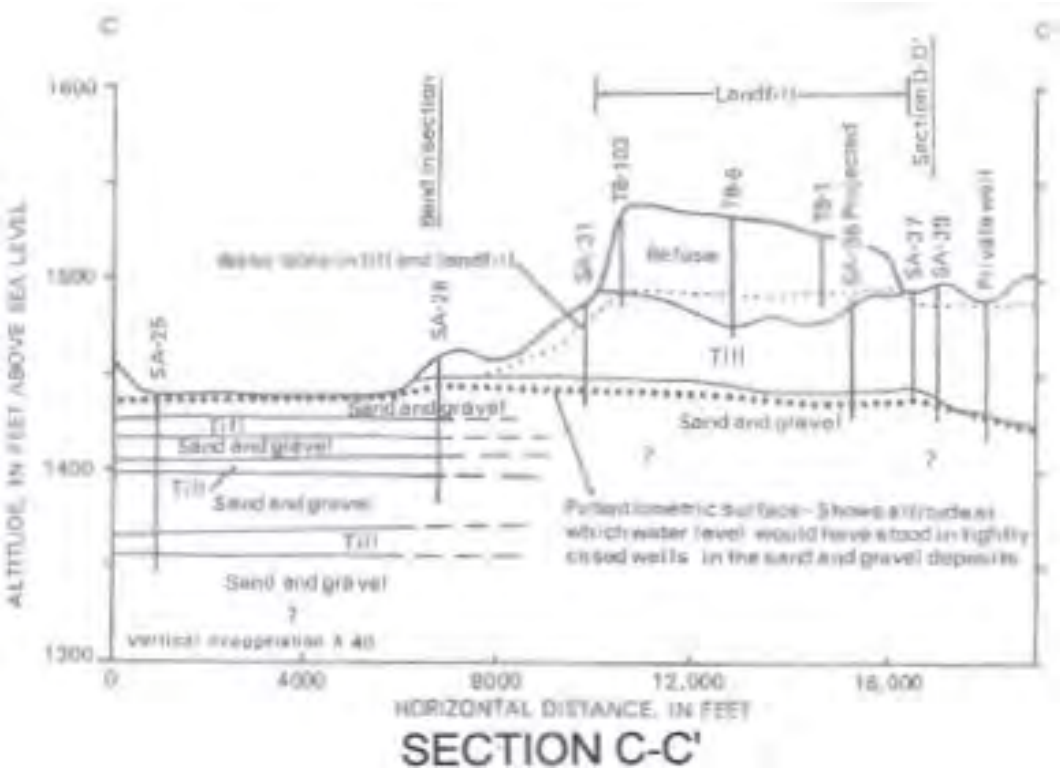


Figure 11 from Miller and Staubitz (1985)

Mapped Location of USGS Wells SA-28 and SA-25 on USGS National Water Information System Website
https://waterdata.usgs.gov/nwis/nwismap/?site_no=423438078295202&agency_cd=USGS
Hydrogeologic appraisal of five selected aquifers in Erie County, New York
USGS Water-Resources Investigations Report 84-4334
By: Todd S. Miller and W.W. Staubitz (1985)

Table 9.--Records of selected wells in Erie County, New York

NUMBERING AND ARRANGEMENT OF WELLS

All wells and borings are identified by latitude and longitude to the nearest second, as measured from 7½-minute topographic maps, scale 1:24,000. The location of each well or boring record was plotted on these maps by U.S. Geological Survey staff during a visit to the site or from large-scale engineering drawings.

The location of each well and boring is shown on maps within the text. Data are arranged in 1-minute strips of latitude. Each table begins with the southernmost strip followed by other strips successively farther north.

FOOTNOTES AND ABBREVIATIONS

1. Type of well

Drl = drilled
Dug = dug
Drv = driven

2. Aquifer type

Ss = sandstone
Sh = shale
Silt = silt
Fill = fill
LS = Onondaga Limestone
Sand = sand
S&G = sand & gravel
Grvl = gravel
Till = till
Clay = clay

3. Land-surface altitude

in feet above National Geodetic Vertical Datum of 1929 (NGVD), estimated from topographic maps.

Conversion to NAVD88 Subtract 0.55ft (USACOE metadata)

4. Water use

A = abandoned
C = commercial
D = domestic
PS = public supply
I = industrial
In = institutional
O = observation
U = unused
F = farm

5. Remarks

Yield (e) = estimated yield

Yield (m) = measured yield during pumping test

Yield (r) = reported yield

F = fine
M = medium
C = coarse

Records from Lancaster Area on Pages 54 - 56 excluded

Table 9.--Records of selected wells in Erie County, N.Y. (continued)

Well no.	Location Lat-Long	Local well No.	Owner	Date drilled	Type of well	Well depth (ft)	Casing depth (ft)	Casing diam (in)	Depth to bedrock (ft)	Aquifer type	Altitude surface (ft)	Water-level depth below land surface (ft)	Date measured	Geol. log	Water use	Remarks (Depths are in feet below land surface; * = chem. analysis)
	SARDINIA AREA (Well locations shown in fig. 2.)															
SA-1	4231 36 7831 44		Vesinek	1955	Drl	110	110	6	--	S&G	1,405	35	5-20-82	No	F	A second well 235 ft deep ends in S&G
SA-2	4231 50 7831 21		Schiener	1962	Drv	22	20	1.25	--	S&G	1,410	--	--	No	D	
SA-3	4232 27 7830 40		Domes	--	Drv	18	16	2.5	--	S&G	1,390	--	--	No	D	
SA-4	4232 29 7829 42		Kissel	1972	Drl	114	114	6	--	S&G	1,420	14.7	7-29-82	Yes	D	S&G 0-25, clay 25-70, layers sand and S&G 70-114, coarse gravel 114 ft
SA-5	4232 29 7830 32		Bleighley	1940	Drv	12	10	--	--	S&G	1,398	--	--	No	D	
SA-6	4232 29 7831 11		Loggans	1961	Drl	87	--	6	--	S&G	1,435	32	--	No	D	* in ENB-3
SA-7	4232 30 7828 44		Nichols Brk Motel	--	Drl	43	43	6	--	S&G	1,436	--	--	Yes	C	Yield (r) 50 gal/min; S&G 0-43 ft.
SA-8	4232 30 7830 05		Rice	1978	Drl	48	48	6	--	S&G	1,400	--	--	Yes		S&G 0-25, clay 25-35, S&G 35-48 ft.
SA-9	4232 35 7828 48		Diamond Saw	1957	Drl	42	42	6	--	S&G	1,435	--	--	Yes	I	Yield (r) 25 gal/min; S&G 0-20, clay 20-37, gravel 37-42 ft
SA-10	4232 41 7830 09		Hogan	1963	Drl	175	175	6	--	S&G	1,405	11.4	8-11-64	No	D	* in ENB-3
SA-11	4232 42 7830 02		Schiener	1962	Drl	28	--	2.5	--	S&G	1,400	--	--	No	D	*.
SA-12	4232 47 7828 41		Wertz	1958	Drl	29	29	6	--	Gravel	1,435	18.3	6-25-64	No	C	
SA-13	4232 48 7830 19		Meyers	1974	Drl	344	344	6,4	--	S&G	1,410	f	--	Yes	D	*; S&G 0-12, clay 12-100, sand 100-110, clay and clay and sand 110-342 ft
SA-14	4232 58 7828 43	82-4	USGS	1982	Aug	22	17	2	--	S&G	1,443	16.4	10-15-82	Yes	O	*; S&G 0-24, clay 24-32, S&G w/trace silt 32-40, clay 40-42, S&G 42-45, clay and pebbles 45-58 ft
SA-15	4232 58 7829 56	82-3	USGS	1982	Aug	17	12	2	--	S&G	1,399	4.6	10-15-82	Yes	O	*; silty sand 0-7, f.-m.sand 7-12, S&G 12-17, f.-c.sand 17-22, silt and clay 22-33 ft
SA-16	4233 03 7829 32		Bolt	1967	Drl	47	47	6	--	S&G	1,440	23.0	5-20-82	No	D	S&G 0-47 ft
SA-17	4233 05 7830 37	82-2	USGS	1982	Aug	46	36	2	--	S&G	1,425	23.9	10-19-82	Yes	O	*; silt,gravel 0-16, gravelly sand 16-19, S&G 19-56, f.-m.sand 56-72, silt and sand 72-78 ft
SA-18	4233 12 7828 44		Lynch	1962	Drl	42	42	--	--	S&G	1,448	--	--	Yes	C	Yield (r) 20 gal/min; S&G 0-42, clay 42 ft
SA-19	4233 25 7828 44		Greatwood	1960	Drl	51	--	6	--	Sand	1,449	20.0	6-25-64	No	D	Yield (r) 40 gal/min
SA-20	4233 27 7828 44		Ornce	1960	Drl	51	51	6	--	S&G	1,448	19.3	5-20-82	Yes	D	Yield (r) 20 gal/min; S&G

Table 9.--Records of selected wells in Erie County, N.Y. (continued)

Well no.	Location Lat-Long	Local well No.	Owner	Date drilled	Type of well	Well depth (ft)	Casing depth (ft)	Casing diam (in)	Depth to bedrock (ft)	Aquifer type	Altitude surface (ft)	Water-level depth below land surface (ft)	Date measured	Geol. log	Water use	Remarks (Depths are in feet below land surface; * = chem. analysis)
SARDINIA AREA (continued)																
SA-21	4233 32 7830 40		Uhteg	--	Drl	41	41	6	--	S&G	1,450	28.2	5-20-82	No	D	*.
SA-22	4233 53 7828 42		Lewis	1980	Drl	69	69	6	--	S&G	1,462	35	9-80	Yes	D	*; S&G 0-34, f.sand 34-42, clay 42-58, f.sand 58-67, S&G 67-70 ft; yield (r) 50 gal/min.
SA-23	4234 00 7828 55		Chaffee Water Sply	1900	Drl	20	--	8	--	S&G	1,460	13.5	2-11-63	No	PS	Pumping rate ~ 100 gal/min
SA-24	4234 08 7830 26		Iroquois Gas Co	1964	Drl	--	--	12	112	Lockport Dolomite	1,465	--	--	No	GT	Yield (r) 0.5-1.0 gal/min; Lockport Dolomite at 2,728'
SA-25	4234 27 7829 38	82-1	USGS	1982	Aug	90	85	2	--	S&G	1,444	4.5	10-15-82	Yes	O	*; yield (m) 7 gal/min; S&G 0-15, till 15-22, S&G 22-35, till 35-39, S&G and silt 39-70, clay and silt w/tr. pebbles (till) 70-85, S&G 85-93. Two other wells installed at depths of 27 and 60 ft.
											1443.45 NAVD88					
SA-26	4234 29 7828 43		Phelps	--	Drl	194	194	6	--	S&G	1,470	--	--	Yes	Ir,F	Yield (e) 10 gal/min; S&G 0-60, layers of sand and clay 60-180, S&G 180-194 ft
SA-27	4234 30 7828 43		Phelps	--	Drl	46	--	6	--	S&G	1,480	--	--	No	D	
SA-28	4234 38 7829 52	82-10A	USGS	1982	Aug	50	48	1.5	--	S&G	1,459	15.9	5-12-83	Yes	O	*; till 0-7, S&G 7-32, till 32-43, S&G 43-51, till 51-60, S&G 60-74 ft. A second well installed at 29 ft.
											1458.45 NAVD88					
SA-29	4234 50 7828 58		Tavernier	--	Drl	90	--	6	--	S&G	1,480	34.4	5-20-82	No	D	
SA-30	4234 52 7828 45		Wiedemann	1980	Drl	65	65	6	--	S&G	1,478	--	--	Yes	D	S&G 0-65 ft.
SA-31	4234 53 7829 47	W-1	Chaffee Landfill	1980	Aug	54	52	2	--	S&G	1,490	52.0	11-30-80	Yes	O	Sand clayey silt w/trace pebbles (till) 0-10, clayey silt 10-22, clayey silt with tr. pebbles (till) 22-44, S&G 44-47, sandy silt 47-49, S&G 49-53, sandy silt 53-54'
SA-32	4234 53 7829 52	W-3	Chaffee Landfill	1980	Aug	14	12	2	--	Till	1,494	9.8	11-30-80	Yes	O	Sandy clayey silt w/trace pebbles (till) 0-14 ft.
SA-33	4234 53 7829 57	W-4	Chaffee Landfill	1980	Aug	43	41	2	--	Till	1,476	--	--	Yes	O	Clayey silt w/tr. pebbles

Table 9.--Records of selected wells in Erie County, N.Y. (continued)

Well no.	Location Lat-Long	Local well No.	Owner	Date drilled	Type of well	Well depth (ft)	Casing depth (ft)	Casing diam (in)	Depth to bedrock (ft)	Aquifer type	Altitude surface (ft)	Water-level depth below land surface (ft)	Date measured	Geol. log	Water use	Remarks (Depths are in feet below land surface; * = chem. analysis)
SARDINIA AREA (continued)																
SA-34	4234 58 7829 17		Chaffee Equipment	--	Drl	--	--	6	--	S&G	1,485	--	--		C	*; S&G and silt and clay 0-12, till 12-18, S&G and and silt and clay 18-23, clay w/pebbles (till) 23-28, gravel, sand, silt and clay 28-52 ft.
SA-35	4234 58 7829 47	W-2	Chaffee Landfill	1980	Aug	14	12	2	--	Till	1,486	Dry		Yes	O	Clayey silt w/tr. pebbles (till) 0-14 ft.
SA-36	4235 02 7829 48	W-8	Chaffee Landfill	1981	Aug	58	56	2	--	S&G	1,489	--	--	Yes	O	Clayey silt w/tr. pebbles (till) 0-34, sandy clayey silt w/tr. pebbles (till) 43-54, S&G 54-58 ft.
SA-37	4235 03 7829 48	W-7	Chaffee Landfill	1981	Aug	58	56	2	--	S&G	1,494	55.0	8-27-81	Yes	O	Clayey silt w/tr. pebbles (till) 0-37, sand-silt-clay and gravel 37-39, sandy silt 39-42, clayey silt w/trace pebbles (till) 42-52, S&G 52-60 ft.
SA-38	4235 04 7829 42		Buncy	1966*	Drl	87	87	6	--	S&G	1,500	69	5-21-82	No	D	
SA-39	4235 04 7829 49	82-11A	USGS	1982	Aug	69	67	1.5	--	S&G	1,502	61.3	12-17-82	Yes	O	Silty clay w/tr. pebbles (till) 0-63, S&G 63-73 ft.
SA-40	4235 04 7830 30		Mader	1979	Drl	35*	35	6	--	S&G	1,440	10.7	5-12-82	No	D	
SA-41	4235 04 7831 14		Raymond	1940	Drl	34	34	6	34	S&G	1,500	10.0	8-12-64	No	U	
SA-42	4235 08 7829 57		Robins	--	Drl	47	43	6	--	S&G	1,470	29.3	5-20-82	No	-	Yield (r) 20 gal/min.
SA-43	4235 08 7830 27		Petrone	1959	Drl	25	--	6	--	S&G	1,440	16.6	8-12-64	No	D	*. in ENB-3
SA-44	4235 13 7827 51		Mitrowski	--	Drl	70	--	6	--	S&G	1,520	38	5-20-82	No	-	
SA-45	4235 16 7830 08		Sheridan	--	Drl	28*	--	6	--	S&G	1,445	--	--	No	D	
SA-46	4235 04 7830 18		Cook	--	Drl	31	--	6	--	S&G	1,453	17	2-22-83	No	D	*.

SA-25

Site # 82-1 Date 6/8/82

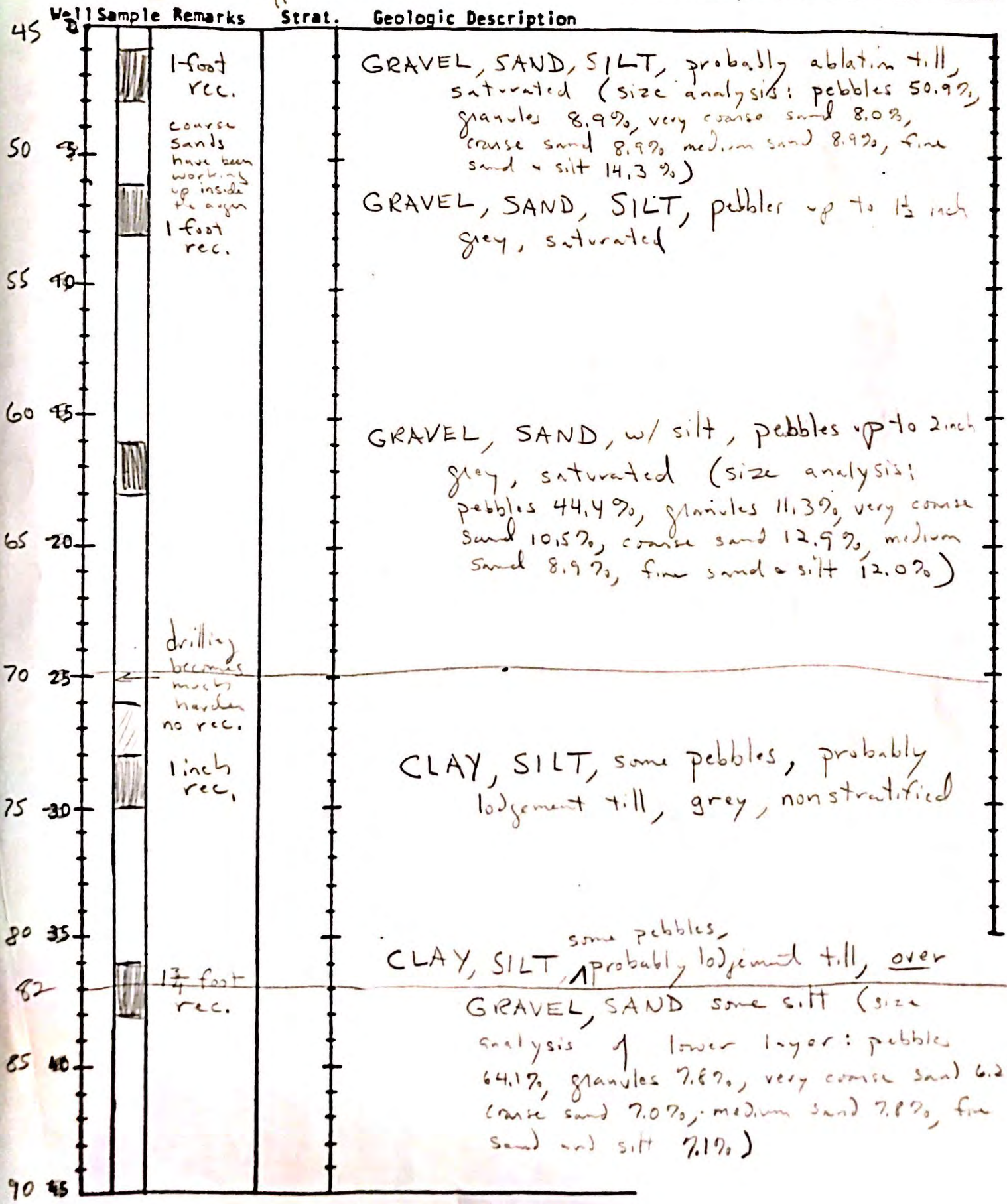
Location- Chaffee - about 3.5 feet north of pond on Phelps farm

Well	Sample Remarks	Strat.	Geologic Description
0	Auger cuttings		SAND, PEBBLES, some silt, brown, poorly sorted, wet
5	Split spoon 1 in rec.		GRAVEL, SAND, SILT, grey, moist (size analysis[1]: pebbles 66.7%, granules 11.3%, very coarse sand 5.3%, coarse sand 3.0%, medium sand 3.8%, fine sand + silt 9.8%)
10	Split spoon 1½ foot rec.		GRAVEL, SAND, SILT, pebbles up to ½ inch, cut through a 1" thick schist cobble (weathered), angular pebbles, poorly sorted, wet
15	1½ foot rec.		TILL, pebbles in a grey clayey-silt matrix, semi plastic, wet
20	2 foot rec.		TILL, same over GRAVEL, SAND, with some silt, pebbles up to 1½ inch. (size analysis: pebbles 67.8%, granules 10.6%, very coarse sand 6.4%, coarse sand 5.7%, medium sand 4.3%, fine sand + silt 9.1%)
25	easy drilling		
	2 foot rec.		SAND, GRAVEL, well sorted (size analysis: pebbles 14.8%, granules 8.3%, very coarse sand 19.5%, coarse sand 29.6%, medium sand 17.2%, fine sand and silt 10.7%), wet over GRAVEL, SAND, SILT poorly sorted, dry
30	1 foot rec.		GRAVEL, SAND some silt, grey, poorly sorted Shale cobbles broken by auger, saturated
	drill bouncing		
35	1 foot rec.		TILL, silt matrix, grey, poorly sorted, dry
40	2 foot rec.		GRAVEL, SAND, SILT, probably ablation till, shale pebbles, saturated (size analysis: pebbles 39.4%, granules 12.7%, very coarse sand 13.4%, coarse sand 14.1%, medium sand 7.7%, fine sand + silt 12.6%)
45			

1 Wentworth size classification see p.3 of log 82-1

Site # 82-1 (cont p.2) Date 6/8/82

Location- Chaffee



Site # 82-1 (cont p.3) Date 6/8/92

Location- Chaffee

Well	Sample	Remarks	Strat.	Geologic Description
90 0		1½ foot rec		GRAVEL, SAND some silt, saturated
95				bottom hole @ 93 feet (not refusal)
				Well data:
				82-1a 2 inch pvc pipe from 3 feet above LS to top of screen
10				2 inch pvc screen 10 slot from 22 to 27 feet below LS
				est. yield 11 spm
				82-1b 2 inch steel pipe from 3.2 feet above L.S. to top of screen
15				2 inch pvc screen 10 slot from 49.6 to 59.6 feet below LS
				est. yield 28 gpm
20				82-1c 2 inch steel pipe from 1.9 feet above LS to top of screen
				2 inch galvonized steel screen 85 to 90 feet below LS
25				bentonite seal at 72 to 75 feet below LS
				est. yield 7 spm
30				note: 82-1b has a definite hydrogen sulfide odor
				Wentworth size classificating:

	max size(in)	min size(in)
Pebbles	2.52	1.57
granules	1.57	.0787
very coarse sand	.0787	.0394
coarse sand	.0394	.0197
medium sand	.0197	.0098
fine sand, silt & clay	.0098	

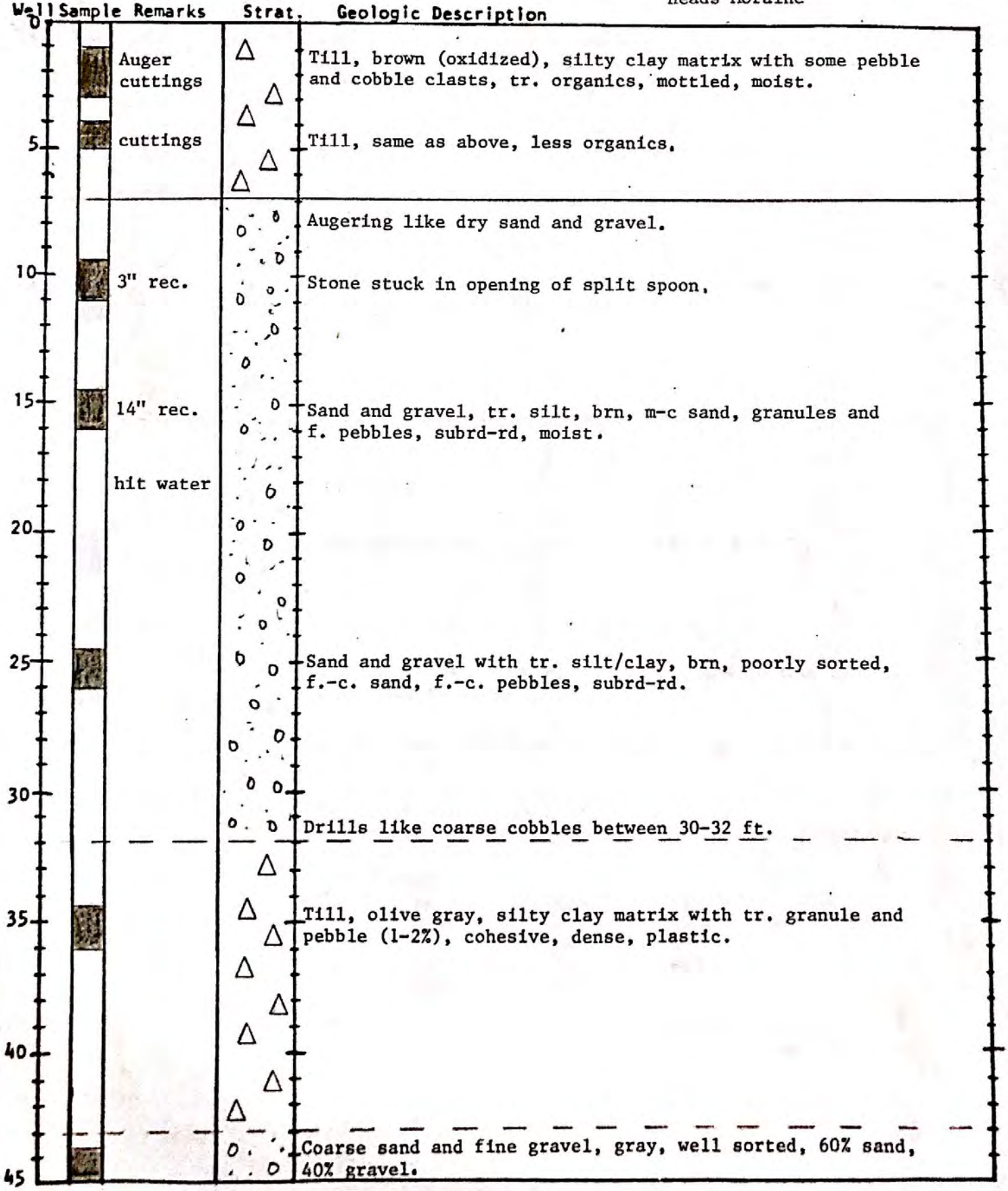
35 40 45

SA-28

Site # 82-10

Date November 2, 1982

Location- Arcade quadrangle, 800 ft south of Chaffee Landfill, at foot of Valley Heads Moraine



Sheet # 1 of 1

Site # 82-10 (continued) Date November 2, 1982

Location-

Well	Sample	Remarks	Strat.	Geologic Description
45				Driller reports augering like sand - decided to drill on than risk running sand.
50				
55				Till, olive gray, silty clay matrix w/granule and f. pebble clasts, cohesive, plastic.
60				
65				Sand and gravel, tr. silt, c. sand, f. gravel.
70				Stopped to take sample but running sand up into casing prevented sampling.
				Coarse gravel and cobbles, auger bringing up 1/2 to 1¼ in. dia. stones.
75				Bottom of hole at 74.5 ft. Rods stuck in auger, eventually lost 3 auger flights. Well installations 82-10A screened interval - 48.5 to 50 ft screen 1.25 in. dia., 1.5 ft. long, 10 slot galvanized steel. casing - 1.5 in. dia. steel casing above LSD - 4.0 ft. 82-10B screened interval - 27.5 to 29.0 ft. screen - 1.25 in. dia., 1.5 ft. long, 10 slot galvanized steel. casing - 1.5 in. dia. steel pipe above LSD - 4.2 ft.

B.2 Pre-2019 Investigation Soil Boring, Piezometer, Monitoring Well logs and construction details in or near the Area 7/8 Development and Logs for Former West Borrow Area, Soil Borrow Area C, and South Borrow Area

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • FAX (716) 655-2915

2A79ab HOLE NO. MW A-00 SURF. ELEVATION 1461.58

PROJECT Chaffee Landfill Expansion LOCATION See map
NY 16, Town of Sardinia, Erie County, NY

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 06/14/00 COMPLETED 06/14/00

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
	1	7	11	18	14	29		Moist olive gray (CLAYEY-SILT) with 10 to 15% gravel, little clay, very stiff and hard, weakly thinly laminated, (ML-CL).		Silty slack water sediment with little clay and gravel to 4.0 feet over silty slack water sediment with little clay to 8.0 feet over clayey slack water sediment to 13.0 feet over coarse silty slack water sediment with little sand and sand lenses to 14.0 feet over water sorted and deposited sand to 16.0 feet over water sorted and deposited sand with some gravel to 36.5 feet over silty slack water sediment with little clay to end of boring.
	2	9	19	27	21	46		grades downward to 4.0		
5	3	12	14	10	10	24		Extremely moist olive gray (CLAYEY-SILT) with 5 to 10% gravel, little clay, very stiff and hard, weakly thinly laminated, (ML-CL).		
	4	10	14	17	21	31		grades downward to 8.0		
	5	11	16	17	20	33		Extremely moist olive gray (CLAYEY-SILT) with 5 to 10% gravel, some clay, hard, weakly thinly laminated, (CL).		
10	6	14	21	19	15	40				(1) 4" x5' STEEL PROTECTIVE CASING
	7	13	17	20	18	37		13.0		
	8	10	14	19	25	33		Extremely moist distinctly mottled olive brown (SANDY-SILT) with little sand, dense, thinly bedded with thin sand lenses <1/16 inch thick and fine and medium sand lens 1/2 inch thick at 13.5 feet, (ML).		
15	9	19	45	52	100/4"	97		14.0		
	10	23	100/5"					Moist light gray (SAND) with 5 to 10% fine size gravel, fine to very coarse size sand, dense in place, loose when disturbed, weakly stratified, (SW).		
								grades downward to 16.0		
20								See next sheet.		

2" PVC RISER

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2" SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
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2A79ab HOLE NO. MW A-00 SURF. ELEVATION 1461.58

PROJECT Chaffee Landfill Expansion LOCATION See map

NY 16, Town of Sardinia, Erie County, NY

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 06/14/00 COMPLETED 06/14/00

DEPTH IN FT	SN	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	100/4"						Moist grayish brown gravelly (SAND) with 30 to 40% mostly subrounded gravel and occasional cobble, trace to little silt, very fine to very coarse size sand, very dense in place, loose when disturbed, stratified, (SW)		
	12	35	30	27	26	57		grades downward to 23.5		
25	13	24	16	17	24	33		Wet grayish brown gravel and very gravelly (SAND) with 30 to 50% mostly subrounded gravel and occasional cobble, trace to little silt, very fine to very coarse size sand, dense and very dense in place, loose when disturbed, stratified, (SM) tending towards (GW).	2" PVC RISER; CEMENT BENTONITE GROUT	← 26.0' ← (1) BENTONITE GROUT ← 28.0'
	14	9	17	21	20	38				
30	15	25	30	36	55	66				← 30.0'
	16	37	44	40	45	84		31.5		
	17	28	22	23	24	45		Wet gray gravelly (SAND) with 15 to 40% mostly subrounded gravel, very fine to very coarse size sand, dense in place, loose when disturbed, stratified, (SW).	2" 10 SLOT 2" PVC SCREEN; #6 GLOBAL SAND PACK	
35	18	17	22	23	25	45				← 35.0'
	19	17	19	21	31	40		36.5 Wet gray (CLAYEY-SILT) with little clay, hard, thinly laminated, (ML-CL). 38.0		← 38.0'
40								Boring completed at 38.0 feet.		

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • FAX (716) 655-2915

2A79ax HOLE NO. Bore Hole SB 8-03 SURF. ELEVATION 1455.58

PROJECT Chaffee Landfill, Western Expansion Area
Town of Sardinia, Erie Co., NY

LOCATION Northing 8232.70
Easting 5799.94

CLIENT McMahon & Mann Consulting Engineers

DATE STARTED 12/16/03 COMPLETED 12/16/03

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	3							
	18		8			14		Wet brownish gray gravelly (SILTY-SAND) fill with 15 to 40% gravel, very fine to very coarse size sand, little silt, loose, massive soil structure, (SM).	Sandy soil fill with little to some gravel, little silt to 0.4 feet over silty slack water with little clay to 8.0 feet over clayey slack water sediment to 11.2 feet over water sorted and deposited sand with little silt, trace to little gravel to end of boring.
				8				0.4	
					10			Moist olive gray (CLAYEY-SILT) with 0 to 5% gravel, little clay, stiff, very stiff below 3.0 feet, weakly thinly laminated to massive soil structure, (ML-CL).	
	2	5							
	20		7			17			
				10					
					13				
	3	8							
5	22		11			25			No water at completion.
				14					
					17				
	4	10							
	24		12			27			
				15					
					19			8.0	
	5	8						Moist olive gray (CLAYEY-SILT) with some clay, very stiff, thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks, (CL).	
	24		11			23			
				12					
10					15			clear transition to 11.2	
	6	5							
	24		7			25			
				18					
					27			Extremely moist grayish brown (SILTY-SAND) with 5 to 15% gravel, very fine to very coarse size sand, little silt, dense, loose when disturbed, stratified, (SM).	Note: Bore hole tremmie grouted with bentonite cement to surface upon completion.
								12.0	
								Boring completed at 12.0 feet.	
15									
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

SHEET 1 OF 1

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79ad HOLE NO. MA 2-01 SURF. ELEVATION 1460.98

PROJECT Chaffee Landfill LOCATION

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/18/01 COMPLETED 04/18/01

DEPTH IN FT | BLOWS ON SAMPLER

SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
1	4	5	8	11	13		Extremely moist dark brown (CLAYEY-SILT) topsoil with little clay, firm, massive soil structure, (ML-CL). 0.4		(1) 4" X 5' STEEL PROTECTIVE CASING
							Extremely moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, stiff, with nearly vertical gray desiccation cracks, (CL).		Silty topsoil with little clay to 0.4 feet over clayey slack water sediment to 5.0 feet over water sorted and deposited sand with little to some gravel, little silt and clay to 16.2 feet over clayey slack water sediment to 17.0 feet over water sorted and deposited sand and gravel with little silt to 24.0 feet over water sorted and deposited sand and gravel to 28.0 feet over clayey slack water sediment to end of boring
							grades downward to 5.0		
2	2	4	2	7	6		Extremely moist becoming wet at 10.0 feet distinctly mottled olive brown gravelly (SAND-SILT-CLAY) with 15 to 30% gravel, little silt and clay, loose, weakly stratified, (SM) tending towards (SC).	2" PVC RISER / CEMENT BENTONITE SEAL	
3	7	10	11	13	21			BENTONITE	← 13.0'
4	10	10	13	15	23		16.2 Extremely moist faintly mottled olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, thinly laminated with very thin coarse silt lenses, (CL). 17.0		← 16.0'
							See next sheet.	00 MORIE SAND (2)	← 18.0' (2) #10 SLOT 2" PVC SCREEN

N=NUMBER OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 lb. WT. FALLING 30" PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvv)

EARTH DIMENSIONS, INC.

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(716) 655-1717 • FAX (716) 655-2915

2A79ad HOLE NO. MA 2-01 SURF. ELEVATION 1460.98

PROJECT Chaffee Landfill LOCATION

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/18/01 COMPLETED 04/18/01

DEPTH IN FT	BLOWS ON SAMPLER SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	5	50								
			17			35		Extremely moist faintly mottled olive brown very gravelly (SILTY-SAND) with 40 to 60% mostly subrounded gravel and cobble, very fine to very coarse size sand, little silt, dense, stratified, (SM), (GM).	#10 SLOT 2" PVC SCREEN	
				18						
					24					
								grades downward to 24.0		
25								Wet brown very gravelly (SAND) with 40 to 60% fine size gravel, very fine to very coarse size sand, compact, stratified, (SW), (GP).	#00 MORIE SAND	
	6	4								
			6			13				
				7						
					7					← 28.0'
								grades downward to 28.0		
	7	7						Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% fine size gravel, some clay, very stiff, weak thinly laminated, (CL).		
			10			24				
				14						
30					19			30.0		← 30.0'
								Boring completed at 30.0 feet.		No water at completion.
35										
40										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • FAX (716) 655-2915

2A79ad HOLE NO. MA 3-01 SURF. ELEVATION 1469.45

PROJECT Chaffee Landfill LOCATION

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/19/01 COMPLETED 04/19/01

DEPTH IN FT	SN	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
	1	WH						Extremely moist dark brown (CLAYEY-SILT) topsoil with little clay, very soft, granular soil structure, (ML-CL). 0.6		(1) 4'x5' STEEL PROTECTIVE CASING
			2			6				WH – Sampler penetration with weight of rods and hammer.
				4						Silty topsoil with little clay to 0.6 feet over clayey slack water sediment to 27.0 feet over water sorted and deposited sand and gravel to end of boring.
					5					
								Extremely moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, firm, blocky soil structure, (CL).		
								grades downward to 2.5		
5	2	3								
			6			15		Extremely moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, with nearly vertical gray desiccation cracks, (CL).		
				9						
					10					
								grades downward to 10.0		
10	3	3								
			7			17		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff to 15.0 feet, stiff below, weak thinly laminated, with very thin coarse silt lenses, (CL).		
				10						
					11					
15	4	6								
			5			12				
				7						
					9					
20										(2) BENTONITE PELLETS ← 19.5'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvv)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79ad HOLE NO. MA 3-01 SURF. ELEVATION 1469.45

PROJECT Chaffee Landfill LOCATION

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/19/01 COMPLETED 04/19/01

DEPTH IN FT | BLOWS ON SAMPLER | SN | 0/6 | 6/12 | 12/18 | 18/24 | N | LITH | DESCRIPTION AND CLASSIFICATION | WELL | WATER TABLE AND REMARKS

SN	0/6	6/12	12/18	18/24	N
5	2	4	8	9	12
6	4	7	10	12	17
7	5	9	11	12	20
8	3	5	7	2	12

Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, stiff and very stiff.

27.7

Moist distinctly mottled olive brown very gravelly (SAND) with 40 to 60% mostly subrounded gravel and cobble, very fine to very coarse size sand, trace silt, compact, stratified, (SW), (GW).

35.0

Boring completed at 35.0 feet.

WELL: 2" PVC RISER; (2) BENTONITE PELLETS; #10 SLOT 2" PVC SCREEN; .00 MORIE SAND

WATER TABLE AND REMARKS: (2) BENTONITE PELLETS ← 22.5' ← 24.5' ← 34.5' ← 35.0'

N=NUMBER OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 lb. WT. FALLING 30" PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

Boring Location

NORTHING: Not Surveyed **EASTING:** Not Surveyed **STATION:** N/A **OFFSET:** N/A
HORIZONTAL DATUM: N/A **STATION CENTERLINE:** N/A
VERTICAL DATUM: N/A **GROUND SURFACE ELEVATION (FT):** Not Surveyed
LOCATION: Adjacent to MW3R

BORING

MW3R2

Drilling Information

DATE START / END: 6/11/2015 - 6/11/2015 **TOTAL DEPTH (FT):** 57.5
CONTRACTOR: Earth Dimensions **DRILLER:** Andy **LOGGED BY:** Mike Cummings
EQUIPMENT: Diedrich D-120 **BORING METHOD:** Hollow Stem Auger
AUGER ID/OD: 4.25 in / 8 in **CASING ID/OD:** 2 in / N/A
HAMMER TYPE: Automatic Hammer **HAMMER WEIGHT (lbs):** 140 **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): Dry
GENERAL NOTES: Monitoring well dry at 4pm on 6/11 and 10am on 6/15

ABBREVIATIONS:
ID = Inside Diameter; OD = Outside Diameter; Pen. = Penetration Length; Rec = Recovery Length
bpf = Blows per Foot; mpf = Minute per Foot; S = Split Spoon; DP = Direct Push Sample
U = Undistrubed Tube Sample; C = Rock Core; V = Field Vane Shear; SC = Sonic Core
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; OVM = Organic Vapor Meter
Q_P = Pocket Penetrometer Strength; S_v = Pocket Torvane Shear Strength; F_v = Field Vane Shear Strength
NA, NM = Not Applicable, Not Measured

Elev. (ft)	Depth (ft)	Casing Pen (bpf) or Core Rate (mpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field Test Data	GRAPHIC LOG	Sample Description & Classification	WELL CONSTRUCTION DETAILS
			1	SS	3 to 5	24/0	3-72-37-10			**(ML)** Tan brown to brown stiff clayey silt with trace fine sand and fine subangular gravel, moist, low plasticity fines (TILL).	
	5										
			2	SS	8 to 10	24/21	7-12-17-21				
	10										Completed as temporary well. No grout installed.
			3	SS	13 to 15	24/24	12-15-19-26				
	15		4	SS	15 to 17	24/22	9-16-18-21				
			5	SS	17 to 19	24/23	6-9-13-15			**(ML)** Brown silt with fine to medium sand and little medium subrounded gravel. Locally saturated (perched).	
	20		6	SS	19 to 21	24/20	8-13-17-24			**(ML)** Grey to dark grey stiff clayey silt with trace medium sand and medium subrounded gravel, moist, low plasticity fines (TILL).	
			7	SS	21 to 23	24/23	4-7-13-15				
			8	SS	23 to 25	24/21	5-11-18-27				
	25		9	SS	25 to 27	24/22	4-8-11-15				
			10	SS	27 to 29	24/23	5-9-14-19				
			11	SS	29	24/24	7-13-				

Strata lines represent the approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at times stated. Water levels may be different at other times.

CLIENT: WMNY
PROJECT NAME: Chaffee Landfill
CITY/STATE: Sardinia, New York
GEI PROJECT NUMBER: 1505890

GEI Consultants, Inc., P.C.
90B John Muir Drive
Suite 104
Amherst, NY 14228

Boring Location

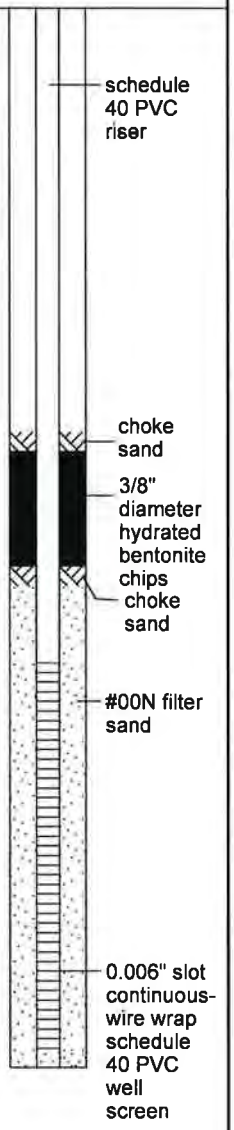
NORTHING: Not Surveyed EASTING: Not Surveyed STATION: N/A OFFSET: N/A
HORIZONTAL DATUM: N/A STATION CENTERLINE: N/A
VERTICAL DATUM: N/A GROUND SURFACE ELEVATION (FT): Not Surveyed
LOCATION: Adjacent to MW3R

BORING

MW3R2

Elev. (ft)	Depth (ft)	Casing Pen (bpf) or Core Rate (mpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field Test Data	GRAPHIC LOG	Sample Description & Classification
					to 31		15-21			**(ML)** Till unit as above, with thin (0.01' thick) saturated fine sand lens at 30'bgs.
			12		31 to 33	24/23	4-11-16-24			
			13		33 to 35	24/22	5-9-14-19			
	35		14		35 to 37	24/24	4-8-11-16			**(ML)** Till unit as above, with thin (0.01' thick) saturated fine sand lens at 34.5' bgs.
			15		37 to 39	24/24	6-11-14-19			**(ML)** Till unit as above with saturated silty sand seam at 37.6-37.8' bgs.
			16		39 to 41	24/24	5-8-16-20			
	40		17		41 to 43	24/24	4-7-11-15			
			18		43 to 45	24/24	5-13-18-24			
	45		19		45 to 47	24/24	4-7-9-13			
			20		47 to 49	24/24	7-17-22-22			**(ML)** Till unit as above with saturated fine sand, silt and trace fine angular shale gravel seam 48.9-49.4' bgs.
			21		49 to 51	24/21	6-7-8-10			**(ML)** Grey-brown stiff silt with little fine sand and fine subangular gravel, wet at ~51' bgs.
	50		22		51 to 53	24/24	4-8-10-12			
			23		53 to 55	24/24	6-9-11-13			**(ML)** Till unit
										(ML) Grey-brown firm silt with little fine sand and fine subangular gravel, wet.
	55		24		55 to 57	24/23	8-12-15-16			**(ML)** Till unit
										(ML) Grey stiff silt with little fine sand, wet.
										End of Boring at 57.5 feet
	60									
	65									

WELL CONSTRUCTION DETAILS



Strata lines represent the approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at times stated. Water levels may be different at other times.

CLIENT: WMNY
PROJECT NAME: Chaffee Landfill
CITY/STATE: Sardinia, New York
GEI PROJECT NUMBER: 1505890

GEI Consultants
GEI Consultants, Inc., P.C.
90B John Muir Drive
Suite 104
Amherst, NY 14228

DIMENSIONS, INC.

Test Borings and Logs
East Aurora, New York 14052 • (716) 655-1717

MONITORING WELL R-4A

SURF. ELEV. 1478.0

PROJECT Replacement MW installation
2A79K-1 Hand Road, Town of Sardinia

LOCATION Near southwest corner of propos landfill expansion

CLIENT CID Refuse Service

DATE STARTED 8/20/84 COMPLETED 8/21/84

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	DESCRIPTION & CLASSIFICATION
							Extremely moist distinctly mottled black mixed silty clay loam (CLAYEY-SILT) and silt loam (CLAYEY-SILT) topsoil, disturbed, firm 1.0
							Moist distinctly mottled olive brown silty clay loam (CLAYEY-SILT), hard, weak blocky soil structure
							- - - - grades downward to - - - - 2.0
5							Moist faintly mottled olive brown silty clay loam (CLAYEY-SILT) with 2 to 5% gravel & occasional cobble of mixed lithology, weakly thinly laminated with nearly vertical gray desiccation cracks
							- - - - - grades downward to - - - - 7.0
							Moist gray silty clay loam (CLAYEY-SILT) with 2 to 5% mostly black shale gravel & occasional cobble, hard, weakly thinly laminated
							- - - - clear transition to - - - 8.0
10							Moist distinctly mottled brownish gray silty clay loam (CLAYEY-SILT) with 2 to 5% fine size gravel and occasional cobble, hard, interlayered with extremely moist graysih brown coarse silt lenses 1/16-1 inch thick
							- - - - clear transition to - - - 10.0
	1	4					
15			25			62	Extremely moist dark gray silt loam (CLAYEY-SILT) with 2 to 5% subangular black shale gravel, hard, weakly thinly laminated
				37			
					50		
	2	10					
			23			62	
				39			

Description based on samples collected for replacement well R-4

WELL R-4A

Two inch inside diameter PVC pipe

Cement-bentonite grout

Soil backfill

WATER TABLE & REMARKS

Ground level R-4A is approximately 1 foo higher than w # R-4.

Silty lake se ment to 24.0 feet over wat sorted and de 5.0osited fine s and coarse si to 27.0 feet silty lake se ment to 30.5 over shaly si glacial drift 36.5 feet ove water sorted deposited mos sand and grav to end of sampling.

Cont. on sheet 2.

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

George Moreau/Natural Resource Specialist

DIMENSIONS, INC.

Test Borings and Logs
East Aurora, New York 14052 • (716) 655-1717

MONITORING WELL R-4A continued

SURF. ELEV. _____

PROJECT 2A79K-1 — Replacement MW installation, Hand Road, Town of Sardinia
LOCATION — Near southwest corner of proposed landfill expansion
CLIENT — CID Refuse Service
DATE STARTED 8/20/84 COMPLETED 8/21/84

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	DESCRIPTION & CLASSIFICATION	WELL R-4A	WATER TABLE & REMARKS
					50				
	3	10					Extremely moist dark gray silt loam (CLAYEY-SILT) with 2 to 5% subangular black shale gravel, hard, weakly thinly laminated		
			24			68			
				44					
20					49				
							- - - - - clear transition to - - - 20.0		
	4	8							
			24			65			
				41			Extremely moist dark gray silt loam (CLAYEY-SILT) with 2 to 5% subangular black shale gravel, hard, thinly laminated with coarse silt/fine sand lenses		
					59				
	5	14							
			27			67			
				40					
					48				
							- - - - - clear transition to - - - 24.0		
	6	17					Wet olive silt loam (SILT) interbedded with wet gray loamy sand (SAND) fine to coarse size sand, very dense, thinly bedded with a slight tendency to liquefy when distrubed		
25			27			64			
				37					
					36				
							- - - - - grades downward to - - - - 27.0		
	7	WR					Extremely moist gray silt loam (CLAYEY-SILT) with 2 to 10% subangular black shale gravel, hard, thinly laminated with fine sand/coarse silt lenses		WR - sampler penetration with weight of rods only.
			13			35			
				22					
	8	9							
30			16			29			
				13					
					6		- - - - - grades downward to - - - - 30.5		
	9	WR					Extremely moist to wet gray shaly silt loam (CLAYEY-SILT) with 15 to 25% subangular black shale gravel and occasional cobble, hard with occasional (SILTY-SAND)		
			8			24			
				16					
					24				
	10	7							
			26			76			
				50			- - - - - grades downward to - - - - 34.0		
35					80		See next sheet		

Two inch inside diameter PVC pipe
Soil backfill

Cont. on sheet 3...

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

George Moreau/Natural Resource Specialist

EARTH DIMENSIONS, INC.
Test Borings and Logs
East Aurora, New York 14052 • (716) 655-1717

MONITORING WELL R-4A continued

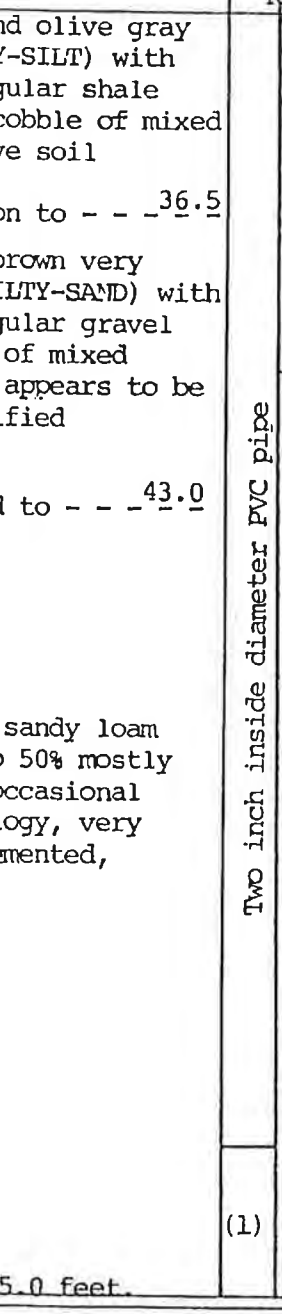
SURF. ELEV. _____

PROJECT Replacement MW installation
2A79K-1 Hand Road, Town of Sardinia
CLIENT CID Refuse Service

LOCATION Near southwest corner of propose landfill expansion
DATE STARTED 8/20/84 COMPLETED 8/21/84

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	DESCRIPTION & CLASSIFICATION
	11	18					Extremely moist gray and olive gray shaly silt loam (CLAYEY-SILT) with 25 to 40% mostly subangular shale gravel and occasional cobble of mixed lithology, hard, massive soil structure
			27			64	
				37			
					100/4.5"		
	12	35					
			100/5"				
	13	42					
			100				
							- - - - clear transition to - - - 36.5
							Moist faintly mottled brown very gravelly sandy loam (SILTY-SAND) with 40 to 50% mostly subangular gravel and occasional boulder of mixed lithology, very dense, appears to be cemented, weakly stratified
40							
							- - - - grades downward to - - - 43.0
45	C O R E R U N # 1						Wet gray very gravelly sandy loam (SILTY-SAND) with 40 to 50% mostly subangular gravel and occasional boulder of mixed lithology, very dense, appears to be cemented, weakly stratified
50	C O R E R U N # 2						
55							Sampling completed to 55.0 feet.

WELL R-4A



WATER TABLE & REMARKS

40.0

(1) Two inch #10 slotted PVC screen.

53.0

55.0

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

George Moreau/Natural Resource Specialist

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • FAX (716) 655-2915

2A79ad HOLE NO. MW K-D-01 SURF. ELEVATION 1496.50

PROJECT MW Installation - Chaffee Landfill LOCATION See map
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/11/01 COMPLETED 04/13/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	2						Extremely moist dark brown gravelly (CLAYEY-SILT) topsoil with 3 to 5% fine size gravel, little clay, soft, granular soil structure, (ML-CL). 0.4		(1) 4"x 5' STEEL PROTECTIVE CASING
			3			8		Moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% fine size gravel, some clay, stiff, blocky soil structure, (CL). grades downward to 2.0		Silty topsoil with little clay to 0.4 feet over clayey slack water sediment to 6.5 feet over water sorted and deposited sand with little to some gravel, little silt and clay to 7.5 feet over clayey slack water sediment to 22.5 feet over water sorted and deposited sand and gravel with little silt to 22.7 feet over clayey slack water sediment to 24.0 feet over silty slack water sediment with little clay to 26.2 feet over water sorted and deposited sand and gravel with little silt to 26.4 feet over silty slack water sediment with little clay to 27.0 feet over water sorted and deposited sand and gravel with little silt to 27.3 feet over silty slack water sediment with little clay to 30.0 feet over silty slack water sediment with trace clay to 31.0 feet over silty slack water sediment with little clay to 34.0 feet over silty slack water sediment with trace clay to 46.6 feet over water sorted and deposited sand and gravel to 73.0 feet over silty slack water sediment with little clay to 82.0 feet over water sorted and deposited sand and gravel to 92.5 feet over clayey slack water sediment to end of boring
				5						
					6					
	2	5								
			8			17				
				9						
					13					
	3	4								
5			8			18				
				10						
					15					
	4	2						Moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, some clay, very stiff, with nearly vertical gray desication cracks, (CL). clear transition to 6.5		
			4			12				
				8						
					8					
	5	2						Extremely moist distinctly mottled olive brown gravelly (SAND-SILT-CLAY) with 15 to 40% mostly subrounded gravel, little silt and clay, compact, weakly stratified, (SC). grades downward to 7.5		
			7			18				
				11						
10					14					
	6	8								
			6			14				
				8						
					8					
	7	1						Extremely moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% mostly subrounded gravel, some clay, very stiff, with nearly vertical gray desiccation cracks, (CL). grades downward to 10.0		
			3			8				
				5						
					6					
	8	2								
15			5			15				
				10						
					8					
	9	3								
			4			10				
				6						
					7					
	10	2								
			2			6				
				4						
20					6			Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly subrounded gravel, some clay, stiff and very stiff becoming firm below 18.0 feet, weak thinly laminated, (CL).		

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79ad HOLE NO. MW K-D-01 SURF. ELEVATION 1496.50

PROJECT MW Installation - Chaffee Landfill LOCATION See map

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/11/01 COMPLETED 04/13/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	2	5	7	10	12		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly subrounded gravel, some clay, stiff, weak thinly laminated, (CL). 22.5	2" PVC RISER; CEMENT/BENTONITE SEAL	
	12	3	6	7	12	13		Moist faintly mottled brown very gravelly (SILTY-SAND) with 40 to 60% mostly subrounded gravel, very fine to very coarse size sand, little silt, compact, stratified, (SM), (GM). 22.7		
25	13	5	10	12	15	22		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly subrounded gravel, some clay, stiff and very stiff, thinly laminated, with very thin coarse silt lenses, (CL). grades downward to 24.0		
	14	5	43	33	20	76		Extremely moist distinctly mottled olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, little clay, very stiff, thinly laminated with very thin coarse silt lenses, (ML-CL). 26.2		
30	15	6	6	10	14	16		Moist highly mottled olive brown very gravelly (SILTY-SAND) with 40 to 60% mostly subrounded gravel, very fine to very coarse size sand, little silt, compact, stratified, (SM), (GM). 26.4		
	16	4	5	5	8	10		Extremely moist distinctly mottled olive gray (CLAYEY-SILT) with 3 to 5% gravel, little clay, hard, thinly laminated with very thin coarse silt lenses, (ML-CL). 27.0		
	17	2	3	4	6	7		Moist highly mottled olive brown very gravelly (SILTY-SAND) with 40 to 60% mostly subrounded gravel, very fine to very coarse size sand, little silt, very dense, loose when disturbed, stratified, (SM), (GM) 27.3		Water level at 36.0 feet with augers at 64.0 feet at 7:30am on 4/13/01.
35	18	3	4	6	9	10				
	19	5	6	9	10	15				
	20	5	7	9	10	16				
40								See next sheet.		

N=NUMBER OF BLOWS TO DRIVE 2 • SPOON 12 • WITH 140 lb. WT. FALLING 30 • PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

EARTH DIMENSIONS, INC.

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2A79ad HOLE NO. MW K-D-01 SURF. ELEVATION 1496.50

PROJECT MW Installation – Chaffee Landfill LOCATION See map

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/11/01 COMPLETED 04/13/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	21	7	10	13	14	23		Extremely moist distinctly mottled olive gray (CLAYEY-SILT) with 5 to 10% mostly subrounded gravel, little clay, hard, thinly laminated with very thin coarse silt lenses, (ML-CL). grades downward to 28.0		
	22	7	10	10	14	20		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly subrounded gravel, little clay, very stiff, thinly laminated with very thin coarse silt lenses, (ML-CL). grades downward to 30.0		
45	23	8	10	12	14	22		Extremely moist olive gray (SILT), loose, thinly bedded, (ML). grades downward to 31.0		
	24	12	00/3"					Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size subrounded gravel, little clay, stiff, thinly laminated with very thin coarse silt lenses, (ML-CL). grades downward to 34.0		
	25	21	32	70	22	102		Extremely moist olive gray (SILT), loose, becoming compact below 36.0 feet, weakly bedded, (ML) 40.0		
50	26	13	22	54	67	76		Extremely moist olive gray (SILT), compact, thinly bedded with thin (CLAYEY-SILT) interbeds, (ML). 46.6		
	27	28	00/2"					Extremely moist becoming wet below 53.0 feet in layers 3 to 8 inches thick olive gray and olive brown very gravelly (SAND) with 40 to 60% mostly subrounded gravel and occasional cobble, very fine to very coarse size sand, trace silt, very dense, loose when disturbed layers with compact consistence, stratified, (SW), (GW).	2" PVC RISER CEMENT/BENTONITE SEAL	
	28	77	72	56	52	128				
55	29	16	22	24	28	46				
	30	11	10	11	16	21				
60										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bxy)

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2A79ad HOLE NO. MW K-D-01 SURF. ELEVATION 1496.50

PROJECT MW Installation - Chaffee Landfill LOCATION See map

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/11/01 COMPLETED 04/13/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	31	6	11	13	12	24		Extremely moist becoming wet below 53.0 feet in layers 3 to 8 inches thick olive gray and olive brown very gravelly (SAND) with 40 to 60% mostly subrounded gravel and occasional cobble, very fine to very coarse size sand, trace silt, very dense, loose when disturbed layers with compact consistence, stratified, (SW), (GW).	2" PVC RISER; CEMENT BENTONITE SEAL	
	32	13	20	29	37	49				
65	33	16	26	24	26	50				
	34	13	20	26	24	46				
	35	24	26	32	21	58				
70	36	18	21	24	24	43				
	37	25	18	21	22	40			73.0	
	38	9	12	18	24	27		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, little clay, very stiff and hard, weak thinly laminated. (ML-CL).		
75	39	8	15	19	21	34				
	40	5	14	19	22	33				← 79.5' (I) #4000 SIZE SAND PACK
80										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MW K-D-01 SURF. ELEVATION 1496.50

PROJECT MW Installation – Chaffee Landfill LOCATION See map

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/11/01 COMPLETED 04/13/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	41	5	14	17	22	31		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% fine size gravel, little clay, hard, weak thinly laminated, (ML-CL).		(1) BENTONITE SEAL
	42	33	22	18	20	40		82.0 Wet olive gray very gravelly (SAND) with 40 to 60% mostly subrounded gravel and occasional cobble, very fine to very coarse size sand, trace silt, compact and dense, stratified, (SW), (GW).	2" PVC RISER	(2) #4000 SIZE SAND PACK ← 83.0' ← 83.5'
85	43	15	24	25	21	49				← 85.5'
	44	17	19	21	23	40			#20 WIRE WRAPPED 2" PVC SCREEN	
90	45	6	12	16	30	28			O. MORIE SAND	
	46	5	16	10	18	26		92.5 Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, some clay, hard, thinly laminated, (CL).		
	47	12	17	30	19	49				
95	48	11	18	35	45	53		96.0 Boring completed at 96.0 feet.		← 95.5' ← 96.0'
100										

N=NUMBER OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 lb. WT. FALLING 30" PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

EARTH DIMENSIONS, INC.

Test Borings and Logs
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NG WELL R-1

PROJECT Replacement of MW installation
Hand Road, Town of Sardinia

CLIENT CID Refuse Service

R1A 1485.0
SURF. ELEV. R1B 1484.3

LOCATION Near southeast corner of
proposed landfill expansion

DATE STARTED 9/7/83 COMPLETED 9/12/83

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	DESCRIPTION & CLASSIFICATION
	1	3					Slightly moist black silt loam (SANDY-SILT) topsoil, loose 0.3
			12			65	Slightly moist brown silt loam (SANDY-SILT), loose, blocky soil structure
				53			
					83		
	2	21					- - - - clear transition to - - 1.2
			24			47	Moist faintly mottled brown gravelly loam (SAND-SILT-CLAY) with 15 to 25% gravel of mixed lithology, hard, weak blocky soil structure
				23			
					25		
	3	8					- - - - grades downward to - - - 3.0
5			18			42	Moist faintly mottled olive brown silt loam (CLAYEY-SILT) with 5 to 15% mostly fine size black shale gravel, thinly laminated with thin sand layers
				24			
					30		
	4	11					- - - - grades downward to - - - 4.0
			19			46	Moist distinctly mottled olive brown silty clay loam (CLAYEY-SILT) with 2 to 5% gravel, hard with nearly vertical gray desiccation cracks
				27			
					34		
	5	11					
			22			52	
				30			
10					41		- - - - clear transition to - - 10.0
	6	12					
			22			46	Extremely moist dark gray silty clay loam (CLAYEY-SILT) with 2 to 5% mostly fine size gravel, hard, weakly thinly laminated
				24			
					32		
	7	11					- - - - grades downward to - - 14.0
			15			31	
				16			
					27		
	8	6					
15			13			32	Extremely moist dark gray silty clay (CLAYEY-SILT) with 2 to 5% mostly fine size gravel, hard, weakly thinly laminated with very thin coarse silt lenses
				19			
					28		
	9	4					
			8				
				13		21	

WELL R-1A: Two inch inside diameter PVC pipe; Cement bentonite grout seal

WELL R-1B: 2" inside diameter PVC pipe; Cement/bentonite grout; (2); # 4 size sand; (1)

8.
9.
1
1

(1) #10 slo
PVC scr
(2) Bentoni
seal

Continued on 2.

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

EARTH DIMENSIONS, INC.

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East Aurora, New York 14052 • (716) 655-1717

ITORING WELL R-1 continued — SURF. ELEV. _____

79k PROJECT Replacement of MW installation Hand Road, Town of Sardinia — LOCATION Near southeast corner of proposed landfill expansion

CLIENT CID Refuse Service — DATE STARTED 9/7/83 COMPLETED 9/12/83

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	DESCRIPTION & CLASSIFICATION	WELL R-1A	WATER TABLE & REMARKS
	9				20		See previous sheet		Coarse silty lake sediment to 1.2 feet over water sorted and deposited mostly sand and gravel with some silt and clay to 3.0 feet over silty lake sediment to 14.0 feet over clayey lake sediment to 18.0 feet over silty lake sediment to 28.0 feet over clayey lake sediment to 42.2 feet over water sorted and deposited mostly sand to 42.8 feet over water sorted and deposited mostly sand and gravel with mostly stone free sand interlayers to end of boring.
	10	6							
			11			25			
				14					
20					18				
	11	6					clear transition to – 18.0 –		
			8			25	Extremely moist dark gray silt loam (CLAYEY-SILT), very stiff, thinly laminated with very thin coarse silt lenses		
				17					
					23				
	12	5							
			9			23			
				14					
					19				
	13	4							
25			7			22			
				15					
					20				
	14	5							
			9			23			
				14			clear transition to – 28.0 –		
					21				
	15	5							
			11			31			
				20					
30					30				
	16	7					Extremely moist dark gray silty clay (CLAYEY-SILT) with 2 to 5% mostly fine size gravel, hard, thinly laminated with very thin coarse silt lenses		
			14			32			
				18					
					28				
	17	8							
			16			36			
				20					
					29				
	18	6							
35			12						

Two inch inside diameter PVC pipe

Cement/bentonite grout seal

Continued on 3...

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

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RING WELL R-1 continued

19k PROJECT Replacement of MW installation — Hand Road, Town of Sardinia

LOCATION Near southeast corner of proposed landfill expansion

CLIENT CID Refuse Service

SURF. ELEV. _____

DATE STARTED 9/7/83 COMPLETED 9/12

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	DESCRIPTION & CLASSIFICATION	WELL R-1A	WATER TABLE & REA
	18			18	24	30	Extremely moist dark gray silty clay (CLAYEY-SILT) with 2 to 5% mostly fine size gravel, hard, thinly laminated with very thin coarse silt lenses		
	19	9	21	24	36	45			
	20	8	17	22	33	39			
40	21	7	13	18	28	31			
	22	14	34	55	25	89			
	23	20	44	50	32	94			
45	24	8	17	27	32	44			
	25	7	17	17	19	34			
50	26	1	16	27	53	43			
	27	18							

42.2 Moist distinctly mottled brown loamy sand (SAND) with 5 to 15% mostly rounded gravel, stratified, loose when disturbed

42.8 Moist distinctly mottled brown very gravelly loamy sand (SAND) with 40 to 50% mostly rounded and subrounded gravel & occasional cobble of mixed lithology, stratified, loose when disturbed

47.5 Extremely moist distinctly mottled brown fine sandy loam (SILTY-SAND) dense in place, thinly bedded 47.7

Moist distinctly mottled brown very gravelly loamy sand (SAND) with 40 to 50% mostly rounded and subrounded gravel & occasional cobble of mixed lithology, stratified, loose when disturbed

- - - - clear transition to - - 49.0

Wet faintly mottled grayish brown very gravelly loamy sand (SAND) with 40 to 50% mostly rounded and subrounded gravel & occasional cobble of mixed lithology, stratified, loose when disturbed

- - - - clear transition to - - 50.5

Wet grayish brown loamy sand (SAND) with 5 to 15% gravel, medium to coarse size sand, stratified

- - - - clear transition to - - 51.0

See next sheet

Two inch inside diameter PVC pipe

Cement/bentonite grout

Number 4 size sand

(1)

(2)

41.0

42.0

52.0

(1) Bentor seal

(2) #10 s PVC we screer

Continued or

N = NUMBER OF BLOWS TO DRIVE 2 ... 12

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NITORING WELL R-1 continued

79k PROJECT Replacement of MW installation
Hand Road, Town of Sardinia

CLIENT CID Refuse Service

SURF. ELEV. _____

LOCATION Near southeast corner of proposed landfill expansion

DATE STARTED 9/7/83 COMPLETED 9/12

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	DESCRIPTION & CLASSIFICATION	WELL (1)	WELL (2)	WATER TABLE & REM
	27		21			35	Wet grayish brown gravelly loamy sand (SAND) with 30 to 40% mostly subangular gravel & occasional cobble, stratified, loose when disturbed			(1) # 10 slo PVC well (2) # 4 size
				14						
					17					
55							- - - clear transition to - 53.3 - Wet gray very gravelly loamy sand (SAND) with 40 to 50% mostly fine size subrounded gravel, loose when disturbed, stratified with fine sand lenses which tend to liquefy when disturbed 54.0			54.0
							Boring completed at 54.0 feet.			

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

LOGGED BY [illegible]

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Soil and Hydrogeologic Investigations • Wetland Delineations

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(716) 655-1717 • FAX (716) 655-2915

2A79bm HOLE NO. Bore Hole SB6-08 SURF. ELEVATION —

PROJECT Chaffee Landfill -Borrow Area. (Proposed Mining) LOCATION Boring moved 25.0 feet NW from original staked location due to access

Town of Sardinia, Erie Co., NY

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 08/14/08 COMPLETED 08/14/08

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
1	1						Extremely moist dark brown (SANDY-SILT) topsoil with little sand and organic matter, loose, granular soil structure, (ML). 0.5		(1) 2" PVC STICK UP WITH J PLUG
24		2			5				(2) BENTONITE SEAL
			3						Coarse silty topsoil with little sand and organic matter to 0.5 feet over clayey slack water sediment to 1.1 feet over clayey slack water sediment with trace gravel to 22.9 feet over coarse silty slack water sediment with little sand to 23.6 feet over water sorted and deposited sand and gravel, trace silt to end of boring.
				5					
2	4						Moist highly mottled olive brown (CLAYEY-SILT) with some clay, firm, blocky soil structure, (CL). clear transition to 1.1		
24		8			18				
			10						
				11					
3	6						Moist highly mottled olive brown (CLAYEY-SILT) with 1 to 3% gravel, some clay, firm with nearly vertical gray desiccation cracks, (CL). grades downward to 2.0		
24		8			18				
			10						
				11					
4	5						Moist faintly mottled olive brown (CLAYEY-SILT) with 3 to 10% gravel, some clay, very stiff with nearly vertical gray desiccation cracks, (CL). grades downward to 6.0		
24		7			13				
			8						
				5					
5	4								
24		9			19				
			10						
				14					
6	6						Moist olive brown (CLAYEY-SILT) with 1 to 3% gravel, some clay, stiff with nearly vertical gray desiccation cracks and extremely moist grayish brown mostly fine to coarse size sand stringer from 7.4 to 7.6 foot depth, (CL). grades downward to 8.0		
24		7			15				
			8						
				10					
7	8								
22		5			12				
			7						
				9					
8	6						Moist olive brown (CLAYEY-SILT) with 3 to 10% gravel, some clay, very stiff, weakly thinly laminated to massive soil structure, (CL). 10.0		
24		6			14				
			8						
				12					
9	4						Moist to extremely moist gray (CLAYEY-SILT) with 3 to 10% gravel, some clay, very stiff, weakly thinly laminated, (CL). grades downward to 12.0		
24		8			17				
			9						
				9					
10	8								
22		12			21				
			9						
				9			See next sheet.		

WELL (1): 2" PVC RISER; 0.010 SLOT 2" PVC SCREEN; SOIL CUTTINGS; #00N SIZE MORIE SAND PACK; (2)

← 7.5'

← 9.5'

← 11.5'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Steven J. Currie, Soil Scientist, (mw)

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(716) 655-1717 • FAX (716) 655-2915

2A79bm HOLE NO. Bore Hole SB6-08 SURF. ELEVATION _

PROJECT Chaffee Landfill -Borrow Area. (Proposed Mining) LOCATION Boring moved 25.0 feet NW from original staked location due to access

Town of Sardinia, Erie Co., NY

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 08/14/08 COMPLETED 08/14/08

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	6								
	24		9			19				
				10						
					11					
	12	8								
	24		14			37				
				23						
					31					
	13	20								
25	20		20			46				
				26						
					24					
								Moist to extremely moist gray (CLAYEY-SILT) with 3 to 10% gravel, occasional cobble, some clay, stiff, weakly thinly laminated with wet grayish brown gravelly sand stringer with 20 to 40% subrounded gravel, very fine to very coarse size sand, trace silt from 12.0 to 12.4 foot depth, (CL).	(1) (2)	← 21.5'
								grades downward to 16.0		← 22.0
								Moist to extremely moist gray (CLAYEY-SILT) with 3 to 10% gravel, occasional cobble, some clay, very stiff, weakly thinly laminated to massive soil structure, (CL).	BENTONITE SEAL	(1) 0.010 SLOT 2" PVC SCREEN
								22.9		(2) #00N SIZE MORIE SAND PACK
								Extremely moist brown (SANDY-SILT) with little mostly very fine to fine size sand, dense, slight tendency to liquefy when disturbed, thinly bedded, (ML).		
								23.6		
30								Extremely moist to moist grayish brown very gravelly (SAND) with a 40 to 60% mix of subrounded and subangular gravel, very fine to very coarse size sand, trace silt, dense, loose when disturbed, stratified, (SW), (GW).		← 26.0'
								26.0		
								Boring completed at 26.0 feet.		
35										
40										

N=NUMBER OF BLOWS TO DRIVE 2_ " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Steven J. Currie, Soil Scientist, (mw)

DIMENSIONS, INC.

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(716) 655-1717 • FAX (716) 655-2915

2A79bm HOLE NO. Bore Hole SB7-08 SURF. ELEVATION _

PROJECT Chaffee Landfill -Borrow Area, (Proposed Mining) LOCATION Boring moved 25.0 feet NE from original staked location due to access
Town of Sardinia, Erie Co., NY

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 08/13/08 COMPLETED 08/13/08

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
1	2							
20		2			6		Extremely moist blackish gray (SANDY-SILT) topsoil with little sand and organic matter, loose, granular soil structure, (ML).	Coarse silty topsoil with little sand and organic matter to 0.2 feet over coarse silty slack water sediment with little sand, trace organic matter to 0.9 feet over loamy glacial drift with trace gravel to 4.0 feet over silty glacial drift with trace gravel to 6.0 feet over loamy glacial drift with some gravel to 8.7 feet over clayey slack water sediment to 10.0 feet over clayey slack water sediment with trace gravel to 22.0 feet over silty slack water sediment with little clay, trace gravel to 24.0 feet over clayey slack water sediment with trace gravel to 39.6 feet over silty slack water sediment with little clay, trace gravel to 43.7 feet over water sorted and deposited sand with some gravel, little silt to 44.3 feet over silty glacial till to end of boring.
			4					
				5			0.2	
2	8							
14		7			17		Extremely moist brown (SANDY-SILT) with little mostly very fine size sand, trace organic matter, loose, weakly granular soil structure, (ML).	
			10					
				9			0.9	
3	5							
5 24		3			7		Moist faintly mottled grayish brown (SANDY-SILT) with 5 to 10% gravel, little mostly very fine size sand, loose, blocky soil structure, (ML).	
			4					
				5			clear transition to 2.0	
4	1							
6		6			11		Moist distinctly mottled olive grayish brown (SAND-SILT-CLAY) with 5 to 10% gravel, little sand and clay, very stiff with nearly vertical gray desiccation cracks, (ML-CL).	
			5					
				6			clear transition to 4.0	
5	7							
18		5			12		Extremely moist faintly mottled grayish brown (CLAYEY-SILT) with 5 to 10% gravel, little clay, trace sand, firm with nearly vertical gray desiccation cracks and occasional fine to coarse size sand lens less than 0.25 inches in thickness, (ML-CL).	
			7					
				4			clear transition to 6.0	
6	2							
12		4			11		Extremely moist to wet olive grayish brown gravelly (SAND-SILT-CLAY) with a 20 to 40% mix of subrounded and subangular gravel, little sand and clay, stiff, massive soil structure, (SC).	
			7					
				6			8.7	
7	5							
24		5			13		Moist to extremely moist grayish brown (CLAYEY-SILT) with some clay, stiff, thinly laminated, (CL).	
			8					
				9			clear transition to 10.0	
8	5							
24		7			18			
			11					
				13				
9	7							
24		9			21			
			12					
				13				
10	7							
24		7			17			
			10					
				9				

See next sheet.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Steven J. Currie, Soil Scientist, (mw)

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2A79bm HOLE NO. Bore Hole SB7-08 SURF. ELEVATION _

PROJECT Chaffee Landfill -Borrow Area, (Proposed Mining) LOCATION Boring moved 25.0 feet NE from original staked location due to access

Town of Sardinia, Erie Co., NY

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 08/13/08 COMPLETED 08/13/08

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	11	6						Moist to extremely moist gray (CLAYEY-SILT) with 1 to 3% gravel, some clay, stiff becoming very stiff below 14.0 feet, weakly thinly laminated, (CL).	
	24		6			15			
				9					
					11				
	12	5							
	24		5			15		grades downward to 22.0	
				10				Moist to extremely moist gray (CLAYEY-SILT) with 3 to 5% gravel, little clay, stiff, weakly thinly laminated, (ML-CL).	
					15				
	13	7							
25	24		9			20		grades downward to 24.0	
				11				Moist to extremely moist brownish gray (CLAYEY-SILT) with 5 to 10% gravel, some clay, very stiff, weakly thinly laminated, (CL).	
					12				
	14	7							
	24		8			18		grades downward to 26.0	
				10				Moist to extremely moist brownish gray (CLAYEY-SILT) with 5 to 10% gravel, some clay, very stiff, weakly thinly laminated with wet gray gravelly (SAND) stringer with 20 to 40% subrounded gravel, very fine to very coarse size sand from 26.5 to 26.7 foot depth, (CL).	
					11				
	15	8							
	24		9			24		grades downward to 28.0	
				15				Moist to extremely moist gray (CLAYEY-SILT) with 3 to 10% gravel, some clay, very stiff, weakly thinly laminated, (CL).	
30					16				
	16	9							
	4		12			30			
				18					
					18				
	17	7							
	24		11			29			
				18					
					11				
	18	14							
35	13		11			28			
				17					
					18				
	19	5							
	24		11			25			
				14					
					15				
	20	3							
	24		6			17		clear transition to 39.6	
				11					
40					22			See next sheet.	

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Steven J. Currie, Soil Scientist, (mw)

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2A79bm HOLE NO. Bore Hole SB7-08 SURF. ELEVATION _

PROJECT Chaffee Landfill -Borrow Area. (Proposed Mining) LOCATION Boring moved 25.0 feet NE from original staked location due to access

Town of Sardinia, Erie Co., NY

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 08/13/08 COMPLETED 08/13/08

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
21	18							
24		22			45		Extremely moist olive gray (CLAYEY-SILT) with 1 to 3% gravel, little clay, very stiff, weakly thinly laminated, (ML-CL).	
			23				40.0	
				13			Moist to extremely moist olive gray (CLAYEY-SILT) with 3 to 10% gravel, little clay, hard, weakly thinly laminated with multiple extremely moist gray very fine to very coarse (SAND) stringers less than 0.2 feet in thickness, (ML-CL).	
22	5						clear transition to 42.0	
24		8			17		Moist to extremely moist gray (CLAYEY-SILT) with 3 to 10% gravel, little clay, very stiff, weakly thinly laminated, (ML-CL).	
			9				43.7	
				20			Moist grayish brown gravelly (SILTY-SAND) with 20 to 40% mostly subrounded gravel, very fine to very coarse size sand, little silt, compact, loose when disturbed, stratified, (SM).	
23	7						clear transition to 44.3	
24		13			24		Moist olive gray gravelly (CLAYEY-SILT) with a 20 to 40% mix of subrounded and subangular gravel, little clay, trace sand, very stiff, massive soil structure, (ML-CL).	
			11				48.0	
				17			Boring completed at 48.0 feet.	
24	16							
8		23			49			
			26					
				64				No water at completion.

45 50 55 60

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Steven J. Currie, Soil Scientist, (mw) SHEET 3 OF 3

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2A79bm HOLE NO. Bore Hole SB8-08 SURF. ELEVATION _

PROJECT Chaffee Landfill -Borrow Area. (Proposed Mining) LOCATION Boring moved 7.0 feet NW from original staked location due to access

Town of Sardinia, Erie Co. NY

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 08/14/08 COMPLETED 08/14/08

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
0	1	2						Extremely moist dark brown (SILT) topsoil with little organic matter, trace sand, loose, granular soil structure, (ML).	Silty topsoil with little organic matter, trace sand to 0.4 feet over clayey slack water sediment to 0.9 feet over clayey slack water sediment with trace gravel to 26.0 feet over water sorted and deposited sand and gravel to end of boring.
	24		3			7			
				4					
					5				
	2	5						0.4	
	24		8			14		Moist highly mottled brown (CLAYEY-SILT) with some clay, firm, blocky soil structure, (CL).	
				8					
					9				
	3	4						0.9	
5	24		5			11		Moist distinctly mottled brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, firm with nearly vertical gray desiccation cracks, (CL).	
				6					
					9				
	4	8						grades downward to 2.0	
	24		8			19		Moist faintly mottled brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, stiff with nearly vertical gray desiccation cracks, (CL).	
				11					
					18				
	5	10						grades downward to 6.0	
	24		17			38		Moist brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff becoming hard below 8.0 feet with nearly vertical gray desiccation cracks, (CL).	
				21					
10					22				
	8	8						9.1	
	24		8			15		Moist gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, hard becoming very stiff below 10.0 feet, weakly thinly laminated, (CL).	
				9					
					11				
	7	8						grades downward to 14.0	
	24		9			21		Moist to extremely moist gray (CLAYEY-SILT) with 3 to 10% gravel, some clay, stiff becoming very stiff below 16.0 feet, weakly thinly laminated, (CL).	
				12					
					13				
	8	5							
15	24		6			13			
				7					
					8				
	9	4							
	24		7			16			
				9					
					10				
	10	7							
	24		11			24			
				13					
20					13				

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Steven J. Currie, Soil Scientist, (mw)

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2A79bm HOLE NO. Bore Hole SB8-08 SURF. ELEVATION _

PROJECT Chaffee Landfill -Borrow Area. (Proposed Mining) LOCATION Boring moved 7.0 feet NW from original staked location due to access.
Town of Sardinia, Erie Co., NY

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 08/14/08 COMPLETED 08/14/08

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	11	5						Moist to extremely moist gray (CLAYEY-SILT) with 3 to 10% gravel, some clay, stiff becoming very stiff below 16.0 feet, weakly thinly laminated, (CL).	
	24		6			15			
				9					
					11				
	12	4							
	24		7			17			
				10					
					14				
	13	4							
25	24		9			22			
				13					
					13			26.0	
	14	21						Moist grayish brown very gravelly (SAND) with a 40 to 60% mix of subrounded and subangular gravel, very fine to very coarse size sand, very dense, loose when disturbed, stratified, (SW), (GW).	
	24		28			76			
				50					
					43				
	15	49							
	20		44			129			
				85					
					34			30.0	
30								Boring completed at 30.0 feet.	No water at completion.
35									
40									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Steven J. Currie, Soil Scientist, (mw)

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2A79bm HOLE NO. Bore Hole SB9-08 SURF. ELEVATION —

PROJECT Chaffee Landfill -Borrow Area. (Proposed Mining) LOCATION Boring moved 10.0 feet N from original staked location due to access

Town of Sardinia, Erie Co., NY

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 08/14/08 COMPLETED 08/15/08

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
	1	5						Extremely moist dark brown (SANDY-SILT) topsoil with little sand and organic mater, loose, granular soil structure, (ML). 0.3		(1) 2" PVC STICK UP WITH J PLUG
	24		2			6				
				4						
					2					
	2	5								
	24		5			12		Moist highly mottled brown (CLAYEY-SILT) with little clay, firm, blocky soil structure, (ML-CL).		
				7				grades downward to 1.4		
					8					
	3	8								
5	24		8			15		Moist faintly mottled brown (CLAYEY-SILT) with 1 to 3% gravel, some clay, firm with nearly vertical gray desiccation cracks, (CL).		
				7						
					8					
	4	9								
	24		7			16		clear transition to 2.0		
				9						
					15			Moist brown (CLAYEY-SILT) with 3 to 10% gravel, some clay, stiff, massive soil structure, (CL).		
	5	6								
	24		6			15		grades downward to 6.0		
				9						
					11			Moist brown gravelly (CLAYEY-SILT) with a 20 to 40% mix of subrounded and subangular gravel, some clay, very		
10	6	7								
	24		8			18		stiff, massive soil structure, (CL).		
				10				grades downward to 8.0		
					12					
	7	10						Moist brown (CLAYEY-SILT) with 3 to 10% gravel, some clay, very stiff, weakly, thinly laminated, (CL).		
	24		9			16				
				7				clear transition to 12.0		
					7					
	8	6						Extremely moist brownish gray (CLAYEY-SILT) with some clay, very		
15	24		4			9		stiff, weakly thinly laminated with occasional fine to coarse size sand		
				5				lens less than 0.1 feet in thickness, (CL).		
					7					
	9	8								
	8		7			16		grades downward to 14.0		
				9						
					10			Extremely moist brownish gray (CLAYEY-SILT) with some clay, stiff, weakly thinly laminated with very thin coarse silt lenses, (CL).		
	10	6								
	24		8			17		clear transition to 16.0		
				9						
20					11			See next sheet.		

2" PVC RISER

SOIL CUTTINGS

Coarse silty topsoil with little sand and organic matter to 0.3 feet over silty slack water sediment with little clay to 1.4 feet over clayey slack water sediment with trace gravel to 6.0 feet over clayey glacial drift with some gravel to 8.0 feet over clayey slack water sediment with trace gravel to 12.0 feet over clayey slack water sediment to 16.0 feet over clayey slack water sediment with trace gravel to 20.8 feet over loamy glacial drift with some shale to 22.8 feet over clayey slack water sediment with trace gravel to 28.7 feet over loamy glacial drift with trace gravel to 29.1 feet over water sorted and deposited sand with trace silt to 29.7 feet over loamy glacial drift with trace gravel to 34.0 feet over water sorted and deposited sand and gravel, trace silt to end of boring.

Morning of 8/15/08, water level at 10.4 feet below ground surface with augers left in over night at 14.0 feet.

N=NUMBER OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 lb. WT. FALLING 30" PER BLOW

LOGGED BY Steven J. Currie, Soil Scientist, (mw)

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2A79bm HOLE NO. Bore Hole SB9-08 SURF. ELEVATION _

PROJECT Chaffee Landfill -Borrow Area, (Proposed Mining) LOCATION Boring moved 10.0 feet N from original staked location due to access

Town of Sardinia, Erie Co., NY

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 08/14/08 COMPLETED 08/15/08

DEPTH IN FT | BLOWS ON SAMPLER | SN REC | 0/6 | 6/12 | 12/18 | 18/24 | N | LITH | DESCRIPTION AND CLASSIFICATION | WELL | WATER TABLE AND REMARKS

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N
	11	8				
	20		22			34
				12		
					16	
	12	5				
	24		11			18
				7		
					16	
	13	11				
25	24		13			35
				22		
					28	
	14	11				
	24		13			29
				16		
					24	
	15	23				
	24		51			93
				42		
30					42	
	16	12				
	24		95			140
				45		
					60	
	17	78				
35	24		26			102
				76		
					76	
	18	16				
40	18		15			

Extremely moist gray (CLAYEY-SILT) with 5 to 10% gravel, some clay, very stiff, weakly thinly laminated, (CL).

clear transition to 20.8

Extremely moist gray shaly (SAND-SILT-CLAY) with 20 to 40% shale fragments, little sand and clay, hard, massive soil structure, (ML-CL).

22.6

Moist to extremely moist gray (CLAYEY-SILT) with 5 to 10% gravel, some clay, very stiff and hard, massive soil structure, (CL).

clear transition to 28.7

Moist grayish brown (SAND-SILT-CLAY) with 3 to 5% gravel, little sand and clay, hard, massive soil structure, (ML-CL).

29.1

Moist brown (SAND), mostly fine to coarse size, trace silt, very dense, loose when disturbed, stratified, (SW).

29.7

Moist graish brown (SAND-SILT-CLAY) with 1 to 3% gravel, little sand and clay, hard, massive soil structure, (ML-CL).

30.4

Moist brownish gray very gravelly (SAND) with a 40 to 60% mix of subrounded and subangular gravel, very fine to very coarse size sand, very dense, loose when disturbed, (SW), (GW).

grades downward to 34.0

See next sheet.

WELL: 2" PVC RISER; SOIL CUTTINGS; (1) BENTONITE SEAL; 0.010 SLOT 2" PVC SCREEN; #00N SIZE MORIE SAND PACK

← 29.0'

(1) BENTONITE SEAL

← 31.0'

← 33.0'

Water level at 38.4 feet below ground surface at completion.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Steven J. Currie, Soil Scientist, (mw)

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2A79bm

HOLE NO. Bore Hole SB9-08

SURF. ELEVATION _

PROJECT Chaffee Landfill -Borrow Area. (Proposed Mining)
Town of Sardinia, Erie Co., NY

LOCATION Boring moved 10.0 feet N from original staked location due to access

CLIENT McMahon & Mann Consulting Engineers, P.C.

DATE STARTED 08/14/08 COMPLETED 08/15/08

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
				14	16			Extremely moist brownish gray very gravelly (SAND) with a 40 to 60% mix of subrounded and subangular gravel, very fine to very coarse size sand, trace silt, very dense, loose when disturbed, stratified, (SW), (GW). grades downward to 39.0	(2) (1)	(1) #00N SIZE MORIE SAND PACK (2) 0.010 SLOT 2" PVC SCREEN ← 43.0' ← 43.5'
45								Wet brownish gray very gravelly (SAND) with a 40 to 60% mix of subrounded and subangular gravel, very fine to very coarse size sand, trace silt, compact, loose when disturbed, stratified, (SW), (GW). 43.5		
50								Sampling terminated at 41.0 feet. Continued augering to 43.5 feet. Boring completed at 43.5 feet.		
55										
60										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Steven J. Currie, Soil Scientist, (mw)

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2A79cc HOLE NO. SB-1-17 SURF. ELEVATION 1475.9

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 939579.4

Town of Sardinia, Erie County, NY Easting: 1171405.4

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/07/17 COMPLETED 11/08/17

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	21	8								
	20		12			31		Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, very stiff, weakly thinly laminated to thinly laminated, (CL).		(1) Cement bentonite grout
				19						
					26					
	22	8								
	5		17			34		clear transition to 40.2		
				17				Moist brown (SANDY-SILT) with trace to little sand, trace clay, compact, massive soil structure, (ML).		
					21					← 44.0'
45								clear transition to 40.7		
								Extremely moist to wet brown gravelly (SILTY-SAND) with 20 to 40% gravel, trace to little silt, compact, stratified, (SM).		
								44.0		
								Boring completed at 44.0 feet.		
50										
55										
60										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

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2A79cc HOLE NO. SB-2-17 SURF. ELEVATION 1450.1

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 939153.0

Town of Sardinia, Erie County, NY Easting: 1170989.2

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/06/17 COMPLETED 11/06/17

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	2						Extremely moist brownish gray (SANDY-SILT) topsoil fill with little organic matter, trace to little sand, very loose, massive soil structure, (ML).		Coarse silty topsoil fill with little organic matter, trace to little sand to 0.1 feet over clayey slack water sediment with trace sand and gravel to 7.9 feet over silty glacial drift with little clay, trace sand and gravel to 8.5 feet over water sorted and deposited sand with little to some gravel, little silt, occasional cobble to end of boring.
	17		2			9		0.1		
				7				Moist to extremely moist light gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, very stiff below 4.0 feet, weakly thinly laminated, (CL).		
					8					
	2	8								
	20		7			13				
				6						
					10					
	3	13								
5	13		13			26				
				13						
					14					
	4	4								
	24		6			13				
				7				grades downward to 7.9		
					9					
	5	6						Moist olive brown (CLAYEY-SILT) with 3 to 7% gravel, little clay, trace sand, very stiff, massive soil structure, (ML-CL).		
	19		13			32				
				19						
10					27					
	6	14								
	14		21			60				
				39						
					100/1					
	7	11								
	13		24			45				
				21						
					29					
	8	13								
15	12		21			54				
				33						
					100/3			15.7		
								Boring completed at 15.7 feet.		
20										

Cement Bentonite Grout Mix

94 lb portland cement
5 lb bentonite
7.8 gal water

No water at completion.

← 15.7'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79cc HOLE NO. SB-3-17 SURF. ELEVATION 1465.4

PROJECT Chaffee Landfill Expansion - 10860 Olean Road
Town of Sardinia, Erie County, NY

LOCATION Northing: 939165.9
Easting: 1170624.5

CLIENT McMahon and Mann Consulting Engineers

DATE STARTED 11/06/17 COMPLETED 11/07/17

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	1						Moist to extremely moist dark gray to brown (SANDY-SILT) topsoil with little sand and organic matter, trace root fiber, very loose, granular soil structure, (ML).		Coarse silty topsoil with little sand and organic matter, trace root fiber to 1.9 feet over coarse silty glacial drift with little to some sand, trace to little gravel, trace organic matter to 2.3 feet over water sorted and deposited sand with some gravel, trace to little silt with an occasoinal cobble to end of boring.
	6		2			3				
				1						
					1					
	2	11						grades downward to 1.9		
	14		7			16				
				9						
					8					
	3	12						Moist to extremely moist brown (SANDY-SILT) with 5 to 15% gravel, little to some sand, trace organic matter, compact, massive soil structure, (ML).		
5	16		14			25				
				11						
					12					
	4	100/5						grades downward to 2.3		
	2							Moist light brownish gray gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, trace to little silt, compact, stratified, (SM).		← 6.4'
								6.4		
								Boring completed at 6.4 feet.		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 6.4 feet. Bore hole was tremie grouted to ground surface upon completion.
10										Cement Bentonite Grout Mix 94 lb portland cement 5 lb bentonite 7.8 gal water
										No water at completion.
15										
20										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

SHEET 1 OF 1

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79cc HOLE NO. SB-4-17 SURF. ELEVATION 1455.1

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 938974.3

Town of Sardinia, Erie County, NY Easting: 1170495.7

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/06/17 COMPLETED 11/07/17

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	1						Moist to extremely moist dark brown (SANDY-SILT) topsoil fill with 3 to 7% gravel, little organic matter and sand, trace clay, very loose, granular soil structure, (ML).		Coarse silty topsoil fill with little organic matter and sand, trace clay and gravel to 0.7 feet over silty soil fill with little sand and clay, trace organic matter and gravel to 2.0 feet over sandy soil fill with some gravel, little silt, trace organic matter and clay to end of boring.
	12		2			5				
				3						
					6					
	2	3						grades downward to 0.7		
	12		4			7				
				3				Moist to extremely moist light brown (SAND-SILT-CLAY) fill with 3 to 7% gravel, little sand and clay, stiff, massive soil structure, (ML-CL).		
					3					
	3	4								
5	14		3			6		2.0		
				3				Moist, wet below 12.0 feet, brownish gray gravelly (SILTY-SAND) fill with 20 to 40% gravel, little silt, trace organic matter and clay, loose, massive soil structure, (SM).		
					4					
	4	8								
	12		5			10				
				5						
					6					
	5	19								
	12		16			26				
				10						
					10					
10	6	27								
	11		15			31				
				16						
					9					
	7	15								
	3		19			26				
				7						
					8					
	8	3								
15	6		3			7				
				4				16.0		← 16.0'
					5			Boring completed at 16.0 feet.		
20										

Cement Bentonite Grout Mix

94 lb portland cement
5 lb bentonite
7.8 gal water

Note: No water in bore hole after leaving augers in overnight at 14.0 feet.

Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 16.0 feet. Bore hole was tremie grouted to ground surface upon completion.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns) SHEET 1 OF 1

EARTH DIMENSIONS, INC.

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1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79cc HOLE NO. SB-12-17 SURF. ELEVATION 1458.0

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 939164.4

Town of Sardinia, Erie County, NY Easting: 1170723.1

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/07/17 COMPLETED 11/07/17

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	2						Moist to extremely moist light brownish gray to olive brown, (CLAYEY-SILT) topsoil fill with little clay, trace sand and organic matter, firm, massive soil structure, (ML-CL).		Silty topsoil fill with little clay, trace sand and organic matter to 0.4 feet over sandy soil fill with little silt and gravel, trace clay to 1.1 feet over clayey slack water sediment with trace sand and gravel to 3.3 feet over water sorted and deposited sand with little to some gravel, trace to little silt with an occasional cobble to 6.2 feet over silty glacial drift with little sand and clay, trace gravel to 7.5 feet over clayey slack water sediment with trace sand and gravel to 10.7 feet over water sorted and deposited sand with some gravel, little silt with an occasional cobble to end of boring.
	17		3			9		0.4		
				6				Extremely moist to wet brownish gray (SILTY-SAND) fill with 10 to 20% gravel, little silt, trace clay, compact, massive soil structure, (SM).		
					7			1.1		
	2	2						Moist to extremely moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, stiff, weakly thinly laminated, (CL).		
	22		3			8		grades downward to 3.3		
				5				Moist brown gravelly (SILTY-SAND) with 20 to 40% gravel, trace to little silt, occasional cobble, dense, stratified, (SM).		
					8			grades downward to 6.2		
	3	17						Moist to extremely moist light brown (SAND-SILT-CLAY) with 5 to 10% gravel, little sand and clay, mostly very fine to fine size sand, very stiff, massive soil structure, (ML-CL).		
5	<1		39			23		grades downward to 7.5		
				100/3				Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, thinly laminated to weakly thinly laminated, (ML-CL).		
	4	12						clear transition to 10.7		
	20		15					Moist brown gravelly (SILTY-SAND) with 20 to 40% gravel, little silt, occasional cobble, very dense, stratified, (SM).		
				8				14.0		
					8			Boring completed at 14.0 feet.		
	5	3								
	7		5			10				
				5						
10					7					
	6	77								
	17		23			54				
				31						
					34					
	7	13								
	19		22			57				
				35						
					38					
15										
20										

CEMENT BENTONITE GROUT

← 14.0'

Cement Bentonite Grout Mix

94 lb portland cement
5 lb bentonite
7.8 gal water

No water at completion.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.
Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • FAX (716) 655-2915

2A79cc HOLE NO. SB-13-17 SURF. ELEVATION 1459.9

PROJECT Chaffee Landfill Expansion - 10860 Olean Road
Town of Sardinia, Erie County, NY

LOCATION Northing: 939260.9
Easting: 1170682.2

CLIENT McMahon and Mann Consulting Engineers

DATE STARTED 11/07/17 COMPLETED 11/07/17

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N
	1	2				
	20		2			5
				3		
					4	
	2	3				
	20		4			10
				6		
					7	
	3	2				
5	20		5			13
				8		
					15	
	4	6				
	22		8			16
				8		
					12	
	5	5				
	16		6			14
				8		
10					10	
	6	6				
	2		8			17
				9		
					13	
	7	3				
	17		4			12
				8		
					10	
	8	8				
15	20		8			25
				17		
					40	
	9	23				
	13		25			64
				39		
					41	
20						

LITH

DESCRIPTION AND CLASSIFICATION

Moist to extremely moist dark gray to grayish brown (CLAYEY-SILT) topsoil fill with little clay, trace sand and organic matter, soft, massive soil structure, (ML-CL). 0.5

Moist to extremely moist gray to dark gray (CLAYEY-SILT) fill with some clay, trace sand, firm, massive soil structure, (CL). 1.3

Moist to extremely moist grayish brown (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, weakly thinly laminated, (CL).
grades downward to 2.3

Moist to extremely moist gray (SAND-SILT-CLAY) with 3 to 7% gravel, little sand and clay, stiff, very weakly thinly laminated to massive soil structure, (ML-CL).
grades downward to 6.5

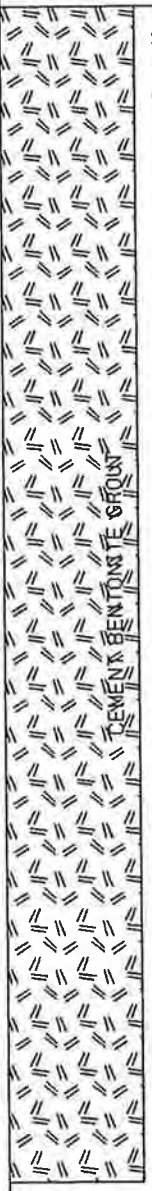
Moist gray gravelly (SILTY-SAND) with 20 to 40% gravel, trace to little silt, dense, stratified, (SM).
grades downward to 7.0

Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, little to some clay, trace sand, very stiff, very weakly thinly laminated to massive soil structure, weakly thinly laminated with very thin coarse silt lenses below 9.0 feet, (ML-CL).
grades downward to 15.2

Moist to extremely moist brown (CLAYEY-SILT) with 3 to 7% gravel, little clay, very stiff, weakly thinly laminated, (ML-CL).
grades downward to 15.7

See next sheet

WELL



← 18.0'

WATER TABLE AND REMARKS

Silty topsoil fill with little clay, trace sand and organic matter to 0.5 feet over silty soil fill with some clay, trace sand to 1.3 feet over clayey slack water sediment with trace sand and gravel to 2.3 feet over silty slack water sediment with little sand and clay, trace gravel to 6.5 feet over water sorted and deposited sand with some gravel, trace to little silt to 7.0 feet over silty slack water sediment with some clay, trace sand and gravel to 15.2 feet over silty slack water sediment with little clay, trace gravel to 15.7 feet over water sorted and deposited sand with some gravel, trace silt with an occasional cobble to end of boring.

Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 18.0 feet. Bore hole was tremie grouted to ground surface upon completion.

Cement Bentonite Grout Mix

94 lb portland cement
5 lb bentonite
7.8 gal water

No water at completion.

N=NUMBER OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 lb. WT. FALLING 30" PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79cc HOLE NO. SB-13-17 SURF. ELEVATION 1459.9

PROJECT Chaffee Landfill Expansion – 10860 Olean Road LOCATION Northing: 939260.9

Town of Sardinia, Erie County, NY Easting: 1170682.2

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/07/17 COMPLETED 11/07/17

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
								Moist light gray gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, dense, stratified, (SM). 18.0		
								Boring completed at 18.0 feet.		

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

Soil Investigations and Natural Resource Assessments

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

MONITORING WELL
HOLE NO. 50-88 SURF. ELEV. 1459.85

PROJECT Monitoring well installation
2A790 Adjacent parcel to CID Inc.
E883
CLIENT CID LANDFILL INC.

LOCATION 285 feet WNW of gully, along western boundary line, approximately 250 ft. south of Hand Road.
DATE STARTED 6/7/88 COMPLETED 6/8/88

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	DESCRIPTION & CLASSIFICATION	WELL	WATER TABLE & REMARKS
	1	2	2	2	10	4	Moist faintly mottled dark brown silt loam (SANDY-SILT) topsoil with little very fine size sand, loose, with numerous fine to coarse size roots 0.6	Two (2) inch inside diameter PVC riser pipe	Topsoil to 0.6 fe over water sorted and deposited coa silt with little some sand to 3.0 feet over water sorted and deposi ed coarse silt an gravel with littl sand and some cla to 4.0 feet over water sorted and posited coarse si and gravel with s sand to 8.0 feet over water sorted and deposited coa silt with little sand to 9.0 feet over water sorted and deposited san and gravel with little to some si to 10.5 feet over clayey lake sedi- ment to 12.5 feet over water sorted and deposited san and gravel with little to some si to 15.0 feet over water sorted and deposited sand an gravel with littl silt to 22.0 feet over water sorted and deposited coa silt and gravel w
	2	7	12	11	8	23	Moist faintly mottled brown loam (SANDY-SILT) with 5 to 15% mostly fine size subangular gravel, little to some very fine size sand, loose, weak thinly bedded with occasional thin very fine to fine size sand lenses ¼ inch thick		
5	3	3	4	5	5	9	- - - - clear transition to - - 3.0		
	4	3	3	2	2	5	Moist to extremely moist distinctly mottled dark brown gravelly loam (SAND-SILT-CLAY) with 15 to 25% mostly subangular gravel, little very fine size sand, some clay, compact, weak blocky soil structure		
10	5	2	2	2	2	4	- - - - grades downward to - - - 4.0	Cement-bentonite grout	
	6	3	3	6	9	9	Extremely moist faintly mottled dark brown gravelly silt loam (SANDY-SILT) with 15 to 30% mostly subangular gravel, some very fine to medium size sand, loose, weakly stratified, with occasional thin seams that have a high sand content		11.0
	7	4	14	20	11	34	- - - - clear transition to - - 8.0	Bentonite pellet seal	14.0
15	8	7	5	4	5	9	Extremely moist faintly mottled brown silt loam (SANDY-SILT) with 3 to 5% mostly fine size subangular gravel, little very fine size sand, stiff, thinly bedded		14.5
	9	3	2	2	4	4	- - - - clear transition to - - 9.0	#2 size sand	
	10	3	3	3	8	6	Wet faintly mottled brown gravelly sandy loam (SILTY-SAND) with 20 to 40% mostly subangular to subrounded gravel, very fine to coarse size sand, little to some silt, loose, stratified	2" PVC #10 slotted screen	
20							- - - - clear transition to - - 10.5		

Continued on shee
See next sheet.

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

mn LOGGED BY Dale M. Gramza/Geologist

EARTH DIMENSIONS, INC.

Soil Investigations and Natural Resource Assessments

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

MONITORING WELL
HOLE NO. 50-88 continued

SURF. ELEV. 1459.85

PROJECT Monitoring well installation
2A790 Adjacent parcel to CID Inc.
E883
CLIENT CID LANDFILL, INC.

LOCATION 285 feet WNW of gully, along western boundary line, approximately 250 ft. south of Hand Road.
DATE STARTED 6/7/88 COMPLETED 6/8/88

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N
	11	2				
			2			4
				2		
					5	
	12	4				
			8			17
				9		
					10	
	13	3				
25			6			17
				11		
					11	
	14	4				
			5			12
				7		
					9	
	15	3				
			5			15
				10		
30					13	
	16	4				
			9			25
				16		
					19	
	17	5				
			13			35
				22		
					26	
	18	6				
35			7			19
				12		
					14	
	19	5				
			9			25
				16		
					18	
	20	8				
			11			29
				18		
40					20	

DESCRIPTION & CLASSIFICATION

Extremely moist faintly mottled brown silty clay loam (CLAYEY-SILT) with 3 to 5% mostly fine size subangular gravel, stiff, weak thinly laminated with very thin coarse silt lenses, noticed thin very gravelly sandy loam (SILTY-SAND) lens between 11.0 to 11.2 foot depth
- - - - clear transition to - - 12.5

Extremely moist distinctly mottled dark brown very gravelly sandy loam (SILTY-SAND) with 40 to 60% mostly subangular gravel, occasional cobble, very fine to coarse size sand, little to some silt, dense in place, loose when disturbed, stratified
- - - - grades downward to - - 15.0

Wet faintly mottled dark brown very gravelly sandy loam (SILTY-SAND) with 40 to 60% mostly subangular to subrounded gravel, very fine to coarse size sand, little silt, loose becoming very loose below 16.0 foot depth, stratified
- - - - clear transition to - - 22.0

Extremely moist to wet highly mottled dark brown gravelly silt loam (SANDY-SILT) with 15 to 30% mostly subangular gravel, some very fine to coarse size sand, compact in place, loose when disturbed, stratified 22.5

Extremely moist olive brown silt loam (CLAYEY-SILT) with 1 to 3% mostly fine size subangular gravel, stiff, thinly laminated
- - - - clear transition to - - 23.0

See next sheet.

WELL

2" PVC #10 slotted screen
#2 size sand
24.5

(1)
26.0

Enviro plug to 26.0 feet.

WATER TABLE & REMARKS

some sand to 22. feet over silty lake sediment to 23.0 feet over coarse silty lake sediment t 24.0 feet over silty lake sediment to 28.0 fee over clayey lake sediment to end of boring.

(1) Bentonite pellet seal.

Continued on sheet 2A

40.0

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

mn LOGGED BY Dale M. Gramza/Geologist

EARTH DIMENSIONS, INC.

Soil Investigations and Natural Resource Assessments

Roycroft Campus, 31 S. Grove St. • East Aurora, NY 14052 • (716) 655-1717

MONITORING WELL
HOLE NO. 50-88 continued

SURF. ELEV. 1459.85

PROJECT Monitoring well installation
2A79o Adjacent parcel to CID Inc.
E883
CLIENT CID LANDFILL, INC.

LOCATION 285 feet WNW of gully, along wes
ern boundary line, approximatel
250 ft. south of Hand Road.

DATE STARTED 6/7/88 COMPLETED 6/8/88

DEPTH feet	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	DESCRIPTION & CLASSIFICATION	WELL	WATER TABLE & REMARKS
	11	2					Extremely moist to wet gray silt loam (SILT) with 1 to 3% mostly fine size subangular gravel, compact, has a tendency to liquify when disturbed, thinly bedded	2" PVC #10 slotted screen	
			2			4			
				2					
					5				
	12	4						#2 size sand	
			8			17			
				9					
					10				
	13	3							24.5
25			6			17	Extremely moist gray silt loam (CLAYEY-SILT) with 1 to 3% mostly fine size subangular gravel, very stiff becoming stiff below 26.0 foot depth	(1)	(1) Bentonite pellet sea
				11					
					11				26.0
	14	4							
			5			12			
				7					
					9				
	15	3							
			5			15			
				10					
30					13				
	16	4							
			9			25			
				16					
					19				
	17	5							
			13			35			
				22					
					26				
	18	6							
35			7			17	Extremely moist brownish gray silty clay (CLAYEY-SILT), very stiff, thinly laminated with very thin coarse silt lenses, noticed one (1) ½ inch extremely moist gray fine loamy sand (SAND) lens below 35.5 foot depth		
				12					
					14				
	19	5							
			9			25			
				16					
					18				
	20	8							
			11			29			
				18					
40					20		Boring completed at 40.0 feet.		

Enviro plug to 26.0 feet.

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

mn LOGGED BY Dale M. Gramza/Geologist

SHEET 2A OF 2A

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • FAX (716) 655-2915

2A79ad HOLE NO. MW E-D-01 SURF. ELEVATION 1455.40

PROJECT MW Installation - Chaffee Landfill LOCATION See map
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 03/19/01 COMPLETED 04/01/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	5						Wet olive gray very gravelly (CLAYEY-SILT) with 40 to 60% mostly subrounded gravel, little clay, very stiff, weakly stratified, (SM), (GM).		to 67.0 feet over water sorted and deposited sand with some silt to 68.0 feet, trace to little silt to 88.0 feet over water sorted and deposited sand with little silt to 90.0 feet over water sorted and deposited sand with some silt to 94.0 feet over coarse silty slack water sediment with some sand to 98.0 feet over silty slack water sediment with little clay to 98.3 feet over coarse silty slack water sediment with some sand to 100.0 feet over water sorted and deposited very fine size sand with some silt to 106.0 feet over water sorted and deposited sand to 108.0 feet over water sorted and deposited sand with little gravel to 108.5 feet over water sorted and deposited sand to 115.0 feet over water sorted and deposited sand with some silt to 116.5 feet over silty slack water sediment wth little clay to 123.0 feet over silty slack water sediment with trace clay to 124.0 feet over silty slack water sediment with little clay to 132.0 feet over silty slack water sediment to 139.0 feet over water sorted and deposited sand to 140.0 feet over alternating water sorted and deposited sand and silt to 142.0 feet over water sorted and deposited sand to 143.0 feet over silty slack water sediment to end of boring.
			11			26				
				15						
					22					
	12	21								
			17			41				
				24						
					28					
	13	7								
25			13			32				
				19						
					21					
	14	5								
			13			30				
				17						
					23					
	15	6								
			13			33				
				20						
30					13					
	16	6								
			8			21				
				13						
					20					
	17	12								
			19			50				
				31						
					47					
	18	12								
35			19			35				
				16						
					18					
	19	21								
			30			67				
				37						
					40					
	20	17								
			27			51				
				24						
40					24					

Wet olive gray very gravelly (CLAYEY-SILT) with 40 to 60% mostly subrounded gravel, little clay, very stiff, weakly stratified, (SM), (GM). — 20.0

Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, little clay, very stiff, thinly laminated with very thin coarse silt lenses, (ML-CL).

grades downward to 22.5

Extremely moist olive gray gravelly (CLAYEY-SILT) with 15 to 20% gravel, little clay, hard, massive soil structure, (ML-CL).

grades downward to 24.0

Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, little clay, hard, thinly laminated with very thin coarse silt lenses, (ML-CL) — 32.0

Wet olive gray very gravelly (SAND) with 40 to 60% mostly subrounded gravel, fine to very coarse size sand, compact in place, loose when disturbed, stratified, (SW), (GW). — 33.5

Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, thinly laminated with very thin coarse silt lenses, (CL). — 34.0

See next sheet.

WELL: 2" PVC RISER; CEMENT BENTONITE GROUT

About 1.0 foot plug prior to securing sample 25, therefore no blow counts were recorded.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald H. Queen, Senior Soil Scientist (bwv) SHEET 2 OF 8

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2A79ad HOLE NO. MW E-D-01 SURF. ELEVATION 1455.40

PROJECT MW Installation - Chaffee Landfill LOCATION See map

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 03/19/01 COMPLETED 04/01/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
	1	3						Extremely moist dark brown (SANDY-SILT) topsoil with little sand, loose, granular soil structure, (ML).		Coarse silty topsoil with little sand to 1.4 feet over clayey slack water sediment with little gravel to 6.0 feet over clay to 16.0 feet over clayey slack water sediment to 19.5 feet over water sorted and deposited silty slack water sediment and gravel with little clay to 20.0eet over silty slack water sediment with little clay to 22.5 feet over silty slack water sediment with little gravel and clay to 24.5 feet over silty slack water sediment with little clay to 32.0 feet over water sorted and deposited sand and gravel to 33.5 feet over clayey slack water sediment to 34.0 feet over water sorted and deposited sand and gravel to 41.0 feet over silty slack water sediment with little clay to 43.2 feet over water sorted and deposited silt and gravel with little sand and clay to 43.7 feet over silty slack water sediment with little clay to 44.5 feet over water sorted and deposited sand and gravel with trace to little silt and sand interbeds and layers to 54.5 feet over coarse silty slack water sediment with some sand to 55.5 feet over water sorted and deposited sand and gravel to 57.0 feet over clayey slack water sediment to 61.0 feet over water sorted and deposited sand and gravel with little silt to 61.5 feet over clayey slack water sediment to 63.5 feet over water sorted and deposited sand and gravel to 63.8 feet over clayey slack water sediment to 65.0 feet over coarse silty slack water sediment with some sand
			5			13				
				8						
					10					
	2	3								
			6			14				
				8						
					12					
	3	4								
5			5			14				
				9						
					11					
	4	4								
			5			14				
				9						
					11					
	5	2								
			5			15				
				10						
10					9					
	6	3								
			5			15				
				10						
					12					
	7	4								
			6			15				
				9						
					13					
	8	3								
15			9			19				
				10						
					13					
	9	5								
			9			20				
				11						
					13					
	10	4								
			5			17				
				12						
20					22			See next sheet.		

grades downward to 1.4

grades downward to 6.0

grades downward to 16.0

Extremely moist distinctly mottled olive brown gravelly (CLAYEY-SILT) with 15 to 20% mostly subrounded gravel, some clay, stiff, blocky soil structure, (CL).

Extremely moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 10% mostly fine size gravel, some clay, very stiff, with nearly vertical gray desiccation cracks, (CL).

Extremely moist olive gray very gravelly (CLAYEY-SILT) with 3 to 10% mostly fine size gravel, some clay, very stiff, weak thinly laminated, (CL).

19.5

2" PVC RISER

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Queen, Senior Soil Scientist (bwv) SHEET 1 OF 8

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2A79ad HOLE NO. MW E-D-01 SURF. ELEVATION 1455.40

PROJECT MW Installation - Chaffee Landfill LOCATION See map

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 03/19/01 COMPLETED 04/01/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	21	19								
			23			49		Wet olive gray very gravelly (SAND) with 40 to 60% mostly subrounded gravel, fine to very coarse size sand, dense and very dense in place, loose when disturbed, stratified with very gravelly (SILTY-SAND) interbeds, (SW), (GW).		Water level at 23.0 feet at 8:15am on 3/20/01 with augers at 36.0 feet.
				26						
					31					
	22	13								
			20			55				
				35						
					41					
	23	12								
45			35			74				2.0 foot plug inside augers prior to sample #24. Not using plug below 46.0 feet while augering.
				39						
					40					
	24	8								
			22			77				
				50						
					75					
	25	NO								
			BLOW							
			COUNTS							
50										
	26	15								Water level at 17.0 feet on 3/21/01 with last spoon taken at 50-52.0' the previous day.
			23			42				
				19						
					21					
	27	9								
			13			32				
				19						
					14					
	28	16								
55			7			20				
				13						
					18					
	29	10								
			16			32				
				16						
					16					
	30	6								
			10			25		See next sheet.		
				15						
60					20					

2" PVC RISER

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 lb. WT. FALLING 30" PER BLOW

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2A79ad HOLE NO. MW E-D-01 SURF. ELEVATION 1455.40

PROJECT MW Installation - Chaffee Landfill LOCATION See map

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 03/19/01 COMPLETED 04/01/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	31	6						Extremely moist olive gray very gravelly (SAND) with 40 to 60% mostly subrounded gravel, very fine to very coarse size sand, trace silt, compact in place, loose when disturbed, stratified, (SW), (GW).		
			20			51				
				31						
					33					
	32	6								
			12			27				
				15						
					16					
	33	6								
65			8			19				
				11						
					10					
	34	WH								
			1			6				
				5						
					6					
	35	6								
			17			40				
				23						
70					27					
	36	8								
			17			37				
				20						
					28					
	37	6								
			9			20				
				11						
					10					
	38	1								
75			8			19				
				11						
					12					
	39	7								
			13			29				
				16						
					20					
	40	6								
			13			38				
				25						
80					29					

Extremely moist olive gray very gravelly (SAND) with 40 to 60% mostly subrounded gravel, very fine to very coarse size sand, trace silt, compact in place, loose when disturbed, stratified, (SW), (GW). — 57.0

Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly subrounded gravel, some clay, hard, thinly laminated with very thin coarse silt lenses, (CL). — 61.0

Wet olive gray very gravelly (SILTY-SAND) with 40 to 60% mostly subrounded gravel, little silt, very dense in place, loose when disturbed, stratified, (SM), (GM). — 61.5

Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly subrounded gravel, some clay, hard, thinly laminated with very thin coarse silt lenses, (CL). — 63.5

Wet olive gray very gravelly (SAND) with 40 to 60% mostly subrounded gravel, medium to very coarse size sand, dense in place, loose when disturbed, stratified, (GW). — 63.8

Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly subrounded gravel, some clay, hard, thinly laminated with very thin coarse silt lenses, (CL). — 65.0

Wet olive gray (SANDY-SILT) with some very fine size sand, compact, liquifies when disturbed, thinly bedded, (ML)

grades downward to — 67.0

See next sheet.

WELL: 2" PVC RISER; CEMENT BENTONITE GROUT

WH - Sampler penetration with weight of hammer and rods.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Ronald H. Queen, Senior Soil Scientist (hwy) SHEET 4 OF 8

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2A79ad HOLE NO. MW E-D-01 SURF. ELEVATION 1455.40

PROJECT MW Installation - Chaffee Landfill LOCATION See map

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 03/19/01 COMPLETED 04/01/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	41	18	23	31	35	54		Wet olive gray (SILTY-SAND), very fine size sand with some silt, loose, liquifies when disturbed, thinly bedded, (SM).		
								grades downward to 68.0		
	42	9	17	19	22	36		Wet olive gray (SAND) tending towards (SILTY-SAND), very fine size sand with little silt, compact to very dense in place, liquifies when disturbed, thinly bedded, (SM).		
85	43	17	18	28	24	46				
	44	9	14	15	15	29		grades downward to 88.0		
	45	8	12	20	21	32		Wet olive gray (SILTY-SAND), very fine size sand with little silt, dense, liquifies when disturbed, thinly bedded, (SM).		
90								grades downward to 90.0		
	46*	18	15	17	19	32		Wet olive gray (SILTY-SAND), very fine size sand with some silt, compact to very dense, liquifies when disturbed, thinly bedded, (SM) tending towards (ML).		Samples 46, 48 and 50 obtained with 3" split spoon.
	47	8	10	13	14	23				
								grades downward to 94.0		
	48*	21	20	18	20	38		Wet olive gray (SANDY-SILT) with some very fine size sand, compact, liquifies when disturbed, thinly bedded, (ML) tending towards (SM).		
95	49	10	10	9	8	19				
								98.0		
	50*	16	25	26	29	51		Wet olive gray (CLAYEY-SILT) with little clay, very stiff, thinly laminated, (ML-CL). 98.3		
100								See next sheet.		

2" PVC RISER

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

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PROJECT MW Installation - Chaffee Landfill LOCATION See map

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 03/19/01 COMPLETED 04/01/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	51*	28						Wet olive gray (SILTY-SAND), very fine size sand with some silt, compact to very dense, liquifies when disturbed, thinly bedded, (SM) tending towards (ML).		Samples 51, 53, 55, 56 and 60 obtained with 3 inch split spoon.
			73			116				
				43						
					30					
	52	12								
			10			26				
				16						
					24					
	53*	32						grades downward to 104.0		
10 5			33					Wet olive gray (SANDY-SILT) with little to some very fine size sand, very dense in place, liquifies when disturbed, thinly bedded with very thin very fine sand lenses, (ML)		
				33		66				
					28					
	54	13						grades downward to 106.0		
			23							
				28		51		Wet olive gray (SAND), very fine to medium size, very dense in place, liquifies when disturbed, thinly bedded, (SW).		
					29					
	55*	38						108.0		
			45					Wet olive gray gravelly, (SAND) with 15 to 20% mostly fine size subrounded gravel, fine to very coarse size sand, very dense in place, loose when disturbed, (SW).		
				44		89				
					39					
1 10	56*	23						108.5		
			27					Wet olive gray (SAND), fine and very fine size, very dense, liquifies when disturbed, thinly bedded, (SP).		
				34		61				
					32					
	57	8								
			12							
				16		28				
					16					
	58*	23						clear transition to 115.0		
1 15			17							
				24		41		Wet olive gray (SILTY-SAND), very fine size sand with some silt, dense, liquifies when disturbed, thinly bedded, (SM).		
					25					
	59	7						116.5		
			9					Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, little clay, very stiff and hard, thinly laminated with very thin coarse silt lenses, (ML) tending towards (ML-CL).		
				7		16				
					12					
	60*	10								
			18							
				21		39				
1 20					31			120.0		

2" PVC RISER

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Queen, Senior Soil Scientist (bwv) SHEET 6 OF 8

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2A79ad HOLE NO. MW E-D-01 SURF. ELEVATION 1455.40

PROJECT MW Installation - Chaffee Landfill LOCATION See map

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 03/19/01 COMPLETED 04/01/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	61*	12						Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, little clay, hard, thinly thinly laminated with very thin coarse silt lenses, (CL).		Samples 61, 63, 65, 67 and 69 obtained with 3 inch split spoon.
			29			69				
				40						
					43					
	62	10								
			15			34				
				19						
					22					
	63*	10						Extremely moist olive gray (SILT), very dense, thinly bedded, (ML).		
125			21					grades downward to 124.0		
				36		57		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, little clay, hard, thinly laminated with very thin coarse silt lenses and very thin very fine sand lenses below 126.0 feet, (ML) tending towards (ML-CL).		
					45					
	64	19								
			15			36				
				21						
					33					
	65*	33								← 128.5'
			32			69				(1) BENTONITE PELLETS
				37						
130					59					
	66	15								
			17							(2) #4000 SAND PACK
				33		50				← 131.5'
					31			grades downward to 132.0		← 132.0'
	67*	21						Extremely moist olive gray (SILT), compact to very dense, thinly bedded with very thin very fine sand lenses, (ML).		
			21			51				
				30						
					32					← 134.0'
	68	6								
135			7			18				
				11						
					15					(1) 2" 20 SLOT CONTINUOUS WRAP PVC SCREEN
	69*	19								
			15			38				
				23						
					34					
	70	7								
			9			30		grades downward to 139.0		
				21				See next sheet.		
140					29					

WELL: (1) 2" PVC RISER; (2) CEMENT BENTONITE GROUT; (1) MORIE.OON SAND PACK

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

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2A79ad HOLE NO. MW E-D-01 SURF. ELEVATION 1455.40

PROJECT MW Installation - Chaffee Landfill LOCATION See map
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 03/19/01 COMPLETED 04/01/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	71*	21								
			36			69		Wet olive gray (SAND), very fine and fine size sand, dense, liquifies when disturbed, thinly bedded, (SP).		(1) 2" 20 SLOT CONTINUOUS WRAP PVC SCREEN
				33				grades downward to 140.0		
					45					
	72	7						Wet olive gray alternating in 2 to 3 inch layers very fine and fine size sand with (SILT) layers, dense, thinly bedded, (SP) and (ML).		(2) MORIE OON SAND PACK
			7			17		142.0		
				10						
					18					← 144.0'
145								Wet olive gray (SAND), very fine and fine size, compact, liquifies when disturbed, thinly bedded, (SP).		
								143.0		
								Wet olive gray (SILT), compact, thinly bedded with very thin very fine sand lenses, (ML).		
								144.0		
150								Boring completed at 144.0 feet.		
155										
160										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Ronald W. Queen, Senior Soil Scientist (bwv) SHEET 8 OF 8

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2A79ad HOLE NO. MW J-D-01 SURF. ELEVATION 1462.20

PROJECT MW Installation - Chaffee Landfill LOCATION See map
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 03/28/01 COMPLETED 04/09/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
	1	1						Extremely moist olive gray (CLAYEY-SILT) fill with little clay, very soft to 1.0 foot, very stiff below, massive soil structure, (ML-CL).		(1) 4"x 5' STEEL PROTECTIVE CASING
			1			9				
				8						
					16					
	2	6						2.0		Silty soil fill with little clay to 2.0 feet over silty slack water sediment with trace clay to 4.5 feet over silty slack water sediment with little clay to 5.0 feet over water sorted and deposited sand with little silt to 5.2 feet over silty slack water sediment with little clay to 6.5 feet over water sorted and deposited sand to 7.0 feet over silty slack water sediment with little clay to 26.0 feet over clayey slack water sediment to 34.0 feet over water sorted and deposited sand and gravel to 37.5 feet over silty slack water sediment with little clay to 42.0 feet over water sorted and deposited sand and gravel to 44.0 feet over water sorted and deposited sand and gravel with little silt to 47.5 feet over silty slack water sediment with little clay to 48.0 feet over water sorted and deposited sand and gravel to 51.0 feet over clayey slack water sediment to 54.0 feet over water sorted and deposited sand and gravel with little silt to 64.0 feet over clayey slack water sediment to 73.5 feet over water sorted and deposited sand to 74.0 feet over water sorted and deposited silt with little sand and clay to 75.0 feet over water sorted and deposited sand with little silt, little to some gravel to 76.5 feet over water sorted and deposited sand to 78.0 feet over water sorted and deposited sand with some gravel to end of boring.
			28			57		Extremely moist olive gray (SILT), very dense, thinly bedded, (ML).		
				29						
					26					
	3	4						4.5		
5			8			21		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, little clay, very stiff, thinly laminated with very thin coarse silt lenses, (ML-CL).		
				13						
					14					
	4	8						5.0		
			8			17		Wet olive gray (SILTY-SAND), fine and very fine size sand with little silt, compact, thinly bedded, (SM).		
				9						
					12					
	5	3						5.2		
			3			12		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, little clay, very stiff, thinly laminated with very thin coarse silt lenses, (ML-CL).		
				9						
10					12					
	6	3						6.5		
			7			16		Moist olive gray (SAND), very fine size, compact, thinly bedded, (SP).		
				9						
					10					
	7	3						7.0		
			5			12		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, little clay, very stiff and hard, thinly laminated with very thin coarse silt lenses, (ML-CL).		
				7						
					9					
	8	4								
15			6			13				
				7						
					10					
	9	12								
			17			41				
				24						
					21					
	10	4								
			4			14				
				10						
20					12					

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvv)

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2A79ad HOLE NO. MW J-D-01 SURF. ELEVATION 1462.20

PROJECT MW Installation - Chaffee Landfill LOCATION See map

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 03/28/01 COMPLETED 04/09/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	3	5	9	10	14		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, little clay, very stiff and hard, thinly laminated with very thin coarse silt lenses, (ML-CL).	2" PVC RISER; CEMENT/BENTONITE SEAL	
	12	12	16	17	17	33				
25	13	16	19	21	22	40		grades downward to 26.0		
	14	6	9	15	21	24		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, some clay, very stiff, thinly laminated with very thin coarse silt lenses, (CL).		
	15	4	10	17	11	27				
30	16	6	12	17	16	29				
	17	8	11	13	15	24		34.0		
	18	5	7	8	9	15		Wet olive gray very gravelly (SAND) with 40 to 60% mostly fine to medium size subrounded gravel, very fine to very coarse size sand, compact, loose when disturbed, stratified, (SW), (GW).		
35	19	5	11	12	14	23		37.5		
	20	3	7	10	14	17		See next sheet.		
40										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bwv) SHEET 2 OF 5

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2A79ad HOLE NO. MW J-D-01 SURF. ELEVATION 1462.20

PROJECT MW Installation - Chaffee Landfill LOCATION See map
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 03/28/01 COMPLETED 04/09/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	21	5								
			8			16		Extremely moist distinctly mottled olive gray (CLAYEY-SILT) with 3 to 5% mostly fine size gravel, little clay, very stiff, thinly laminated with very thin coarse silt lenses, (ML-CL).		
				8						
					11					
	22	32								
			43			63				
				20						
					19					
	23	21								
45			23			45		Wet olive gray very gravelly (SAND) with 40 to 60% mostly subrounded gravel and occasional cobble, fine to very coarse size sand, very dense in place, loose when disturbed, stratified, (SW), (GW).		
				22						
					28			grades downward to 44.0		
	24	8								
			11			27		Wet olive gray very gravelly (SILTY-SAND) with 40 to 60% mostly subrounded gravel, very fine to very coarse size sand, little silt, very dense in place, loose when disturbed, stratified, (SM), (GM).		
				16						
					31					
	25	26								
			29			44				
				14						
50					21			Extremely moist olive gray (CLAYEY-SILT) with 5 to 10% gravel, little clay, very stiff, thinly laminated with very thin coarse silt lenses, (ML-CL).		
	26	17								
			24			61				
				37						
					46					
	27	24								
			25			49		Wet olive gray very gravelly (SAND) with 40 to 60% mostly subrounded gravel and occasional cobbles, fine to very coarse size sand, dense in place, loose when disturbed, stratified, (SW), (GW).		
				24						
					28					
	28	28								
55			49			98				
				48						
					27					
	29	23								
			27			63		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% fine size gravel, some clay, hard, thinly laminated with very thin coarse silt lenses, (CL).		
				36						
					34					
	30	30								
			48			86		Wet olive gray very gravelly (SILTY-SAND) with 40 to 60% mostly subrounded gravel, little silt, very dense in place, loose when disturbed, stratified, (SM), (GM).		
				38						
60					40					

42.0 47.5 48.0 51.0 54.0

2" PVC RISER

CEMENT/BENTONITE SEAL

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvv)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations
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(716) 655-1717 • FAX (716) 655-2915

2A79ad HOLE NO. MW J-D-01 SURF. ELEVATION 1462.20

PROJECT MW Installation – Chaffee Landfill LOCATION See map
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 03/28/01 COMPLETED 04/09/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	31	9								
			34			65		Wet olive gray very gravelly (SILTY-SAND) with 40 to 60% mostly subrounded gravel, little silt, very dense in place, loose when disturbed, stratified, (SM), (GM).		
				31						
					45					
	32	46								
			52			86				
				34						
					36			64.0		
	33	10						Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% fine size gravel, some clay, hard, weak thinly laminated, (CL).		
65			20			47				
				27						
					33					
	34	WR								WR – Sampler penetration with weight of the rods only.
			12			34				
				22						
					44					
	35	10								
			14			38				
				24						
70					30					
	36	10								
			24			77				
				53						
					38					
	37	9								
			19			63				
				44				73.5		
					26			Wet olive gray (SAND), fine size, dense, liquifies when disturbed, stratified, (SP).		
	38	2								
75			4			18				
				14				74.0		
					25			Wet olive gray (SAND-SILT-CLAY) with 5 to 10% mostly subrounded gravel, little sand and clay, loose, weakly stratified, (ML) tending towards (SC).		
	39	9								
			19			63				
				44						
					26			75.0		
	40	9						See next sheet.		
			22			47				
				25						
80					22					

WELL: 2" PVC RISER; CEMENT-BENTONITE SEAL; (1) #6 GLOBAL SAND PACK; (2); (3)

← 71.0'
← 71.5'
(2) #4000 SIZE SAND PACK
(3) BENTONITE SEAL
← 73.0'
← 73.5'
(2) #4000 SIZE SAND PACK
← 75.8'
(1) #20 SLOT 2" PVC WIRE WRAPPED SCREEN

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

EARTH DIMENSIONS, INC.

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2A79ad HOLE NO. MW J-D-01 SURF. ELEVATION 1462.20

PROJECT MW Installation - Chaffee Landfill LOCATION See map
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 03/28/01 COMPLETED 04/09/01

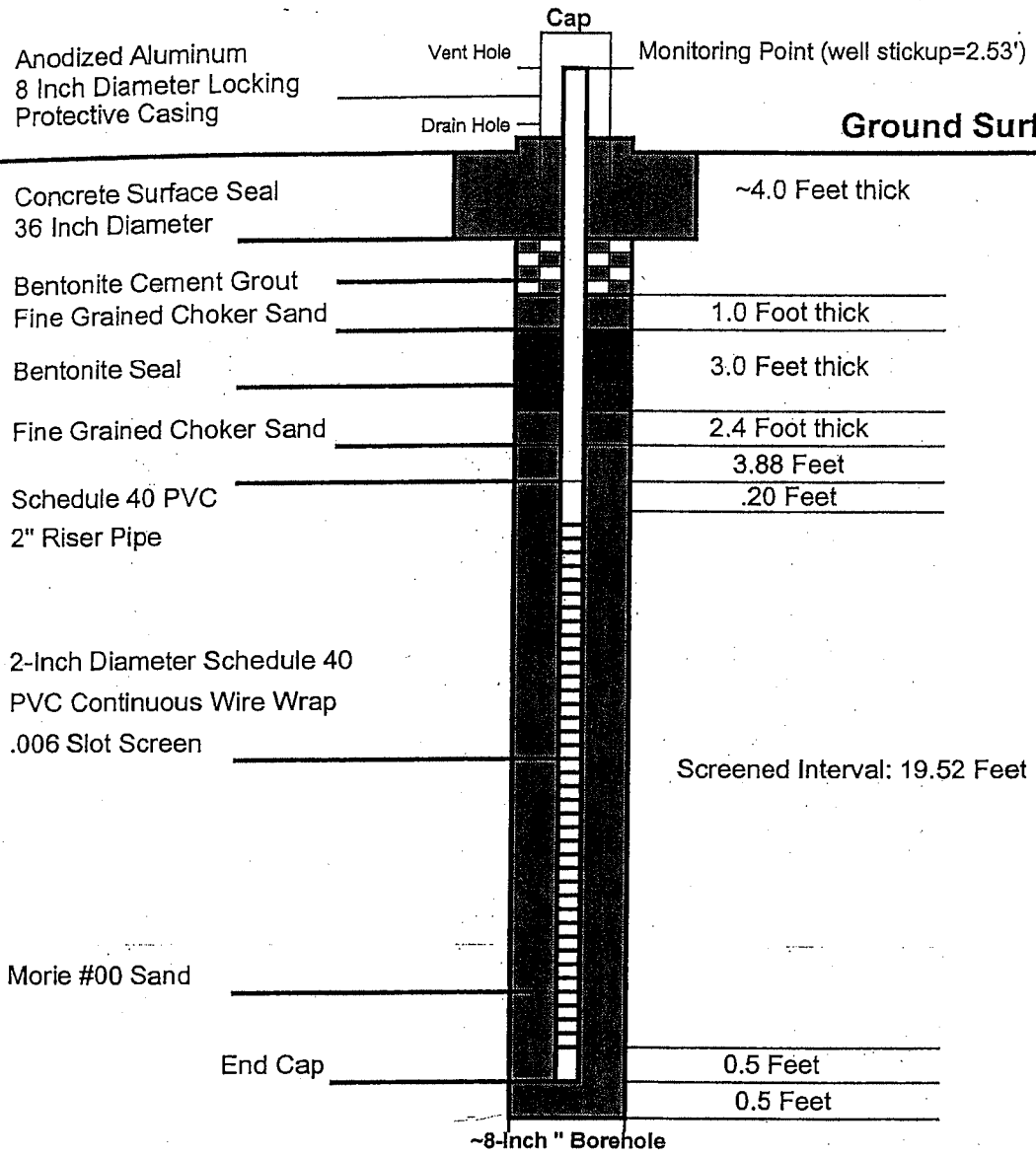
DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	41	8	28	30	32	58		Wet olive gray gravelly (SILTY-SAND) with 15 to 40% mostly subrounded gravel, little silt, compact, stratified, (SM). 76.5	(1) #6 GLOBAL SAND PACK	(1) #20 SLOT 2" PVC WIRE WRAPPED SCREEN
	42	12	16	21	19	37		Wet olive gray (SAND), fine size, dense, stratified, (SP). 78.0		
85	43	9	17	11	22	28		Wet olive gray gravelly (SAND) with 20 to 40% mostly subrounded gravel, fine to very coarse size sand, trace to little silt, very dense and dense in place, loose when disturbed, stratified, (SW) tending towards (SM). 86.0		← 85.8' ← 86.0
								Boring completed at 86.0 feet.		
90										
95										
100										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvv) SHEET 5 OF 5

MONITORING WELL INSTALLATION DIAGRAM

Job No.: 023-9340	Project: **Chaffee Landfill Well Inst.**	Well No.: **MWR-1BR**	Sheet 1 of 1
QA Insp.: GOC	Drilling Method: 4.25" I.D. H.S.A.	Ground Elev.: 1485.1	Water Depth: N/A
Weather: RAIN	Drilling Company: SJB Services	Riser Elev.: 1487.63	Date: 12/11-12/12/02
Temp: 18° F	Drill Rig: CME 550X	Time Started: 1520	Time Completed: 0940



Total depth of soil boring: 35' b.g.s. Thickness of sandpack: 24.6' Well Bottom: 34.5' b.g.s.

Golder Associates Inc. **Buffalo, N.Y.**	**CHAFFEE LANDFILL** **CHAFFEE, NEW YORK**	**MWR-1BR Monitoring Well Detail** **Clay Till Unit**		
Job No. 023-9340		Drawn by: AJN	Checked by: NKW	Date: 7/25/2003

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2A79ad HOLE NO. MW K-S-01 SURF. ELEVATION 1496.60

PROJECT MW Installation - Chaffee Landfill LOCATION See map

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/18/01 COMPLETED 04/18/01

DEPTH IN FT	SN	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
								Augered to 30.0 feet with 4 1/4" I.D. hollow stem augers without split spoon sampling.	2" PVC RISER; CEMENT BENTONITE GROUT	(1) 4" x 5' STEEL PROTECTIVE CASING
5										
10										
15										
20										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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(716) 655-1717 • FAX (716) 655-2915

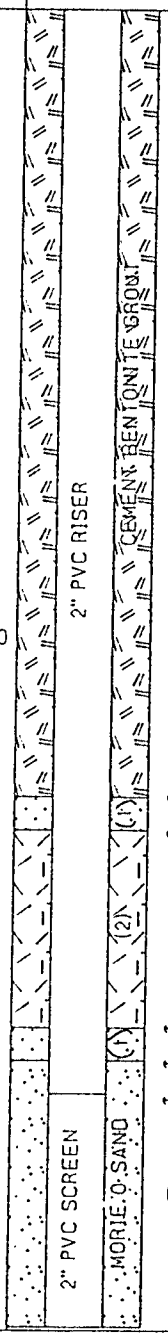
2A79ad HOLE NO. MW K-S-01 SURF. ELEVATION 1496.60

PROJECT MW Installation - Chaffee Landfill LOCATION See map
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/18/01 COMPLETED 04/18/01

DEPTH IN FT	BLOWS ON SAMPLER SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
								Augered to 30.0 feet with 4 1/4" I.D. hollow stem augers without split spoon sampling.		
30	1	8	12	15	16	27		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, weak thinly laminated with very thin coarse silt lenses, (CL).		
	2	3	6	8	11	14		grades downward to 32.0 Extremely moist olive gray (SILT), trace clay, compact, thinly bedded, (ML).		
35	3	6	12	10	12	22		grades downward to 33.0 Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, little clay, very stiff, thinly laminated with very thin coarse silt lenses, (ML-CL).		
	4	5	7	9	15	16		grades downward to 34.0 Extremely moist olive gray (SILT), trace clay, compact, thinly bedded with very fine sand lenses, (ML).		
40	5	6	10	15	17	25				

30.0



(1) #4000 SAND PACK
← 32.0'
← 32.5'

(2) BENTONITE PELLETS
← 35.5'
← 36.0'
← 36.5'

(3) 2" 20 SLOT CONTINUOUS WRAP

N=NUMBER OF BLOWS TO DRIVE 2 * SPOON 12 * WITH 140 lb. HAMMER FALLING 30 INCHES

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2A79ad

HOLE NO. MW K-S-01

SURF. ELEVATION 1496.60

PROJECT MW Installation - Chaffee Landfill
Town of Sardinia, Erie County, New York

LOCATION See map

CLIENT McMahon & Mann Consulting Engineers, P.C.

DATE STARTED 04/18/01 COMPLETED 04/18/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	6	6				26		Extremely moist olive gray (SILT), trace clay, compact, thinly bedded with very fine sand lenses, (ML).		(1) 2" 20 SLOT CONTINUOUS WRAP PVC SCREEN
			13							← 41.5'
				13						
					15			42.0		← 42.0
								Boring completed at 42.0 feet.		
45										
50										
55										
60										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bxv)

SHEET 2 OF 2

FIELD BORING LOG

DEPTH HOLE 36' JOB NO. 023-9340 PROJECT CHAFFEE LANDFILL WELL INST. & DECOMM. BORING NO. MWR-1BR
DEPTH SOIL DRILL 36' GA INSP. GC DRILLING METHOD 4.25" ID HSA SHEET 1 OF 3
DEPTH ROCK CORE N/A WEATHER RAIN DRILLING CO. SJB SERVICES, INC. SURFACE EL. 1485.1
NO. DIST. N/A US. N/A TEMP. 36 F DRILL RIG CME 550X DRILLER D.M. DATUM N/A
DEPTH WL. N/A HRS. PROD. N/A WT. SAMPLER HAMMER 140 LB. DROP 30" (AUTO) STARTED 1520/12-11-02
TIME WL. N'A HRS. DELAYED N/A WT. CASING HAMMER N/A DROP N/A COMPLETED 0940/12-12-02

SAMPLE TYPES

A.S.	AUGER SAMPLE
C.S.	CHUNK SAMPLE
D.O.	DRIVE OPEN
D.S.	DENISON SAMPLE
P.S.	PITCHER SAMPLE
R.C.	ROCK CORE
S.T.	SLOTTED TUBE
T.O.	THIN-WALLED, OPEN
T.P.	THIN-WALLED, PISTON
W.S.	WASH SAMPLE

ABBREVIATIONS

BL	BLACK	M	MEDIUM	SA	SAMPLE		
BR	BROWN	MIC	MICACEOUS	SAT	SATURATED		
C	COARSE	MOT	MOTTLED	SD	SAND		
CA	CASING	NP	NON-PLASTIC	SI	SILT		
CL	CLAY	OG	ORANGE	SLY	SILTY		
CLY	CLAYEY	ORG	ORGANIC	SM	SOME		
F	FINE	PH	PRESSURE-HYDRAULIC	TR	TRACE		
FRAG	FRAGMENTS	PM	PRESSURE-MANUAL	WL	WATER LEVEL		
GL	GRAVEL	R	RED	WH	WEIGHT OF HAMMER		
LYD	LAYERED	RES	RESIDUAL	WR	WEIGHT OF RODS		
LI	LITTLE	RX	ROCK	Y	YELLOW		

SOIL DESCRIPTION – RANGE OF PROPORTION

"TRACE" – 0–5%
"LITTLE" – 5–12%
"SOME" – 12–30%
"AND" – 30–50%

CONSISTENCY

LS	LOOSE	S	SOFT
CP	COMPACT	FM	FIRM
DN	DENSE	ST	STIFF
V	VERY	H	HARD

ELEV. DEPTH	DESCRIPTION	BLOWS/FT.	SAMPLES NO.	SAMPLES TYPE	SAMPLES HAMM. BLOWS PER 6 IN. (FORCE)	SAMPLES REC/ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
0	CLAY TILL UNIT Stiff to hard, gray, SILTY CLAY, trace to little fine to medium gravel, gravel sub-angular to sub-rounded, medium plasticity, thinly laminated, occasional wet silt and sand layers. (CL)							Auger with no sampling from 0 to 4' bgs. Auger with standard sampling 4' to 14' bgs. Auger with continuous sampling 14' to 36' bgs.
4		6	1		3 3 3 3	20"		4' to 5' bgs Med., stiff, brown, SILTY CLAY, trace fine m Gravel to medium gravel, mod–low plasticity, wet. (ML–CL) 5' to 5.7' bgs Loose, fine to medium, SAND, little clayey silt dilatancy quick, occasional fine gravel. (SM)
9		10	2		4 5 5 7	16"		Stiff, gray CLAYEY SILT, trace, f. to m. gravel thinly laminated, more pronounced at 10.5' – 11.0' bgs, med. plasticity (CL)
12								

FIELD BORING LOG

DEPTH HOLE 36' JOB NO. 023-9340 PROJECT CHAFFEE LANDFILL WELL INST. & DECOMM. BORING NO. MWR-1BR
DEPTH SOIL DRILL 36' GA INSP. GC DRILLING METHOD 4.25" ID HSA SHEET 2 OF 3
DEPTH ROCK CORE N/A WEATHER RAIN DRILLING CO. SJB SERVICES, INC. SURFACE EL. 1485.1
NO. DIST. N/A US. N/A TEMP. 36 F DRILL RIG CME 550X DRILLER D.M. DATUM N/A
DEPTH WL. N/A HRS. PROD. N/A WT. SAMPLER HAMMER 140 LB. DROP 30" (AUTO) STARTED 1520/12-11-02
TIME WL. N'A HRS. DELAYED N/A WT. CASING HAMMER N/A DROP N/A COMPLETED 0940/12-12-02

SAMPLE TYPES

A.S.	AUGER SAMPLE
C.S.	CHUNK SAMPLE
D.O.	DRIVE OPEN
D.S.	DENISON SAMPLE
P.S.	PITCHER SAMPLE
R.C.	ROCK CORE
S.T.	SLOTTED TUBE
T.O.	THIN-WALLED, OPEN
T.P.	THIN-WALLED, PISTON
W.S.	WASH SAMPLE

ABBREVIATIONS

BL	BLACK	M	MEDIUM	SA	SAMPLE
BR	BROWN	MIC	MICACEOUS	SAT	SATURATED
C	COARSE	MOT	MOTTLED	SD	SAND
CA	CASING	NP	NON-PLASTIC	SI	SILT
CL	CLAY	OR	ORANGE	SLY	SILTY
CLY	CLAYEY	ORG	ORGANIC	SOM	SOME
F	FINE	PH	PRESSURE-HYDRAULIC	TR	TRACE
FRAG	FRAGMENTS	PM	PRESSURE-MANUAL	WL	WATER LEVEL
GR	GRAVEL	R	RED	WH	WEIGHT OF HAMMER
LYD	LAYERED	RES	RESIDUAL	WR	WEIGHT OF RODS
U	LITTLE	RX	ROCK	Y	YELLOW

SOIL DESCRIPTION – RANGE OF PROPORTION

"TRACE" – 0–5%
"LITTLE" – 5–12%
"SOME" – 12–30%
"AND" – 30–50%

CONSISTENCY

LS	LOOSE	S	SOFT
CP	COMPACT	FM	FIRM
DN	DENSE	ST	STIFF
V	VERY	H	HARD

ELEV. DEPTH	DESCRIPTION	BLOWS/FT.	SAMPLES NO.	SAMPLES TYPE	SAMPLES HAMM. BLOWS PER 6 IN. (FORCE)	SAMPLES REC/ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
13	CLAY TILL UNIT Stiff to hard, gray, SILTY CLAY, trace to little fine to medium gravel, gravel sub-angular to sub-rounded, medium plasticity, thinly laminated, occasional wet silt and sand layers. (CL)							
14		11	3		3 5 6 8	14"		Stiff, gray, CLAYEY SILT, little fine to med. gravel, thinly laminated, moist, moderate plasticity, gravel sub-angular to sub-rounded. (CL)
15								
16		8	4		2 3 5 7	23"		Stiff-mod stiff, gray SILTY CLAY, fine to medium gravel, moist, gravel sub-angular to sub-rounded (CL)
17								
18		10	5		4 4 6 6	16"		Stiff, gray, SILTY CLAY, little f-m, gravel thinly laminated, medium plasticity, moist. (CL)
19								
20		10	6		3 4 6 8	16"		Stiff, gray, SILTY CLAY, trace, f-m, gravel thinly laminated, medium plasticity, moist. gravel sub-rounded to sub-angular (CL)
21								
22		8	7		2 3 5 6	20"		Stiff, gray, SILTY CLAY, trace, f-m, gravel thinly laminated, medium plasticity, moist. (CL)
23								
24								

FIELD BORING LOG

DEPTH HOLE 36' JOB NO. 023-9340 PROJECT CHAFFEE LANDFILL WELL INST. & DECOMM. BORING NO. MWR-1BR
DEPTH SOIL DRILL 36' GA INSP. GC DRILLING METHOD 4.25" ID HSA SHEET 3 OF 3
DEPTH ROCK CORE N/A WEATHER RAIN DRILLING CO. SJB SERVICES, INC. SURFACE EL. 1485.1
NO. DIST. N/A US. N/A TEMP. 36 F DRILL RIG CME 550X DRILLER D.M. DATUM N/A
DEPTH WL. DRY HRS. PROD. N/A WT. SAMPLER HAMMER 140 LB. DROP 30" (AUTO) STARTED 1520/12-11-02
TIME WL. 0810 HRS. DELAYED N/A WT. CASING HAMMER N/A DROP N/A COMPLETED 0940/12-12-02

SAMPLE TYPES

A.S.	AUGER SAMPLE
C.S.	CHUNK SAMPLE
D.O.	DRIVE OPEN
D.S.	DENISON SAMPLE
P.S.	PITCHER SAMPLE
R.C.	ROCK CORE
S.T.	SLOTTED TUBE
T.O.	THIN-WALLED, OPEN
T.P.	THIN-WALLED, PISTON
W.S.	WASH SAMPLE

ABBREVIATIONS

BL	BLACK	M	MEDIUM	SA	SAMPLE
BR	BROWN	MIC	MICACEOUS	SAT	SATURATED
C	COARSE	MOT	MOTTLED	SD	SAND
CA	CASING	NP	NON-PLASTIC	SI	SILT
CL	CLAY	OR	ORANGE	SLTY	SILTY
CLY	CLAYEY	ORG	ORGANIC	SOM	SOME
F	FINE	PH	PRESSURE-HYDRAULIC	TR	TRACE
FRAG	FRAGMENTS	PM	PRESSURE-MANUAL	WL	WATER LEVEL
GL	GRAVEL	R	RED	WH	WEIGHT OF HAMMER
LYD	LAYERED	RES	RESIDUAL	WR	WEIGHT OF RODS
LI	LITTLE	RX	ROCK	Y	YELLOW

SOIL DESCRIPTION - RANGE OF PROPORTION

"TRACE" - 0-5%
"LITTLE" - 5-12%
"SOME" - 12-30%
"AND" - 30-50%

CONSISTENCY

LS	LOOSE	S	SOFT
CP	COMPACT	FM	FIRM
DN	DENSE	ST	STIFF
V	VERY	H	HARD

ELEV. DEPTH	DESCRIPTION	BLOWS/FT.	SAMPLES NO.	SAMPLES TYPE	SAMPLES HAMM. BLOWS PER 6 IN. (FORCE)	SAMPLES REC/ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
25	CLAY TILL UNIT Stiff to hard, gray, SILTY CLAY, trace to little fine to medium gravel, gravel sub-angular to sub-rounded, medium plasticity, thinly laminated, occasional wet silt and sand layers. (CL)	6	8		1 2 4 4	20"		Mod., stiff, gray, SILTY CLAY, trace, fine gravel, thinly laminated, gravel sub-angular to sub-rounded. (CL) Two fine SAND and SILT lenses @25.2' and 25.5' med.-quick dilatancy (saturated) (SM)
26								
27		9	9		2 3 6 8	17"		Stiff, gray, SILTY CLAY, trace, fine gravel, thinly laminated, mod. plasticity, moist, gravel sub-rounded to sub-angular, occ. med. gravel. (CL)
28								
29		12	10		3 5 7 9	21"		Stiff, gray, SILTY CLAY, little, f-m gravel, thinly laminated, gravel sub-angular to sub-rounded, moist. (CL)
30								
31		14	11		5 7 7 8	21"		Stiff, gray, SILTY CLAY, trace, fine gravel, gravel sub-rounded to sub-angular, moist, occ. m. gravel (CL)
32								
33		16	12		4 7 9 12	10"		Stiff, gray, SILTY CLAY, trace, fine gravel, occ. med. gravel, moist, med. plasticity. (CL)
34								
35		22	13		6 9 13 14	24"		Hard, gray, SILTY CLAY, trace, fine, gravel med. plasticity, moist. (CL)
36	END OF BORING							

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(716) 655-1717 • FAX (716) 655-2915

2A79at HOLE NO. P3-03 SURF. ELEVATION 1448.9

PROJECT Chaffee Landfill - Piezometer & gas probe install. LOCATION Northing 6932.9 Easting 5808.5
Town of Sardinia, Erie Co., NY

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 08/26/03 COMPLETED 08/27/03

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N
	1	10				
	18		19			34
				15		
					13	
	2	9				
	12		9			20
				11		
					11	
	3	18				
5	10		6			14
				8		
					16	
	4	20				
	4		8			19
				11		
					11	
	5	37				
	8		100/3			
10						
	6	54				
	14		20			40
				20		
					17	
	7	23				
	17		21			31
				10		
					9	
	8	14				
15	12		15			32
				17		
					20	
	9	12				
	20		16			32
				16		
					18	
	10	13				
	20		17			31
				14		
20					11	

LITH

DESCRIPTION AND CLASSIFICATION

Extremely moist dark brown (SANDY-SILT) topsoil fill with 5 to 10% gravel, little sand and organic matter, compact, granular soil structure, (ML). 0.3

Moist brown gravelly (SILTY-SAND) fill with 15 to 40% gravel, very fine to very coarse size sand, little silt, dense, massive soil structure, (SM). 1.5

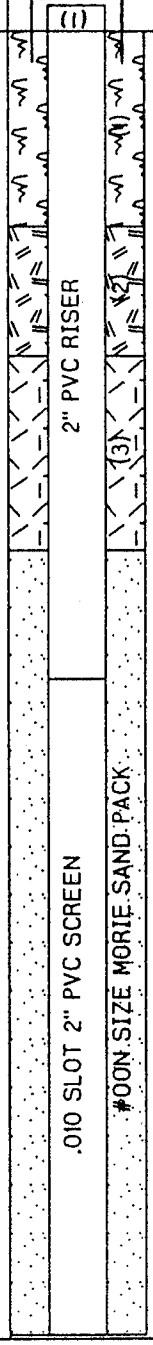
Moist grayish brown gravelly (SILTY-SAND) with 15 to 40% gravel, occasional cobble, very fine to very coarse size sand, little silt, compact, stratified, (SM). 8.0

Moist grayish brown very gravelly (SILTY-SAND) with 40 to 60% gravel, occasional cobble, very fine to very coarse size sand, little silt, very dense, loose when disturbed, stratified, (SW), (GM).

clear transition to 10.5

Wet grayish brown very gravelly (SILTY-SAND) with 40 to 60% gravel, occasional cobble, very fine to very coarse size sand, little silt, dense, loose when disturbed, stratified, (SM), (GM).

Boring completed at 20.0 feet.



WATER TABLE AND REMARKS

(1) 4" locking steel protective casing installed in concrete.

← 3.0

← 5.0

(2) CEMENT BENTONITE GROUT

(3) BENTONITE SEAL

← 8.0

← 10.0

Coarse silty topsoil fill with little sand and organic matter with trace gravel to 0.3 feet over sandy soil fill with little to some gravel, little silt to 1.5 feet over water sorted and deposited sand with little to some gravel, little silt to 8.0 feet over water sorted and deposited sand and gravel to end of boring.

← 20.0

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (kiw)

Soil Borrow Area Logs

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79cc HOLE NO. SB-1-17 SURF. ELEVATION 1475.9

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 939579.4

Town of Sardinia, Erie County, NY Easting: 1171405.4

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/07/17 COMPLETED 11/08/17

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	1						Moist to extremely moist brown (CLAYEY-SILT) topsoil fill with little clay, trace to little organic matter, trace sand, firm, massive soil structure, (ML-CL).		Silty topsoil fill with some clay trace to little organic matter, trace sand to 0.9 feet over clayey slack water sediment, trace sand and gravel to 8.0 feet over silty slack water sediment with little sand, trace clay and gravel to 9.0 feet over clayey slack water sediment with trace sand and gravel to 31.9 feet over silty slack water sediment with little clay, trace sand and gravel to 34.0 feet over clayey slack water sediment with trace sand and gravel to 40.2 feet over coarse silty glacial drift with trace to little sand, trace clay to 40.7 feet over water sorted and deposited sand with some gravel, trace to little silt to end of boring.
	19		2			5		0.9		
				3				Extremely moist to moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, weakly thinly laminated, (CL).		
					3					
	2	4								
	18		7			16				
				9						
					10					
	3	3								
5	13		5			13				
				8						
					10					
	4	5								
	20		7			15				
				8						
					12			grades downward to 8.0		
	5	10						Moist gray (SANDY-SILT) with 3 to 7% gravel, little sand, trace clay, compact, massive soil structure, (ML).		
	24		14			29				
				15				grades downward to 8.5		
10					9					
	6	5						Moist gray (SILTY-SAND) with 3 to 7% gravel, trace to little silt, compact, stratified, (SM).		
	18		7			16				
				9						
					14			grades downward to 9.0		
	7	6						Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, very stiff and stiff, weakly thinly laminated to thinly laminated with very thin coarse silt lenses from 13.0 to 16.0 feet, (CL).		
	21		8			19				
				11						
					13					
	8	7								
15	21		6			14				
				8						
					13					
	9	5								
	22		9			23				
				14						
					14					
	10	4								
	23		8			18				
				10						
20					13					

CEMENT BENTONITE GROUT

Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 44.0 feet. Bore hole was tremie grouted to ground surface upon completion.

Cement Bentonite Grout Mix

94 lb portland cement
5 lb bentonite
7.8 gal water

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79cc HOLE NO. SB-1-17 SURF. ELEVATION 1475.9

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 939579.4

Town of Sardinia, Erie County, NY Easting: 1171405.4

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/07/17 COMPLETED 11/08/17

DEPTH IN FT	BLOWS ON SAMPLER SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	2								
	19		6			18		Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, very stiff and stiff, weakly thinly laminated to thinly laminated with very thin coarse silt lenses from 13.0 to 16.0 feet, (CL).		
				12						
					24					
	12	6								
	22		8			24				
				16						
					19					
	13	7								
25	20		10			27				
				17						
					23					
	14	6								
	24		8			21				
				13						
					14					
	15	4								
	24		7			17				
				10						
30					12					
	16	5								
	24		8			20				
				12						
					17			grades downward to 31.9		
	17	5						Moist to extremely moist brown (CLAYEY-SILT) with 3 to 7% gravel, little clay, trace sand, very stiff, thinly laminated with very thin coarse silt lenses, (ML-CL).		
	24		7			18				
				11						
					9					
	18	4						grades downward to 34.0		
35	24		6			16		Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, very stiff, weakly thinly laminated to thinly laminated, (CL).		
				10						
					12					
	19	5								
	23		8			19				
				11						
					14					
	20	6								
	24		7			16				
				9						
40					10					Water level at 40.0 feet below ground surface upon completion.

WELL: CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

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(716) 655-1717 • FAX (716) 655-2915

2A79cc HOLE NO. SB-1-17 SURF. ELEVATION 1475.9

PROJECT Chaffee Landfill Expansion – 10860 Olean Road LOCATION Northing: 939579.4

Town of Sardinia, Erie County, NY Easting: 1171405.4

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/07/17 COMPLETED 11/08/17

DEPTH IN FT	SN / REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	21	8						Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, very stiff, weakly thinly laminated to thinly laminated, (CL).	(1) Cement bentonite grout	
	20		12			31				
				19						
					26					
	22	8								
	5		17			34				
				17						
					21					
								clear transition to 40.2		
								Moist brown (SANDY-SILT) with trace to little sand, trace clay, compact, massive soil structure, (ML).		← 44.0'
45								clear transition to 40.7		
								Extremely moist to wet brown gravelly (SILTY-SAND) with 20 to 40% gravel, trace to little silt, compact, stratified, (SM).		
								44.0		
								Boring completed at 44.0 feet.		
50										
55										
60										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79cc HOLE NO. SB-2-17 SURF. ELEVATION 1450.1

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 939153.0

Town of Sardinia, Erie County, NY Easting: 1170989.2

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/06/17 COMPLETED 11/06/17

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	2						Extremely moist brownish gray (SANDY-SILT) topsoil fill with little organic matter, trace to little sand, very loose, massive soil structure, (ML).		Coarse silty topsoil fill with little organic matter, trace to little sand to 0.1 feet over clayey slack water sediment with trace sand and gravel to 7.9 feet over silty glacial drift with little clay, trace sand and gravel to 8.5 feet over water sorted and deposited sand with little to some gravel, little silt, occasional cobble to end of boring.
	17		2			9		0.1		
				7				Moist to extremely moist light gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, very stiff below 4.0 feet, weakly thinly laminated, (CL).		
					8					
	2	8								
	20		7			13				
				6						
					10					
	3	13								
5	13		13			26				
				13						
					14					
	4	4								
	24		6			13				
				7				grades downward to 7.9		
					9					
	5	6						Moist olive brown (CLAYEY-SILT) with 3 to 7% gravel, little clay, trace sand, very stiff, massive soil structure, (ML-CL).		
	19		13			32				
				19						
					27					
10	6	14						grades downward to 8.5		
	14		21			60				
				39				Moist brownish gray gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, little silt, dense, stratified, (SM).		
					100/1					
	7	11								
	13		24			45				
				21						
					29					
	8	13								
15	12		21			54				
				33				15.7		
					100/3			Boring completed at 15.7 feet.		
20										

CEMENT BENTONITE GROUT

Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 15.7 feet. Bore hole was tremie grouted to ground surface upon completion.

Cement Bentonite Grout Mix

94 lb portland cement
5 lb bentonite
7.8 gal water

No water at completion.

← 15.7'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

SHEET 1 OF 1

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2A79cc HOLE NO. SB-3-17 SURF. ELEVATION 1465.4

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 939165.9

Town of Sardinia, Erie County, NY Easting: 1170624.5

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/06/17 COMPLETED 11/07/17

DEPTH IN FT	SN / REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	1						Moist to extremely moist dark gray to brown (SANDY-SILT) topsoil with little sand and organic matter, trace root fiber, very loose, granular soil structure, (ML).		Coarse silty topsoil with little sand and organic matter, trace root fiber to 1.9 feet over coarse silty glacial drift with little to some sand, trace to little gravel, trace organic matter to 2.3 feet over water sorted and deposited sand with some gravel, trace to little silt with an occasoinal cobble to end of boring.
	6		2			3				
				1						
					1					
	2	11						grades downward to 1.9		
	14		7			16		Moist to extremely moist brown (SANDY-SILT) with 5 to 15% gravel, little to some sand, trace organic matter, compact, massive soil structure, (ML).		
				9						
					8					
	3	12						grades downward to 2.3		
5	16		14			25		Moist light brownish gray gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, trace to little silt, compact, stratified, (SM).		← 6.4'
				11						
					12					
	4	100/5						6.4		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 6.4 feet. Bore hole was tremie grouted to ground surface upon completion.
	2							Boring completed at 6.4 feet.		
										Cement Bentonite Grout Mix
										94 lb portland cement
										5 lb bentonite
10										7.8 gal water
										No water at completion.
15										
20										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists. (cns) SHEET 1 OF 1

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2A79cc HOLE NO. SB-4-17 SURF. ELEVATION 1455.1

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 938974.3

Town of Sardinia, Erie County, NY Easting: 1170495.7

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/06/17 COMPLETED 11/07/17

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N
	1	1				
	12		2			5
				3		
					6	
	2	3				
	12		4			7
				3		
					3	
	3	4				
5	14		3			6
				3		
					4	
	4	8				
	12		5			10
				5		
					6	
	5	19				
	12		16			26
				10		
10					10	
	6	27				
	11		15			31
				16		
					9	
	7	15				
	3		19			26
				7		
					8	
	8	3				
15	6		3			7
				4		
					5	
20						

LITH

DESCRIPTION AND CLASSIFICATION

Moist to extremely moist dark brown (SANDY-SILT) topsoil fill with 3 to 7% gravel, little organic matter and sand, trace clay, very loose, granular soil structure, (ML).

grades downward to 0.7

Moist to extremely moist light brown (SAND-SILT-CLAY) fill with 3 to 7% gravel, little sand and clay, stiff, massive soil structure, (ML-CL).

2.0

Moist, wet below 12.0 feet, brownish gray gravelly (SILTY-SAND) fill with 20 to 40% gravel, little silt, trace organic matter and clay, loose, massive soil structure, (SM).

16.0

Boring completed at 16.0 feet.

WELL

CEMENT BENTONITE GROUT

← 16.0'

WATER TABLE AND REMARKS

Coarse silty topsoil fill with little organic matter and sand, trace clay and gravel to 0.7 feet over silty soil fill with little sand and clay, trace organic matter and gravel to 2.0 feet over sandy soil fill with some gravel, little silt, trace organic matter and clay to end of boring.

Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 16.0 feet. Bore hole was tremie grouted to ground surface upon completion.

Cement Bentonite Grout Mix

94 lb portland cement
5 lb bentonite
7.8 gal water

Note: No water in bore hole after leaving augers in overnight at 14.0 feet.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79cc HOLE NO. SB-5-17 SURF. ELEVATION 1459.5

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 937441.8

Town of Sardinia, Erie County, NY Easting: 1170578.9

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/13/17 COMPLETED 11/13/17

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
1	2								
16		4			9		Moist to extremely moist brown disturbed (SANDY-SILT) topsoil with 3 to 7% gravel, little sand and organic matter, loose, massive soil structure, (ML).		Coarse silty disturbed topsoil with little sand and organic matter, trace gravel to 1.1 feet over water sorted and deposited sand with some gravel, little silt to 6.0 feet over clayey slack water sediment with trace sand and gravel to 6.4 feet over water sorted and deposited sand with some gravel, little silt with an occasional cobble to end of boring.
			5				1.1		
				8			Moist brown gravelly (SILTY-SAND) with 20 to 40% gravel, little silt, loose, stratified, (SM).		
2	7								
15		5			8				
			3						
				3					
3	5								
13		4			7				
			3				grades downward to 6.0		
				4					
4	9						Extremely moist brownish gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, weakly thinly laminated, (CL).		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 12.0 feet. Bore hole was tremie grouted to ground surface upon completion.
18		16			30				
			14				clear transition to 6.4		
				17					
5	9						Moist brown gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, little silt, compact, stratified, (SM).		Cement Bentonite Grout Mix
20		12			22				94 lb portland cement
			10						5 lb bentonite
				8					7.8 gal water
6	3								
15		5			12				← 12.0'
			7						
				6			12.0		No water at completion.
							Boring completed at 12.0 feet.		

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns) SHEET 1 OF 1

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

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2A79cc HOLE NO. SB-6-17 SURF. ELEVATION 1469.0

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 937318.1

Town of Sardinia, Erie County, NY Easting: 1169445.5

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/09/17 COMPLETED 11/09/17

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N
	1	2				
	17		4			9
				5		
					7	
	2	4				
	12		4			9
				5		
					6	
	3	4				
5	18		5			12
				7		
					14	
	4	3				
	16		7			17
				10		
					13	
	5	4				
	18		8			19
				11		
10					15	
	6	3				
	17		7			17
				10		
					14	
	7	5				
	20		7			16
				9		
					11	
	8	3				
15	22		5			11
				6		
					8	
	9	5				
	22		8			15
				7		
					9	
	10	3				
	23		4			11
				7		
20					7	

LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	Extremely moist brown disturbed (SANDY-SILT) topsoil with 3 to 7% gravel, little sand, trace to little organic matter, trace clay, loose, massive soil structure, (ML). 1.2	CEMENT BENTONITE GROUT	Coarse silty disturbed topsoil with little sand, trace to little organic matter, trace clay and gravel to 1.2 feet over coarse silty slack water sediment with little sand, trace clay to 1.5 feet over silty glacial drift with some gravel, little sand and clay to 6.0 feet over clayey slack water sediment with trace sand and gravel to 16.7 feet over silty slack water sediment with little sand, trace clay to 17.1 feet over clayey slack water sediment with trace sand and gravel to 26.5 feet over water sorted and deposited sand with some gravel, trace to little silt to end of boring.
	Extremely moist distinctly mottled grayish brown (SANDY-SILT) with little sand, trace clay, loose, blocky soil structure, (ML). 1.5		
	Extremely moist grayish brown gravelly (SAND-SILT-CLAY) with 20 to 40% gravel, little sand and clay, stiff, weakly stratified to massive soil structure, (ML-CL). grades downward to 6.0		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 30.0 feet. Bore hole was tremie grouted to ground surface upon completion.
	Moist to extremely moist grayish brown to brownish gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, very stiff, weakly thinly laminated to thinly laminated, (CL).		Cement Bentonite Grout Mix 94 lb portland cement 5 lb bentonite 7.8 gal water
	grades downward to 16.7		No water at completion.
	Moist to extremely moist gray (SANDY-SILT) with little mostly very fine to fine size sand, trace clay, compact, massive soil structure, (ML). grades downward to 17.1		
	See next sheet		

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

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(716) 655-1717 • FAX (716) 655-2915

2A79cc HOLE NO. SB-6-17 SURF. ELEVATION 1469.0

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 937318.1

Town of Sardinia, Erie County, NY Easting: 1169445.5

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/09/17 COMPLETED 11/09/17

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	2								
	23		4			9		Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, very stiff, weakly thinly laminated to thinly laminated, (CL).		
				5						
					8					
	12	3								
	23		6			17				
				11						
					13					
	13	4								
25	22		7			17				
				10						
					14					
	14	7						grades downward to 26.5		
	20		20			46		Moist brown gravelly (SILTY-SAND) with 20 to 40% gravel, trace to little silt, dense, stratified, (SM).		
				26						
					23					
	15	11								
	18		19			38				
				19						
					24			30.0		← 30.0'
30								Boring completed at 30.0 feet.		
35										
40										

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists. (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79cc HOLE NO. SB-7-17 SURF. ELEVATION 1455.5

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 937307.3

Town of Sardinia, Erie County, NY Easting: 1169790.8

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/13/17 COMPLETED 11/13/17

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
1	4						Moist to extremely moist brown disturbed (SANDY-SILT) topsoil with little sand and organic matter, loose, massive soil structure, (ML).		Coarse silty disturbed topsoil with little sand and organic matter to 1.0 feet over clayey slack water sediment with trace sand and gravel to 11.8 feet over water sorted and deposited sand with some gravel, trace to little silt with an occasional cobble to end of boring.
16		6			13				
			7						
				8					
2	8						1.0		
22		8			17		Moist to extremely moist distinctly mottled light grayish brown (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, weakly blocky soil structure, (CL).		
			9						
				10					
3	4								
5 — 20		6			15		grades downward to 2.0		Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 16.0 feet. Bore hole was tremie grouted to ground surface upon completion.
			9						
				11					
4	3								
20		4			12		Moist to extremely moist brown (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, very stiff, weakly thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks, weakly thinly laminated below 8.0 feet, (CL).		
			8						
				14					
5	4								
21		8			20				Cement Bentonite Grout Mix
			12						94 lb portland cement
				17					5 lb bentonite
10 — 6	4								7.8 gal water
22		9			28				No water at completion.
			19				clear transition to 11.8		
				36					
7	9						Moist brown gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, little silt, dense to very dense, stratified, (SM).		
14		17			51				
			34						
				100/4					
8	4								
17		21			39				
15 —			18						
				21			16.0		
							Boring completed at 16.0 feet.		
20									

CEMENT BENTONITE GROUT

← 16.0'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

1091 Jamison Road • Elma, NY 14059

(716) 655-1717 • FAX (716) 655-2915

2A79cc HOLE NO. SB-8-17 SURF. ELEVATION 1450.6

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 936950.7

Town of Sardinia, Erie County, NY Easting: 1169803.5

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/13/17 COMPLETED 11/13/17

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	1						Moist to extremely moist brown disturbed (SANDY-SILT) topsoil with little sand and organic matter, trace clay, very loose, massive soil structure, (ML).		Coarse silty disturbed topsoil with little sand and organic matter, trace clay to 1.2 feet over water sorted and deposited sand with little silt, trace gravel to 2.0 feet over silty slack water sediment with little clay, trace sand to 3.6 feet over water sorted and deposited sand with little gravel, trace to little silt to 4.5 feet over clayey slack water sediment with trace sand and gravel to 5.5 feet over water sorted and deposited sand with little gravel, trace to little silt to 8.0 feet over clayey slack water sediment with trace sand and gravel with an occasional thin silty sand interbed to 9.8 feet over water sorted and deposited sand with little gravel, trace to little silt to end of boring.
	16		2			9				
				7						
					6					
	2	4								
	17		6			14				
				8						
					11					
	3	3								
5	16		4			7				
				3						
					4					
	4	4								
	2		4			9				
				5						
					5					
	5	3								
	19		4			11				
				7						
					10					
10	6	4								
	17		7			18				
				11						
					10					
	7	6								
	14		6			13				
				7						
					9					
	8	11								
15	14		7			17				
				10						
					9					
20										

1.2

Moist to extremely moist light brown (SILTY-SAND) with 3 to 7% gravel, mostly fine size sand, little silt, loose, weakly blocky soil structure, (SM).

grades downward to 2.0

Moist to extremely moist distinctly mottled to highly mottled, light brownish gray, (CLAYEY-SILT) with little clay, trace sand, stiff, weakly blocky soil structure, (ML-CL).

clear transition to 3.6

Moist brown (SILTY-SAND) with 10 to 20% gravel, trace to little silt, loose, stratified, (SM).

clear transition to 4.5

Moist to extremely moist light brown (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, firm, weakly thinly laminated, (CL).

clear transition to 5.5

Moist brown (SILTY-SAND) with 10 to 20% gravel, trace to little silt, loose, stratified, (SM).

grades downward to 8.0

Extremely moist light brown (CLAYEY-SILT) with some clay, trace sand, stiff, thinly laminated with very thin coarse silt lenses and occasional thin (SILTY-SAND) lense, (CL) with an occasional thin (SM) interbed.

clear transition to 9.8

See next sheet

CEMENT BENTONITE GROUT

← 16.0'

Cement Bentonite Grout Mix

94 lb portland cement
5 lb bentonite
7.8 gal water

Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 16.0 feet. Bore hole was tremie grouted to ground surface upon completion.

No water at completion.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79cc HOLE NO. SB-8-17 SURF. ELEVATION 1450.6

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 936950.7

Town of Sardinia, Erie County, NY Easting: 1169803.5

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/13/17 COMPLETED 11/13/17

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL WATER TABLE AND REMARKS
							Moist brown (SILTY-SAND) with 10 to 20% gravel, trace to little slit, compact, stratified, (SM). 16.0	
							Boring completed at 16.0 feet.	

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79cc HOLE NO. SB-9-17 SURF. ELEVATION 1455.7

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 937136.9

Town of Sardinia, Erie County, NY Easting: 1170260.4

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/13/17 COMPLETED 11/14/17

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	2				5		Moist to extremely moist brown disturbed (SANDY-SILT) topsoil with 3 to 7% gravel, little sand and organic matter, loose, massive soil structure, (ML).		Coarse silty disturbed topsoil with little sand and organic matter, trace gravel to 1.0 feet over water sorted and deposited sand with some gravel, little silt, trace clay with an occasional cobble to 6.0 feet over water sorted and deposited sand and gravel with trace silt and an occasional cobble to 8.0 feet over water sorted and deposited sand with some gravel, little silt, trace clay with an occasional cobble to end of boring.
	18		2							
				3						
					7					
	2	7				14		1.0		
	13		5					Moist brown gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, little silt, trace clay, loose, stratified, (SM).		
				9						
					8					
	3	3								
5	10		2			4		grades downward to 6.0		
				2						
					6					
	4	16						Moist brownish gray very gravelly (SAND) with 40 to 60% gravel, occasional cobble, trace silt, dense, stratified, (GM).		
	8		22			35				
				13						
					10					
	5	3						grades downward to 8.0		
	12		6			18				
				12				Moist brown gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, little silt, trace clay, compact, stratified, (SM).		
10					8					
								10.0		
								Boring completed at 10.0 feet.		
15										
20										

CEMENT BENTONITE GROUT

← 10.0'

Cement Bentonite Grout Mix

94 lb portland cement
5 lb bentonite
7.8 gal water

No water after augers left in overnight at 6.0 feet.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79cc HOLE NO. SB-10-17 SURF. ELEVATION 1471.3

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 936420.0

Town of Sardinia, Erie County, NY Easting: 1169470.0

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/09/17 COMPLETED 11/10/17

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	2						Moist brown disturbed (SANDY-SILT) topsoil with little sand and organic matter, trace clay, loose, massive soil structure, (ML).		Coarse silty disturbed topsoil with little sand and organic matter, trace clay to 1.3 feet over clayey slack water sediment with trace sand and gravel to 16.7 feet over water sorted and deposited sand with little silt to 17.3 feet over clayey slack water sediment, trace sand and gravel to 22.1 feet over coarse silty glacial drift with some sand, trace silt to 22.5 feet over water sorted and deposited sand with some gravel, trace to little silt to end of boring.
	17		4			10		1.3		
				6				Extremely moist to moist brown (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, firm to stiff, very stiff below 6.0 feet, blocky soil structure, (CL).		
					9					
	2	2								
	20		4			8				
				4						
					6					
	3	4								
5	19		8			17				
				9						
					12					
	4	5								
	19		8			20				
				12						
					19			grades downward to 8.4		
	5	7								
	16		8			17		Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, very stiff, weakly thinly laminated to thinly laminated, (CL).		Note: Very thin coarse brown silt lense at 10.5 feet.
				9						
10					12					
	6	3								
	18		4			9				
				5						
					7					
	7	2								
	18		4			10				Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 26.0 feet. Bore hole was tremie grouted to ground surface upon completion.
				6						
					7					
	8	3								
15	21		4			10				Cement Bentonite Grout Mix
				6						
					9					94 lb portland cement
	9	7						grades downward to 16.7		5 lb bentonite
	18		9			20		Moist gray (SILTY-SAND) with mostly very fine to fine size sand, little silt, compact, massive soil structure, (SM).		7.8 gal water
				11						
					12			17.3		No water at completion.
	10	5								
	0		8			20				
				12						
20					15			See next sheet		

CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

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(716) 655-1717 • FAX (716) 655-2915

2A79cc HOLE NO. SB-10-17 SURF. ELEVATION 1471.3

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 936420.0

Town of Sardinia, Erie County, NY Easting: 1169470.0

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/09/17 COMPLETED 11/10/17

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	11	5								
	19		7			18		Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, very stiff, weakly thinly laminated to thinly laminated, (CL).		
				11						
					13					
	12	16								
	20		19			44		clear transition to 22.1		
				25				Moist to extremely moist brown (SANDY-SILT) with some mostly very fine to fine size sand, trace silt, dense, massive soil structure, (ML).		
					41					
	13	16								
25	13		30			83		clear transition to 22.5		
				53				Moist grayish brown to brownish gray gravelly (SILTY-SAND) with 20 to 40% gravel, trace to little silt, dense to very dense, stratified, (SM).		
					39			26.0		
								Boring completed at 26.0 feet.		
30										
35										
40										

WELL: CEMENT BENTONITE GROUT

WATER TABLE AND REMARKS: ← 26.0'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79cc HOLE NO. SB-11-17 SURF. ELEVATION 1445.0

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 936533.4

Town of Sardinia, Erie County, NY Easting: 1169820.3

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/10/17 COMPLETED 11/10/17

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	5								
	14		4			9		Frozen to extremely moist dark brown disturbed (SANDY-SILT) topsoil with little sand and organic matter, trace clay, loose, massive soil structure, (ML).		Coarse silty disturbed topsoil with little sand and organic matter, trace clay to 1.2 feet over disturbed silty slack water sediment with little sand, trace organic matter and clay to 2.0 feet over water sorted and deposited sand with little to some gravel, little silt, trace clay to end of boring.
				5				1.2		
					6			Moist to extremely moist brown disturbed (SANDY-SILT) with little sand, trace organic matter and clay, loose, blocky soil structure, (ML).		
	2	5								
	18		6			11				
				5						
					11					
	3	7								
5	17		8			15		grades downward to 2.0		
				7						
					9					
	4	7								
	19		7			16		Moist brown (SILTY-SAND) with 15 to 30% gravel, little silt, trace clay, compact, stratified, (SM).		
				9						
					8					
	5	3								
	10		4			10				
				6						
10					8					
	6	4								
	12		5			11				
				6						
					5			12.0		
								Boring completed at 12.0 feet.		
15										
20										

CEMENT BENTONITE GROUT

Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 12.0 feet. Bore hole was tremie grouted to ground surface upon completion.

Cement Bentonite Grout Mix

94 lb portland cement
5 lb bentonite
7.8 gal water

No water at completion.

← 12.0'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

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2A79cc HOLE NO. SB-12-17 SURF. ELEVATION 1458.0

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 939164.4

Town of Sardinia, Erie County, NY Easting: 1170723.1

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/07/17 COMPLETED 11/07/17

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	1	2						Moist to extremely moist light brownish gray to olive brown, (CLAYEY-SILT) topsoil fill with little clay, trace sand and organic matter, firm, massive soil structure, (ML-CL).		Silty topsoil fill with little clay, trace sand and organic matter to 0.4 feet over sandy soil fill with little silt and gravel, trace clay to 1.1 feet over clayey slack water sediment with trace sand and gravel to 3.3 feet over water sorted and deposited sand with little to some gravel, trace to little silt with an occasional cobble to 6.2 feet over silty glacial drift with little sand and clay, trace gravel to 7.5 feet over clayey slack water sediment with trace sand and gravel to 10.7 feet over water sorted and deposited sand with some gravel, little silt with an occasional cobble to end of boring.
	17		3			9				
				6						
					7					
	2	2						0.4		
	22		3			8		Extremely moist to wet brownish gray (SILTY-SAND) fill with 10 to 20% gravel, little silt, trace clay, compact, massive soil structure, (SM).		
				5						
					8					
	3	17						1.1		
5	<1		39							
				100/3						
	4	12						Moist to extremely moist gray (SILTY-CLAY) with 3 to 7% gravel, trace sand, stiff, weakly thinly laminated, (CL).		
	20		15			23				
				8				grades downward to 3.3		
					8					
	5	3						Moist brown gravelly (SILTY-SAND) with 20 to 40% gravel, trace to little silt, occasional cobble, dense, stratified, (SM).		
	7		5			10				
				5						
10					7					
	6	77						grades downward to 6.2		
	17		23			54		Moist to extremely moist light brown (SAND-SILT-CLAY) with 5 to 10% gravel, little sand and clay, mostly very fine to fine size sand, very stiff, massive soil structure, (ML-CL).		
				31						
					34					
	7	13						grades downward to 7.5		
	19		22			57				
				35						
					38					
15								Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, thinly laminated to weakly thinly laminated, (ML-CL).		
								clear transition to 10.7		
								Moist brown gravelly (SILTY-SAND) with 20 to 40% gravel, little silt, occasional cobble, very dense, stratified, (SM).		
								14.0		
								Boring completed at 14.0 feet.		
20										

CEMENT BENTONITE GROUT

← 14.0'

Cement Bentonite Grout Mix

94 lb portland cement
5 lb bentonite
7.8 gal water

No water at completion.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

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2A79cc HOLE NO. SB-13-17 SURF. ELEVATION 1459.9

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 939260.9

Town of Sardinia, Erie County, NY Easting: 1170682.2

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/07/17 COMPLETED 11/07/17

DEPTH IN FT | BLOWS ON SAMPLER

SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
1	2						Moist to extremely moist dark gray to grayish brown (CLAYEY-SILT) topsoil fill with little clay, trace sand and organic matter, soft, massive soil structure, (ML-CL). 0.5		Silty topsoil fill with little clay, trace sand and organic matter to 0.5 feet over silty soil fill with some clay, trace sand to 1.3 feet over clayey slack water sediment with trace sand and gravel to 2.3 feet over silty slack water sediment with little sand and clay, trace gravel to 6.5 feet over water sorted and deposited sand with some gravel, trace to little silt to 7.0 feet over silty slack water sediment with some clay, trace sand and gravel to 15.2 feet over silty slack water sediment with little clay, trace gravel to 15.7 feet over water sorted and deposited sand with some gravel, trace silt with an occasional cobble to end of boring.
20		2			5				
			3						
				4					
2	3								
20		4			10		Moist to extremely moist gray to dark gray (CLAYEY-SILT) fill with some clay, trace sand, firm, massive soil structure, (CL). 1.3		
			6						
				7					
3	2								
20		5			13				
			8						
				15					
4	6								
22		8			16		Moist to extremely moist grayish brown (CLAYEY-SILT) with 3 to 7% gravel, some clay, trace sand, stiff, weakly thinly laminated, (CL). grades downward to 2.3		
			8						
				12					
5	5								
16		6			14		Moist to extremely moist gray (SAND-SILT-CLAY) with 3 to 7% gravel, little sand and clay, stiff, very weakly thinly laminated to massive soil structure, (ML-CL). grades downward to 6.5		
			8						
				10					
6	6								
2		8			17		Moist gray gravelly (SILTY-SAND) with 20 to 40% gravel, trace to little silt, dense, stratified, (SM). grades downward to 7.0		
			9						
				13					
7	3								
17		4			12		Moist to extremely moist gray (CLAYEY-SILT) with 3 to 7% gravel, little to some clay, trace sand, very stiff, very weakly thinly laminated to massive soil structure, weakly thinly laminated with very thin coarse silt lenses below 9.0 feet, (ML-CL). grades downward to 15.2		
			8						
				10					
8	6								
20		8			25				
			17						
				40					
9	23								
13		25			64		Moist to extremely moist brown (CLAYEY-SILT) with 3 to 7% gravel, little clay, very stiff, weakly thinly laminated, (ML-CL). grades downward to 15.7		
			39						
				41					
							See next sheet		

CEMENT BENTONITE GROUT

Note: Advanced bore hole with 3 1/4" ID x 7" OD hollow stem auger casing with continuous split spoon sampling to end of boring at 18.0 feet. Bore hole was tremie grouted to ground surface upon completion.

Cement Bentonite Grout Mix

94 lb portland cement
5 lb bentonite
7.8 gal water

No water at completion.

← 18.0'

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations

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(716) 655-1717 • FAX (716) 655-2915

2A79cc HOLE NO. SB-13-17 SURF. ELEVATION 1459.9

PROJECT Chaffee Landfill Expansion - 10860 Olean Road LOCATION Northing: 939260.9

Town of Sardinia, Erie County, NY Easting: 1170682.2

CLIENT McMahon and Mann Consulting Engineers DATE STARTED 11/07/17 COMPLETED 11/07/17

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL WATER TABLE AND REMARKS
								Moist light gray gravelly (SILTY-SAND) with 20 to 40% gravel, occasional cobble, dense, stratified, (SM). 18.0	
								Boring completed at 18.0 feet.	

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian Bartron & Jason Kryszak, Geologists, (cns)

EARTH DIMENSIONS, INC.

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(716) 655-1717 • FAX (716) 655-2915

2A79ad HOLE NO. MA 1-01 SURF. ELEVATION __

PROJECT Chaffee Landfill LOCATION __
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/18/01 COMPLETED 04/18/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Extremely moist dark gray (CLAYEY-SILT) topsoil with little clay, soft, granular soil structure, (ML-CL).	Silty topsoil with little clay to 0.8 feet over clayey slack water sediment to 29.0 feet over water sorted sand and gravel to end of boring.
			2			5		0.8	
				3				Extremely moist highly mottled olive brown (CLAYEY-SILT) with some clay, stiff, blocky soil structure, (CL).	
					3			grades downward to 3.0	
5	2	7						Extremely moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, with nearly vertical gray desiccation cracks, (CL).	
			7			19			
				12					
					13				
10	3	7						grades downward to 11.0	
			11			21			
				10				Extremely moist olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, stiff, weak thinly laminated, (CL).	
					13				
15	4	2							
			4			11			
				7					
					7				
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • FAX (716) 655-2915

2A79ad HOLE NO. MA 1-01 SURF. ELEVATION —

PROJECT Chaffee Landfill LOCATION —
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/18/01 COMPLETED 04/18/01

DEPTH IN FT	SN	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	5	2	3	7	8	10		Extremely moist olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, stiff, weak thinly laminated, (CL).	
25	6	3	5	9	10	14			
30	7	33	30	32	34	62		29.0 Moist olive brown very gravelly (SAND) with 40 to 60% mostly subrounded gravel and occasional cobble, very fine to very coarse size sand, very dense, stratified, (SW), (GW). 32.0 Boring completed at 32.0 feet.	No water at completion.
35									
40									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy) SHEET 2 OF 2

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2A79ad HOLE NO. MB 1-01 SURF. ELEVATION 1475.17

PROJECT Chaffee Landfill LOCATION

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/16/01 COMPLETED 04/16/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Extremely moist dark brown (CLAYEY-SILT) topsoil with 3 to 5% gravel, little clay, very soft, granular soil structure, (ML-CL). 0.6	Silty topsoil with little clay to 0.6 feet over clayey slack water sediment to 18.0 feet over clayey glacial till to 22.0 feet over water sorted and deposited sand and gravel with little silt to 28.0 feet over clayey slack water sediment to 44.0 feet over water sorted and deposited sand and gravel with little silt to 44.5 feet over silty slack water sediment with little clay to 56.0 feet water sorted and deposited sand and gravel with little silt to end of boring.
			1			2			
				1					
					2				
	2	11						Extremely moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% fine size gravel, some clay, soft, blocky soil structure, (CL).	
			12			27		grades downward to 2.5	
				15					
5					20			Extremely moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% fine size gravel, some clay, very stiff, with nearly vertical gray desiccation cracks, (CL).	
	3	7						grades downward to 8.5	
			9			19		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, weak thinly laminated, (CL).	
				10					
10					17				
	4	9							
			10			21			
				11					
15					16				
								grades downward to 18.0	
	5	15						See next sheet.	
			15			31			
				16					
20					17				

N=NUMBER OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 lb. WT. FALLING 30" PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MB 1-01 SURF. ELEVATION 1475.17

PROJECT Chaffee Landfill LOCATION _

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/16/01 COMPLETED 04/16/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
								Extremely moist olive gray gravelly (SAND-SILT-CLAY) with 15 to 40% mostly subangular gravel and occasional channer, some clay, little sand, hard, massive soil structure, (CL).	
								grades downward to 22.0	
	6	13							
			17			37		Wet olive gray very gravelly (SILTY-SAND) with 40 to 60% mostly subrounded gravel and occasional cobble, very fine to very coarse size sand, little silt, dense, stratified, (SM), (GM).	
				20					
25					22				
								grades downward to 28.0	
	7	9							
			11			28		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff and hard, weak thinly laminated, (CL).	
				17					
30					20				
	8	10							
			10			27			
				17					
35					20				
	9	8							
			13			32			
				19					
40					22				

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MB 1-01 SURF. ELEVATION 1475.17

PROJECT Chaffee Landfill LOCATION

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/16/01 COMPLETED 04/16/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
								Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff and hard, weak thinly laminated, (CL).	
	10	3							
			11			26		44.0	
				15				Wet olive gray very gravelly (SILTY-SAND) with 40 to 60% mostly subrounded gravel, fine to very coarse size sand, little silt, stratified, (SM), (GM).	
45					25			44.5	
								Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, little clay, hard, weak thinly laminated, (ML-CL).	
	11	20							
			25			45			
				20					
50					22				
	12	15							
			17			42			
				25					
55					23				
								grades downward to 56.0	
								Wet olive gray very gravelly (SILTY-SAND) with 40 to 60% mostly subrounded gravel, little silt, very dense in place, loose when disturbed, stratified, (SM), (GM).	
	13	25							
			50			152		59.5	
				102					No water at completion.
								Boring completed at 59.5 feet.	

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MB 2-01 SURF. ELEVATION 1490.20

PROJECT Chaffee Landfill LOCATION _

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/18/01 COMPLETED 04/18/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Extremely moist dark brown (CLAYEY-SILT) topsoil with little clay, very soft, granular soil structure, (ML-CL). 0.3	Silty topsoil with little clay to 0.3 feet over clayey slack water sediment to 8.0 feet over silty slack water sediment with little clay to 13.0 feet over clayey slack water sediment to 29.0 feet over water sorted and deposited sand and gravel with little silt to 29.3 feet over silty slack water sediment with little clay to 34.0 feet over clayey slack water sediment to 36.0 feet over clayey glacial till to 48.3 feet over water sorted and deposited gravel and silt with little to some sand to 53.0 feet over clayey slack water sediment to end of boring.
			3			8			
				5					
					7				
	2	8						Extremely moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, firm, blocky soil structure, (CL).	
			11			22			
				11					
5					16			grades downward to 3.0	
								Moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, with nearly vertical gray desiccation cracks, (CL).	
								grades downward to 8.0	
	3	5						Moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, little clay, stiff, with nearly vertical gray desiccation cracks, (ML-CL).	
			5			14			
				9					
10					10				
								grades downward to 13.0	
	4	15						Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, stiff and very stiff, weak thinly laminated, (CL).	
			13			28			
				15					
15					17				
	5	5							
			5			17			
				12					
20					12			grades downward to 20.0	

See next sheet.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MB 2-01 SURF. ELEVATION 1490.20

PROJECT Chaffee Landfill LOCATION _

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/18/01 COMPLETED 04/18/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
								Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff and hard, weak thinly laminated, (CL).	
	6	11							
			15			35			
				20					
25					22				
	7	8						29.0	
			13			28			
				15				Wet distinctly mottled olive gray gravelly (SILTY-SAND) with 40 to 60% mostly subrounded gravel, little silt, dense, stratified, (SM), (GM).	
30					14			29.3	
								Extremely moist olive gray (CLAYEY-SILT) with little clay, very stiff, thinly laminated with very thin coarse silt lenses, (ML-CL).	
	8	12						grades downward to 34.0	
			16			38			
				22				Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, hard, weak thinly laminated, (CL).	
35					25			grades downward to 36.0	
								Extremely moist olive gray gravelly (CLAYEY-SILT) with 15 to 40% mostly subangular gravel and occasional cobble, some clay, hard, massive soil structure, (CL).	▼ Water level at 37.9 feet below ground surface at completion.
	9	00/5"							
40									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

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2A79ad HOLE NO. MB 2-01 SURF. ELEVATION 1490.20

PROJECT Chaffee Landfill LOCATION _
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/18/01 COMPLETED 04/18/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
								Extremely moist olive gray (CLAYEY-SILT) with 15 to 40% mostly subangular gravel and occasional cobble, some clay, hard, massive soil structure, (CL).	
	10	11							
			19			45			
				26					
45					26				
								48.3	
	11	45						Wet distinctly mottled olive brown very gravelly (SANDY-SILT) with 40 to 60% mostly subrounded gravel and occasional cobble, little to some sand, very dense in place, loose when disturbed, stratified, (GM).	
			61			121			
				70					
50					24				
								grades downward to 53.0	
	12	56						Extremely moist olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, hard, weak thinly laminated, (CL).	
			40			65			
				25					
55					30				
	13	22							
			35			57			
				22					
60					22			60.0	
								Boring completed at 60.0 feet.	

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MB 3-01 SURF. ELEVATION 1487.10

PROJECT Chaffee Landfill LOCATION

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/18/01 COMPLETED 04/18/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	2						Extremely moist dark brown (CLAYEY-SILT) topsoil with little clay, soft, granular soil structure, (ML-CL). 0.5	Silty topsoil with little clay to 0.5 feet over clayey slack water sediment to 29.0 feet over water sorted and deposited sand with little to some gravel, some silt to 35.5 feet over clayey slack water sediment to 37.0 feet over water sorted and deposited silt with little to some gravel, little sand to 40.0 feet over clayey slack water sediment to 47.0 feet over water sorted and deposited gravel with silt, little sand and clay to end of boring.
			2			5			
				3					
					7				
								Extremely moist highly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, stiff, blocky soil structure, (CL).	
								grades downward to 3.0	
5	2	5							
			9			22		Moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, with nearly vertical gray desiccation cracks, (CL).	
				13					
					14				
								grades downward to 10.0	
10	3	9							
			14			31		Extremely moist olive gray (CLAYEY-SILT) with 3 to 10% gravel, some clay, hard, weak thinly laminated, (CL).	
				17					
					13				
									▼ Water level at 12.7 feet below ground surface at completion.
15	4	7							
			12			26			
				14					
					14				
20	5	6							

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MB 3-01 SURF. ELEVATION 1487.10

PROJECT Chaffee Landfill LOCATION _
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/18/01 COMPLETED 04/18/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	5		9	12	13	21		Extremely moist olive gray (CLAYEY-SILT) with 3 to 10% gravel, some clay, hard, weak thinly laminated, (CL).	
25	6	WR	10	20	17	30			WR - Sampler penetration with weight of rods and hammer.
								grades downward to 29.0	
30	7	20	22	21	23	41		Wet olive gray gravelly (SILTY-SAND) with 15 to 40% mostly subrounded gravel, very fine to very coarse size sand, some silt, dense, stratified, (SM).	
35	8	1	11	26	30	37		35.5 Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, hard, thinly laminated, (CL).	
								grades downward to 37.0	
40	9	12						Wet olive gray (SANDY-SILT) with 15 to 40% gravel, little sand, very dense, stratified, (SM). 40.0	

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

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2A79ad HOLE NO. MB 3-01 SURF. ELEVATION 1487.10

PROJECT Chaffee Landfill LOCATION —
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/18/01 COMPLETED 04/18/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	9		23			56		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, hard, thinly laminated, (CL).	
				33					
					35				
45	10	8							
			12			30			
				18					
					26				
								47.0	
								Wet olive gray very gravelly (SAND-SILT-CLAY) with 40 to 60% mostly subrounded gravel and occasional cobble, little sand and clay, very dense, stratified, (GM) tending towards (GC).	
50	11	20							
			36			76			
				40					
					40				
55	12	24							
			44			94			
				50					
					55				
	13	57							
			85			143			
				58					
60					66			60.0	

Boring completed at 60.0 feet.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MB 4-01 SURF. ELEVATION 1484.63

PROJECT Chaffee Landfill LOCATION _

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/23/01 COMPLETED 04/23/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
	1	1						Extremely moist dark brown (SANDY-SILT) topsoil with little sand, very loose, granular soil structure, (ML).		(1) 4"x 5' STEEL PROTECTIVE CASING.
			2			6		0.3		Coarse silty topsoil with little sand to 0.3 feet over clayey slack water sediment to 25.5 feet over water sorted and deposited sand with little silt to 25.8 feet over clayey slack water sediment to 30.5 feet over coarse silty slack water sediment with some sand to 31.0 feet over water sorted and deposited sand with little silt and gravel to 31.8 feet over clayey slack water sediment to 38.0 feet over water sorted and deposited sand and gravel with little silt and clay to 44.0 feet over water sorted and deposited sand with little silt to 45.5 feet over water sorted and deposited sand and gravel to 50.0 feet over water sorted and deposited sand and gravel with little silt and clay to 58.4 feet over clayey slack water sediment to end of boring.
				4				Moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% fine size gravel, some clay, firm, blocky soil structure, (CL).		
					8			grades downward to 2.5		
5	2	4						Moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, with nearly vertical gray desiccation cracks, (CL).		
			7			19				
				12						
					14					
				.						
10	3	9								
			16			36		grades downward to 11.5		
				20						
					18			Extremely moist olive gray (CLAYEY-SILT) with 3 to 10% gravel, some clay, stiff, weak thinly laminated, (CL).		
15	4	3								
			5			12				
				7						
					10					
				.						
20										

WELL (1): 2" PVC RISER; CEMENT BENTONITE GROUT

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MB 4-01 SURF. ELEVATION 1484.63

PROJECT Chaffee Landfill LOCATION

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/23/01 COMPLETED 04/23/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	5	2	3	4	7	7		Extremely moist olive gray (CLAYEY-SILT) with 3 to 10% gravel, some clay stiff, weak thinly laminated, (CL).	2" PVC RISER; CEMENT BENTONITE GROUT	
25	6	4	6	9	10	15		25.5 Wet olive gray gravelly (SILTY-SAND) with 15 to 20% gravel, very fine to medium size sand, little silt, compact, stratified, (SM). 25.8		
30	7	8	10	11	13	21		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, weak thinly laminated, with very thin coarse silt lenses, (CL). grades downward to 30.5 Wet olive gray (SANDY-SILT) with some sand, compact, thinly bedded, (ML). grades downward to 31.0		
35	8	6	14	18	22	32		Wet olive gray gravelly (SILTY-SAND) with 15 to 25% mostly fine size gravel, very fine to very coarse size sand, little silt, compact, stratified, (SM). 31.8 Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very hard, weak thinly laminated, with very thin coarse silt lenses, (CL). 38.0		
40								See next sheet.		

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MB 4-01 SURF. ELEVATION 1484.63

PROJECT Chaffee Landfill LOCATION _

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/23/01 COMPLETED 04/23/01

DEPTH IN FT | BLOWS ON SAMPLER

SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
9	18	33	35	37	68		Extremely moist distinctly mottled olive brown very gravelly (SAND-SILT-CLAY) with 40 to 60% mostly subrounded gravel and occasional cobble, little silt and clay, very dense, stratified, (SC), (GM).		(1) CEMENT BENTONITE GROUT
							grades downward to 44.0		← 42.5'
10	10	21	27	29	48		Extremely moist faintly mottled olive brown (SILTY-SAND), very fine size sand, little silt, compact, thinly bedded with thin coarse silt lenses, (SM).		(2) BENTONITE SEAL
							45.5		← 45.5'
							Extremely moist faintly mottled olive brown very gravelly (SAND) with 40 to 60% mostly subrounded gravel and occasional cobble, very fine to very coarse size sand, dense, stratified, (SW), (GW).		← 47.5'
							grades downward to 50.0		
11	8	22	32	35	54		Extremely moist distinctly mottled olive brown very gravelly (SAND-SILT-CLAY) with 40 to 60% mostly subrounded gravel and occasional cobble, little silt and clay, very dense, stratified, (SC), (GM).		
12	12	18	20	19	38				← 57.5'
13	14	18	24	41	42		58.4 Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, hard, weak thinly laminated, (CL). 60.0		No water at completion. ← 60.0'

2" PVC RISER
2" 10 SLOT PVC SCREEN
#6 GLOBAL SAND PACK

Boring completed at 60.0 feet.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

NOTE: MC-1 WAS A BOREHOLE WHICH HAS SINCE BEEN GROUTED.

EARTH DIMENSIONS, INC.

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2A79ad HOLE NO. MC 1A-01 SURF. ELEVATION _

PROJECT Chaffee Landfill LOCATION _

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/23/01 COMPLETED 04/23/01

DEPTH IN FT	SN	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
0								Augered with 4 1/4 inch inside diameter hollow stem augers without split spoon sampling to 33.0 feet.	2" PVC RISER; CEMENT/BENTONITE SEAL	(1) 4"x 5' PROTECTIVE STEEL CASING. Augered without split spoon sampling to 33.0 feet, below clayey slack water sediment to 48.0 feet over water sorted and deposited sand with some gravel to 49.0 feet over clayey slack water sediment to 51.0 feet over apparent water sorted and deposited sand and gravel to refusal.
5										
10										
15										
20										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy) SHEET 1 OF 3

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • FAX (716) 655-2915

2A79ad HOLE NO. MC 1A-01 SURF. ELEVATION _

PROJECT Chaffee Landfill LOCATION _
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/23/01 COMPLETED 04/23/01

DEPTH IN FT	SN	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
								Augered with 4 1/4 inch inside diameter hollow stem augers without split spoon sampling to 33.0 feet.		
25										
30										
								33.0		
	1	10						Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, weak thinly laminated, (CL).		
			11			21				
				10						
35					14					
	2	5								
			10			23				
				13						
40					17					

WELL: 2" PVC RISER; CEMENT/BENTONITE SEAL

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MC 1A-01 SURF. ELEVATION —

PROJECT Chaffee Landfill LOCATION —

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/23/01 COMPLETED 04/23/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	3	10	13	13	15	26		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, weak thinly laminated, (CL).	(1) CEMENT BENTONITE SEAL; 2" PVC RISER; BENTONITE SEAL	(1) CEMENT BENTONITE SEAL ← 43.5'
45										← 46.5'
								48.0		
	4	14	13	17	18	30		Wet distinctly mottled brown gravelly (SILTY-SAND) with 20 to 40% mostly subrounded gravel, very fine to very coarse size sand, little silt, dense, stratified, (SM).	#8 GLOBAL SAND PACK	← 48.5' Water level at 49.0 feet after augering to 53.0 feet.
								49.0		
50								Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, little clay, very stiff, weak thinly laminated, (CL). grades downward to 51.0		
	5	100/0"						Wet olive gray very gravelly (SAND) with apparent 40 to 60% gravel, cobbles and channers, very dense, (SW), (GW).	2" 20 SLOT PVC SCREEN	← 53.5' ← 54.0'
55								54.0		
								Refusal at 54.0 feet.		
60										

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy) SHEET 3 OF 3

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2A79ad HOLE NO. MC 1-01 SURF. ELEVATION 1499.73

PROJECT Chaffee Landfill LOCATION

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/23/01 COMPLETED 05/01/01

DEPTH IN FT | BLOWS ON SAMPLER

SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
1	WH	2	3	5	5		Wet dark brown (SANDY-SILT) topsoil with 10 to 15% gravel, little sand, loose, granular soil structure, (ML). 0.5	WH – Sampler penetration with weight of rods and hammer.
2	3	4	4	8	8		Extremely moist highly mottled olive brown (CLAYEY-SILT) with 3 to 10% gravel, some clay, firm, blocky soil structure, (CL) grades downward to 1.9	Coarse silty topsoil with little sand and gravel to 0.5 feet over clayey slack water sediment to 1.9 feet over water sorted and deposited sand with little silt to 3.5 feet over clayey slack water sediment to end of boring.
							Wet distinctly mottled olive brown (SILTY-SAND), very fine size sand with little silt, loose, thinly bedded, (SM). grades downward to 3.5	
3	5	9	10	14	19		Extremely moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, stiff, with nearly vertical gray desiccation cracks, (CL). grades downward to 5.0	
							Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, thinly laminated, (CL). Noticed more gravel fragments while augering between 12.5 and 15.0 foot depths.	▼ Water level at 11.5 feet with augers at 22.0 feet at 9am on 05/01/01.
4	22	17	13	13	30			
5	11	9	10		19			

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

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2A79ad HOLE NO. MC 1-01 SURF. ELEVATION 1499.73

PROJECT Chaffee Landfill LOCATION —

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 04/23/01 COMPLETED 05/01/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	5				16			Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, thinly laminated, with very thin coarse silt lenses, (CL).	
	6	4	8			19			
25				11	15				
	7	17	10	5	9	15			
30								30.0 Boring completed at 30.0 feet.	
35									
40									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MC.2-01 SURF. ELEVATION 1499.87

PROJECT Chaffee Landfill LOCATION

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 05/01/01 COMPLETED 05/01/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	2						Moist dark brown (SANDY-SILT) topsoil with 10 to 15% gravel, little sand, very loose, granular soil structure, (ML). 0.5	Coarse silty topsoil with little sand and gravel to 0.5 feet over water sorted and deposited sand with little to some gravel, little silt and clay to 2.5 feet over clayey slack water sediment to 13.0 feet over silty slack water sediment with little clay to 28.0 feet over clayey slack water sediment to end of boring.
			2			9			
				7					
					6				
	2	9						Moist distinctly mottled olive brown gravelly (SAND-SILT-CLAY) with 15 to 30% mostly subrounded gravel, little silt and clay, loose, blocky soil structure, (ML)	
			14			28			
5				14				grades downward to 2.5	
					15			Moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, hard, with nearly vertical gray desiccation cracks, (CL).	
	3	10							
			17			36			
10				19					
					27				
								grades downward to 13.0	
	4	6						Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, little clay, very stiff, thinly laminated with SILT interbeds, (ML-CL).	
			9			22			
15				13					
					14				
	5	5							
			7			17			
20				10					

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MC 2-01 SURF. ELEVATION 1499.87

PROJECT Chaffee Landfill LOCATION

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 05/01/01 COMPLETED 05/01/01

DEPTH IN FT	SN	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	5				13			Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, little clay, very stiff, thinly laminated with SILT interbeds, (ML-CL).	
	6	2							
			7			16			
25				9					
					9				
								grades downward to 28.0	
	7	6						Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, weak thinly laminated, (CL).	
			13			26			
				13					
30					14			30.0	No water at completion.
								Boring completed at 30.0 feet.	
35									
40									

N=NUMBER OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 lb. WT. FALLING 30" PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MC 3-01 SURF. ELEVATION 1502.56

PROJECT Chaffee Landfill LOCATION —
Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 05/01/01 COMPLETED 05/01/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	6						Moist brown very gravelly (SILTY-SAND) fill with 40 to 60% gravel, little silt, 0.3	Sand and gravel fill with little silt to 0.3 feet over clayey slack water sediment to 5.5 feet over water sorted and deposited sand with little silt to 8.0 feet over clayey slack water sediment to 23.5 feet over silty slack water sediment with little clay to end of boring.
			6			14			
				8					
					10				
								Moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, stiff, blocky soil structure, (CL).	
	2	7						grades downward to 2.5	
			8			18			
5				10				Moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, with nearly vertical gray desiccation cracks, (CL).	
					10			5.5	
								Extremely moist distinctly mottled olive brown (SILTY-SAND), fine and very fine size sand with little silt, compact, thinly bedded with thin silt lenses, (SM).	
	3	3						grades downward to 8.0	
			10			20			
10				10					
					12			Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff becoming stiff below 13.5 feet, weak thinly laminated with very thin coarse silt lenses, (CL).	
	4	3							
			5			10			
15				5					
					7				
	5	2							
			4			12			
20				8					

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

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2A79ad HOLE NO. MC 3-01 SURF. ELEVATION 1502.56

PROJECT Chaffee Landfill LOCATION —

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 05/01/01 COMPLETED 05/01/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	5				12			Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff becoming stiff below 13.5 feet, weak thinly laminated with very thin coarse silt lenses, (CL).	
	6	6							
			7			16			
25				9					
					8				
	7	6						grades downward to 23.5	
			9			18		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, little clay, very stiff, thinly laminated with coarse silt and very fine sand lenses 1/8-1/4 inch thick, (ML-CL).	
				9					
30					11			30.0	No water at completion.
								Boring completed at 30.0 feet.	
35									
40									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

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2A79ad HOLE NO. MC 4-01 SURF. ELEVATION 1497.67

PROJECT Chaffee Landfill LOCATION —

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 05/02/01 COMPLETED 05/02/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Extremely moist dark brown (SANDY-SILT) topsoil with little sand, very loose, granular soil structure, (ML). 0.3	Coarse silty topsoil with little sand to 0.3 feet over coarse silty slack water sediment with little sand and gravel to 3.0 feet over loamy glacial drift with little gravel to 6.0 feet over loamy glacial till to 10.0 feet over clayey slack water sediment to 18.0 feet over silty slack water sediment with little clay to end of boring.
			1			7			
				6					
					5				
	2	3						Extremely moist distinctly mottled brown (SANDY-SILT) with 10 to 15% gravel, little sand, loose, blocky soil structure, (ML)	
			5			10		grades downward to 3.0	
				5					
5					10				
								Extremely moist distinctly mottled brown (SAND-SILT-CLAY) with 10 to 15% gravel, little sand and clay, loose, blocky soil structure, (ML) tending towards (SC).	
								grades downward to 6.0	
	3	6						Extremely moist olive gray gravelly (SAND-SILT-CLAY) with 15 to 40% mostly subangular gravel, little sand and clay, compact, massive soil structure, (ML) tending towards (SC).	
			8			18			
				10					
10					13				
								grades downward to 10.0	
								Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, weak thinly laminated, (CL).	
	4	5							
			10			28			
				18					
15					13				
								grades downward to 18.0	
	5	6						Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, little clay, hard, weak thinly laminated, (ML-CL).	
			13			31			
				18					
20					20				

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

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PROJECT Chaffee Landfill LOCATION _

Town of Sardinia, Erie County, New York

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DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
								Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, little clay, hard, weak thinly laminated, (ML-CL).	
	6	18							
			17			40			
				23					
25					24				
	7	8							
			20			34			
				14					
30					20			30.0	
								Boring completed at 30.0 feet.	No water at completion.
35									
40									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

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2A79ad HOLE NO. MC 5-01 SURF. ELEVATION 1499.22

PROJECT Chaffee Landfill LOCATION

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 05/02/01 COMPLETED 05/03/01

DEPTH IN FT | BLOWS ON SAMPLER

SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL (1)	WATER TABLE AND REMARKS
1	1	1	2	6	3		Extremely moist dark brown (CLAYEY-SILT) topsoil with 3 to 5% gravel, little clay, very soft, granular soil structure, (ML-CL). 0.8		(1) 4"x 5' PROTECTIVE STEEL CASING
2	4	4	6	9	10		Moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, stiff, blocky soil structure, (CL) grades downward to 3.0		Silty topsoil with little clay to 0.8 feet over clayey slack water sediment to 25.0 feet over silty slack water sediment with little clay to 33.0 feet over water sorted and deposited sand and gravel with little silt to 38.0 feet over silty slack water sediment with little clay to 43.0 feet over clayey slack water sediment to 49.0 feet over water sorted and deposited sand to 49.2 feet over silty slack water sediment with little clay to 58.0 feet over clayey slack water sediment to 62.0 feet over apparent loamy glacial till to 64.0 feet over water sorted and deposited sand and gravel to 68.0 feet over water sorted and deposited sand with little to some gravel, little silt to end of boring.
3	4	6	10	18	16		Moist distinctly mottled olive brown (CLAYEY-SILT) with 3 to 5% gravel, some clay, firm, with nearly vertical gray desiccation cracks, (CL). grades downward to 8.0		
4	5	8	10	18	18		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, thinly laminated with SILT interbeds 1 to 2 foot thick spaced 5 to 12 inches apart below 18.0 feet, (CL).	2" PVC RISER / CEMENT/BENTONITE SEAL	
5	3	8	14	16	22				

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

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Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 05/02/01 COMPLETED 05/03/01

DEPTH IN FT	SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
	6	4	6	9	17	15		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, thinly laminated with SILT interbeds 1 to 2 foot thick spaced 5 to 12 inches apart.	2" PVC RISER; CEMENT/BENTONITE SEAL	
								grades downward to 25.0		
25								Extremely moist olive gray (CLAYEY-SILT) with 3 to 10% gravel, little clay, very stiff, weak thinly laminated, with very thin coarse silt lenses, (ML-CL).		
	7	5	11	13	14	24				
30										
								grades downward to 33.0		
	8	61	31	34	25	65		Extremely moist olive gray very gravelly (SILTY-SAND) with 40 to 60% mostly subrounded gravel and occasional cobble, very fine to very coarse size sand, little silt, very dense in place, loose when disturbed, stratified, (SM), (GM).		
35										
								grades downward to 38.0		
	9	9	10	10	10	20		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, little clay, very stiff, weak thinly laminated, (ML-CL).		
40										

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2A79ad HOLE NO. MC 5-01 SURF. ELEVATION 1499.22

PROJECT Chaffee Landfill LOCATION —

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 05/02/01 COMPLETED 05/03/01

DEPTH IN FT	SN	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
								Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, little clay, very stiff, weak thinly laminated, (ML-CL).		
								grades downward to 43.0		
	10	WR	8	14	14	22		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, very stiff, thinly laminated, (CL).		WR – Sampler penetration with weight of the rods only.
45										
								grades downward to 48.0		
	11	WR	15	18	15	33		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, little clay, hard, weak thinly laminated, (CL). 49.0		
50								Extremely moist to wet (SAND), very fine size, dense thinly bedded, (SP). 49.2		
								Extremely moist olive gray (CLAYEY-SILT) with 3 to 10% gravel, little clay, hard, thinly laminated, (ML-CL).		
	12	14	13	15	18	28				← 54.5'
55										(1) BENTONITE SEAL
										← 56.5'
										(2) #6 GLOBAL SAND PACK
								grades downward to 58.0		
	13	14	16	28	28	44		Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, hard, thinly laminated, (ML-CL).		← 59.5'
60										(3) 2" #6 SLOT PVC SCREEN

2" PVC RISER

CEMENT BENTONITE SEAL

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

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PROJECT Chaffee Landfill LOCATION

Town of Sardinia, Erie County, New York

CLIENT McMahon & Mann Consulting Engineers, P.C. DATE STARTED 05/02/01 COMPLETED 05/03/01

DEPTH IN FT	SN	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WELL	WATER TABLE AND REMARKS
								Extremely moist olive gray (CLAYEY-SILT) with 3 to 5% gravel, some clay, hard, thinly laminated, (ML-CL).		Water level at 60.7 feet at 8am on 5/03/01 with augers at 68.0 feet.
								grades downward to 62.0		
	14	24						Extremely moist olive gray gravelly (SAND-SILT-CLAY) with 15 to 25% gravel, little sand and clay, dense, massive soil structure, (ML) tending towards (SC).		
			20			46				
				26						
65					27					
								64.0		
								Wet olive gray very gravelly (SAND) with 40 to 60% mostly subrounded gravel and occasional cobble, very fine to very coarse size sand, dense, loose when disturbed, stratified, (SW), (GW).		
								grades downward to 68.0		
	15	WR						Wet olive gray gravelly (SILTY-SAND) with 15 to 40% mostly subrounded gravel, very fine to very coarse size sand, little silt, dense, stratified, (SM).		WR - Sampler penetration with weight of the rods only.
			18			41				← 69.5'
				23						← 70.0'
70					30					No water at completion.
								70.0		
								Boring completed at 70.0 feet.		
75										

WELL: 2" 6 SLOT PVC SCREEN; #6 GLOBAL SAND PACK

N=NUMBER OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 lb. WT. FALLING 30" PER BLOW

LOGGED BY Donald W. Owens, Senior Soil Scientist (bvy)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • FAX (716) 655-2915

2A79ax HOLE NO. Bore Hole SB 1-03 SURF. ELEVATION 1481.56

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 9133.83

Town of Sardinia, Erie Co., NY Easting 5280.13

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/24/03 COMPLETED 12/26/03

DEPTH IN FT	SN Rec	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Extremely moist dark brown (SILT) topsoil with little organic matter, trace sand and clay, very loose, granular soil structure, (ML). 0.7	Silty topsoil with little organic matter, trace sand and clay to 0.7 feet over silty slack water sediment with little sand and clay to 3.0 feet over silty slack water sediment with little to some clay to 12.0 feet over silty slack water sediment with trace to little gravel and clay to 14.5 feet over clayey slack water sediment to 22.0 feet over cobble to 22.5 feet over clayey slack water sediment to 32.0 feet over silty slack water sediment with little clay, trace to little gravel to 36.0 feet over silty slack water sediment with little to some clay to 42.2 feet over water sorted and deposited sand with some gravel, little silt to end of boring.
	19		2			5			
				3					
					3				
	2	3							
	21		3			9		Extremely moist to moist distinctly mottled brown (SAND-SILT-CLAY) with little clay and very fine size sand, firm, blocky soil structure, (ML-CL).	
				6					
					8				
	3	4							
5	24		5			13		clear transition to 3.0	
				8				Moist brown (CLAYEY-SILT) with 0 to 3% gravel, little to some clay, stiff, thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks, (ML-CL) tending towards (CL).	
					8				
	4	5							
	24		5			11			
				6					
					9				
	5	4							
	18		6			14			
				8					
10					10				
	6	5							
	24		5			13			
				8					
					11				
	7	5							
	20		7			17			
				10					
					13				
	8	7							
15	18		9			18			
				9					
					11				
	9	7							
	24		8			16			
				8					
					10				
	10	5							
	24		6			12			
				6					
20					9				

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cmi)

EARTH DIMENSIONS, INC.

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2A79ax HOLE NO. Bore Hole SB 1-03 SURF. ELEVATION 1481.56

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 9133.83

Town of Sardinia, Erie Co., NY Easting 5280.13

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/24/03 COMPLETED 12/26/03

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	11	5						Extremely moist gray (CLAYEY-SILT) with 3 to 10% gravel, some clay, stiff, weakly thinly laminated, (CL).	
	20		6			13			
				7					
					9			22.0	
	12	51						Cobble.	No recovery sample number 12.
	0		42			85		22.5	
				43				Moist to extremely moist gray (CLAYEY-SILT) with 0 to 3% gravel, some clay, very stiff, weakly thinly laminated to massive soil structure, (CL).	
					38				
	13	9							
25	24		11			26			
				15					
					19				
	14	11							
	16		12			28			
				16					
					21				
	15	8							
	24		11			25			
				14					
30					17				
	16	10							
	17		11			25			
				14					
					15			grades downward to 32.0	
	17	9						Moist gray (CLAYEY-SILT) with 5 to 15% mostly subangular gravel, little clay, trace sand, very stiff, massive soil structure, (ML-CL).	
	20		10			20			
				10					
					14				
	18	9							
35	24		11			24			
				13					
					16			grades downward to 38.0	
	19	12						Moist gray (CLAYEY-SILT) with 0 to 3% gravel, little to some clay, very stiff, weakly thinly laminated, (ML-CL) tending towards (CL).	
	24		12			27			
				15					
					15				
	20	8							
	21		10			23			
				13					
40					15				

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

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2A79ax HOLE NO. Bore Hole SB 1-03 SURF. ELEVATION 1481.56

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 9133.83

Town of Sardinia, Erie Co., NY Easting 5280.13

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/24/03 COMPLETED 12/26/03

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	21	8				19		Moist gray (CLAYEY-SILT) with 0 to 3% gravel, little to some clay, very stiff, weakly thinly laminated, (ML-CL) tending towards (CL).	
	24		8					clear transition to 42.2	
				11				Moist brownish gray gravelly (SILTY-SAND) with 25 to 40% gravel, very fine to very coarse size sand, little silt, very dense, loose when disturbed, stratified, (SM).	
					14				
	22	25							
	20		66			124			
				58					
					70				
	23	51							
45	18		48			94			▼ Water level at 45.5 feet below ground surface at completion
				46					
					25			clear transition to 46.5	
	24	29						Wet grayish brown gravelly (SILTY-SAND) with 25 to 40% mostly subrounded gravel, very fine to very loose size sand, little silt, very dense, loose when disturbed, stratified, (SM).	Note: Bore hole tremmie grouted with bentonite cement to surface upon completion.
	14		30			62		48.0	
				32				Boring completed at 48.0 feet.	
					34				
50									
55									
60									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

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2A79ax HOLE NO. Bore Hole SB 2-03 SURF. ELEVATION 1489.61

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 8679.19
Town of Sardinia, Erie Co., NY Easting 5285.71

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/19/03 COMPLETED 12/22/03

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	1						Extremely moist dark brown (SANDY-SILT) topsoil with little sand and organic matter, loose, granular soil structure, (ML).	Coarse silty topsoil with little sand and organic matter to 0.4 feet over clayey slack water sediment to 3.0 feet over silty slack water sediment with little clay to 10.0 feet over water sorted and deposited sand with little silt to 11.0 feet over silty slack water sediment with trace clay to 12.0 feet over silty slack water sediment with little clay, trace gravel to 13.8 feet over cobble to 15.0 feet over silty slack water sediment with little clay to 21.0 feet over silty slack water sediment with little clay to 26.5 feet over coarse silty slack water sediment with little to some sand to 27.0 feet over silty slack water sediment with little clay to 29.0 feet over clayey slack water sediment to 32.5 feet over water sorted and deposited sand with little to some gravel, little silt to end of boring.
	12		3			6			
				3					
					3				
	2	4						0.4	
	24		5			11		Extremely moist to moist faintly mottled brown (CLAYEY-SILT) with 0 to 3% gravel, some clay, firm, blocky soil structure, (CL).	
				6					
					7				
	3	3						grades downward to 3.0	
5	22		3			9			
				6				Extremely moist faintly mottled brown (CLAYEY-SILT) with 0 to 3% gravel, little clay, stiff, weakly thinly laminated with nearly vertical gray desiccation cracks, (ML-CL).	
					7				
	4	6						grades downward to 6.0	
	24		8			21			
				13				Moist brown (CLAYEY-SILT) with 0 to 3% gravel, little clay, very stiff weakly thinly laminated, (ML-CL).	
					15				
	5	6						clear transition to 10.0	
10	24		12			28			
				16				Extremely moist brown (SILTY-SAND) with 0 to 5% gravel, mostly fine to medium size sand, little silt, compact, loose when disturbed, weakly stratified, (SM).	
					20				
	6	8						clear transition to 11.0	
	20		12			29			
				17				Extremely moist brown (SILT), trace clay, compact, thinly bedded, (ML).	
					18				
	7	7						clear transition to 12.0	
	24		10			27			
				17				Moist gray (CLAYEY-SILT) with 5 to 10% gravel, little clay, very stiff, weakly thinly laminated with very thin coarse silt lenses, (ML-CL).	
					18				
15								13.8	
	8	17						Cobble.	
	0		18			30			
				12				15.0	
					15				
	9	7						Moist gray (CLAYEY-SILT) with 0 to 3% gravel, little clay, very stiff, thinly laminated, (ML-CL).	
	14		11			28			
				17					
					17				
	10	5							
20			8			22			

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

EARTH DIMENSIONS, INC.

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2A79ax HOLE NO. Bore Hole SB 2-03 SURF. ELEVATION 1489.61

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 8679.19
Town of Sardinia, Erie Co., NY Easting 5285.71

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/19/03 COMPLETED 12/22/03

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	10			14				Moist gray (CLAYEY-SILT) with 0 to 3% gravel, little clay, very stiff, thinly laminated, (ML-CL).	
					16			grades downward to 21.0	
	11	8							
	24		12			30			
				18				Moist gray (CLAYEY-SILT) with 5 to 10% mostly subangular gravel, little clay, hard, weakly thinly laminated, (ML-CL).	
					20				
	12	9							
	19		16			38			
				22					
25					22				
	13	8							
	20		15			31		clear transition to 26.5	
				16					
					16			Extremely moist gray (SANDY-SILT) with little to some mostly very fine size sand, dense, thinly bedded, (ML).	
	14	9							
	24		11			24		clear transition to 27.0	
				13					
					17			Moist gray (CLAYEY-SILT) with 0 to 3% gravel, little clay, very stiff, weakly thinly laminated, (ML-CL).	
	15	12							
30	24		17			34		grades downward to 29.0	
				17					
					17			Moist gray (CLAYEY-SILT) with 0 to 3% gravel, some clay, hard, weakly thinly laminated, (CL).	
	16	9							
	21		13			32		clear transition to 32.5	
				19					
					30			Extremely moist faintly mottled brown gravelly (SILTY-SAND) with 15 to 40% gravel, very fine to very coarse size sand, little silt, very dense, loose when disturbed, stratified, (SM).	
	17	23							
	20		49			102			
				53					
35					57				
	18	41							
	14		76						
				100/4					
	19	69							
	22		66			149			
				83					
					20				
	20	49							
40			58			142			

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

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PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 8679.19
Town of Sardinia, Erie Co., NY Easting 5285.71

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/19/03 COMPLETED 12/22/03

DEPTH IN FT	SN	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	20			84	90			Extremely moist faintly mottled brown gravelly (SILTY-SAND) with 15 to 40% gravel, very fine to very coarse size sand, little silt, very dense, loose when disturbed, stratified, (SM). 41.0	Note: Bore hole tremmie grouted with bentonite cement to surface upon completion.
								Boring completed at 41.0 feet.	Water level at 9.6 feet below ground surface after leaving augers at 17.0 feet for two days.
45									No water at completion.
50									
55									
60									

N=NUMBER OF BLOWS TO DRIVE 2" SPOON 12" WITH 140 lb. WT. FALLING 30" PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

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2A79ax HOLE NO. Bore Hole SB 3-03 SURF. ELEVATION 1464.93

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 9710.74

Town of Sardinia, Erie Co., NY Easting 5661.89

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/15/03 COMPLETED 12/16/03

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	3						Extremely moist to moist brown to dark brown (CLAYEY-SILT) topsoil fill with little to some clay, trace to little organic matter, firm, granular soil structure, (ML-CL) tending towards (CL).	Silty topsoil fill with little to some clay, trace to little organic matter to 0.3 feet over clayey soil fill to 1.5 feet over silty topsoil with little to some clay, little organic matter and wood fiber to 2.0 feet over clayey slack water sediment to 23.0 feet over water sorted and deposited sand with little silt to 25.0 feet over silty slack water sediment with little clay to end of boring.
	16		6			15		0.3	
				9				Moist faintly mottled brown (CLAYEY-SILT) fill with some clay, very stiff, massive soil structure, (CL).	
					9			1.5	
	2	4						Moist olive gray (CLAYEY-SILT) topsoil with little to some clay, little organic matter and wood fiber, very stiff and stiff, granular soil structure, (CL).	
	20		7			18		clear transition to 2.0	
				11				Moist olive brown becoming olive gray below 7.0 feet (CLAYEY-SILT) with 0 to 3% gravel, some clay, very stiff, thinly laminated with very thin coarse silt lenses, (CL).	
					15				
	3	3							
5	21		5			12			
				7					
					9				
	4	5							
	24		7			20			
				13					
					15				
	5	4							
	17		5			15			
				10					
10					14				▼ Water level at 9.9 feet below ground surface at completion.
	6	5							
	24		6			17			
				11					
					19				
	7	5							
	24		7			18			
				11					
					16				
	8	5							
15	21		8			19			
				11				grades downward to 15.9	
					14				
	9	4						Moist olive gray (CLAYEY-SILT) with some clay, very stiff, stiff below 20.0 feet, thinly laminated with very thin coarse silt lenses, and thin sandy lenses, (CL).	
	24		5			16			
				11					
					14				
	10	5							
	22		7			17			
				10					
20					12				

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

EARTH DIMENSIONS, INC.

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2A79ax HOLE NO. Bore Hole SB 3-03 SURF. ELEVATION 1464.93

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 9710.74

Town of Sardinia, Erie Co., NY Easting 5661.89

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/15/03 COMPLETED 12/16/03

DEPTH IN FT	SN REC	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	11	2						Moist olive gray (CLAYEY-SILT) with some clay, stiff, thinly laminated with very thin coarse silt lenses, and thin sandy lenses, (CL).	
	24		4			10		clear transition to 23.0	
				6					
					10				
	12	3							
	21		5			16		Wet gray (SILTY-SAND) with very fine to very coarse size sand, little silt, compact, tends to liquify when disturbed, stratified, (SM).	
				11					
					13				
	13	4							
25	22		6			15		25.0	
				9				Extremely moist gray (CLAYEY-SILT) with little clay, very stiff, thinly laminated with very thin coarse silt lenses, (ML-CL).	
					13				
	14	7						28.0	
	15		9			21		Boring completed at 28.0 feet.	Note: Bore hole tremmie grouted with bentonite cement to surface upon completion.
				12					
					19				
30									
35									
40									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

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2A79ax HOLE NO. Bore Hole SB 4-03 SURF. ELEVATION 1489.91

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 9149.33

Town of Sardinia, Erie Co., NY Easting 5877.39

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/17/03 COMPLETED 12/18/03

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	2						Wet brown (CLAYEY-SILT) topsoil with little clay and organic matter, trace to little sand, soft, granular soil structure, (ML-CL).	Silty topsoil with little clay and organic matter to 0.7 feet over clayey slack water sediment to 11.0 feet over water sorted and deposited sand with little silt to 14.2 feet over silty slack water sediment with little clay to 22.0 feet over silty slack water sediment with little to some clay, trace to little gravel to 24.0 feet over clayey slack water sediment to 25.8 feet over silty slack water sediment with trace to little clay to 29.7 feet over clayey slack water sediment to 34.0 feet over silty slack water sediment with little clay to 37.5 feet over silty slack water sediment with little clay, trace to little gravel to 41.0 feet over water sorted and deposited sand with little to some gravel, little silt to end of boring.
	14		4			10			
				6					
					8			0.7	
	2	7						Extremely moist to moist faintly mottled brown (CLAYEY-SILT) with 0 to 3% gravel, some clay, stiff, blocky soil structure to weakly thinly laminated, (CL).	
	18		7			16			
				9					
					13			2.0	
	3	6						Moist brown (CLAYEY-SILT) with 0 to 3% gravel, some clay, very stiff, thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks, (CL).	
5	24		7			20			
				13					
					17				
	4	5							
	24		7			17			
				10					
					15			grades downward to 6.0	
	5	3						Moist to extremely moist olive brown (CLAYEY-SILT) with 0 to 3% gravel, some clay, very stiff, thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks and thin (SILTY-SAND) lenses, (CL).	
	22		5			12			
				7					
10					8				
	6	5							
	20		8			19			
				11					
					13			clear transition to 9.0	
	7	7						Extremely moist olive gray (CLAYEY-SILT) with 0 to 5% gravel, some clay, stiff, thinly laminated with very thin coarse silt lenses, (CL).	
	20		7			16			
				9					
					9			clear transition to 11.0	
	8	5						Moist grayish brown (SILTY-SAND) with mostly fine size sand, little silt, compact, loose when disturbed, thinly bedded, (SM).	
15	20		6			14			
				8					
					8			clear transition to 14.2	
	9	4						Extremely moist olive gray (CLAYEY-SILT) with 0 to 5% gravel, little clay, stiff, thinly laminated with very thin coarse silt lenses and occasional thin (SILTY-SAND) lens, (ML-CL).	
	24		5			12			
				7					
					8				
	10	3							
	24		4			11			
				7					
20					9				

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

EARTH DIMENSIONS, INC.

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2A79ax HOLE NO. Bore Hole SB 4-03 SURF. ELEVATION 1489.91

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 9149.33

Town of Sardinia, Erie Co., NY Easting 5677.39

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/17/03 COMPLETED 12/18/03

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	11	2							
	24		4			10		Extremely moist olive gray (CLAYEY-SILT) with 0 to 5% gravel, little clay, stiff, thinly laminated with very thin coarse silt lenses and occasional thin (SILTY-SAND) lens, (ML-CL).	
				6					
					10				
	12	3							
	24		5			16			
				11					
					13				
	13	4							
25	21		6			15			
				9					
					13				
	14	7							
	24		9			21			
				12					
					19				
	15	9							
	24		12			29			
				17					
30					17				
	16	8							
	24		10			25			
				15					
					15				
	17	6							
	24		10			20			
				10					
					12				
	18	3							
35	22		6			12			
				6					
					9				
	19	6							
	24		6			16			
				10					
					14				
	20	6							
	24		7			14			
				7					
40					9				

Moist to extremely moist gray (CLAYEY-SILT) with 5 to 15% gravel, little to some clay, very stiff, weakly thinly laminated to massive soil structure, (ML-CL).

grades downward to 22.0

Moist gray (CLAYEY-SILT) with 0 to 5% gravel, some clay, very stiff, thinly laminated with very thin coarse silt lenses, (CL).

clear transition to 24.0

Extremely moist olive gray (CLAYEY-SILT) with trace to little clay, compact, thinly laminated, (ML-CL) tending towards (ML).

clear transition to 25.8

Moist gray (CLAYEY-SILT) with 5 to 10% gravel, some clay, very stiff, weakly thinly laminated to massive soil structure, (CL).

grades downward to 29.7

Extremely moist gray (CLAYEY-SILT) with 0 to 5% gravel, little clay, stiff and very stiff, weakly thinly laminated with very thin coarse silt lenses, (ML-CL).

clear transition to 34.0

Extremely moist gray to olive gray (CLAYEY-SILT) with 5 to 15% gravel, little clay, stiff, weakly thinly laminated to massive soil structure, (ML-CL).

clear transition to 37.5

See Next Sheet

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 ", WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

EARTH DIMENSIONS, INC.

Soil and Hydrogeologic Investigations • Wetland Delineations
1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • FAX (716) 655-2915

2A79ax HOLE NO. Bore Hole SB 4-03 SURF. ELEVATION 1489.91

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 9149.33

Town of Sardinia, Erie Co., NY Easting 5677.39

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/17/03 COMPLETED 12/18/03

DEPTH IN FT	SN Rec	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
								Wet gray (CLAYEY-SILT) with little to some clay, firm, weakly thinly laminated with very thin coarse silt lenses, (ML-CL) tending towards (CL).	
	21	30						clear transition to 41.0	
	20		21					Extremely moist gray gravelly (SILTY-SAND) with 15 to 40% gravel, very fine to coarse size sand, little silt, very dense, loose when disturbed, stratified, (SM).	
				27					
	22	31							
	19		35			73			
				38					
					38				
	23	32							
45			40			91			
				51					
					59			46.0	
								Boring completed at 46.0 feet.	No water at completion.
									Note: Bore hole tremmie grouted with bentonite cement to surface upon completion.
50									
55									
60									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

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2A79ax HOLE NO. Bore Hole SB 5-03 SURF. ELEVATION 1482.67

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 8504.39

Town of Sardinia, Erie Co., NY Easting 5712.37

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/23/03 COMPLETED 12/24/03

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	2						Wet brown (SANDY-SILT) topsoil with little organic matter, trace to little sand, very loose, granular soil structure, (ML). 0.6	Coarse silty topsoil with little organic matter, trace to little sand to 0.6 feet over clayey slack water sediment to 16.0 feet over silty slack water sediment with little clay to 41.0 feet over coarse silty slack water sediment with little sand to 45.0 feet over silty slack water sediment with trace sand and clay to 46.0 feet over water sorted and deposited sand with little to some gravel, little silt to end of boring.
	20		3			6			
				3					
					5				
	2	3							
	22		3			8		Extremely moist gray (CLAYEY-SILT) with 0 to 3% gravel, some clay, firm, thinly laminated with very thin coarse silt lenses, (CL).	
				5					
					6				
	3	3							
5	24		3			8			
				5					
					6			grades downward to 6.0	
	4	3						Moist gray (CLAYEY-SILT) with 0 to 3% gravel, some clay, stiff, becoming very stiff below 11.0 feet, thinly laminated with very thin coarse silt lenses and occasional thin (SILTY-SAND) lenses below 12.0 feet, (CL).	No water at completion.
	24		4			10			
				6					
					11				
	5	4							
	24		5			14			
				9					
10					12				
	6	4							
	24		6			15			
				9					
					13				
	7	5							
	18		8			20			
				12					
					15				
	8	7							
15	12		10			22			
				12					
					15			grades downward to 16.0	
	9	8						Moist gray (CLAYEY-SILT) with 0 to 3% gravel, little clay, very stiff, weakly thinly laminated, (ML-CL).	
	24		11			25			
				14					
					17				
	10	7							
	24		11			28			
				15					
20					19				

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

EARTH DIMENSIONS, INC.

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2A79ax HOLE NO. Bore Hole SB 5-03 SURF. ELEVATION 1492.67

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 8504.39

Town of Sardinia, Erie Co., NY Easting 5712.37

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/23/03 COMPLETED 12/24/03

DEPTH IN FT	SN Rec	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	11	9							
	24		14			29		Moist gray (CLAYEY-SILT) with 0 to 3% gravel, little clay, very stiff, weakly thinly laminated, (ML-CL).	
				15					
					16				
	12	9							
	24		9			22			
				13					
					16			clear transition to 24.3	
	13	8							
25	19		10			22		Moist olive gray (CLAYEY-SILT) with 5 to 10% gravel, little clay, very stiff, weakly thinly laminated to massive soil structure, (ML-CL).	
				12					
					14			clear transition to 26.0	
	14	10							
	24		10			27		Moist gray (CLAYEY-SILT) with 0 to 3% gravel, little clay, very stiff, weakly thinly laminated to massive soil structure, (ML-CL).	
				17					
					17				
	15	7							
	20		9			22			
				13					
30					15				
	16	7							
	24		10			24			
				14					
					15				
	17	10							
	24		11			25			
				14					
					16				
	18	8							
35	21		9			23			
				14					
					15				
	19	9							
	22		11			25			
				14					
					15				
	20	9							
	20		11			22			
				11					
40					13				

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

EARTH DIMENSIONS, INC.

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1091 Jamison Road • Elma, NY 14059

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2A79ax

HOLE NO. Bore Hole SB 5-03

SURF. ELEVATION 1492.67

PROJECT Chaffee Landfill, Western Expansion Area
Town of Sardinia, Erie Co., NY

LOCATION Northing 8504.39
Easting 5712.37

CLIENT McMahon & Mann Consulting Engineers

DATE STARTED 12/23/03 COMPLETED 12/24/03

DEPTH IN FT	SN Rec	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	21	5							
	21		7			17		Moist gray (CLAYEY-SILT) with 0 to 3% gravel, little clay, very stiff, weakly thinly laminated to massive soil structure, (ML-CL).	
				10				clear transition to 41.0	
					11				
	22	11							
	24		11			28		Extremely moist gray (SANDY-SILT) with little mostly very fine size sand, compact, thinly bedded, (ML).	
				17					
					18				
	23	12							
45			14			44		clear transition to 45.0	
				30					
					30				
	24	33							
	16		41			89		Extremely moist to wet gray (SILT) with trace very fine size sand and clay, very dense with slight liquification when disturbed, thinly bedded, (ML).	
				48				clear transition to 48.0	
					52				
	25	31						Extremely moist brownish gray gravelly (SILTY-SAND) with 15 to 40% gravel, very fine to very coarse size sand, little silt, very dense, loose when disturbed, stratified, (SM).	
	14		37						
				100/5					
50									
	28	39							
			44			92			
				48					
					60			52.0	
								Boring completed at 52.0 feet.	
55									
60									

Note: Bore hole tremmie grouted with bentonite cement to surface upon completion.

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

EARTH DIMENSIONS, INC.

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2A79ax HOLE NO. Bore Hole SB 8-03 SURF. ELEVATION 1455.58

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 8232.70

Town of Sardinia, Erie Co., NY Easting 5799.94

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/16/03 COMPLETED 12/16/03

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	3						Wet brownish gray gravelly (SILTY-SAND) fill with 15 to 40% gravel, very fine to very coarse size sand, little silt, loose, massive soil structure, (SM).	Sandy soil fill with little to some gravel, little silt to 0.4 feet over silty slack water with little clay to 8.0 feet over clayey slack water sediment to 11.2 feet over water sorted and deposited sand with little silt, trace to little gravel to end of boring.
	16		6			14			
				8					
					10				
	2	5							
	20		7			17			
				10					
					13				
	3	8							
5	22		11			25			No water at completion.
				14					
					17				
	4	10							
	24		12			27			
				15					
					19			0.4	
	5	8						Moist olive gray (CLAYEY-SILT) with 0 to 5% gravel, little clay, stiff, very stiff below 3.0 feet, weakly thinly laminated to massive soil structure, (ML-CL).	
	24		11			23			
				12					
10					15				
	6	5							
	24		7			25			
				18					
					27				
								8.0	
								Moist olive gray (CLAYEY-SILT) with some clay, very stiff, thinly laminated with very thin coarse silt lenses and nearly vertical gray desiccation cracks, (CL).	
								clear transition to 11.2	
								Extremely moist grayish brown (SILTY-SAND) with 5 to 15% gravel, very fine to very coarse size sand, little silt, dense, loose when disturbed, stratified, (SM).	Note: Bore hole tremmie grouted with bentonite cement to surface upon completion.
15								12.0	
								Boring completed at 12.0 feet.	
20									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

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(716) 655-1717 • FAX (716) 655-2915

2A79ax HOLE NO. Bore Hole SB 7-03 SURF. ELEVATION 1465.82

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 8677.37
Town of Sardinia, Erie Co., NY Easting 6156.35

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/26/03 COMPLETED 12/26/03

DEPTH IN FT	SN REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	1	5							
	20		9			20		Moist gray (CLAYEY-SILT) with 3 to 10% gravel, little to some clay, very stiff, weakly thinly laminated to massive soil structure, (ML-CL) tending towards (CL).	Silty slack water sediment with little to some clay to 4.0 feet over silty slack water sediment with little clay to 12.0 feet over water sorted and deposited sand with some gravel to 14.0 feet over silty slack water sediment with little clay to 16.0 feet over water sorted and deposited sand with some gravel, little silt to end of boring.
				11					
					10				
	2	6							
	24		8			16			
				8					
					10			grades downward to 4.0	
	3	5						Moist to extremely moist gray (CLAYEY-SILT) with 0 to 3% gravel, little clay, stiff, weakly thinly laminated, (ML-CL).	
5	22		5			12			
				7					
					7				
	4	6							
	24		6			13			
				7					
					10				
	5	5							
	24		5			13			
				8					
10					10				
	6	5							
	20		6			14			
				8					
					11			12.0	
	7	12						Moist brownish gray gravelly (SAND) with 20 to 40% gravel, very fine to very coarse size sand, trace to little silt, dense, loose when disturbed, stratified, (SW) tending towards (SM).	
	16		14			30			
				16					
					16			clear transition to 14.0	
	8	7							
15	21		9			24		Moist gray (CLAYEY-SILT) with 0 to 3% gravel, little clay, very stiff, weakly thinly laminated, (ML-CL).	
				15					
					20			16.0	
	9	27						Moist brownish gray gravelly (SILTY-SAND) with 25 to 40% gravel, very fine to very coarse size sand, little silt, very dense, loose when disturbed, stratified, (SM).	
	15		42			98			
				56					
					81				
	10	39							
	20		51			107			
				56					
20					62				

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

EARTH DIMENSIONS, INC.

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1091 Jamison Road • Elma, NY 14059
(716) 655-1717 • FAX (716) 655-2915

2A79ax HOLE NO. Bore Hole SB 7-03 SURF. ELEVATION 1465.82

PROJECT Chaffee Landfill, Western Expansion Area LOCATION Northing 8677.37

Town of Sardinia, Erie Co., NY Easting 6158.35

CLIENT McMahon & Mann Consulting Engineers DATE STARTED 12/26/03 COMPLETED 12/26/03

DEPTH IN FT	SN / REC	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	WATER TABLE AND REMARKS
	11	31				99		Moist brownish gray gravelly (SILTY-SAND) with 25 to 40% gravel, very fine to very coarse size sand, little silt, very dense, loose when disturbed, stratified, (SM).	Note: Bore hole tremmie grouted with bentonite cement to surface upon completion.
	16		41						
				58					
					49				
								22.0	
								Boring completed at 22.0 feet.	
25									
30									
35									
40									

N=NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW

LOGGED BY Brian R. Bartron, Geologist, (cml)

FIELD BORING LOG

DEPTH HOLE 30'	JOB NO. 093-89169	PROJECT WMNY/West Borrow Area Wells / NY			BORING NO. MW-BA-1
DEPTH SOIL DRILL 30'	GA INSP. AJN	DRILLING METHOD 4-1/4" ID Hollow Stem Augers			SHEET 1 of 2
DEPTH ROCK CORE N/A	WEATHER CLEAR	DRILLING CO. NOTHNAGLE DRILLING			SURFACE EL. 1464.18
NO. OIST. 15 US. N/A	TEMP. 40° F	DRILL RIG CME-850	DRILLER T. MANGEFRIDA		DATUM SITE
DEPTH WL. N/A	HRS. PROD. N/A	WT. SAMPLER HAMMER 140 lb.	DROP 30"		STARTED 0945/11-2-09
TIME WL. N/A	HRS. DELAYED N/A	WT. CASING HAMMER N/A	DROP N/A		COMPLETED 1130/11-3-09

SAMPLE TYPES

A.S.	AUGER SAMPLE
C.S.	CHUNK SAMPLE
D.O.	DRIVE OPEN
D.S.	DENISON SAMPLE
P.S.	PITCHER SAMPLE
R.C.	ROCK CORE
S.T.	SLOTTED TUBE
T.O.	THIN-WALLED, OPEN
T.P.	THIN-WALLED, PISTON
W.S.	WASH SAMPLE

ABBREVIATIONS

BL	BLACK	M	MEDIUM	SA	SAMPLE		
BR	BROWN	MIC	MICACEOUS	SAT	SATURATED		
C	COARSE	MOT	MOTTLED	SD	SAND		
CA	CASING	NP	NON-PLASTIC	SI	SILT		
CL	CLAY	OR	ORANGE	SIY	SILTY		
CLY	CLAYEY	ORG	ORGANIC	SM	SOME		
F	FINE	PH	PRESSURE-HYDRAULIC	TR	TRACE		
FRAG	FRAGMENTS	PM	PRESSURE-MANUAL	WL	WATER LEVEL		
GL	GRAVEL	R	RED	WH	WEIGHT OF HAMMER		
LYD	LAYERED	RES	RESIDUAL	WR	WEIGHT OF RODS		
LI	LITTLE	RX	ROCK	Y	YELLOW		

SOIL DESCRIPTION – RANGE OF PROPORTION

"TRACE" – 0–5%
"LITTLE" – 5–12%
"SOME" – 12–30%
"AND" – 30–50%

CONSISTENCY

LB	LOOSE	S	SOFT
CP	COMPACT	FM	FIRM
DN	DENSE	ST	STIFF
V	VERY	H	HARD

ELEV. DEPTH	DESCRIPTION	BLOWS/FT.	SAMPLES NO.	TYPE	HAMM. BLOWS PER 6 IN. (FORCE)	REC/ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
2	CLAY TILL UNIT 0–18.7'	10	1	DO	2–3– 7–11	16" 24"		SA–1 0.0-1.25 ft. Firm, dark brown SILTY CLAY topsoil, some organic matter, trace fine sand, very moist. 1.25-2.0 ft. Compact, olive brown SILT, little to trace plant matter, little fine sand, trace fine gravel, moist. (CL-ML)
4		28	2	DO	7–14– 14–17	20" 24"		SA–2 2.0-4.0 ft. Compact, olive brown SILT, some clay, little plant matter, trace coarse gravel, moist. (ML)
6		10	3	DO	5–5– 5–5	14" 24"		SA–3 4.0-6.0 ft. Compact, brown to mottled gray-brown CLAYEY SILT, trace fine sand, trace gravel, moist. (ML)
8		23	4	DO	6–9– 14–15	22" 24"		SA–4 6.0-8.0 ft. Compact, brown CLAYEY SILT, little fine sand, trace coarse gravel, moist. (ML)
10		15	5	DO	4–7– 8–10	14" 24"		SA–5 8.0-10.0 ft. Compact, brown CLAYEY SILT to SILTY CLAY, trace coarse gravel, trace fine sand, moist. (ML-CL)
12		16	6	DO	3–6– 10–11	18" 24"		SA–6 10.0-12.0 ft. Stiff, brown CLAYEY SILT to SILTY CLAY, trace to little coarse gravel, trace fine sand, moist. (ML-CL)
14		43	7	DO	11–15– 28–33	24" 24"		SA–7 12.0-14.0 ft. Dense, gray-brown to mottled orange, CLAYEY SILT, trace to little fine to coarse gravel, trace fine sand, moist. (ML)
16		15	8	DO	3–6– 9–10	22" 24"		SA–8 14.0-16.0 ft. Compact, gray to bray-brown CLAYEY SILT, trace to little fine to coarse gravel, trace fine sand, moist. (ML)
18		40	9	DO	10–12– 28–31	24" 24"		SA–9 16.0-18.0 ft. Dense, gray, CLAYEY SILT, trace fine to coarse gravel, trace fine sand, moist. Thin layer of gray fine sand at bottom of interval. (ML)
20	SAND & GRAVEL UNIT 18.7–28.0'	4	10	DO	3–2– 2–1	18" 24"		SA–10 18.0-18.7 ft. Very loose, orange-brown SILT, some fine sand, moist; then 0.3 ft compact, gray-brown m-c SAND, very moist. 19.0-20.0 ft. Very loose, brown fine to medium sand, trace clay, saturated. (ML-SM)
22		1	11	DO	WH–WH– 1–1	16" 24"		SA–11 20.0-21.1 ft. Very loose, brown fine to medium SAND, trace clay, saturated. 21.1-22.0 ft. Very loose, brown, medium to coarse SAND, trace clay, wet. (SM)
24		14	12	DO	3–7– 7–4	16" 24"		SA–12 22.0-22.8 ft. Loose, brown coarse SAND and fine GRAVEL, wet. 22.8-24.0 ft. Compact, brown medium to coarse SAND and fine to coarse GRAVEL, little to some clay, wet to saturated. (GW)

Continued on next page.

FIELD BORING LOG

DEPTH HOLE 30'	JOB NO. 093-B9169	PROJECT WMNY/West Borrow Area Wells / NY			BORING NO. MW-BA-1
DEPTH SOIL DRILL 30'	GA INSP. AJN	DRILLING METHOD 4-1/4" ID Hollow Stem Augers			SHEET 2 of 2
DEPTH ROCK CORE N/A	WEATHER CLEAR	DRILLING CO. NOTHNAGLE DRILLING			SURFACE EL. 1464.18
NO. DIST. 15 US. N/A	TEMP. 40° F	DRILL RIG CME-850	DRILLER T. MANGEFRIDA		DATUM SITE
DEPTH WL. N/A	HRS. PROD. N/A	WT. SAMPLER HAMMER 140 lb.	DROP 30"		STARTED 0945/11-2-09
TIME WL. N/A	HRS. DELAYED N/A	WT. CASING HAMMER N/A	DROP N/A		COMPLETED 1130/11-3-09

SAMPLE TYPES

A.S.	AUGER SAMPLE
C.S.	CHUNK SAMPLE
D.O.	DRIVE OPEN
D.S.	DENISON SAMPLE
P.S.	PITCHER SAMPLE
R.C.	ROCK CORE
S.T.	SLOTTED TUBE
T.O.	THIN-WALLED, OPEN
T.P.	THIN-WALLED, PISTON
W.S.	WASH SAMPLE

ABBREVIATIONS

BL	BLACK	M	MEDIUM	SA	SAMPLE		
BR	BROWN	MIC	MICACEOUS	SAT	SATURATED		
C	COARSE	MOT	MOTTLED	SD	SAND		
CA	CASING	NP	NON-PLASTIC	SI	SILT		
CL	CLAY	OG	ORANGE	SIY	SILTY		
CLY	CLAYEY	ORG	ORGANIC	SM	SOME		
F	FINE	PH	PRESSURE-HYDRAULIC	TR	TRACE		
FRAG	FRAGMENTS	PM	PRESSURE-MANUAL	WL	WATER LEVEL		
GL	GRAVEL	R	RED	WH	WEIGHT OF HAMMER		
LYD	LAYERED	RES	RESIDUAL	WR	WEIGHT OF RODS		
LI	LITTLE	RX	ROCK	Y	YELLOW		

SOIL DESCRIPTION – RANGE OF PROPORTION

"TRACE" – 0–5%
"LITTLE" – 5–12%
"SOME" – 12–30%
"AND" – 30–50%

CONSISTENCY

LS	LOOSE	S	SOFT
CP	COMPACT	FM	FIRM
DN	DENSE	ST	STIFF
V	VERY	H	HARD

ELEV. DEPTH	DESCRIPTION	BLOWS/FT.		SAMPLES NO.	TYPE	HAMM. BLOWS PER 6 IN. (FORCE)	REC/ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
24		9		13	DO	4–4–5–4	18"/24"		SA–13 24.0-24.9 ft. Loose, brown fine GRAVEL,some silt, wet; 24.9-25.2 ft. compact, brown SILTY fine SAND, trace coarse sand, wet. 25.2-26.0 ft. Loose, brown medium SAND, little coarse sand, trace silt, very moist to wet. (GM-SM)
26		19		14	DO	7–8–11–13	14"/24"		SA–14 26.0-28.0 ft. Compact, brown, medium SAND, some coarse sand, trace silt, very moist. (SP)
28	CLAY TILL UNIT	38		15	DO	3–18–20–16	10"/24"		SA–15 28.0-29.2 ft. Compact, gray, CLAYEY SILT, trace fine to medium sand, moist. 29.2-30.0 ft. Compact, brown, SILTY GRAVEL, trace clay, very moist. (ML-GW)
30	30.0 FT. END OF BOREHOLE								(Composite Geotechnical Laboratory Sample Collected between 18.7 and 28.0 ft. bgs.)

MONITORING WELL INSTALLATION LOG

JOB NO. 093-89169 PROJECT WMNY/WEST BORROW AREA WELLS/NY WELL NO. MW-BA-1 SHEET 1 of 1

GA INSP. AJN DRILLING METHOD 4 1/4" I.D. HOLLOW STEM AUGERS GROUND ELEV. 1456.40 WATER DEPTH N/A

WEATHER CLEAR DRILLING COMPANY NOTHNAGLE DRILLING RISER ELEV. 1457.65 DATE/TIME N/A

TEMP. 46° F DRILL RIG CME-850 DRILLER T. MANGEFRIDA STARTED 1200 / 11-3-09 (TIME / DATE) COMPLETED 1100 / 11-4-09 (TIME / DATE)

LOCATION / COORDINATES N938980.00, E1171539.30

MATERIALS INVENTORY

WELL CASING 2.0 in. dia. 20.85 l.f. WELL SCREEN 2.0 in. dia. 10 l.f. BENTONITE SEAL 3/8" BENTONITE CHIPS

CASING TYPE SCH. 40 PVC SCREEN TYPE CONTINUOUS WRAP PVC INSTALLATION METHOD POUR THROUGH AUGERS

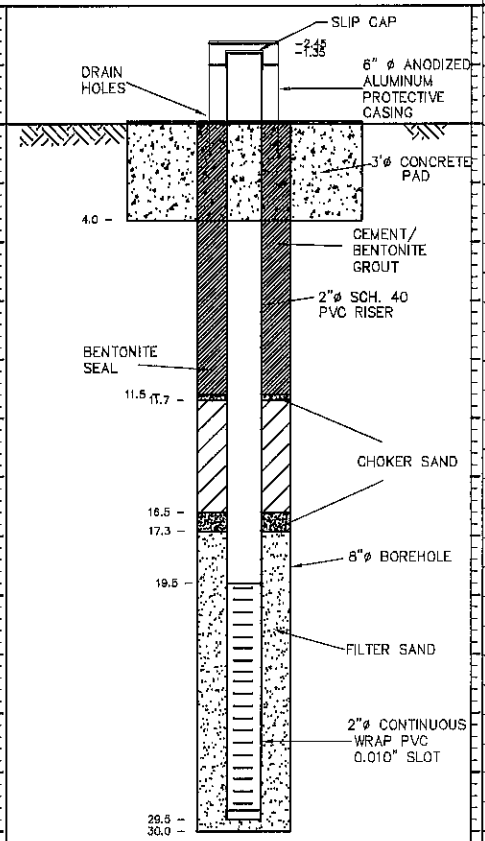
JOINT TYPE FLUSH THREADED SLOT SIZE 0.010" FILTER PACK QTY. 2.5 BAGS

GROUT QUANTITY ——— CENTRALIZERS NOT USED FILTER PACK TYPE #00N QUARTZ SAND

GROUT TYPE CEMENT/BENTONITE DRILLING MUD TYPE NOT USED INSTALLATION METHOD TREMIE

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
1456.40	GROUND SURFACE
0.0	
5.0	CLAY TILL UNIT 0–18.7'
10.0	
15.0	
20.0	SAND & GRAVEL UNIT 18.7–28.0'
25.0	
30.0	CLAY TILL UNIT
	END OF BORING 30' BGS

WELL SKETCH



INSTALLATION NOTES

AUGERED WITH 4 1/4 I.D. HOLLOW STEM AUGER TO 30.0 FT. BELOW GROUND SURFACE (BGS). SAMPLED 0.0–30.0 FT BGS. SAND POURED THROUGH AUGERS 30.0–29.5 FT BGS. WELL MATERIALS PLACED IN BOREHOLE USING 10 FT. OF WELL SCREEN, END CAP, 20.85 FT. OF WELL RISER AND SLIP TOP CAP FOR OVERALL LENGTH OF 30.85 FT. WELL MATERIALS PLACED TO 29.5 FT. BGS WITH 1.35 FT. STICKUP. SAND POURED THROUGH AUGERS 29.5 – 17.3 FT. BGS WHILE REMOVING AUGERS AT 0.5–1.0 FT. INCREMENTS. CHOKER SAND PLACED 17.3–16.5 FT BGS. BENTONITE CHIP SEAL PLACED 16.5–11.7 FT. BGS. CHOKER SAND PLACED 11.7–11.5 FT. BGS. CEMENT/BENTONITE GROUT ADDED 11.5–0.0 FT. BGS. REMAINING AUGERS REMOVED. 6–INCH DIAMETER ANODIZED ALUMINUM CASING PLACED IN 3–FT. DIAMETER BY 4 FT. DEEP CONCRETE PAD. DRAINHOLES DRILLED INTO PROTECTIVE CASING. NYSDEC CONCURRED WITH THE LOCATION OF THE SCREENED INTERVAL.

WELL DEVELOPMENT NOTES

DATE DEVELOPED: 11/9–11/2009

DEVELOPMENT METHOD:
STAINLESS STEEL BAILER

VOLUME PURGED: 78 GALS.

FIELD BORING LOG

DEPTH HOLE 30'	JOB NO. 093-89169	PROJECT WMNY/West Borrow Area Wells / NY			BORING NO. MW-BA-2
DEPTH SOIL DRILL 30'	GA INSP. AJN	DRILLING METHOD 4-1/4" ID Hollow Stem Augers			SHEET 1 of 2
DEPTH ROCK CORE N/A	WEATHER CLOUDY	DRILLING CO. NOTHNAGLE DRILLING			SURFACE EL.
NO. DIST. 15 US. N/A	TEMP. 42° F	DRILL RIG CME-850	DRILLER T. MANGEFRIDA		DATUM SITE
DEPTH WL. N/A	HRS. PROD. N/A	WT. SAMPLER HAMMER 140 lb.	DROP 30"		STARTED 0930/11-4-09
TIME WL. N/A	HRS. DELAYED N/A	WT. CASING HAMMER N/A	DROP N/A		COMPLETED 1030/11-5-09

SAMPLE TYPES

A.S.	AUGER SAMPLE
C.S.	CHUNK SAMPLE
D.O.	DRIVE OPEN
D.S.	DENISON SAMPLE
P.S.	PITCHER SAMPLE
R.C.	ROCK CORE
S.T.	SLOTTED TUBE
T.O.	THIN-WALLED, OPEN
T.P.	THIN-WALLED, PISTON
W.S.	WASH SAMPLE

ABBREVIATIONS

BL	BLACK	M	MEDIUM	SA	SAMPLE
BR	BROWN	MIC	MICACEOUS	SAT	SATURATED
C	COARSE	MOT	MOTTLED	SD	SAND
CA	CASING	NP	NON-PLASTIC	SL	SILT
CL	CLAY	OG	ORANGE	SLY	SILTY
CLY	CLAYEY	ORG	ORGANIC	SM	SOME
F	FINE	PH	PRESSURE-HYDRAULIC	TR	TRACE
FRAG	FRAGMENTS	PM	PRESSURE-MANUAL	WL	WATER LEVEL
GL	GRAVEL	R	RED	WH	WEIGHT OF HAMMER
LYD	LAYERED	RES	RESIDUAL	WR	WEIGHT OF RODS
LI	LITTLE	RX	ROCK	Y	YELLOW

SOIL DESCRIPTION – RANGE OF PROPORTION

"TRACE" – 0–5%
"LITTLE" – 5–12%
"SOME" – 12–30%
"AND" – 30–50%

CONSISTENCY

LS	LOOSE	S	SOFT
CP	COMPACT	FM	FIRM
DN	DENSE	ST	STIFF
V	VERY	H	HARD

ELEV. DEPTH	DESCRIPTION	BLOWS/FT.	SAMPLES NO.	TYPE	HAMM. BLOWS PER 6 IN. (FORCE)	REC/ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
2	CLAY TILL UNIT 0–16.9	12	1	DO	3–6–6–8	24"/24"		SA–1 0.0-0.5 ft. Compact, dark brown CLAYEY SILT topsoil, some plant matter, trace fine sand, trace fine gravel, moist. 0.5-2.0 ft. Compact, lt brown, mottled gray CLAYEY SILT, trace to little f. gravel, trace f. sand, moist. (ML)
4		15	2	DO	8–7–8–7	8"/24"		SA–2 2.0-4.0 ft. Stiff, light brown, mottled gray, CLAYEY SILT to SILTY CLAY, trace to little fine to coarse gravel, trace fine sand, moist. (ML-CL)
6		18	3	DO	6–8–10–14	22"/24"		SA–3 4.0-6.0 ft. Compact, light brown-gray CLAYEY SILT, little fine to coarse gravel, trace fine sand, moist. (ML)
8		40	4	DO	14–18–22–28	20"/24"		SA–4 6.0-8.0 ft. Dense, light brown-gray CLAYEY SILT, little fine to coarse gravel, trace fine sand, moist. (ML)
10		15	5	DO	3–6–9–14	22"/24"		SA–5 8.0-10.0 ft. Compact, light brown-gray CLAYEY SILT, little fine to coarse gravel, trace fine sand, moist. (ML)
12		22	6	DO	4–11–11–13	23"/24"		SA–6 10.0-10.9 ft. Compact, light brown-gray CLAYEY SILT, little fine to coarse gravel, trace fine sand, moist. 10.9-12.0 ft. Firm, gray CLAYEY SILT to SILTY CLAY, slightly plastic, little fine to coarse gravel, moist. (ML-CL)
14		36	7	DO	12–17–19–28	24"/24"		SA–7 12.0-14.0 ft. Stiff, gray SILTY CLAY, moderately plastic, trace fine gravel, moist. (CL)
16		21	8	DO	4–7–14–19	24"/24"		SA–8 14.0-15.5 ft. Stiff, gray SILTY CLAY, moderately plastic, trace fine gravel, moist. 15.5-16.0 ft. Dense, brown, CLAYEY SILT, little fine to coarse gravel, slightly moist. (ML-CL)
18	SAND & GRAVEL UNIT 16.9–30.0'	46	9	DO	15–21–25–30	18"/24"		SA–9 16.0-16.9 ft. Dense, brown SILT and very fine SAND, little clay, moist. 16.9-18.0 ft. Dense, gray-brown coarse GRAVEL and coarse SAND, trace to little clay, very moist. (SM-GW)
20		30	10	DO	16–15–15–15	12"/24"		SA–10 18.0-20.0 ft. Loose to compact, brown to gray fine to coarse GRAVEL, little to some fine sand, trace to little clay, saturated. (GW)
22		42	11	DO	25–22–20–14	12"/24"		SA–11 20.0-22.0 ft. Loose to compact, brown to gray fine to coarse GRAVEL, little to some fine sand, trace to little clay, saturated. (GW)
24		26	12	DO	12–14–12–15	18"/24"		SA–12 22.0-22.8 ft. As above. 22.8-24.0 ft. Compact, gray CLAYEY SILT, trace to little fine sand, trace fine gravel, moist. (GW-ML)

Continued on next page.

FIELD BORING LOG

DEPTH HOLE 30'	JOB NO. 093-89169	PROJECT WMNY/West Borrow Area Wells / NY			BORING NO. MW-BA-2
DEPTH SOIL DRILL 30'	GA INSP. AJN	DRILLING METHOD 4-1/4" ID Hollow Stem Augers			SHEET 2 of 2
DEPTH ROCK CORE N/A	WEATHER CLOUDY	DRILLING CO. NOTHNAGLE DRILLING			SURFACE EL.
NO. DIST. 15 US. N/A	TEMP. 42° F	DRILL RIG CME-850	DRILLER T. MANGEFRIDA		DATUM SITE
DEPTH WL. N/A	HRS. PROD. N/A	WT. SAMPLER HAMMER 140 lb.	DROP 30"		STARTED 0830/11-4-09
TIME WL. N/A	HRS. DELAYED N/A	WT. CASING HAMMER N/A	DROP N/A		COMPLETED 1030/11-5-09

SAMPLE TYPES

A.S.	AUGER SAMPLE
C.S.	CHUNK SAMPLE
D.O.	DRIVE OPEN
D.S.	DENISON SAMPLE
P.S.	PITCHER SAMPLE
R.C.	ROCK CORE
S.T.	SLOTTED TUBE
T.O.	THIN-WALLED, OPEN
T.P.	THIN-WALLED, PISTON
W.S.	WASH SAMPLE

ABBREVIATIONS

BL	BLACK	M	MEDIUM	SA	SAMPLE
BR	BROWN	MIC	MICACEOUS	SAT	SATURATED
C	COARSE	MOT	MOTTLED	SD	SAND
CA	CASING	NP	NON-PLASTIC	SI	SILT
CL	CLAY	OG	ORANGE	SLY	SILTY
CLY	CLAYEY	ORG	ORGANIC	SM	SOME
F	FINE	PH	PRESSURE-HYDRAULIC	TR	TRACE
FRAG	FRAGMENTS	PM	PRESSURE-MANUAL	WL	WATER LEVEL
GL	GRAVEL	R	RED	WH	WEIGHT OF HAMMER
LYD	LAYERED	RES	RESIDUAL	WR	WEIGHT OF RODS
L	LITTLE	RK	ROCK	Y	YELLOW

SOIL DESCRIPTION – RANGE OF PROPORTION

"TRACE"	0–5%
"LITTLE"	5–12%
"SOME"	12–30%
"AND"	30–50%

CONSISTENCY

LS	LOOSE	S	SOFT
CP	COMPACT	FM	FIRM
DN	DENSE	ST	STIFF
V	VERY	H	HARD

ELEV. DEPTH	DESCRIPTION	BLOWS/FT.	SAMPLES NO.	SAMPLES TYPE	SAMPLES HAMM. BLOWS PER 6 IN. (FORCE)	SAMPLES REC/ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
24	SAND & GRAVEL UNIT 16.9–30.0'	26	13	DO	12–13–13–18	14"/24"		SA–13 24.0-24.8 ft. Very stiff, gray SILTY CLAY, some fine sand, very moist. 24.8-26.0 ft. Loose, brown-gray coarse GRAVEL, some fine gravel, some coarse sand, trace to little silt, saturated. (CL-GW)
26		38	14	DO	21–22–16–18	16"/24"		SA–14 26.0-28.0 ft. Dense, dark gray to black, medium to coarse SAND, little silty clay, moist, grading to fine to coarse GRAVEL, well sorted, broken angular rock fragments, very moist. (SM-GW)
28		39	15	DO	12–15–24–30	18"/24"		SA–15 28.0-30.0 ft. Loose, dark gray to black, fine to coarse GRAVEL, well sorted, broken angular rock fragments, very moist. (SM-GW)
30	30.0 FT. END OF BOREHOLE							(Composite Geotechnical Laboratory Sample Collected between 18.0 and 30.0 ft. bgs.)

MONITORING WELL INSTALLATION LOG

JOB NO. 093-89169 PROJECT WMNY/WEST BORROW AREA WELLS/NY WELL NO. MW-BA-2 SHEET 1 of 1

GA INSP. AJN DRILLING METHOD 4 1/4" I.D. HOLLOW STEM AUGERS GROUND ELEV. 1454.84 WATER DEPTH N/A

WEATHER RAIN DRILLING COMPANY NOTHNAGLE DRILLING RISER ELEV. 1457.04 DATE/TIME N/A

TEMP. 40° F DRILL RIG CME-850 DRILLER T. MANGEFRIDA STARTED 1100 / 11-5-09 (TIME / DATE) COMPLETED 1430 / 11-5-09 (TIME / DATE)

LOCATION / COORDINATES N938960.83, E1171294.50

MATERIALS INVENTORY

WELL CASING 2.0 in. dia. 20.7 l.f. WELL SCREEN 2.0 in. dia. 10 l.f. BENTONITE SEAL 3/8" BENTONITE CHIPS

CASING TYPE SCH. 40 PVC SCREEN TYPE CONTINUOUS WRAP PVC INSTALLATION METHOD POUR THROUGH AUGERS

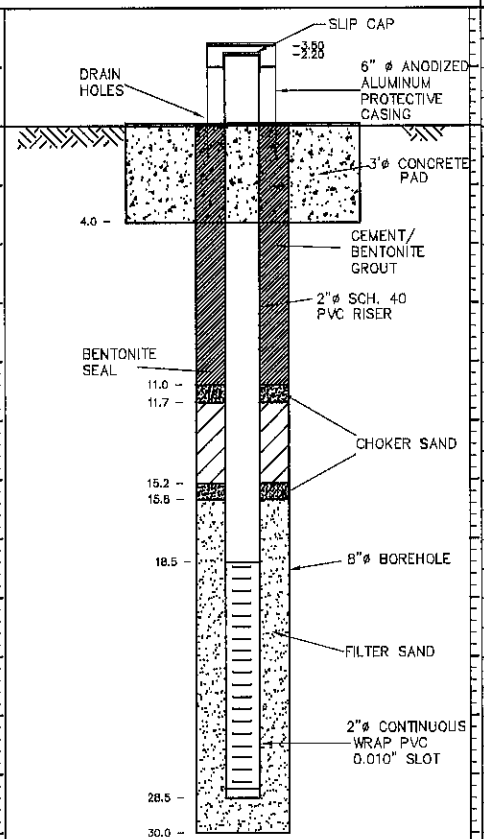
JOINT TYPE FLUSH THREADED SLOT SIZE 0.010" FILTER PACK QTY. 2.5 BAGS

GROUT QUANTITY ——— CENTRALIZERS NOT USED FILTER PACK TYPE #00N QUARTZ SAND

GROUT TYPE CEMENT/BENTONITE DRILLING MUD TYPE NOT USED INSTALLATION METHOD TREMIE

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
1454.84	GROUND SURFACE
0.0	
5.0	CLAY TILL UNIT 0–16.9'
10.0	
15.0	
20.0	SAND & GRAVEL UNIT 16.9–30.0'
25.0	
30.0	END OF BORING 30' BGS

WELL SKETCH



INSTALLATION NOTES

AUGERED WITH 4 1/4 I.D. HOLLOW STEM AUGER TO 30.0 FT. BELOW GROUND SURFACE (BGS). SAMPLED 0.0–30.0 FT BGS. SAND POURED THROUGH AUGERS 30.0–28.5 FT BGS. WELL MATERIALS PLACED IN BOREHOLE USING 10 FT. OF WELL SCREEN, END CAP, 20.7 FT. OF WELL RISER AND SLIP TOP CAP FOR OVERALL LENGTH OF 30.7 FT. WELL MATERIALS PLACED TO 28.5 FT. BGS WITH 1.35 FT. STICKUP. SAND POURED THROUGH AUGERS 28.5 – 15.8 FT. BGS WHILE REMOVING AUGERS AT 0.5–1.0 FT. INCREMENTS. CHOKER SAND PLACED 15.8–15.2 FT BGS. BENTONITE CHIP SEAL PLACED 15.2–11.7 FT. BGS. CHOKER SAND PLACED 11.7–11.0 FT. BGS. CEMENT/BENTONITE GROUT ADDED 11.0–0.0 FT. BGS. 6-INCH DIAMETER ANODIZED ALUMINUM CASING PLACED IN 3-FT. DIAMETER BY 4 FT. DEEP CONCRETE PAD. DRAINHOLES DRILLED INTO PROTECTIVE CASING. NYSDEC CONCURRED WITH THE LOCATION OF THE SCREENED INTERVAL.

WELL DEVELOPMENT NOTES

DATE DEVELOPED: 11/10–11/2009

DEVELOPMENT METHOD:
STAINLESS STEEL BAILER

VOLUME PURGED: 59.7 GALS.

Golder Associates

FIELD BORING LOG

DEPTH HOLE 19'	JOB NO. 093-89169	PROJECT WMNY/West Borrow Area Wells / NY			BORING NO. MW-BA-3
DEPTH SOIL DRILL 19'	GA INSP. AJN	DRILLING METHOD 4-1/4" ID Hollow Stem Augers			SHEET 1 of 1
DEPTH ROCK CORE N/A	WEATHER CLOUDY	DRILLING CO. NOTHNAGLE DRILLING			SURFACE EL.
NO. DIST. 10 US. N/A	TEMP. 38° F	DRILL RIG CME-850	DRILLER T. MANGEFRIDA		DATUM SITE
DEPTH WL. N/A	HRS. PROD. N/A	WT. SAMPLER HAMMER 140 lb.	DROP 30"		STARTED 0905/11-6-09
TIME WL. N/A	HRS. DELAYED N/A	WT. CASING HAMMER N/A	DROP N/A		COMPLETED 1035/11-6-09

SAMPLE TYPES

A.S.	AUGER SAMPLE
C.S.	CHUNK SAMPLE
D.O.	DRIVE OPEN
D.B.	DENISON SAMPLE
P.S.	PITCHER SAMPLE
R.C.	ROCK CORE
S.T.	SLOTTED TUBE
T.O.	THIN-WALLED, OPEN
T.P.	THIN-WALLED, PISTON
W.S.	WASH SAMPLE

ABBREVIATIONS

BL	BLACK	M	MEDIUM	SA	SAMPLE
BR	BROWN	MIC	MICACEOUS	SAT	SATURATED
C	COARSE	MOT	MOTTLED	SD	SAND
CA	CASING	NP	NON-PLASTIC	SI	SILT
CL	CLAY	OD	ORANGE	SLY	SILTY
CLY	CLAYEY	ORG	ORGANIC	SM	SOME
F	FINE	PH	PRESSURE-HYDRAULIC	TR	TRACE
FRAG	FRAGMENTS	PM	PRESSURE-MANUAL	WL	WATER LEVEL
GL	GRAVEL	R	RED	WH	WEIGHT OF HAMMER
LYD	LAYERED	RES	RESIDUAL	WR	WEIGHT OF RODS
LI	LITTLE	RX	ROCK	Y	YELLOW

SOIL DESCRIPTION - RANGE OF PROPORTION

"TRACE" - 0-5%
"LITTLE" - 5-12%
"SOME" - 12-30%
"AND" - 30-50%

CONSISTENCY

LS	LOOSE	S	SOFT
CP	COMPACT	FM	FIRM
DN	DENSE	ST	STIFF
V	VERY	H	HARD

ELEV. DEPTH	DESCRIPTION	BLOWS/FT.	SAMPLES NO.	TYPE	HAMM. BLOWS PER 6 IN. (FORCE)	REC/ATT	DEPTH	SAMPLE DESCRIPTION AND BORING NOTES
0	CLAY TILL UNIT 0'-8.0'	10	1	DO	2-3-7-4	12"/24"		SA-1 0.0-0.5 ft. Loose, dark brown CLAYEY SILT topsoil, some plant matter, trace fine sand, trace fine gravel, moist. 0.5-2.0 ft. Compact, lt brown, CLAYEY SILT, trace to little f. gravel, trace f. sand, moist. (CL-ML)
2		14	2	DO	7-7-7-8	18"/24"		SA-2 2.0-4.0 ft. Stiff, light brown, mottled gray, CLAYEY SILT to SILTY CLAY, little fine to coarse gravel, trace fine to coarse sand, very moist. (ML-CL)
4		7	3	DO	1-1-6-5	20"/24"		SA-3 4.0-4.8 ft. Soft to firm, brown to mottled gray SILTY CLAY, little fine to coarse gravel, trace fine to coarse sand, very moist. 4.8-6.0 ft. Compact, gray CLAYEY SILT, trace fine gravel, trace fine sand, moist. (ML-CL)
6		20	4	DO	7-9-11-15	20"/24"		SA-4 6.0-8.0 ft. Compact, gray-brown, trace orange mottling, CLAYEY SILT, trace fine gravel, trace fine sand, moist. (ML)
8	SAND & GRAVEL UNIT 8.0'-19.0'	13	5	DO	6-6-7-7	18"/24"		SA-5 8.0-10.0 ft. Loose to compact, gray-brown fine to medium SAND, little coarse sand, trace fine to coarse gravel, trace clay, moist. (SM)
10		16	6	DO	4-5-11-21	16"/24"		SA-6 10.0-10.9 ft. Compact, brown-gray fine to medium SAND, little clay, trace fine to coarse gravel, moist to very moist. 10.9-12.0 ft. Compact, brown-gray coarse GRAVEL, little clay, little fine sand, v. moist to wet. (GW)
12		69	7	DO	24-30-39-45	22"/24"		SA-7 12.0-12.5 ft. Compact, brown-gray fine to medium SAND, saturated. 12.5-14.0 ft. Very dense, brown-gray coarse GRAVEL as rock fragments, little medium to coarse sand, trace to little clay, slightly moist.
14		94	8	DO	50-44	5"/12"		SA-8 14.0-15.0 ft. Loose, gray-brown c GRAVEL as shaly rx fragments, some silt, tr c sand, sl moist.
16		42	9	DO	11-21-24-21	13"/24"		SA-9 15.0-17.0 ft. Compact, gray-brown medium to coarse SANDY GRAVEL, little silt, broken angular rock fragments, moist. (GW)
18		42	10	DO	14-16-26-40	13"/24"		SA-10 17.0-19.0.0 ft. Loose to compact, gray-brown coarse SANDY GRAVEL, trace to little silt, trace clay, angular shale and limestone fragments, slightly moist to moist. (GW)
20	19.0 FT. END OF BOREHOLE							(Composite Geotechnical Laboratory Sample Collected between 8.0 and 19.0 ft. bgs.)
22								
24								

Continued on next page.

MONITORING WELL INSTALLATION LOG

JOB NO. 093-89169 PROJECT WMNY/WEST BORROW AREA WELLS/NY WELL NO. MW-BA-3 SHEET 1 of 1

GA INSP. AJN DRILLING METHOD 4 1/4" I.D. HOLLOW STEM AUGERS GROUND ELEV. 1456.90 WATER DEPTH N/A

WEATHER PART SUN DRILLING COMPANY NOTHNAGLE DRILLING RISER ELEV. 1459.40 DATE/TIME N/A

TEMP. 42° F DRILL RIG CME-850 DRILLER T. MANGEFRIDA STARTED 1045 / 11-6-09 (TIME / DATE) COMPLETED 1400 / 11-6-09 (TIME / DATE)

LOCATION / COORDINATES N938954.21, E1170987.10

MATERIALS INVENTORY

WELL CASING 2.0 in. dia. 10.8 l.f. WELL SCREEN 2.0 in. dia. 10 l.f. BENTONITE SEAL 3/8" BENTONITE CHIPS

CASING TYPE SCH. 40 PVC SCREEN TYPE CONTINUOUS WRAP PVC INSTALLATION METHOD POUR THROUGH AUGERS

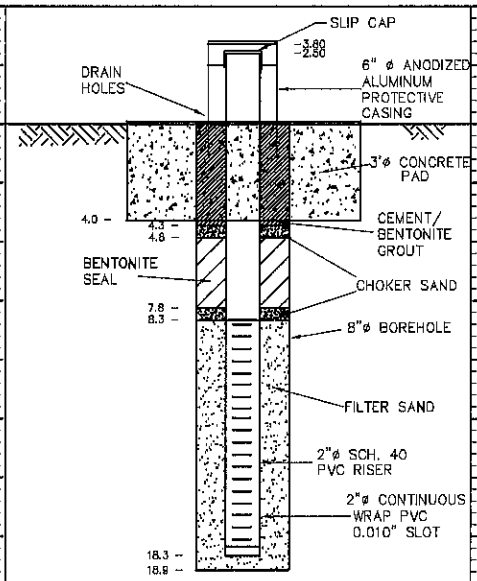
JOINT TYPE FLUSH THREADED SLOT SIZE 0.010" FILTER PACK QTY. 2.5 BAGS

GROUT QUANTITY ——— CENTRALIZERS NOT USED FILTER PACK TYPE #00N QUARTZ SAND

GROUT TYPE CEMENT/BENTONITE DRILLING MUD TYPE NOT USED INSTALLATION METHOD TREMIE

ELEV./DEPTH	SOIL/ROCK DESCRIPTION
1456.90	GROUND SURFACE
0.0	CLAY TILL UNIT 0'–8.0'
5.0	
10.0	SAND & GRAVEL UNIT 8.0'–18.9'
15.0	
20.0	END OF BORING 18.9' BGS

WELL SKETCH



INSTALLATION NOTES
AUGERED WITH 4 1/4 I.D. HOLLOW STEM AUGER TO 18.9 FT. BELOW GROUND SURFACE (BGS). SAMPLED 0.0–18.9 FT BGS. SAND POURED THROUGH AUGERS 18.9–18.3 FT BGS. WELL MATERIALS PLACED IN BOREHOLE USING 10 FT. OF WELL SCREEN, END CAP, 10.8 FT. OF WELL RISER AND SLIP TOP CAP FOR OVERALL LENGTH OF 20.8 FT. WELL MATERIALS PLACED TO 18.3 FT. BGS WITH 2.5 FT. STICKUP. SAND POURED THROUGH AUGERS 18.3 – 8.3 FT. BGS WHILE REMOVING AUGERS AT 0.5–1.0 FT. INCREMENTS. CHOKER SAND PLACED 8.3–7.8 FT BGS. BENTONITE CHIP SEAL PLACED 7.8–4.8 FT. BGS. CHOKER SAND PLACED 4.8–4.3 FT. BGS. CEMENT/BENTONITE GROUT ADDED 4.3–0.0 FT. BGS. REMAINING AUGERS REMOVED. 6-INCH DIAMETER ANODIZED ALUMINUM CASING PLACED IN 3-FT. DIAMETER BY 4 FT. DEEP CONCRETE PAD. DRAINHOLES DRILLED INTO PROTECTIVE CASING. NYSDEC SUGGESTED REDUCING THE THICKNESSES OF THE WELL MATERIAL SECTIONS DUE TO SHORTER-THAN-EXPECTED WELL DEPTH.

WELL DEVELOPMENT NOTES
DATE DEVELOPED: 11/11/2009
DEVELOPMENT METHOD: STAINLESS STEEL BAILER
VOLUME PURGED: 0.15 GALS.

Golder Associates

B.3 Western Landfill Area Compiled Hydraulic Conductivity Data and Geotechnical Testing Data from 2005 Permit Application

Soil Borrow Area Logs

Chaffee Facility
Western Landfill Expansion
Hydrogeologic Report

Table 2 - Monitoring Well Construction Details and Hydraulic Conductivity Data - Expansion Area Wells

Monitoring Well/Borehole Location	Ground Surface Elevation (ft.) (See Note 1)	Well Depth from Ground Surface (ft.) (See Note 2)	Well Depth from Ground Surface (ft.) at Time of Drilling	Bottom of PVC Screen Elevation (ft.)	Top of PVC Screen Elevation (ft.)	Monitoring Well Screen Location	Hydraulic Conductivity (cm/s)
MW-15	1453.66	38.6	39.0	1415.06	1420.06	Sand and gravel unit	1.18x10-2
MW-16(S)	1453.50	13.5	13.5	1440.00	1445.00	Clay till	3.32x10-6
MW-16	1453.70	27.4	28.0	1426.26	1431.26	Sand and gravel unit	5.27x10-3
MW-17	1459.30	39.4	39.8	1419.86	1424.86	Sand and gravel unit	3.20x10-2
MW-18	1458.80	19.4	20.0	1439.36	1444.36	Clay till	3.47x10-7
MW-18A	1460.40	24.5	24.5	1436 (approx)	1441 (approx)	Clay till	2.48x10-7
MW-30	1471.00	43.8	44.0	1427.21	1437.21	Sand and gravel unit	5.31x10-3
MW-31	1470.40	27.9	28.5	1442.50	1447.50	Clay till	dry
MW-32	1470.25	10.8	11.0	1459.40	1464.40	Clay till	1.69x10-6
MW-33(S)	1443.70	12.5	12.5	1431.20	1436.20	Clay till	4.72x10-6
MW-33	1443.70	30.0	30.0	1413.73	1428.73	Sand and gravel unit	2.62x10-3
MW-50	1460.30	25.0	24.5	1435.35	1445.35	Sand and gravel unit	1.30x10-3
MW-A(S)	1461.50	10.5	10.5	1451.00	1456.00	Clay till	dry
MW-A(I)	1461.60	35.0	35.0	1426.58	1431.58	Sand and gravel unit	2.46x10-3
MW-B(S)	1495.10	40.0	40.0	1455.07	1465.07	Clay till	dry
MW-B(I)	1495.10	59.3	59.5	1435.77	1445.77	Sand and gravel unit	1.54x10-2
MW-C(S)	1466.20	19.5	19.5	1446.70	1456.70	Clay till	3.15x10-6
MW-C(I)	1465.60	33.6	33.6	1431.99	1436.99	Sand and gravel unit	1.06x10-3
MW-C(D)	1465.10	73.0	73.0	1392.10	1402.10	Sand and gravel unit	2.25x10-3
MW-D(S)	1482.00	31.5	31.5	1450.50	1460.50	Clay till	2.07x10-6
MW-D(I)	1482.50	49.0	49.0	1433.52	1438.52	Sand and gravel unit	4.79x10-3
MW-D(D)	1481.80	80.0	80.0	1401.77	1406.77	Sand and gravel unit	1.06x10-2
MW-E(S)	1456.40	27.5	27.5	1428.90	1438.90	Clay till	1.27x10-6
MW-E(I)	1455.56	40.0	40.0	1415.56	1420.56	Sand and gravel unit	3.41x10-2
MW-E(D)	1455.40	144.0	144.0	1311.40	1321.40	Sand and gravel unit	1.04x10-4
MW-H(S)	1477.10	42.0	42.0	1435.10	1445.10	Clay till	3.13x10-6
MW-H(I)	1477.50	64.0	64.0	1413.50	1423.50	Sand and gravel unit	1.09x10-3
MW-H(D)	1477.32	97.5	97.5	1379.82	1384.82	Sand and gravel unit	2.95x10-3
MW-H(D)R	1475.90	98.0	98.0	1377.90	1382.90	Sand and gravel unit	
MW-I(S)	1496.40	48.0	48.0	1448.40	1458.40	Clay till	dry
MW-I(I)	1496.30	78.0	78.0	1418.30	1428.30	Sand and gravel unit	2.68x10-3
MW-J(S)	1462.20	27.5	27.5	1434.70	1439.70	Clay till	Insufficient Water
MW-J(I)	1462.12	50.5	50.5	1411.62	1421.62	Sand and gravel unit	9.82x10-4
MW-J(D)	1462.20	85.8	85.8	1376.40	1386.40	Sand and gravel unit	9.18x10-5
MW-K(S)	1496.60	41.5	41.5	1455.10	1460.10	Clay till	dry
MW-K(I)	1496.70	59.5	59.5	1437.20	1447.20	Sand and gravel unit	2.42x10-3
MW-K(D)	1496.50	95.5	95.5	1401.00	1411.00	Sand and gravel unit	2.32x10-2
PW-1	1455.6	41.0	41.0	1414.60	1429.60	Sand and gravel unit	
PW-2B	1450.3	33.2	33.2	1417.10	1427.10	Sand and gravel unit	
OW-1(S)	1452.9	14.5	14.5	1438.40	1448.40	Clay till	1.35x10-7
OW-1(I)	1452.7	32.0	32.0	1420.70	1430.70	Sand and gravel unit	
OW-2(I)	1453.2	22.0	22.0	1431.20	1441.20	Sand and gravel unit	1.61x10-5
OW-3(S)	1457.0	19.0	19.0	1438.00	1448.00	Clay till	1.1x10-5
OW-3(I)	1456.9	41.0	41.0	1415.90	1425.90	Sand and gravel unit	
OW-4(I)	1453.8	23.0	23.0	1430.80	1440.80	Sand and gravel unit	
MA-2	1461.0	28.0	28.0	1433.00	1443.00	Sand and gravel unit	6.8x10-4
MA-3	1469.45	34.5	34.5	1434.95	1444.95	Sand and gravel unit	1.5x10-4
P3-03	1448.9	20.0	20.0	1428.90	1438.90	Sand and gravel unit	3.3x10-3
P4-03	1440.4	18.0	18.0	1422.40	1432.40	Sand and gravel unit	1.2x10-2

Notes:

1. Monitoring well elevation data based on survey completed by Deborah A. Nabor, PLS, PC in March 2001 and July 2001 unless otherwise noted below:
   Monitoring well MW-E(I) elevation data based on survey completed by Deborah A. Nabor, PLS, PC. and submitted in "Data Report Hydrogeologic Studies, Chaffee Landfill Facility, Chaffee, New York," prepared by McMahon and Mann Consulting Engineers, P.C. dated September 2000.
   Wells MA-2 and MA-3 elevation data based on survey completed by M.J.R. Land Surveyor, PC on June 11, 2001.
   Monitoring well MW-H(D)R elevation data based on survey completed by Wendel Duchsherer Survey on September 25, 2002.
   Pump and observation well elevation data based on survey completed by Wendle Dushcherer Survey on November 27, 2001.
   Wells P3-03 and P4-03 elevation based on survey completed by Wendel Duchscherer Survey dated August 28, 2003.
2. Well depth refers to the measured ground surface elevation minus the bottom of screen elevation. The bottom of screen elevation was calculated by subtracting the well depth contained on the log from the ground surface elevation at the time of drilling.

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Table 3 - Summary of Geotechnical Testing Data

Shading indicates sample collected from clay till.

Test Boring/ Piezometer	Sample Number	Depth (ft)	Natural Moisture Content (%)	Percent Gravel[1]	Percent Sand[2]	Percent Silt & Clay[3]	Atterberg Limits LL (%)	Atterberg Limits PL (%)	Atterberg Limits PI (%)	USCS Symbol	Laboratory-based Soil Description
MW-8	S-9	16-18		0.00	2.57	97.43	34	20	14	CL	GRAY LEAN CLAY
MW-8	S-18	34-36		0.12	13.43	86.45	20	15	5	CL-ML	GRAY SILTY CLAY
MW-8	S-19	36-38		0.00	21.33	78.67	18	14	4	CL-ML	GRAY SILTY CLAY WITH SAND
MW-8	S-29	56-58		28.58	58.60	12.83				SM	BROWNISH GRAY SILTY SAND WITH GRAVEL
MW-13	S-25	48-50		38.02	53.84	8.13				SP-SM	BROWNISH GRAY POORLY GRADED SAND WITH SILT AND GRAVEL
MW-13	S-27	52-54		52.65	36.77	10.58				GP-GM	LIGHT BROWN POORLY GRADED GRAVEL WITH SILT AND SAND
MW-13	S-30	58-60		48.40	44.72	6.88				GW-GM	GRAY WELL GRADED GRAVEL WITH SILT AND SAND
MW-13	S-1	64-65.8		42.62	45.87	11.51				SP-SM	GRAY POORLY GRADED SAND WITH SILT AND GRAVEL
MW-15	S-8	14-16		2.71	18.96	78.33	26	18	8	CL	BROWN LEAN CLAY WITH SAND
MW-15	S-10	18-20		35.87	52.73	11.40				SW-SM	BROWN WELL GRADED SAND WITH SILT AND GRAVEL
MW-15	S-13	24-26		3.21	44.80	51.98	17	12	5	CL-ML	GRAY SANDY SILTY CLAY
MW-15	S-14	26-28		16.66	61.97	21.36	16	13	3	SM	BROWNISH GRAY SILTY SAND WITH GRAVEL
MW-B(I)	S-2	2-4	22.3	0.95	8.00	91.05	34	19	15	CL	GRAYISH BROWN LEAN CLAY
MW-B(I)	S-7	12-14	17.8	0.09	10.32	89.58	23	14	9	CL	BROWN LEAN CLAY
MW-B(I)	S-16	30-32	14.5	4.93	16.42	78.66	23	16	7	CL-ML	GRAYISH BROWN SILTY CLAY WITH SAND
MW-B(I)	S-24	46-48	3.0								
MW-B(I)	S-25	48-50	4.5	41.80	34.30	23.90				GC	BROWN CLAYEY GRAVEL WITH SAND
MW-B(I)	S-27	52-54	6.3								
MW-B(I)	S-28	54-56	2.1	64.03	25.93	10.04				GP-GC	BROWN POORLY GRADED GRAVEL WITH CLAY AND SAND
MW-B(I)	S-29	56-58	6.7	56.08	32.91	11.01				GP-GC	BROWN POORLY GRADED GRAVEL WITH CLAY AND SAND
MW-B(I)	S-30	58-60	7.2								
MW-D(I)	S-4	36-38	6.3	41.42	38.55	20.04				GC	BROWN CLAYEY GRAVEL WITH SAND
MW-D(I)	S-5	38-40	6.4	26.30	49.71	23.99				SC	BROWN CLAYEY SAND WITH GRAVEL
MW-D(I)	S-6	40-42	4.2	45.74	42.15	12.11				GC	BROWN CLAYEY GRAVEL WITH SAND
MW-D(I)	S-8	44-46	8.3	47.74	38.60	13.66				GC	BROWN CLAYEY GRAVEL WITH SAND
MW-D(I)	S-9	46-48	10.3	43.29	41.00	15.71				GC	BROWN CLAYEY GRAVEL WITH SAND
MW-D(D)	S-2	2-4	22.7								
MW-D(D)	S-4	6-8	20.6	0.91	10.34	88.75	26	21	5	CL-ML	BROWN SILTY CLAY
MW-D(D)	S-5	8-10	20.5	0.23	8.11	91.66	24	18	6	CL-ML	BROWN SILTY CLAY
MW-D(D)	S-6	10-12	15.4	0.41	9.13	90.46				CL	BROWN LEAN CLAY
MW-D(D)	S-7	12-14	16.6	7.13	13.31	79.57	28	18	10	CL	BROWN LEAN CLAY WITH SAND
MW-D(D)	S-9	16-18	15.2	6.89	13.31	79.79				CL	GRAYISH BROWN LEAN CLAY WITH SAND
MW-D(D)	S-12	22-24	14.5	1.51	17.23	81.27				CL	GRAYISH BROWN LEAN CLAY WITH SAND
MW-D(D)	S-14	26-28	17.7	11.57	8.25	82.18	23	17	6	CL-ML	GRAYISH BROWN SILTY CLAY WITH GRAVEL
MW-D(D)	S-15	28-30	16.4	0.74	5.47	93.79	25	18	7	CL-ML	GRAYISH BROWN SILTY CLAY
MW-D(D)	S-16	30-32	17.4	0.67	4.88	94.45	24	17	7	CL-ML	GRAYISH BROWN SILTY CLAY
MW-D(D)	S-18	34-36	21.2	27.74	32.45	39.81				SC	BROWN CLAYEY SAND WITH GRAVEL
MW-D(D)	S-20	38-40	7.4	50.56	27.36	22.09				GC	BROWN CLAYEY GRAVEL WITH SAND
MW-D(D)	S-21	40-42	6.0								
MW-D(D)	S-23	44-46	10.6	27.14	33.33	39.53				SC	GRAYISH BROWN CLAYEY SAND WITH GRAVEL
MW-D(D)	S-24	46-48	8.5								
MW-D(D)	S-25	48-50	6.8								
MW-D(D)	S-28	54-56	12.6	8.21	22.82	68.97	21	14	7	CL-ML	GRAYISH BROWN SANDY SILTY CLAY
MW-D(D)	S-30	58-60	15.4	2.76	11.40	85.84				CL	GRAYISH BROWN LEAN CLAY
MW-D(D)	S-31	60-62	14.4	4.22	11.19	84.59				CL	GRAYISH BROWN LEAN CLAY WITH SAND
MW-D(D)	S-34	66-68	15.0	4.98	10.94	84.08	25	16	9	CL	GRAYISH BROWN LEAN CLAY WITH SAND
MW-D(D)	S-36	70-72	18.6	1.93	7.72	90.35				CL	GRAYISH BROWN LEAN CLAY
MW-D(D)	S-37	72-74	13.3								
MW-D(D)	S-38	74-76	12.0								
MW-D(D)	S-39	76-78	12.1								
MW-D(D)	S-40	78-80	10.2	12.65	29.75	57.60	21	14	7	CL-ML	GRAYISH BROWN SANDY SILTY CLAY
MW-D(D)	S-43	84-86	21.4	4.45	11.83	83.72	31	18	13	CL	GRAYISH BROWN LEAN CLAY WITH SAND
MW-D(D)	S-44	86-88		21.75	23.49	54.76				CL	GRAYISH BROWN SANDY LEAN CLAY WITH GRAVEL
MW-D(D)	S-45	88-90	5.7	50.54	36.49	12.97				GC	GRAY CLEYEY GRAVEL WITH SAND

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Table 3 - Summary of Geotechnical Testing Data

continued

Test Boring/ Piezometer	Sample Number	Depth (ft)	Natural Moisture Content (%)	Percent Gravel[1]	Percent Sand[2]	Percent Silt & Clay[3]	Atterberg Limits LL (%)	Atterberg Limits PL (%)	Atterberg Limits PI (%)	USCS Symbol	Laboratory-based Soil Description
MW-E(D)	S-2	2-4	13.2	11.48	18.13	70.39	25	16	9	CL	BROWN LEAN CLAY WITH SAND
MW-E(D)	S-4	6-8	16.3	5.85	12.40	81.75	25	17	8	CL	BROWN LEAN CLAY WITH SAND
MW-E(D)	S-9	16-18	15.6	3.52	13.00	83.48	25	17	8	CL	BROWNISH GRAY LEAN CLAY WITH SAND
MW-E(D)	S-11	20-22	14.0	1.76	11.25	86.99	22	16	6	CL-ML	GRAY SILTY CLAY
MW-E(D)	S-12	22-24	13.2	10.89	9.82	79.30	23	17	6	CL-ML	BROWNISH GRAY SILTY CLAY WITH GRAVEL
MW-E(D)	S-15	28-30	13.2	21.62	32.92	45.46	21	15	6	CL-ML	GRAY SILTY, CLAYEY SAND WITH GRAVEL
MW-E(D)	S-19	36-38	7.7	37.39	50.01	12.60				** SC	GRAY CLAYEY SAND WITH GRAVEL
MW-E(D)	S-25	48-50	9.7	21.53	64.64	13.83				** SC	GRAY CLAYEY SAND WITH GRAVEL
MW-E(D)	S-30	58-60	15.7	2.58	12.69	84.73	24	15	9	CL	GRAY LEAN CLAY WITH SAND
MW-E(D)	S-43	84-86	13.8	0.00	46.94	53.06				** ML	GRAY SANDY SILT
MW-E(D)	S-46	90-92	17.4	0.45	1.56	97.99				** ML	BROWNISH GRAY SILT
MW-E(D)	S-49	96-98	16.9	0.00	2.15	97.85				ML	BROWNISH GRAY SILT (NON-PLASTIC FINES)
MW-E(D)	S-51	100-102	18.1	0.00	2.91	97.09				** ML	BROWNISH GRAY SILT
MW-E(D)	S-53	106-108	14.9	0.14	78.50	21.36				**SM	BROWNISH GRAY SILTY SAND
MW-E(D)	S-56	110-112	15.0	0.20	63.26	36.54				**SM	GRAYISH BROWN SILTY SAND
MW-E(D)	S-61	120-122	18.5	0.28	4.70	95.02	27	17	10	CL	BROWNISH GRAY LEAN CLAY
MW-E(D)	S-64	126-128	16.7	1.52	13.11	85.36	22	16	6	CL-ML	BROWNISH GRAY SILTY CLAY
MW-E(D)	S-68	134-136	24.9	0.00	0.83	99.17				ML	BROWNISH GRAY SILT (NON-PLASTIC FINES)
MW-E(D)	S-71	140-142	21.4	0.00	8.82	91.18				ML	BROWNISH GRAY SILT (NON-PLASTIC FINES)
MW-G(D)	S-3	4-6	16.9	23.37	35.84	40.79	21	16	5	SC-SM	BROWN SILTY, CLAYEY SAND WITH GRAVEL
MW-G(D)	S-7	12-14	21.9	2.51	7.35	90.15	34	18	16	CL	GRAY LEAN CLAY
MW-G(D)	S-11	20-22	14.4	3.44	9.85	86.70	26	16	10	CL	GRAY LEAN CLAY
MW-G(D)	S-12	22-24	3.4	33.40	47.93	18.67				SC	GRAY CLAYEY SAND WITH GRAVEL
MW-G(D)	S-13	24-26	5.9	42.92	43.43	13.65				SC	GRAY CLAYEY SAND WITH GRAVEL
MW-G(D)	S-20	38-40	24.0	1.73	5.21	93.06	39	20	19	CL	GRAY LEAN CLAY
MW-G(D)	S-22	42-44	15.7	4.58	33.00	62.42	25	16	9	CL	GRAY SANDY LEAN CLAY
MW-G(D)	S-23	44-46	16.6	4.23	23.65	72.12	25	17	8	CL	GRAY LEAN CLAY WITH SAND
MW-G(D)	S-25	48-50	13.8	28.47	29.52	42.01				SC	GRAY CLAYEY SAND WITH GRAVEL
MW-G(D)	S-27	52-54	5.9	44.97	44.73	10.30				GP-GM	GRAY POORLY GRADED GRAVEL WITH SILT AND SAND
MW-G(D)	S-35	68-70	13.6	18.13	17.64	64.23				CL	GRAY GRAVELLY LEAN CLAY WITH SAND
MW-G(D)	S-40	78-80	8.2	27.25	57.60	15.15				SM	GRAY SILTY SAND WITH GRAVEL
MW-G(D)	S-42	82-84	7.9	22.38	62.37	15.24				SM	GRAY SILTY SAND WITH GRAVEL
MW-H(D)	S-2	2-4	22.5								
MW-H(D)	S-3	4-6	23.1								
MW-H(D)	* S-2 & 3	2-6		0.00	9.83	90.17	36	19	17	CL	BROWN LEAN CLAY
MW-H(D)	S-7	12-14	24.2	0.00	1.45	98.55	38	21	17	CL	BROWN LEAN CLAY
MW-H(D)	S-9	16-18	16.6	0.60	12.06	87.34				** CL-ML	BROWN SILTY CLAY
MW-H(D)	S-10	18-20	17.8	0.00	12.32	87.68				** CL-ML	BROWN SILTY CLAY
MW-H(D)	S-11	20-22	15.3								
MW-H(D)	S-12	22-24	17.0								
MW-H(D)	S-13	24-26	15.2								
MW-H(D)	S-11,12 & 1	20-26		4.95	18.67	76.38	25	17	8	CL	BROWN LEAN CLAY WITH SAND
MW-H(D)	S-17	32-34	8.9								
MW-H(D)	S-18	34-36	14.0								
MW-H(D)	* S-17 & 18	32-36		3.58	17.36	79.05	25	16	9	CL	BROWN LEAN CLAY WITH SAND
MW-H(D)	S-20	38-40	13.9								
MW-H(D)	S-21	40-42	13.2								
MW-H(D)	* S-20 & 21	38-42		0.88	12.67	86.45	24	17	7	CL-ML	BROWN SILTY CLAY
MW-H(D)	S-22	42-44	7.5	0.94	33.01	66.05	22	16	6	CL-ML	GRAYISH BROWN SANDY SILTY CLAY
MW-H(D)	S-24	46-48	5.2								
MW-H(D)	S-25	48-50	6.2								
MW-H(D)	* S-24 & 25	46-50		56.49	33.82	9.69				** GP-GM	GRAYISH BROWN POORLY GRADED GRAVEL WITH SILT AND SAND
MW-H(D)	S-31	60-62	8.7	34.31	59.40	6.29				** SW-SM	GRAYISH BROWN WELL GRADED SAND WITH SILT AND GRAVEL
MW-H(D)	S-33	64-66	11.0	6.42	31.93	61.65	18	13	5	CL-ML	GRAYISH BROWN SANDY SILTY CLAY
MW-H(D)	S-35	68-70	8.6	54.24	34.62	11.14				** GP-GM	GRAYISH BROWN POORLY GRADED GRAVEL WITH SILT AND SAND
MW-H(D)	S-40	78-80	16.9	6.39	10.22	83.39				** CL-ML	GRAYISH BROWN SILTY CLAY WITH SAND
MW-H(D)	S-41	80-82	16.6	1.89	13.62	84.49				** CL-ML	GRAYISH BROWN SILTY CLAY WITH SAND
MW-H(D)	S-42	82-84	16.0								
MW-H(D)	S-43	84-86	18.2								
MW-H(D)	* S-42-43	82-86		2.19	14.79	83.03	25	16	9	CL	GRAYISH BROWN LEAN CLAY WITH SAND
MW-H(D)	S-47	92-94	10.1	27.49	66.43	6.08				** SW-SM	GRAYISH BROWN WELL GRADED SAND WITH SILT AND GRAVEL
MW-H(D)	S-48	94-96	10.3	15.94	73.25	10.81				** SP-SM	GRAYISH BROWN POORLY GRADED SAND WITH SILT AND GRAVEL

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Table 3 - Summary of Geotechnical Testing Data

continued

Test Boring/ Piezometer	Sample Number	Depth (ft)	Natural Moisture Content (%)	Percent Gravel[1]	Percent Sand[2]	Percent Silt & Clay[3]	Atterberg Limits LL (%)	Atterberg Limits PL (%)	Atterberg Limits PI (%)	USCS Symbol	Laboratory-based Soil Description
MW-F	S-7	12-14	20.4	0.00	6.38	93.62	38	20	18	CL	BROWN LEAN CLAY
MW-F	S-8	14-16	21.5	0.00	5.73	94.27	37	20	17	CL	BROWN LEAN CLAY
MW-F	S-11	20-22	9.7	41.72	39.92	18.37				GC	BROWN CLAYEY GRAVEL WITH SAND
MW-F	S-12	22-24	6.5	53.56	38.09	8.35				GP-GC	GRAYISH BROWN POORLY GRADED GRAVEL WITH CLAY
MW-K(D)	S-2	2-4	see Note 4	0.00	5.99	94.01	39	21	18	CL	BROWN LEAN CLAY
MW-K(D)	S-5	8-10	19.8	0.78	6.04	93.18	32	20	12	CL	BROWN LEAN CLAY
MW-K(D)	S-7	12-14	15.9	0.00	15.91	84.09	26	16	10	CL	BROWN LEAN CLAY WITH SAND
MW-K(D)	S-10	18-20	9.5	0.69	18.33	80.97	25	15	10	CL	BROWN LEAN CLAY WITH SAND
MW-K(D)	S-13	24-26	6.1	0.21	16.66	83.13	21	15	6	CL-ML	BROWN SILTY CLAY WITH SAND
MW-K(D)	S-15	28-30	6.6	0.00	13.64	86.36	25	16	9	CL	BROWN LEAN CLAY
MW-K(D)	S-17	32-34	see Note 4	0.00	6.72	93.28	24	19	5	CL-ML	BROWN SILTY CLAY
MW-K(D)	S-19	36-38	8.1	0.40	6.92	92.68	21	18	3	ML	BROWN SILT
MW-K(D)	S-23	44-46	10.1	0.00	6.43	93.57	23	18	5	CL-ML	BROWN SILTY CLAY
MW-K(D)	S-25	48-50	1.5	45.65	43.27	11.08				GP-GM**	BROWN POORLY GRADED GRAVEL WITH SILT AND SAND
MW-K(D)	S-30	56-60	see Note 4	82.14	12.32	5.54				GP-GM**	BROWN POORLY GRADED GRAVEL WITH SILT
MW-K(D)	S-36	70-72	5.6	39.42	47.38	13.20				SM**	GRAYISH BROWN SILTY SAND WITH GRAVEL
MW-K(D)	S-38	74-76	12.4	0.62	18.79	80.59	23	16	7	CL-ML	BROWN SILTY CLAY WITH SAND
MW-K(D)	S-43	84-86	see Note 4	67.64	22.33	10.03				GP-GM**	GRAYISH BROWN POORLY GRADED GRAVEL WITH SILT AND SAND
MW-K(D)	S-45	88-90	5.5	54.10	36.73	9.17				GP-GM**	BROWN POORLY GRADED GRAVEL WITH SILT AND SAND
MW-K(D)	S-48	94-96	11.0	0.41	10.77	88.82	30	18	12	CL	BROWN LEAN CLAY
SB3-02	SN-8	14-16	see Note 5	0.00	1.46	98.54	37	20	17	CL	GRAY LEAN CLAY
SB3-02	SN-9	16-18	see Note 5	0.00	3.85	96.15	35	19	16	CL	GRAY LEAN CLAY
SB3-02	SN-10	18-20	see Note 5	4.45	42.83	52.72	18	14	4	CL-ML	BROWN SANDY SILTY CLAY
SB3-02	SN-11	20-22	see Note 5	0.00	10.45	89.55	31	18	13	CL	GRAY LEAN CLAY
SB3-02	SN-12	22-24	see Note 5	2.41	16.60	80.99	25	17	8	CL	GRAY LEAN CLAY WITH SAND
SB2-03	S-2	2-4	18.8	0.00	13.52	86.48	29	18	11	CL	BROWN LEAN CLAY
SB2-03	S-4	6-8	16.7	1.42	9.54	89.04	26	19	7	CL-ML	GRAYISH BROWN SILTY CLAY
SB2-03	S-6	10-12	22.5	0.00	6.46	93.54	23	20	3	ML	BROWN SILT
SB2-03	S-7	12-14	13.7	3.05	13.69	83.26	23	16	7	CL-ML	GRAYISH BROWN SILTY CLAY WITH SAND
SB2-03	*S-9/10	17-21	15.9	4.26	13.23	82.50	24	17	7	CL-ML	GRAY SILTY CLAY WITH SAND
SB2-03	S-13	25-27	16.9	3.75	20.00	76.24	19	16	3	ML	GRAY SILT WITH SAND
SB2-03	S-15	29-31	16.0	0.53	4.03	95.44	26	18	8	CL	GRAY LEAN CLAY
SB2-03	*S-18/19	35-39	7.0	39.30	39.66	21.04				SM**	GRAYISH BROWN SILTY SAND WITH GRAVEL
SB4-03	S-3	4-6	24.7	0.00	10.23	89.77	37	20	17	CL	BROWN LEAN CLAY
SB4-03	S-5	8-10	22.0	1.28	9.70	89.04	32	19	13	CL	GRAYISH BROWN LEAN CLAY
SB4-03	S-7	12-14	9.0	0.00	60.08	39.92				SM**	BROWN SILTY SAND
SB4-03	S-8	14-16	18.9	5.53	17.03	77.45	27	17	10	CL	GRAY LEAN CLAY WITH SAND
SB4-03	S-11	20-22	14.9	11.64	23.07	65.30	22	15	7	CL-ML	GRAY SANDY SILTY CLAY
SB4-03	S-14	26-28	16.1	1.42	17.43	81.15	21	16	5	CL-ML	GRAY SILTY CLAY WITH SAND
SB4-03	S-17	32-34	16.1	3.05	12.04	84.90	22	16	6	CL-ML	GRAY SILTY CLAY WITH SAND
SB4-03	S-20	38-40	13.6	15.95	14.49	69.56	24	17	7	CL-ML	GRAY GRAVELLY SILTY CLAY
SB4-03	*S-22/23	44-46	11.8	61.12	23.49	15.39	21	16	5	GC-GM	GRAYISH BROWN SILTY, CLAYEY GRAVEL WITH SAND

Notes:

1. Percent Gravel based on Percent Sieve Size (mm) Greater than #4.
2. Percent Sand based on Percent Sieve Size (mm) #4 to #200.
3. Percent Silt & Clay based on Percent Finer than #200.
4. Unable to measure water contents due to broken jars.
5. Did not measure due to sample drying while archived.

* Combination of samples to ensure enough product for testing.

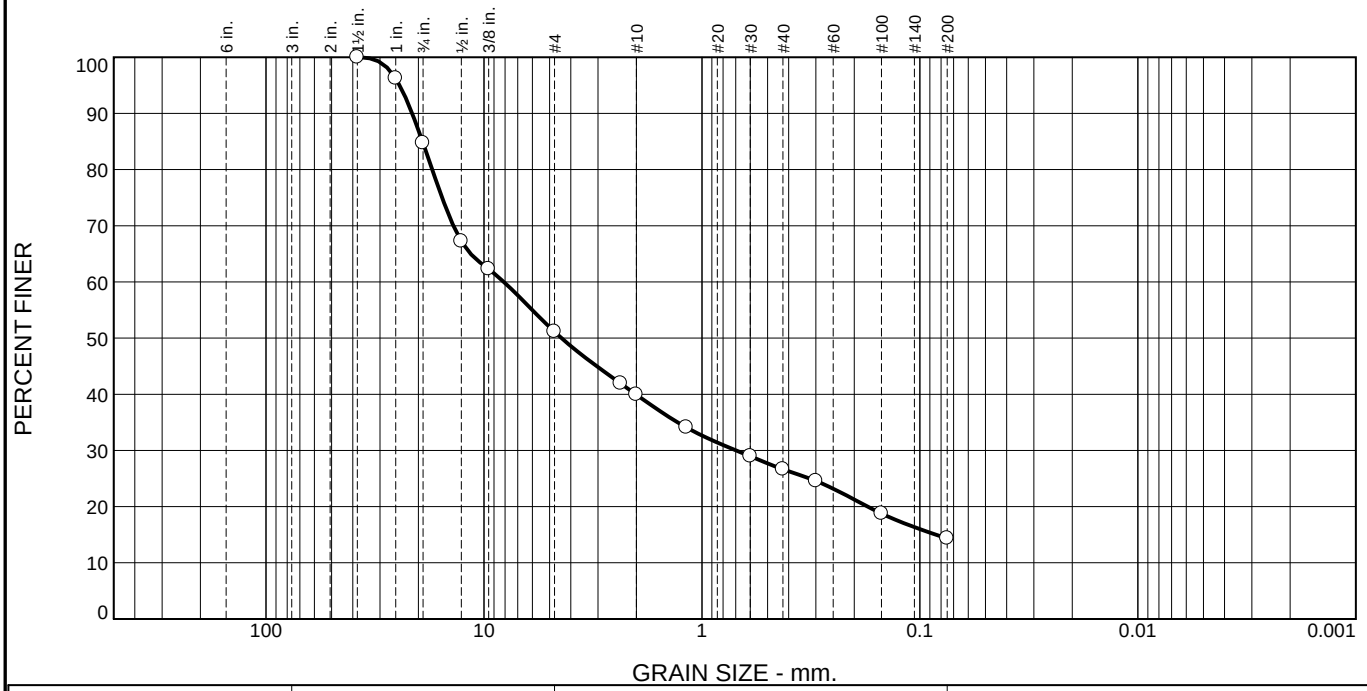
** assumed USCS symbol

Appendix C

Soils Geotechnical Testing Laboratory Reports

Shallow Borings Geotechnical Laboratory Reports (April & May 2019)

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	15.3	33.6	11.2	13.3	12.3	14.3	

TEST RESULTS (ASTM D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1.5"	100.0		
1	96.2		
.75	84.7		
.5	67.2		
.375	62.3		
#4	51.1		
#8	41.9		
#10	39.9		
#16	34.1		
#30	29.0		
#40	26.6		
#50	24.6		
#100	18.8		
#200	14.3		

* (no specification provided)

Material Description

ID#19-292

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 21.3499 D_{85}= 19.1554 D_{60}= 8.1106
D_{50}= 4.4113 D_{30}= 0.6972 D_{15}= 0.0843
D_{10}= C_u= C_c=

Remarks

Used entire sample for testing.ASTM recommends a larger amount for samples with particles of this size. The result may skew the gravel % to be larger than actual.

Date Received: 5/2/19 **Date Tested:** 6/13/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 16-26' **Date Sampled:**

Sample Number: MWSE-1

3rd Rock, LLC

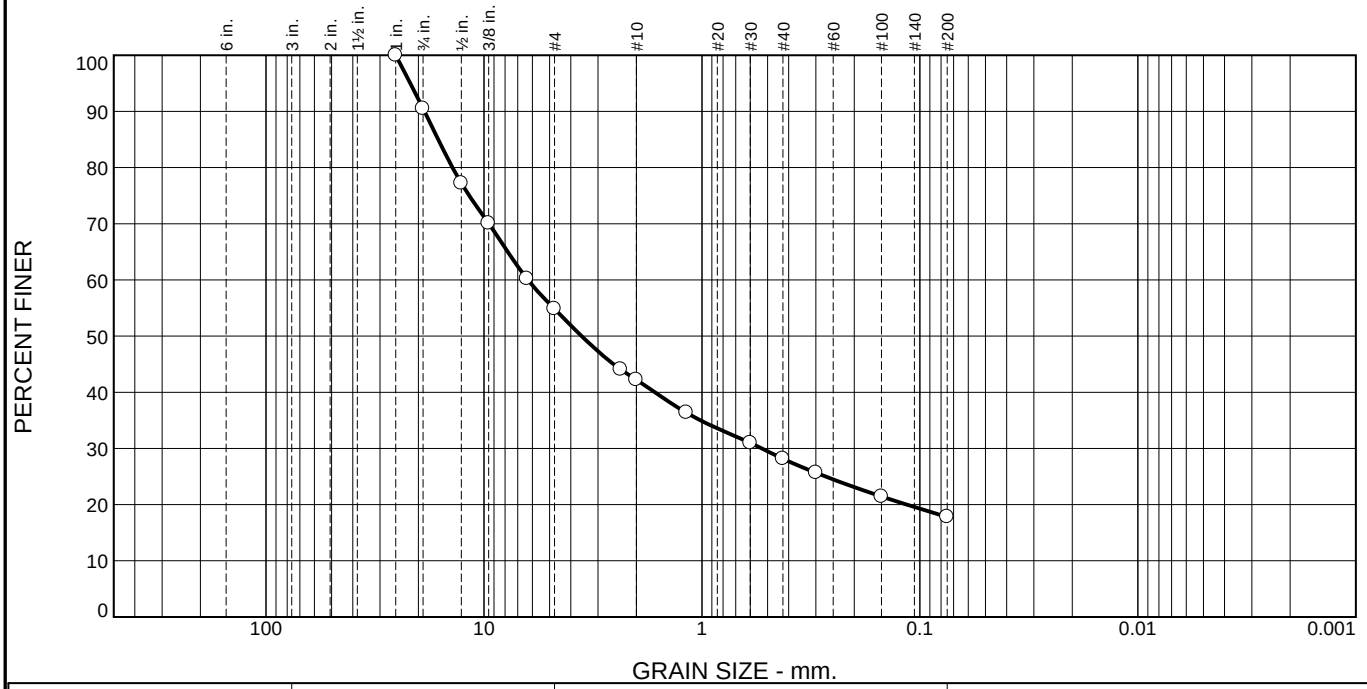
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.5	35.7	12.6	14.0	10.4	17.8	

TEST RESULTS (ASTM D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
.75	90.5		
.5	77.2		
.375	70.1		
.25	60.2		
#4	54.8		
#8	44.1		
#10	42.2		
#16	36.4		
#30	31.0		
#40	28.2		
#50	25.7		
#100	21.4		
#200	17.8		

* (no specification provided)

Material Description

ID#19-293

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 18.7594 D_{85}= 16.2249 D_{60}= 6.2859
D_{50}= 3.5638 D_{30}= 0.5323 D_{15}=
D_{10}= C_u= C_c=

Remarks

Used entire sample provided for testing.ASTM recommends a larger amount for samples with particles of this size. The result may skew the gravel % to be larger than actual.

Date Received: 5/2/19 **Date Tested:** 6/11/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 16-24' **Date Sampled:**

Sample Number: MWSE-2

3rd Rock, LLC

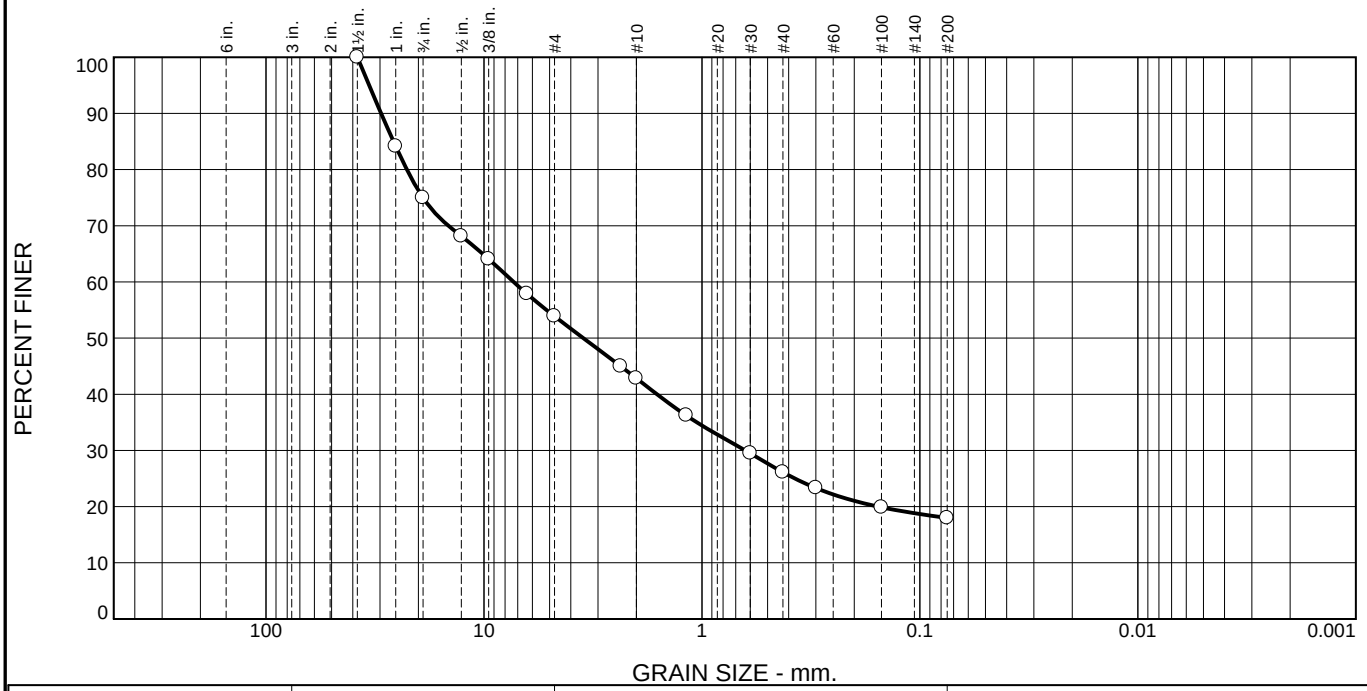
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	25.0	21.1	11.1	16.7	8.1	18.0	

TEST RESULTS (ASTM D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1.5"	100.0		
1	84.1		
.75	75.0		
.5	68.2		
.375	64.1		
.25	57.9		
#4	53.9		
#8	45.0		
#10	42.8		
#16	36.2		
#30	29.5		
#40	26.1		
#50	23.3		
#100	19.9		
#200	18.0		

* (no specification provided)

Material Description

ID#19-294

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 29.6493 D_{85}= 25.9983 D_{60}= 7.3120
D_{50}= 3.5044 D_{30}= 0.6326 D_{15}=
D_{10}= C_u= C_c=

Remarks

Used entire sample provided for testing.ASTM recommends a larger amount for samples with particles of this size. The result may skew the gravel % to be larger than actual.

Date Received: 5/2/19 **Date Tested:** 6/11/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 18-28' **Date Sampled:**

Sample Number: MWSE-3

3rd Rock, LLC

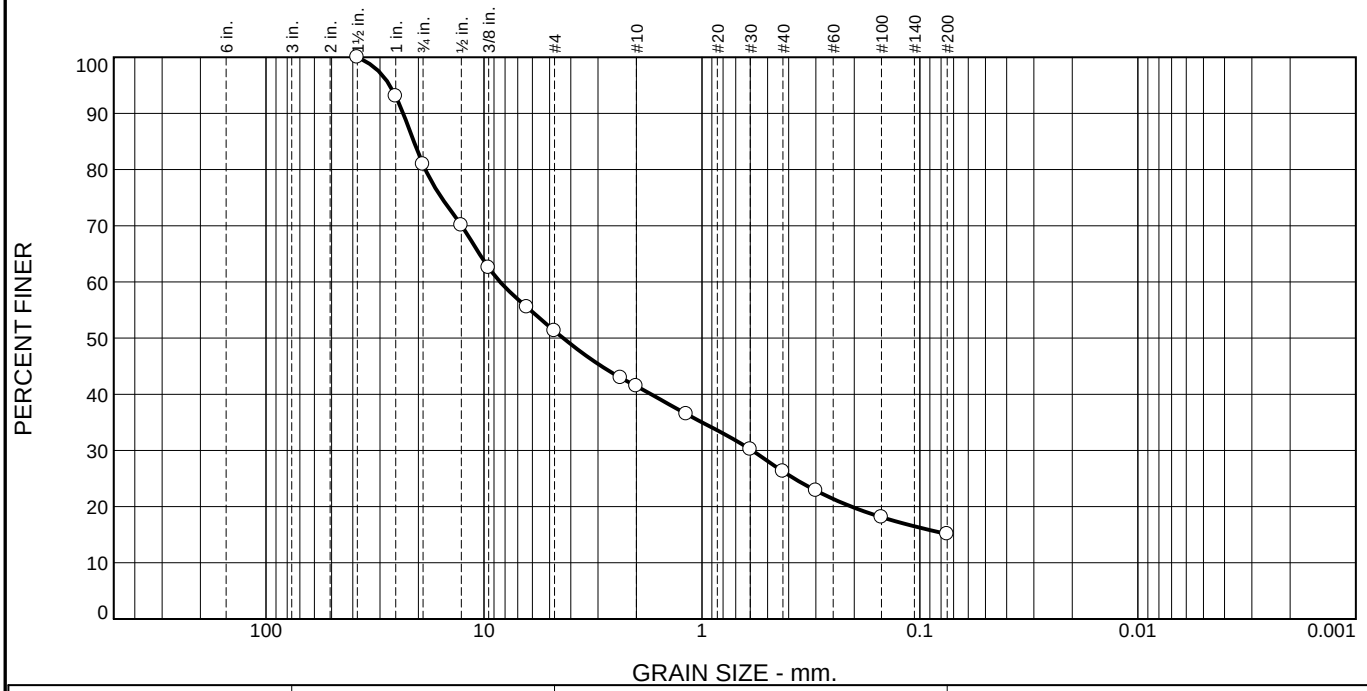
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	19.1	29.6	9.8	15.2	11.2	15.1	

TEST RESULTS (ASTM D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1.5"	100.0		
1	93.1		
.75	80.9		
.5	70.1		
.375	62.5		
.25	55.5		
#4	51.3		
#8	42.9		
#10	41.5		
#16	36.5		
#30	30.2		
#40	26.3		
#50	22.9		
#100	18.1		
#200	15.1		

* (no specification provided)

Material Description

ID#19-358

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 23.4749 D_{85}= 20.9774 D_{60}= 8.4368
D_{50}= 4.3333 D_{30}= 0.5899 D_{15}=
D_{10}= C_u= C_c=

Remarks

Used entire sample for testing.ASTM recommends a larger amount for samples with particles of this size.The result may skew the gravel % to be larger than actual.

Date Received: 5/9/19 **Date Tested:** 6/11/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 8-18' **Date Sampled:**
Sample Number: MWSE-4

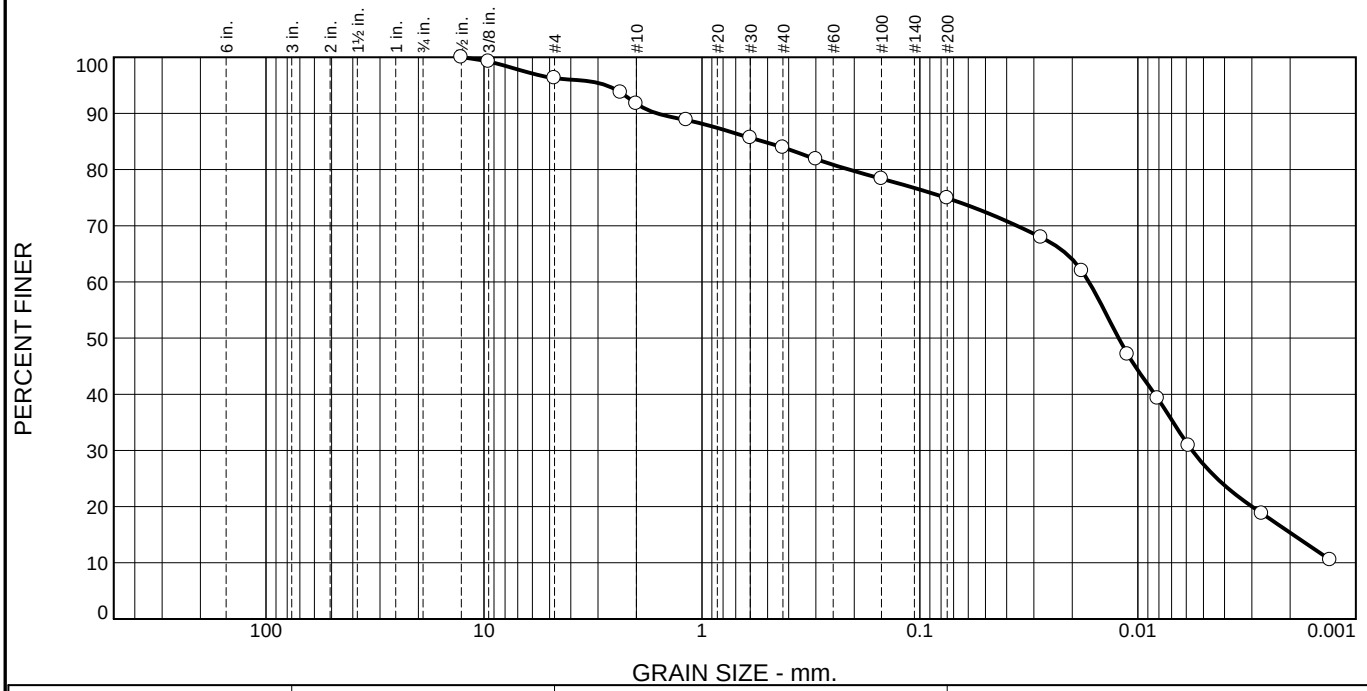
3rd Rock, LLC

East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.7	4.6	7.8	9.0	47.4	27.5

TEST RESULTS (ASTM D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.5"	100.0		
.375	99.2		
#4	96.3		
#8	93.7		
#10	91.7		
#16	88.8		
#30	85.7		
#40	83.9		
#50	81.9		
#100	78.4		
#200	74.9		
0.0278 mm.	67.9		
0.0181 mm.	62.0		
0.0111 mm.	47.1		
0.0081 mm.	39.3		
0.0059 mm.	30.9		
0.0027 mm.	18.8		
0.0013 mm.	10.5		

* (no specification provided)

Material Description

ID#19-296
Lean clay with sand

Atterberg Limits (ASTM D 4318)

PL= 16 **LL=** 24 **PI=** 8

Classification

USCS (D 2487)= CL **AASHTO (M 145)=** A-4(4)

Coefficients

D_{90}= 1.6059 D_{85}= 0.5242 D_{60}= 0.0168
D_{50}= 0.0123 D_{30}= 0.0056 D_{15}= 0.0019
D_{10}= C_u= C_c=

Remarks

Date Received: 5/2/19 **Date Tested:** 6/13/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 40-42' **Date Sampled:**
Sample Number: PZ05D-19

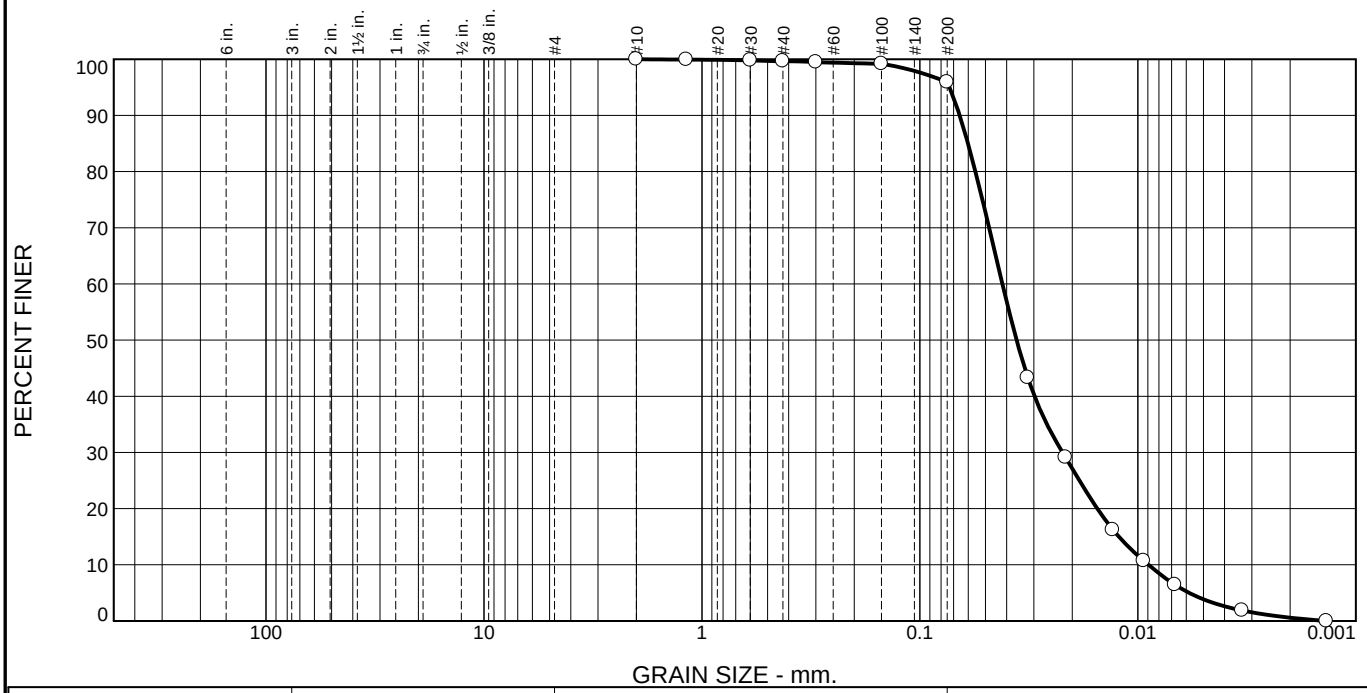
3rd Rock, LLC

East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	3.7	92.0	3.9

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#10	100.0		
#16	99.9		
#30	99.8		
#40	99.6		
#50	99.5		
#100	99.2		
#200	95.9		
0.0320 mm.	43.3		
0.0215 mm.	29.1		
0.0130 mm.	16.2		
0.0094 mm.	10.7		
0.0068 mm.	6.4		
0.0033 mm.	1.9		
0.0014 mm.			

* (no specification provided)

Material Description

ID#19-297

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.0657 D_{85}= 0.0602 D_{60}= 0.0418
D_{50}= 0.0360 D_{30}= 0.0222 D_{15}= 0.0122
D_{10}= 0.0089 C_u= 4.68 C_c= 1.31

Remarks

Date Received: 5/2/19 **Date Tested:** 6/13/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 62.5-68' **Date Sampled:**

Sample Number: PZ05D-19

3rd Rock, LLC

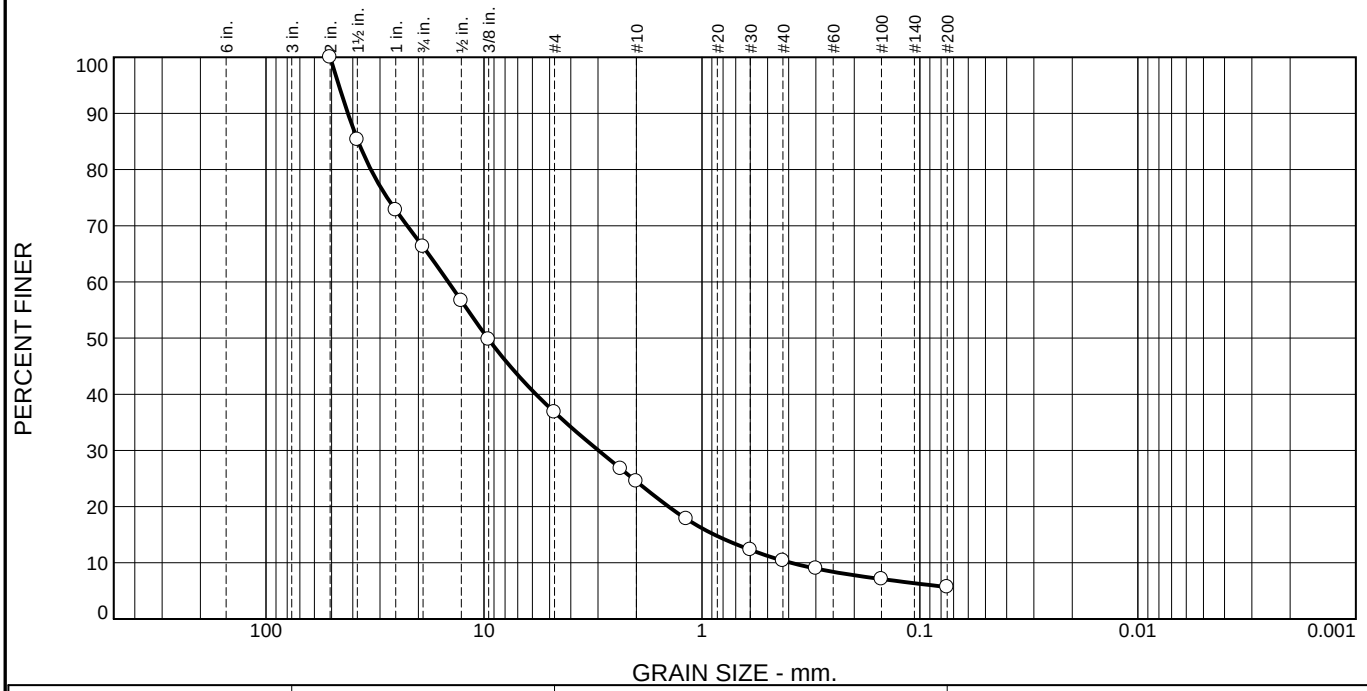
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	33.7	29.5	12.3	14.1	4.7	5.7	

TEST RESULTS (ASTM D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2"	100.0		
1.5	85.3		
1	72.8		
.75	66.3		
.5	56.6		
.375	49.8		
#4	36.8		
#8	26.8		
#10	24.5		
#16	17.8		
#30	12.3		
#40	10.4		
#50	9.0		
#100	7.1		
#200	5.7		

* (no specification provided)

Material Description

ID#19-295

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 42.0985 D_{85}= 37.7955 D_{60}= 14.5814
D_{50}= 9.6151 D_{30}= 2.9849 D_{15}= 0.8763
D_{10}= 0.3910 C_u= 37.29 C_c= 1.56

Remarks

Used entire sample provided for testing.ASTM recommends a larger amount for samples with particles of this size. The result may skew the gravel % to be larger than actual.

Date Received: 5/2/19 **Date Tested:** 6/13/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 22.5-24.5' **Date Sampled:**

Sample Number: PZ05S-19

3rd Rock, LLC

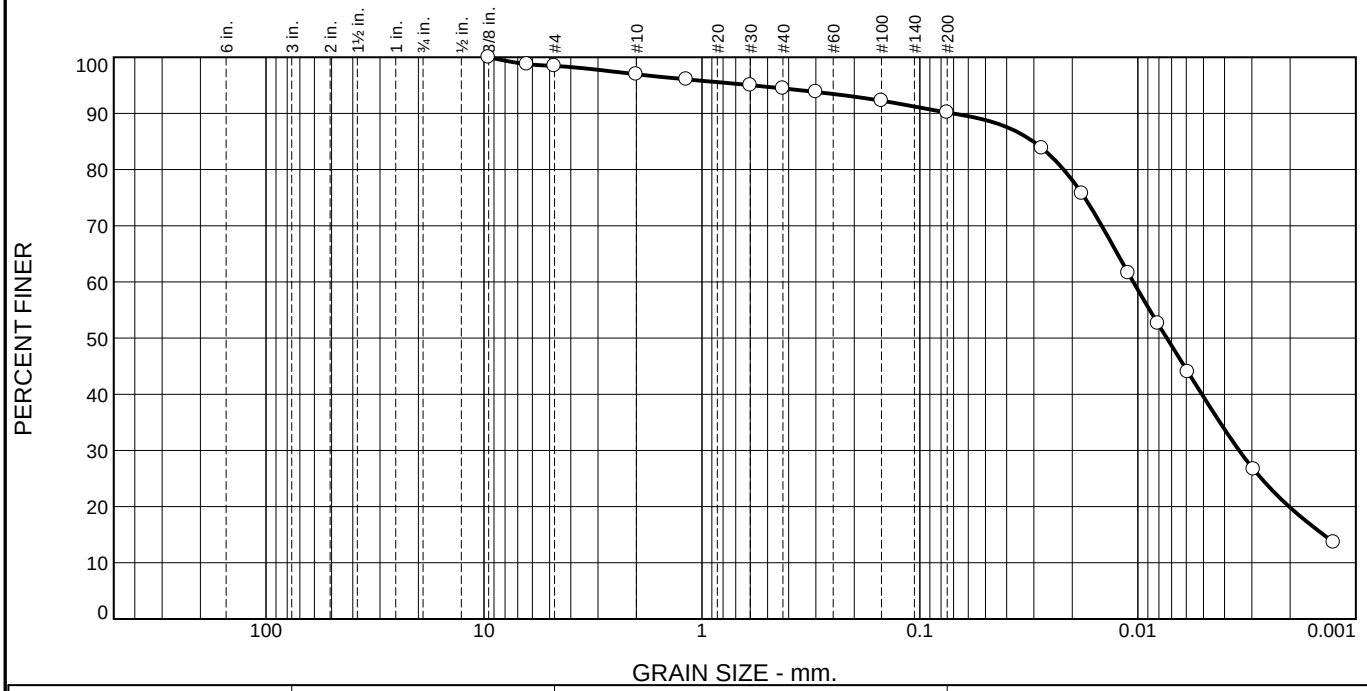
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.5	1.5	2.6	4.2	50.6	39.6

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375"	100.0		
.25	98.8		
#4	98.5		
#10	97.0		
#16	96.1		
#30	95.0		
#40	94.4		
#50	93.8		
#100	92.3		
#200	90.2		
0.0275 mm.	83.8		
0.0181 mm.	75.8		
0.0111 mm.	61.6		
0.0081 mm.	52.6		
0.0059 mm.	44.0		
0.0029 mm.	26.7		
0.0013 mm.	13.6		

* (no specification provided)

Material Description

ID#19-301

Atterberg Limits (ASTM D 4318)

PL= 17 **LL=** 27 **PI=** 10

Classification

USCS (D 2487)= CL **AASHTO (M 145)=** A-4(7)

Coefficients

D_{90}= 0.0708 D_{85}= 0.0302 D_{60}= 0.0105
D_{50}= 0.0074 D_{30}= 0.0034 D_{15}= 0.0014
D_{10}= C_u= C_c=

Remarks

Date Received: 5/2/19 **Date Tested:** 6/17/19

Tested By: JJZ

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 38-40' **Date Sampled:**

Sample Number: SB03-19

3rd Rock, LLC

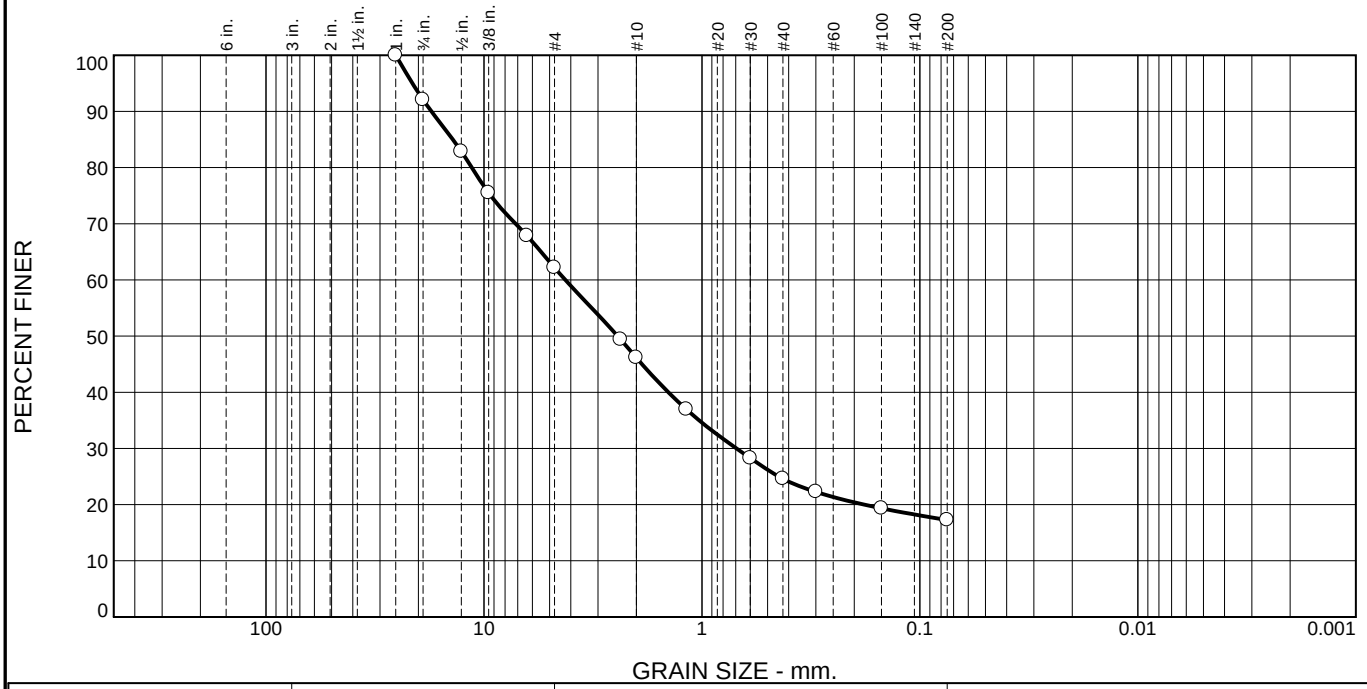
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.9	29.9	16.0	21.6	7.4	17.2	

TEST RESULTS (ASTM D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
.75	92.1		
.5	82.9		
.375	75.5		
.25	67.9		
#4	62.2		
#8	49.4		
#10	46.2		
#16	37.0		
#30	28.3		
#40	24.6		
#50	22.3		
#100	19.3		
#200	17.2		

* (no specification provided)

Material Description

ID#19-300

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 17.4412 D_{85}= 13.8973 D_{60}= 4.2346
D_{50}= 2.4365 D_{30}= 0.6947 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 5/2/19 **Date Tested:** 6/17/19

Tested By: JJZ

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 10-13' **Date Sampled:**

Sample Number: SB04-19

3rd Rock, LLC

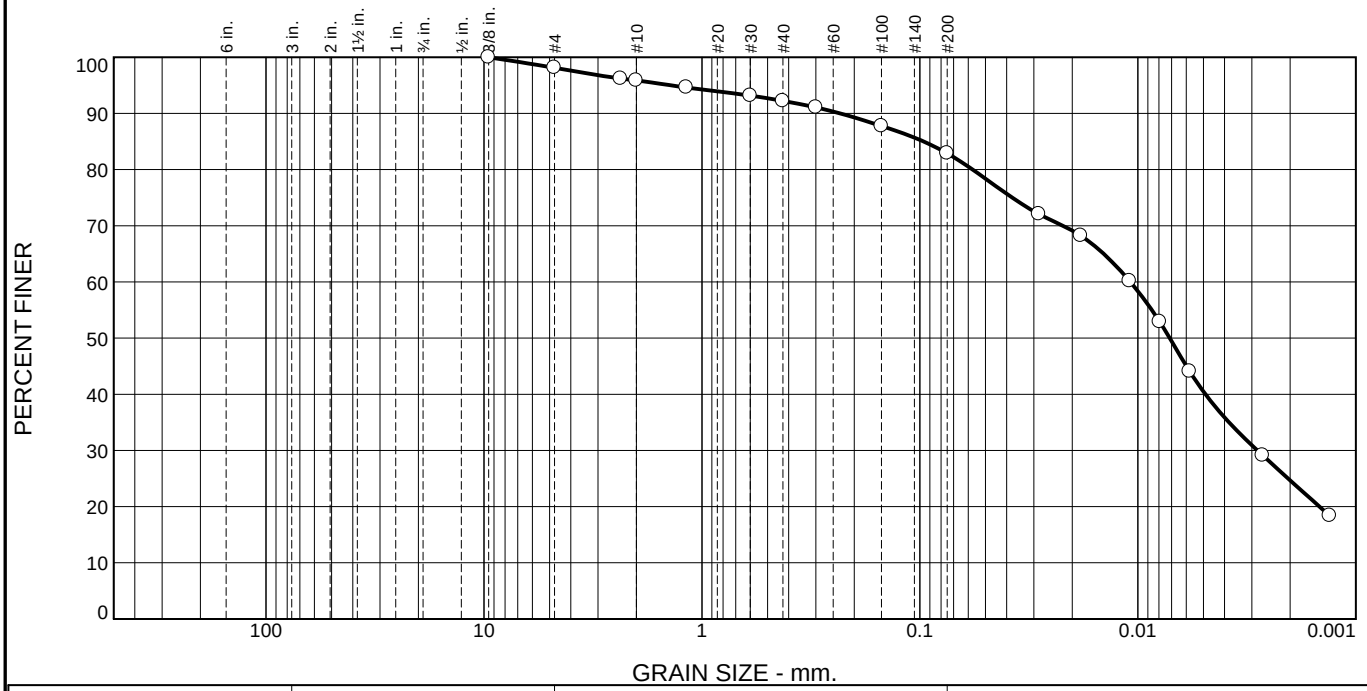
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.9	2.2	3.7	9.3	42.4	40.5

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375"	100.0		
#4	98.1		
#8	96.2		
#10	95.9		
#16	94.6		
#30	93.2		
#40	92.2		
#50	91.1		
#100	87.8		
#200	82.9		
0.0284 mm.	72.1		
0.0183 mm.	68.2		
0.0109 mm.	60.2		
0.0079 mm.	52.9		
0.0058 mm.	44.1		
0.0027 mm.	29.1		
0.0013 mm.	18.4		

* (no specification provided)

Material Description

ID#19-359
Lean clay with sand

Atterberg Limits (ASTM D 4318)

PL= 16 **LL=** 26 **PI=** 10

Classification

USCS (D 2487)= CL **AASHTO (M 145)=** A-4(6)

Coefficients

D_{90}= 0.2326 D_{85}= 0.0961 D_{60}= 0.0108
D_{50}= 0.0071 D_{30}= 0.0028 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 5/9/19 **Date Tested:** 6/13/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 6-8' **Date Sampled:**
Sample Number: SB05-19

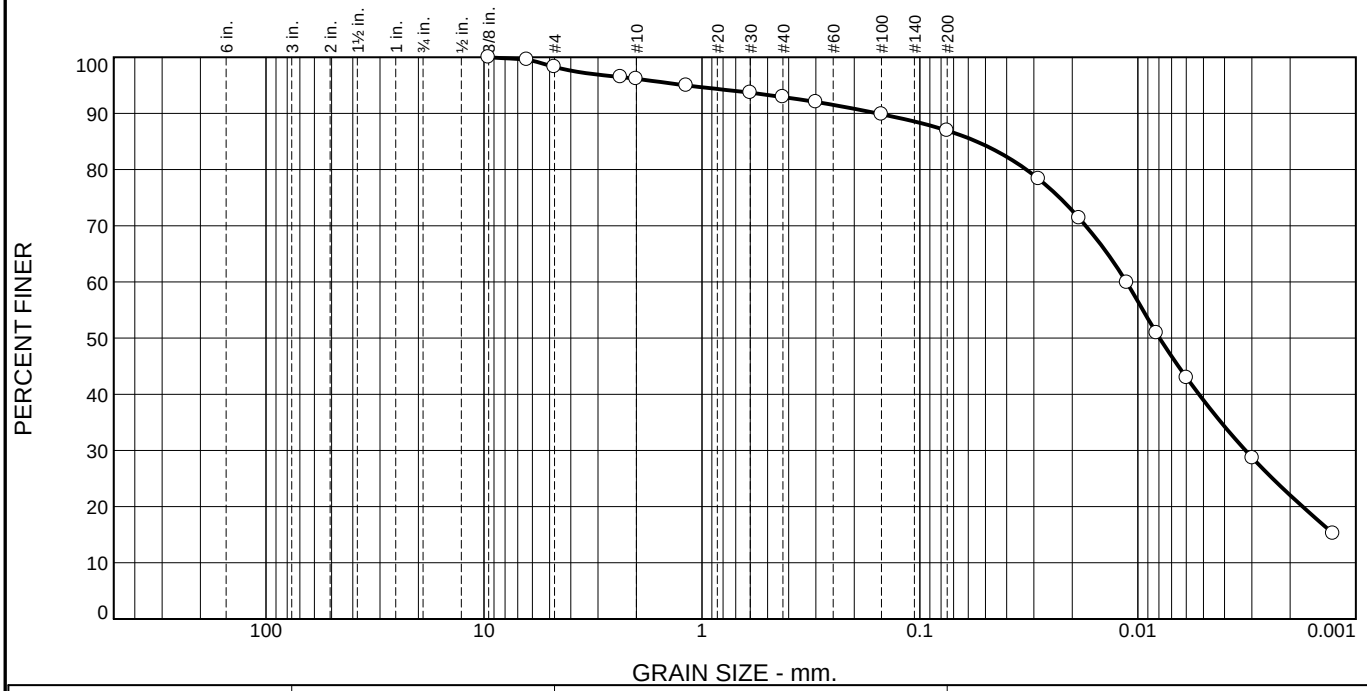
3rd Rock, LLC

East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.7	2.1	3.3	6.0	48.0	38.9

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375"	100.0		
.25	99.6		
#4	98.3		
#8	96.5		
#10	96.2		
#16	95.0		
#30	93.7		
#40	92.9		
#50	92.0		
#100	89.9		
#200	86.9		
0.0285 mm.	78.3		
0.0186 mm.	71.4		
0.0112 mm.	59.9		
0.0082 mm.	50.9		
0.0060 mm.	42.9		
0.0030 mm.	28.6		
0.0013 mm.	15.2		

* (no specification provided)

Material Description

ID#19-357

Atterberg Limits (ASTM D 4318)

PL= 16 **LL=** 27 **PI=** 11

Classification

USCS (D 2487)= CL **AASHTO (M 145)=** A-6(8)

Coefficients

D_{90}= 0.1564 D_{85}= 0.0550 D_{60}= 0.0113
D_{50}= 0.0079 D_{30}= 0.0032 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 5/9/19 **Date Tested:** 6/13/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 4-6' **Date Sampled:**

Sample Number: SB08-19

3rd Rock, LLC

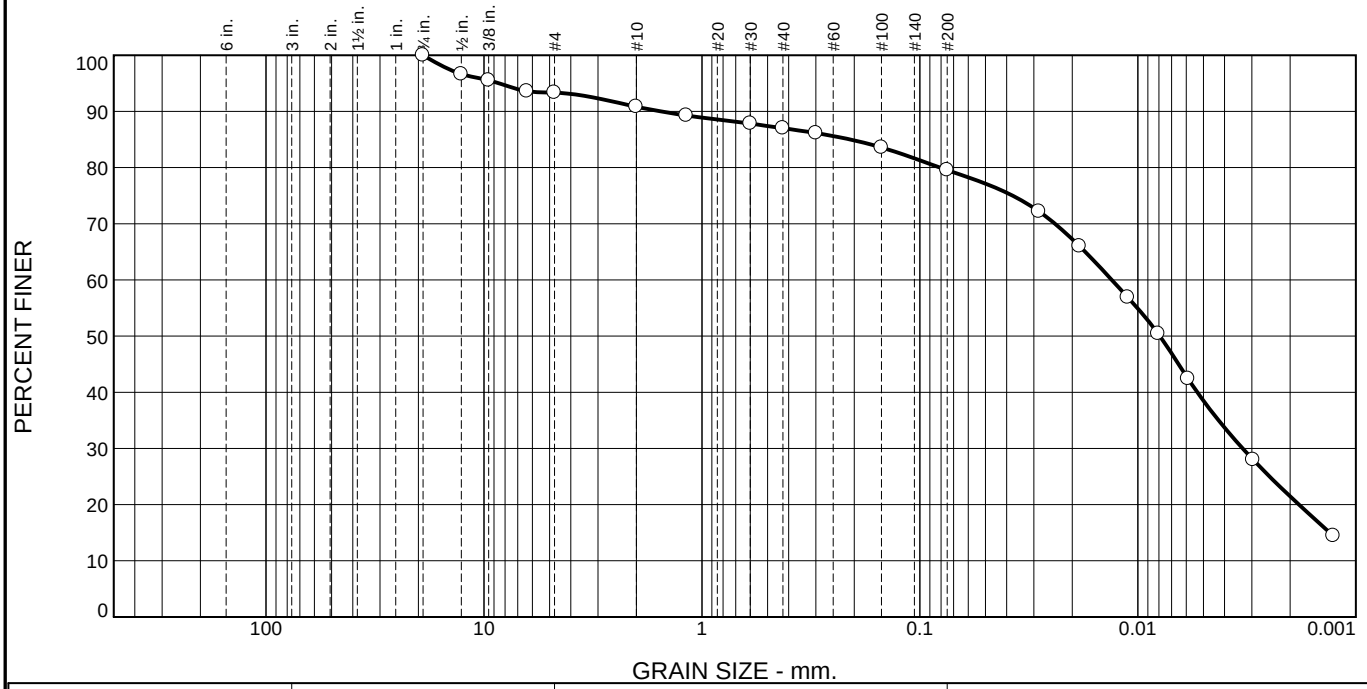
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.7	2.5	3.8	7.4	41.1	38.5

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75"	100.0		
.5	96.6		
.375	95.5		
.25	93.6		
#4	93.3		
#10	90.8		
#16	89.3		
#30	87.8		
#40	87.0		
#50	86.1		
#100	83.6		
#200	79.6		
0.0284 mm.	72.2		
0.0185 mm.	66.0		
0.0111 mm.	56.9		
0.0081 mm.	50.4		
0.0059 mm.	42.4		
0.0030 mm.	28.0		
0.0013 mm.	14.5		

* (no specification provided)

Material Description

ID#19-298

Atterberg Limits (ASTM D 4318)

PL= 16 **LL=** 27 **PI=** 11

Classification

USCS (D 2487)= CL **AASHTO (M 145)=** A-6(7)

Coefficients

D_{90}= 1.5430 D_{85}= 0.2089 D_{60}= 0.0132
D_{50}= 0.0079 D_{30}= 0.0033 D_{15}= 0.0013
D_{10}= C_u= C_c=

Remarks

Date Received: 5/2/19 **Date Tested:** 6/17/19

Tested By: JJZ

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 6-9' **Date Sampled:**

Sample Number: SB09-19

3rd Rock, LLC

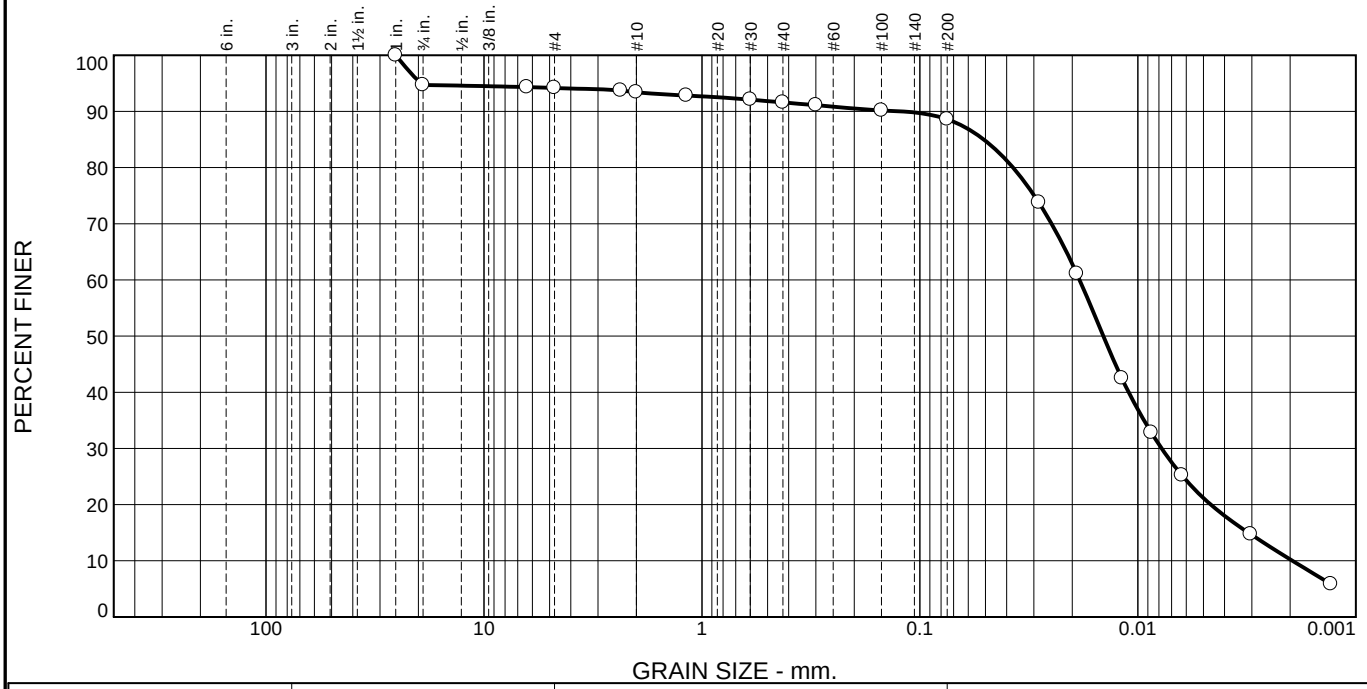
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.3	0.5	0.8	1.8	3.0	67.4	21.2

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
.75	94.7		
.25	94.3		
#4	94.2		
#8	93.7		
#10	93.4		
#16	92.8		
#30	92.1		
#40	91.6		
#50	91.1		
#100	90.2		
#200	88.6		
0.0285 mm.	73.8		
0.0191 mm.	61.1		
0.0119 mm.	42.5		
0.0087 mm.	32.8		
0.0063 mm.	25.2		
0.0030 mm.	14.7		
0.0013 mm.	5.8		

* (no specification provided)

Material Description

ID#19-299

Atterberg Limits (ASTM D 4318)

PL= 16 **LL=** 22 **PI=** 6

Classification

USCS (D 2487)= CL-ML **AASHTO (M 145)=** A-4(3)

Coefficients

D_{90}= 0.1218 D_{85}= 0.0509 D_{60}= 0.0185
D_{50}= 0.0144 D_{30}= 0.0078 D_{15}= 0.0031
D_{10}= 0.0020 C_u= 9.48 C_c= 1.67

Remarks

Date Received: 5/2/19 **Date Tested:** 6/14/19

Tested By: JJZ

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 42-44' **Date Sampled:**

Sample Number: SB09-19

3rd Rock, LLC

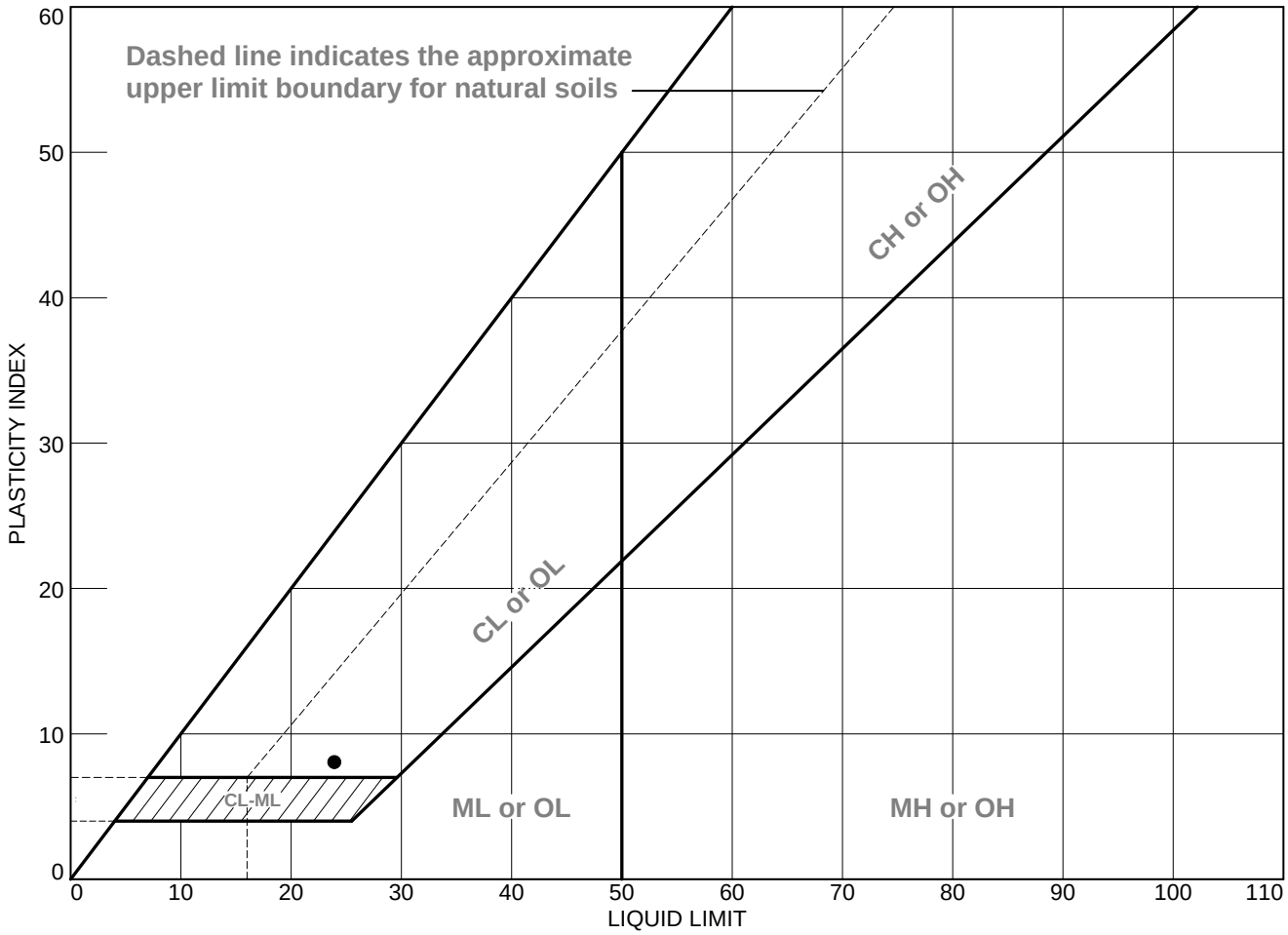
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	PZ05D-19	40-42'		16	24	8	CL

3rd Rock, LLC

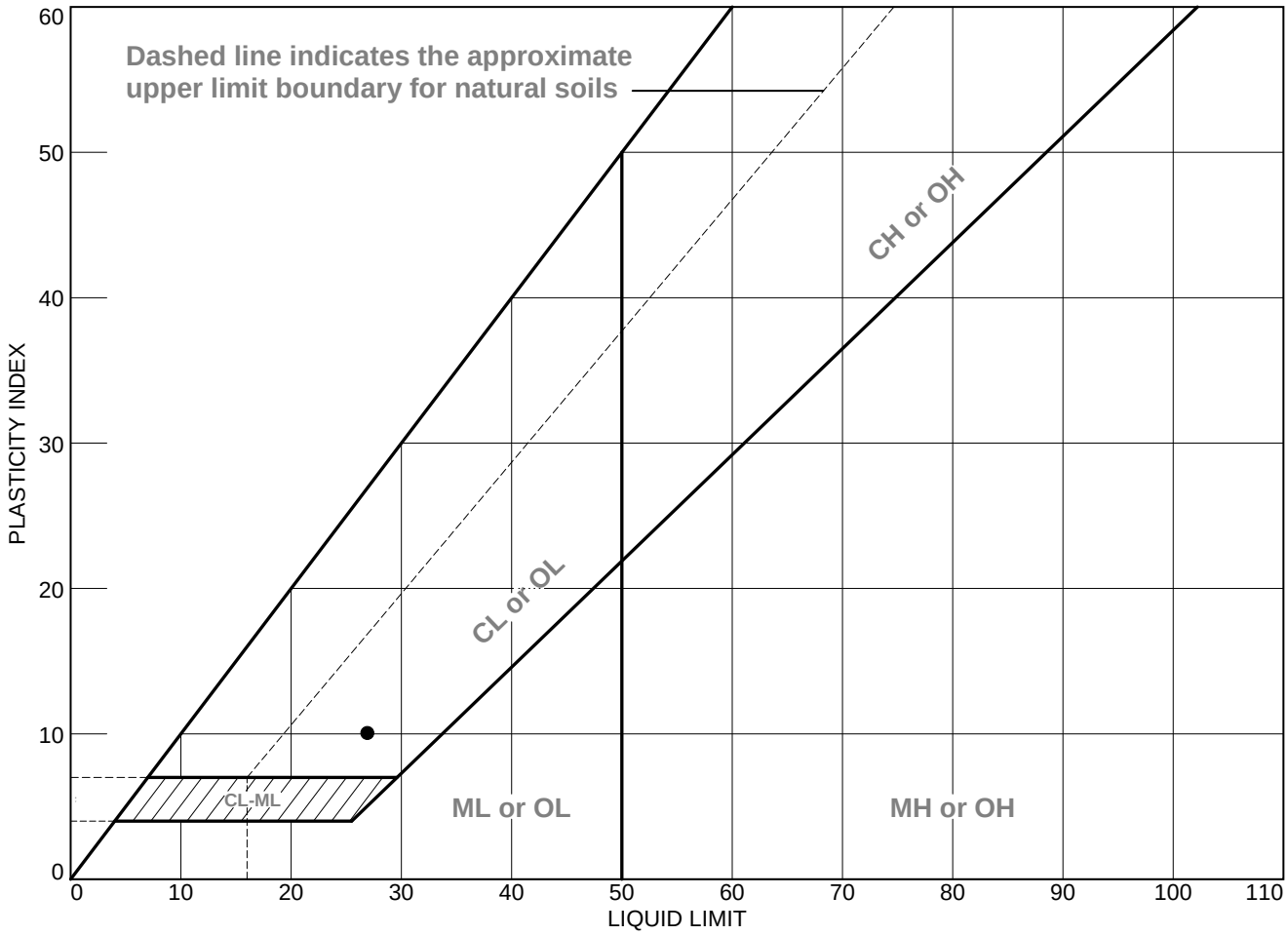
East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee

Project No.: 19-028 **Figure**

Tested By: JJZ 6/13/19 **Checked By:** JMA

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	SB03-19	38-40'		17	27	10	CL

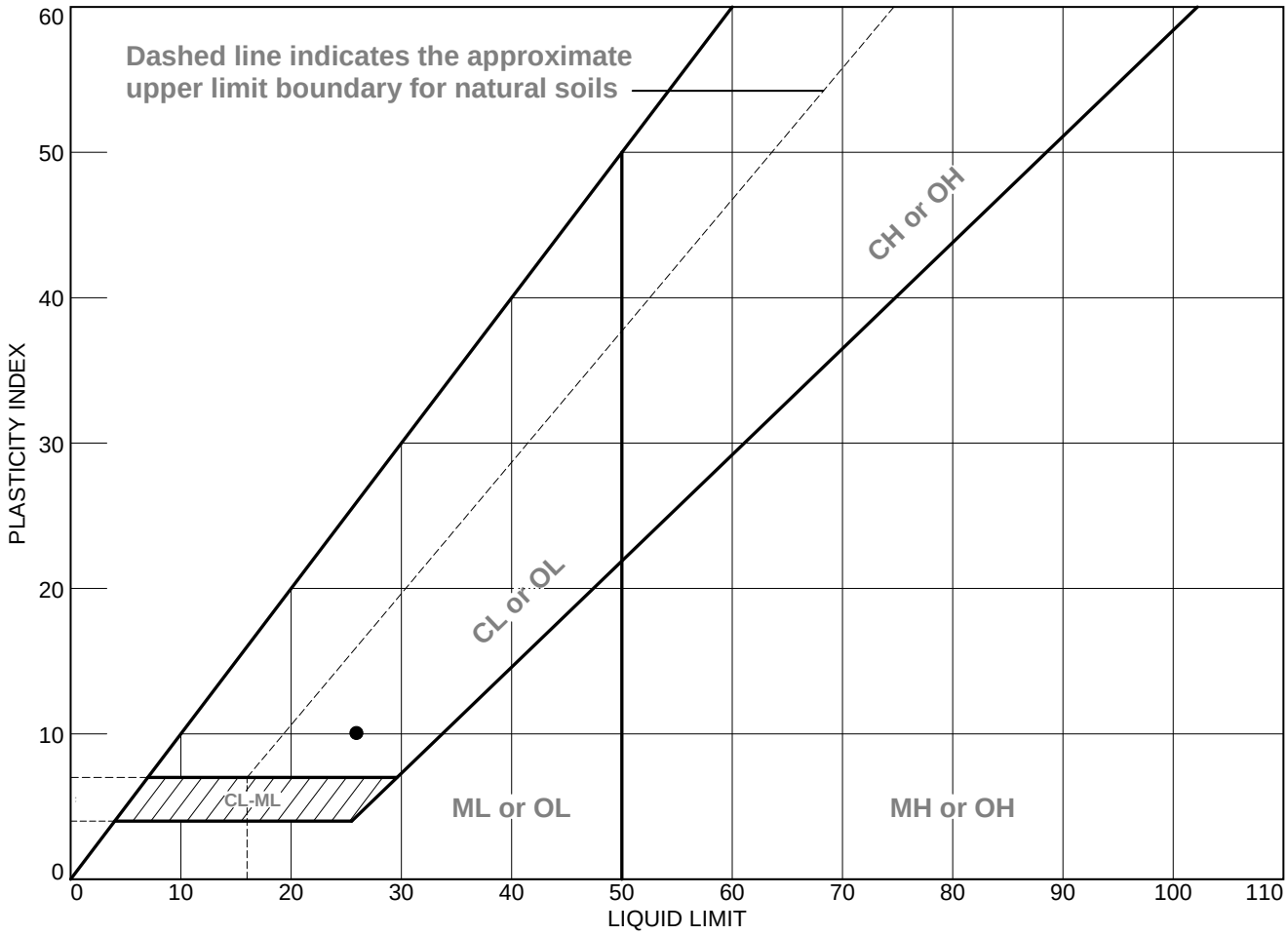
3rd Rock, LLC

East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee
Project No.: 19-028
Figure

Tested By: JJZ 6/17/19 **Checked By:** JMA

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	SB05-19	6-8'		16	26	10	CL

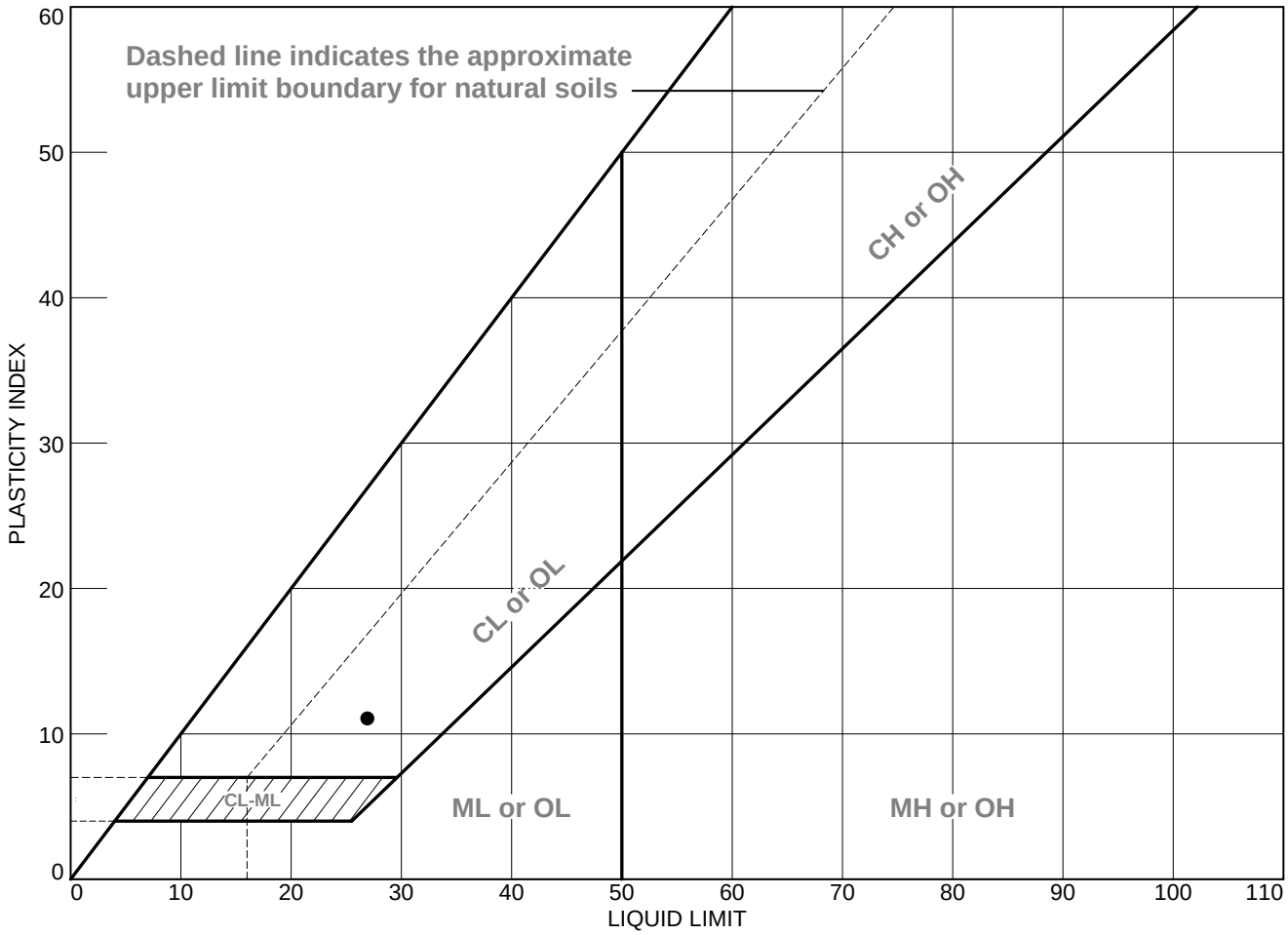
3rd Rock, LLC

East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee
Project No.: 19-028
Figure

Tested By: JJZ 6/13/19 **Checked By:** JMA

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	SB08-19	4-6'		16	27	11	CL

3rd Rock, LLC

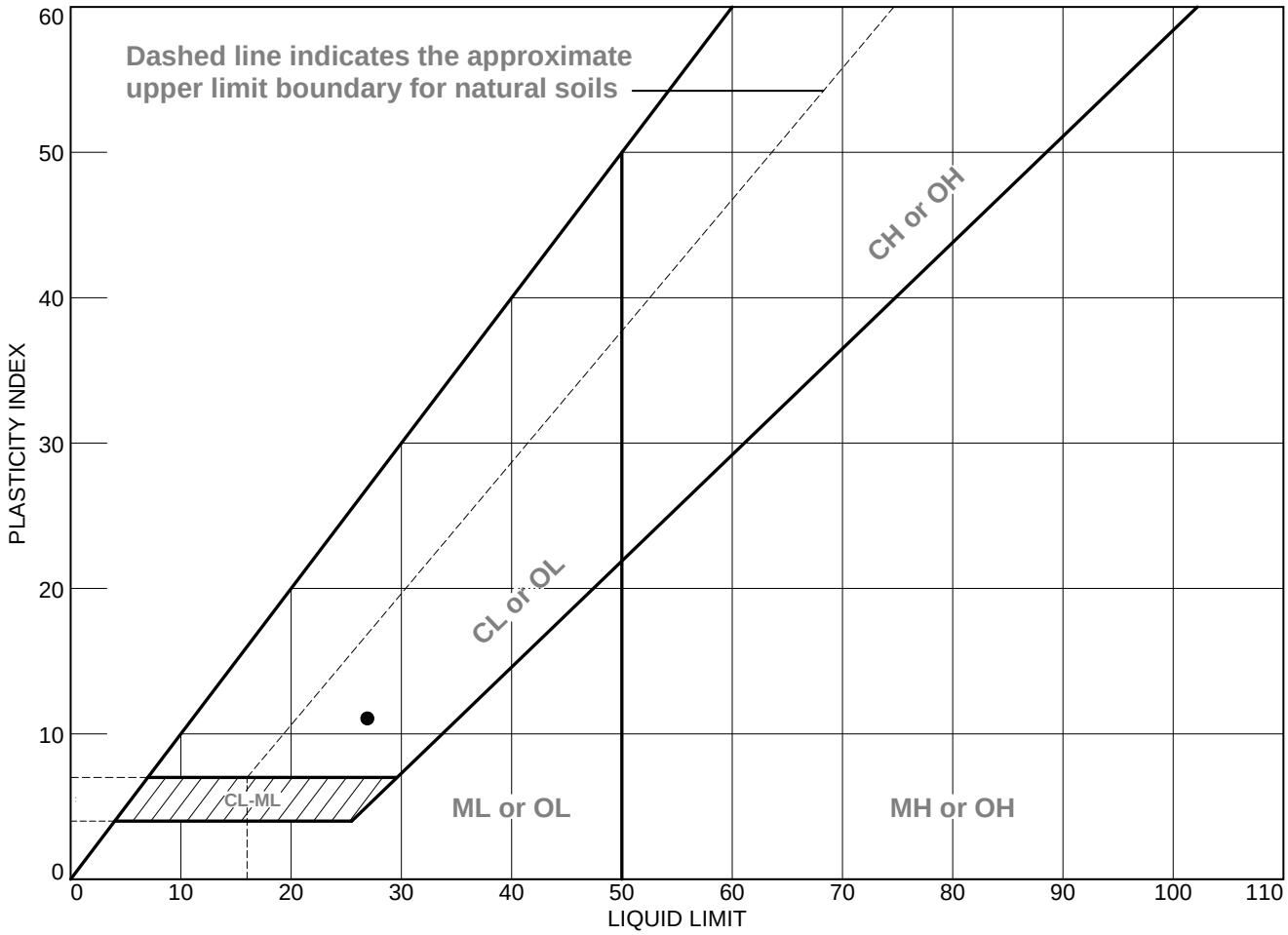
East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee

Project No.: 19-028 **Figure**

Tested By: JJZ 6/14/19 **Checked By:** JMA

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	SB09-19	6-9'		16	27	11	CL

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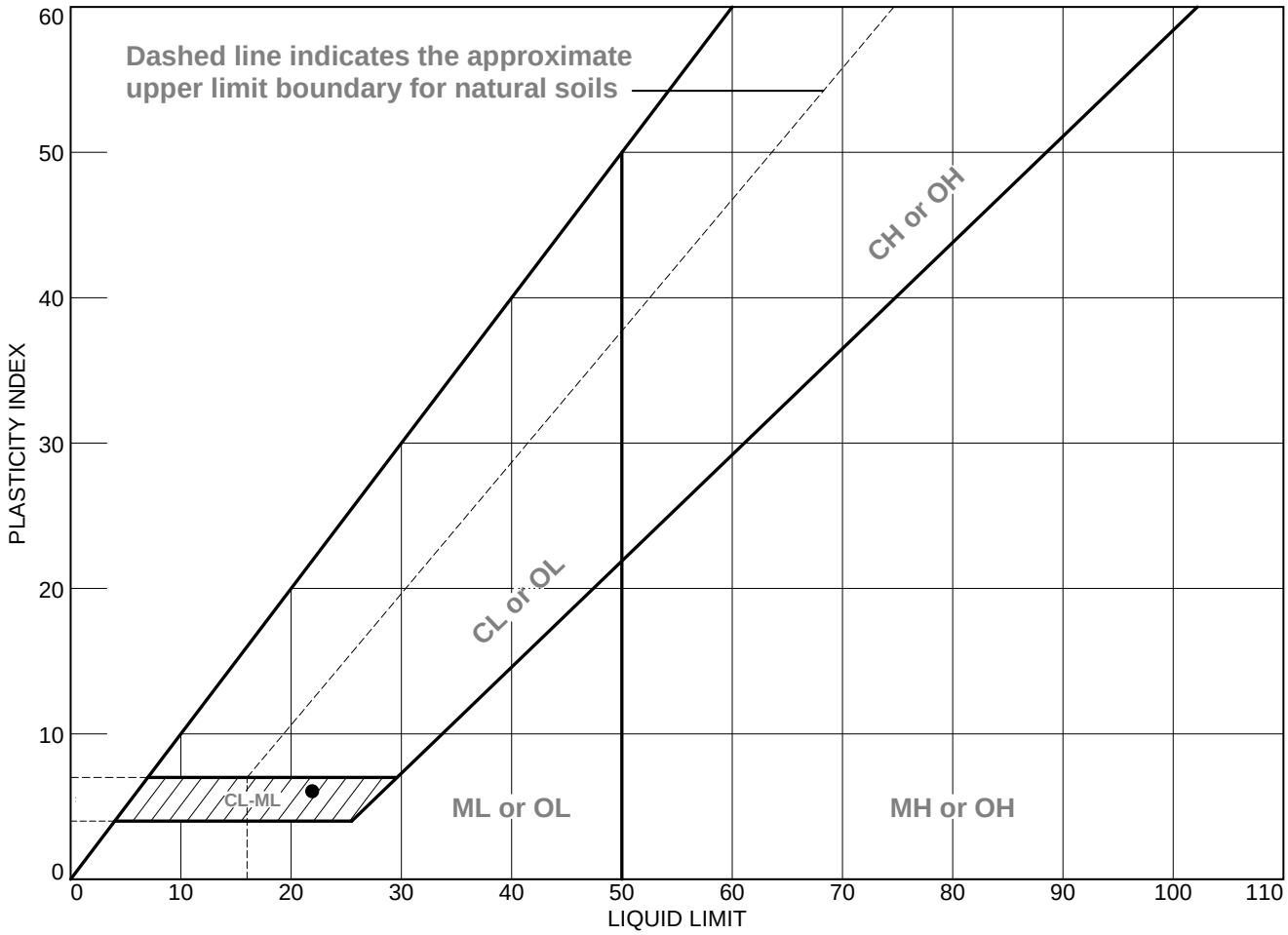
East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee
Project No.: 19-028 **Figure**

Tested By: JJZ 6/14/19 **Checked By:** JMA

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	SB09-19	42-44'		16	22	6	CL-ML

3rd Rock, LLC

East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee

Project No.: 19-028 **Figure**

Tested By: JJZ 6/17/19 **Checked By:** JMA

FINAL PERMEABILITY REPORT

Project Name:	GEI Chaffee Hydrogeologic Invest.	Date:	05/31/19
Project No.:	19-028	Tested By:	JJZ
Sample No.:	SB03-19, 5-7'	Check By:	JMA
Sample I.D.:	19-303	Date of Test:	05/13/19
Laboratory Method:	ASTM D5084, Method C, Shelby tube Sample	Date Test Complete:	05/18/19
Comments:	*None*	CELL NO.:	1

INITIAL SAMPLE DATA:

Height, in.:	2.497	Wet Density, pcf:	132.7
Diameter, in.:	2.790	Dry Density, pcf:	112.7
Moisture Content,%:	17.80	Target Density,pcf:	NA

FINAL SAMPLE DATA:

Height, in.:	2.507	Wet Density, pcf:	132.4
Diameter, in.:	2.796	Dry Density, pcf:	111.0
Moisture Content,%:	19.30		

SATURATION AND CONSOLIDATION DATA:

Consolidation Pressure: 85 psi

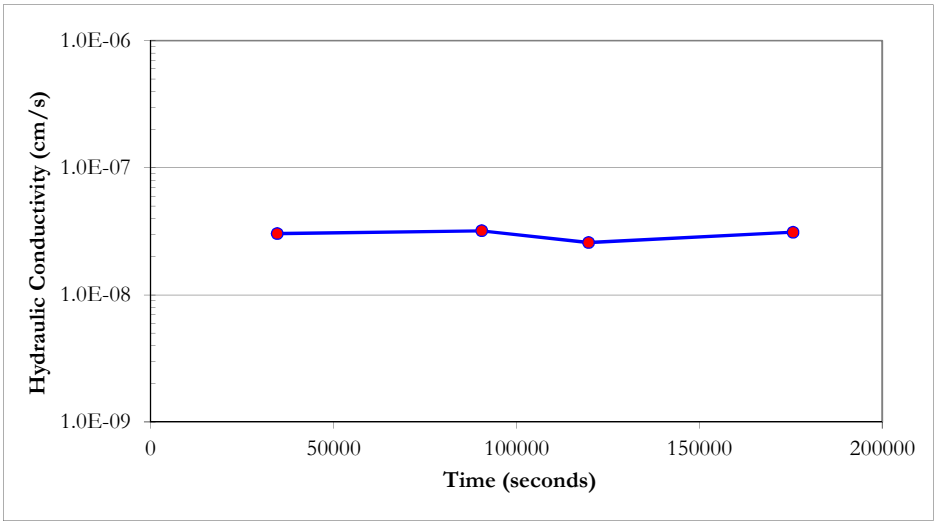
Backpressure: 80 psi

Saturation (B parameter): 98%

AVERAGE PERMEABILITY RESULT (average of last 4 readings, K, cm/s):

Trial #	Testing Pressures (psi)			Q (ml/sec)	Final K (cm/s)
	1	2	3		
1	85	80.3	79.8	6.64E-06	3.0E-08
2	85	80.3	79.8	6.98E-06	3.2E-08
3	85	80.3	79.8	5.64E-06	2.6E-08
4	85	80.3	79.8	6.80E-06	3.1E-08

Average K	3.0E-08
Average K , ft/day	8.4E-05



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FINAL PERMEABILITY REPORT

Project Name:	GEI Chaffee Hydrogeologic Invest.	Date:	05/31/19
Project No.:	19-028	Tested By:	JJZ
Sample No.:	SB05-19, 4-6'	Check By:	JMA
Sample I.D.:	19-360	Date of Test:	05/14/19
Laboratory Method:	ASTM D5084, Method C, Shelby tube Sample	Date Test Complete:	05/18/19
Comments:	*None*	CELL NO.:	5B

INITIAL SAMPLE DATA:

Height, in.:	2.374	Wet Density, pcf:	137.0
Diameter, in.:	2.883	Dry Density, pcf:	118.8
Moisture Content,%:	15.30	Target Density,pcf:	NA

FINAL SAMPLE DATA:

Height, in.:	2.417	Wet Density, pcf:	137.5
Diameter, in.:	2.864	Dry Density, pcf:	119.1
Moisture Content,%:	15.50		

SATURATION AND CONSOLIDATION DATA:

Consolidation Pressure: 85 psi

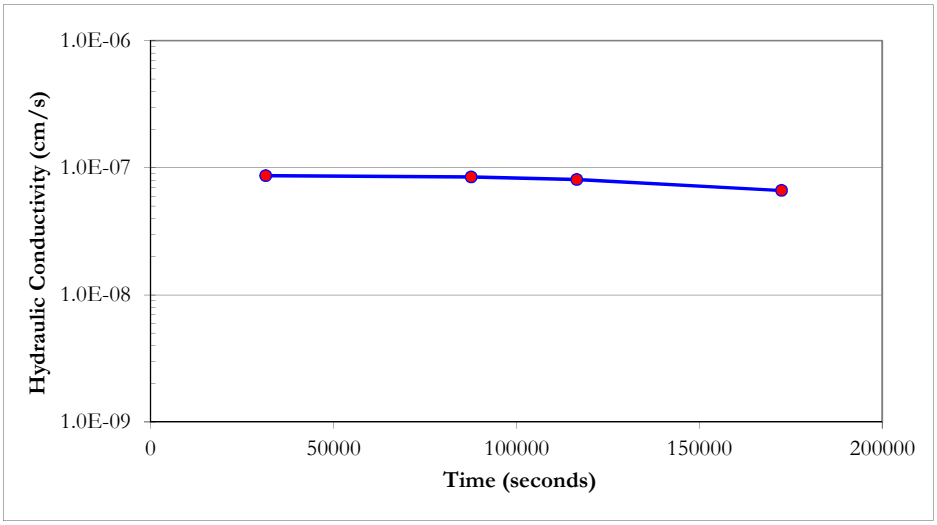
Backpressure: 80 psi

Saturation (B parameter): 98%

AVERAGE PERMEABILITY RESULT (average of last 4 readings, K, cm/s):

Trial #	Testing Pressures (psi)			Q (ml/sec)	Final K (cm/s)
	1	2	3		
1	85	80.3	79.9	1.65E-05	8.7E-08
2	85	80.3	79.9	1.61E-05	8.5E-08
3	85	80.3	79.9	1.54E-05	8.1E-08
4	85	80.3	79.9	1.26E-05	6.6E-08

Average K	8.0E-08
Average K , ft/day	2.3E-04



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FINAL PERMEABILITY REPORT

Project Name:	GEI Chaffee Hydrogeologic Invest.	Date:	05/31/19
Project No.:	19-028	Tested By:	JJZ
Sample No.:	SB08-19, 4-6'	Check By:	JMA
Sample I.D.:	19-304	Date of Test:	05/13/19
Laboratory Method:	ASTM D5084, Method C, Shelby tube Sample	Date Test Complete:	05/18/19
Comments:	*None*	CELL NO.:	2

INITIAL SAMPLE DATA:

Height, in.:	2.486	Wet Density, pcf:	139.9
Diameter, in.:	2.788	Dry Density, pcf:	120.6
Moisture Content,%:	16.00	Target Density,pcf:	NA

FINAL SAMPLE DATA:

Height, in.:	2.476	Wet Density, pcf:	140.2
Diameter, in.:	2.789	Dry Density, pcf:	123.0
Moisture Content,%:	14.00		

SATURATION AND CONSOLIDATION DATA:

Consolidation Pressure: 85 psi

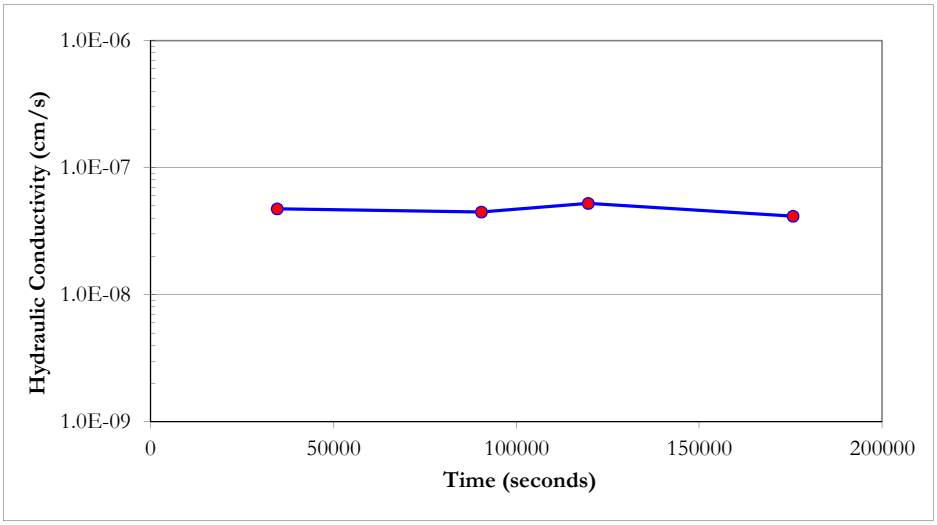
Backpressure: 80 psi

Saturation (B parameter): 95%

AVERAGE PERMEABILITY RESULT (average of last 4 readings, K, cm/s):

Trial #	Testing Pressures (psi)			Q (ml/sec)	Final K (cm/s)
	1	2	3		
1	85	80.1	79.9	4.19E-06	4.8E-08
2	85	80.1	79.9	3.94E-06	4.5E-08
3	85	80.1	79.9	4.62E-06	5.2E-08
4	85	80.1	79.9	3.66E-06	4.2E-08

Average K	4.7E-08
Average K , ft/day	1.3E-04



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FINAL PERMEABILITY REPORT

Project Name:	GEI Chaffee Hydrogeologic Invest.	Date:	05/31/19
Project No.:	19-028	Tested By:	JJZ
Sample No.:	SB09-19, 4-6'	Check By:	JMA
Sample I.D.:	19-305	Date of Test:	05/13/19
Laboratory Method:	ASTM D5084, Method C, Shelby tube Sample	Date Test Complete:	05/19/19
Comments:	*None*	CELL NO.:	5A

INITIAL SAMPLE DATA:

Height, in.:	2.350	Wet Density, pcf:	134.1
Diameter, in.:	2.819	Dry Density, pcf:	113.5
Moisture Content,%:	18.10	Target Density,pcf:	NA

FINAL SAMPLE DATA:

Height, in.:	2.329	Wet Density, pcf:	136.0
Diameter, in.:	2.813	Dry Density, pcf:	115.8
Moisture Content,%:	17.40		

SATURATION AND CONSOLIDATION DATA:

Consolidation Pressure: 85 psi

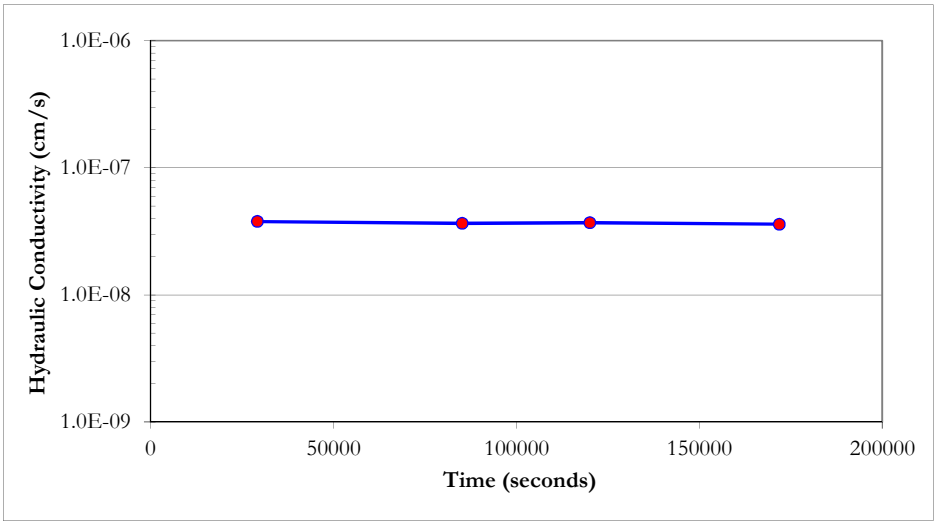
Backpressure: 80 psi

Saturation (B parameter): 98%

AVERAGE PERMEABILITY RESULT (average of last 4 readings, K, cm/s):

Trial #	Testing Pressures (psi)			Q (ml/sec)	Final K (cm/s)
	1	2	3		
1	85	80.2	79.8	7.19E-06	3.8E-08
2	85	80.2	79.8	6.97E-06	3.7E-08
3	85	80.2	79.8	7.03E-06	3.7E-08
4	85	80.2	79.8	6.85E-06	3.6E-08

Average K	3.7E-08
Average K , ft/day	1.0E-04



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FINAL PERMEABILITY REPORT

Project Name:	GEI, WMNY Chaffee LF Hydrogeo.	Date:	08/29/19
Project No.:	19-028	Tested By:	EBS
Sample No.:	TP03-19, 3.5-5'	Check By:	JMA
Sample I.D.:	19-623	Date of Test:	08/22/19
Laboratory Method:	ASTM D5084, Method C, Reconstituted	Date Test Complete:	08/27/19
Remarks:	*None*	CELL NO.:	5B

INITIAL SAMPLE DATA:

Height, in.:	2.998	Wet Density, pcf:	118.4
Diameter, in.:	2.803	Dry Density, pcf:	108.6
Moisture Content,%:	9.00	Compaction, %:	NA

FINAL SAMPLE DATA:

Height, in.:	2.694	Wet Density, pcf:	140.2
Diameter, in.:	2.814	Dry Density, pcf:	119.9
Moisture Content,%:	16.90		

SATURATION AND CONSOLIDATION DATA:

Consolidation Pressure: 86 psi

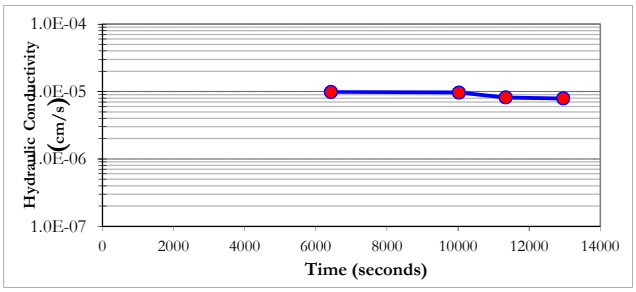
Backpressure: 80 psi

Saturation (B parameter): 100%

AVERAGE PERMEABILITY RESULT (average of last 4 readings, K, cm/s):

Trial #	Testing Pressures (psi)			Q (ml/sec)	Final K (cm/s)
	1	2	3		
1	86.7	80	80	9.12E-04	9.8E-06
2	86.7	80	80	4.56E-04	9.7E-06
3	86.7	80	80	2.80E-04	8.2E-06
4	86.7	80	80	2.31E-04	7.9E-06

Average K	8.9E-06
Average K , ft/day	2.5E-02



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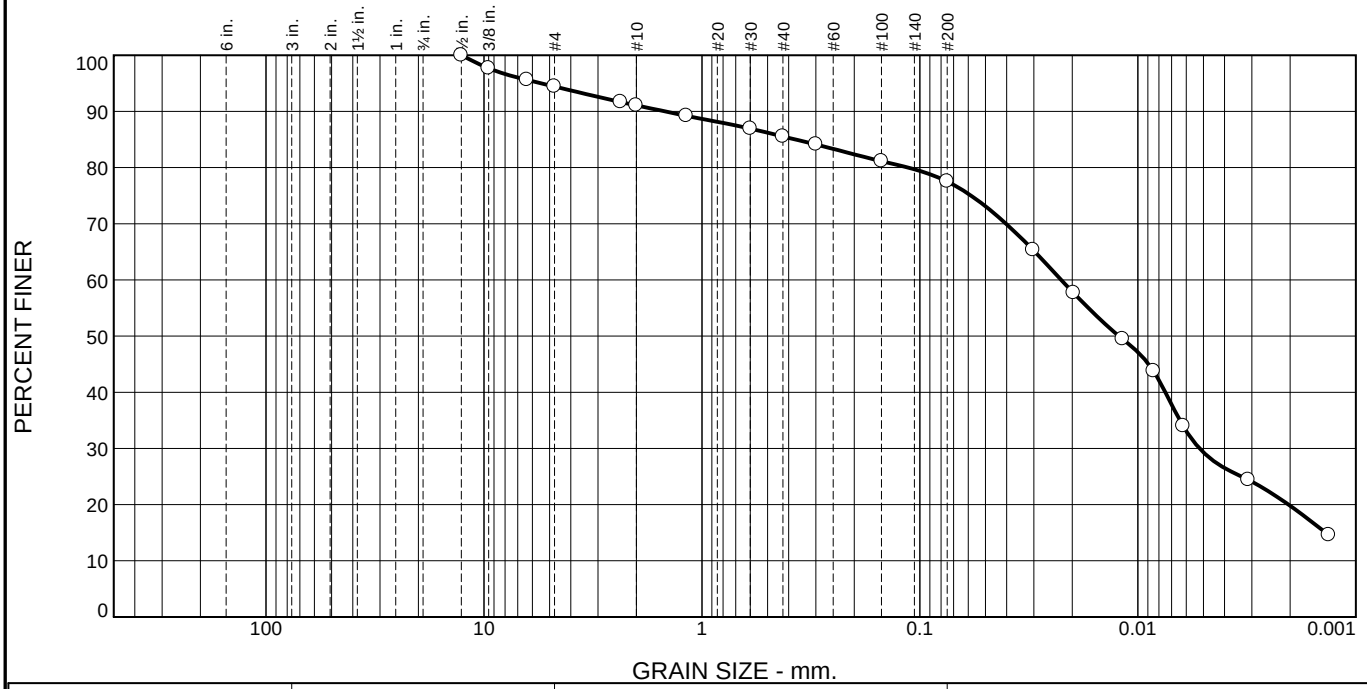
Deeper Borings Geotechnical Laboratory Reports (October 2019)

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.6	3.3	5.6	8.0	48.2	29.3

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.5"	100.0		
.375	97.7		
.25	95.6		
#4	94.4		
#8	91.7		
#10	91.1		
#16	89.2		
#30	86.9		
#40	85.5		
#50	84.1		
#100	81.1		
#200	77.5		
0.0303 mm.	65.3		
0.0197 mm.	57.7		
0.0117 mm.	49.5		
0.0085 mm.	43.8		
0.0062 mm.	34.0		
0.0031 mm.	24.4		
0.0013 mm.	14.6		

* (no specification provided)

Material Description

LAB ID# 19-791

Atterberg Limits (ASTM D 4318)

PL= 17 **LL=** 25 **PI=** 8

Classification

USCS (D 2487)= CL **AASHTO (M 145)=** A-4(4)

Coefficients

D_{90}= 1.4772 D_{85}= 0.3720 D_{60}= 0.0225
D_{50}= 0.0122 D_{30}= 0.0052 D_{15}= 0.0014
D_{10}= C_u= C_c=

Remarks

F.M.=0.75

Date Received: 10/15/19 **Date Tested:** 10/18/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 36-38' **Date Sampled:**

Sample Number: SBPZ01D-19

3rd Rock, LLC

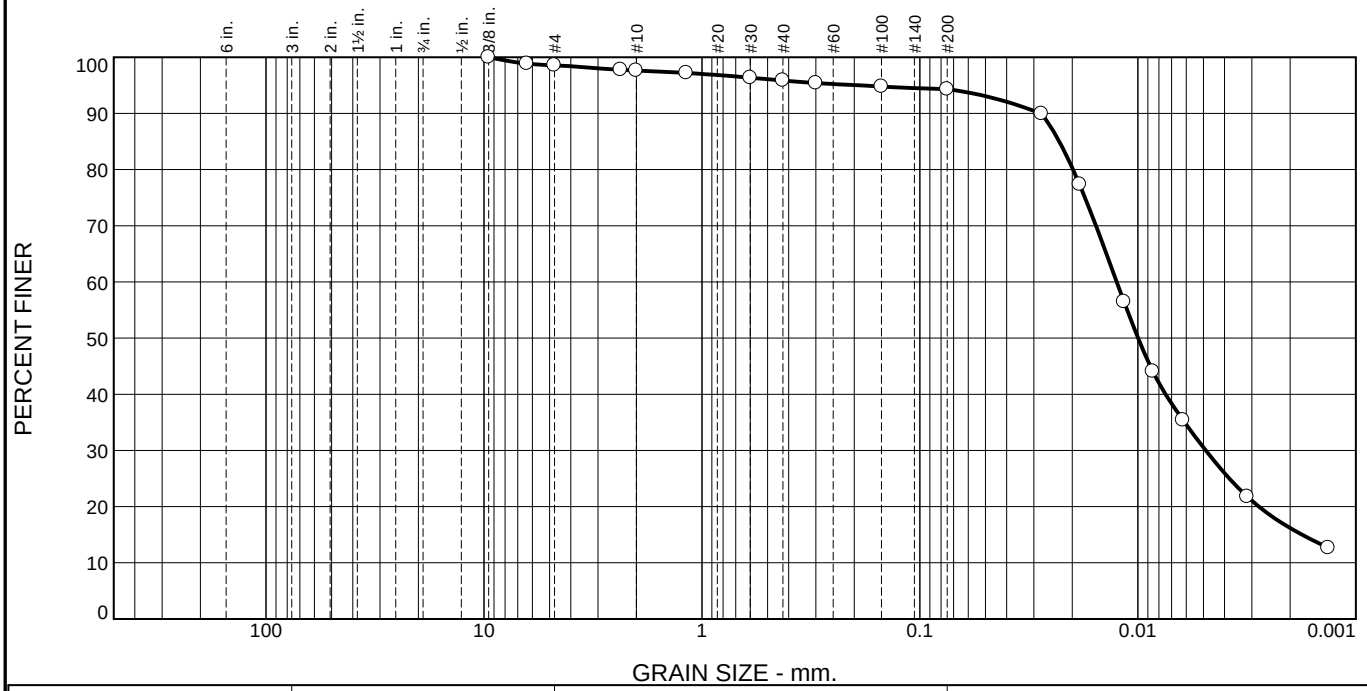
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	1.0	1.8	1.5	63.8	30.5

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375"	100.0		
.25	98.9		
#4	98.6		
#8	97.8		
#10	97.6		
#16	97.2		
#30	96.4		
#40	95.8		
#50	95.4		
#100	94.8		
#200	94.3		
0.0277 mm.	89.9		
0.0185 mm.	77.3		
0.0116 mm.	56.5		
0.0085 mm.	44.1		
0.0062 mm.	35.4		
0.0031 mm.	21.8		
0.0013 mm.	12.7		

* (no specification provided)

Material Description

LAB ID# 19-793

Atterberg Limits (ASTM D 4318)

PL= 19 **LL=** 26 **PI=** 7

Classification

USCS (D 2487)= CL-ML **AASHTO (M 145)=** A-4(5)

Coefficients

D_{90}= 0.0279 D_{85}= 0.0229 D_{60}= 0.0125
D_{50}= 0.0100 D_{30}= 0.0049 D_{15}= 0.0018
D_{10}= C_u= C_c=

Remarks

F.M.=0.20

Date Received: 10/15/19 **Date Tested:** 10/18/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 56-58' **Date Sampled:**

Sample Number: SBPZ01D-19

3rd Rock, LLC

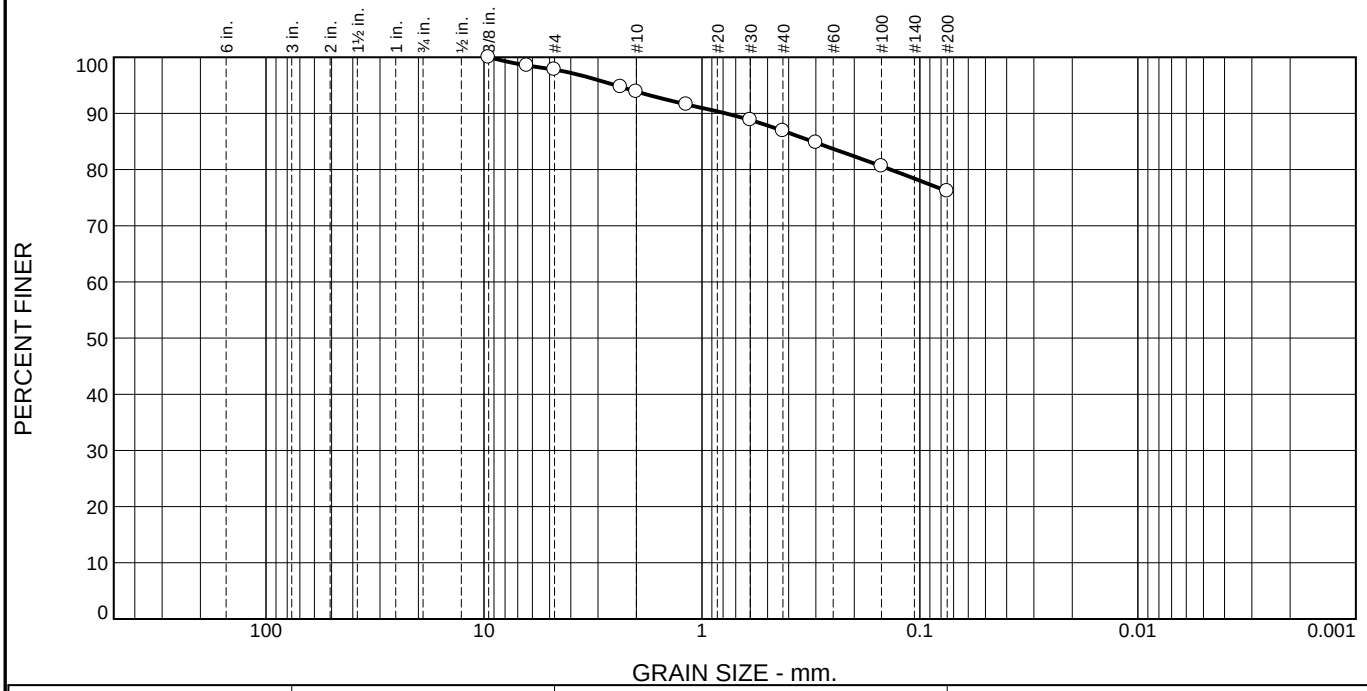
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.2	3.9	7.0	10.7	76.2	

TEST RESULTS (ASTM D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375"	100.0		
.25	98.5		
#4	97.8		
#8	94.7		
#10	93.9		
#16	91.6		
#30	88.8		
#40	86.9		
#50	84.8		
#100	80.6		
#200	76.2		

* (no specification provided)

Material Description

LAB ID# 19-802

Atterberg Limits (ASTM D 4318)

PL= 17 **LL=** 25 **PI=** 8

Classification

USCS (D 2487)= CL **AASHTO (M 145)=** A-4(4)

Coefficients

D_{90}= 0.7779 D_{85}= 0.3105 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

F.M.=0.62

Date Received: 10/15/19 **Date Tested:** 10/18/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 36-44' **Date Sampled:**

Sample Number: PZSB11-19

3rd Rock, LLC

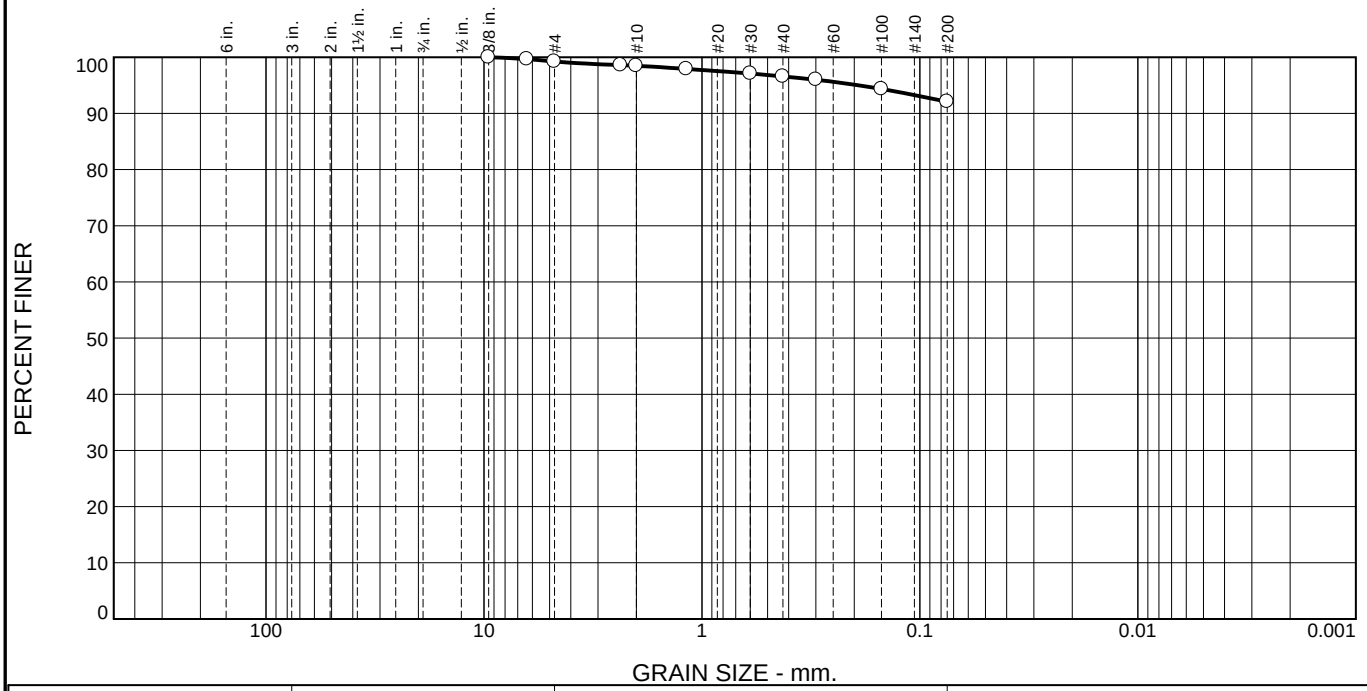
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	0.7	1.9	4.5	92.1	

TEST RESULTS (ASTM D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375"	100.0		
.25	99.7		
#4	99.2		
#8	98.6		
#10	98.5		
#16	97.9		
#30	97.1		
#40	96.6		
#50	96.0		
#100	94.3		
#200	92.1		

* (no specification provided)

Material Description

LAB ID# 19-797

Atterberg Limits (ASTM D 4318)

PL= 19 **LL=** 31 **PI=** 12

Classification

USCS (D 2487)= CL **AASHTO (M 145)=** A-6(10)

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

F.M.=0.17

Date Received: 10/15/19 **Date Tested:** 10/18/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 28-37.5' **Date Sampled:**

Sample Number: SB12-19

3rd Rock, LLC

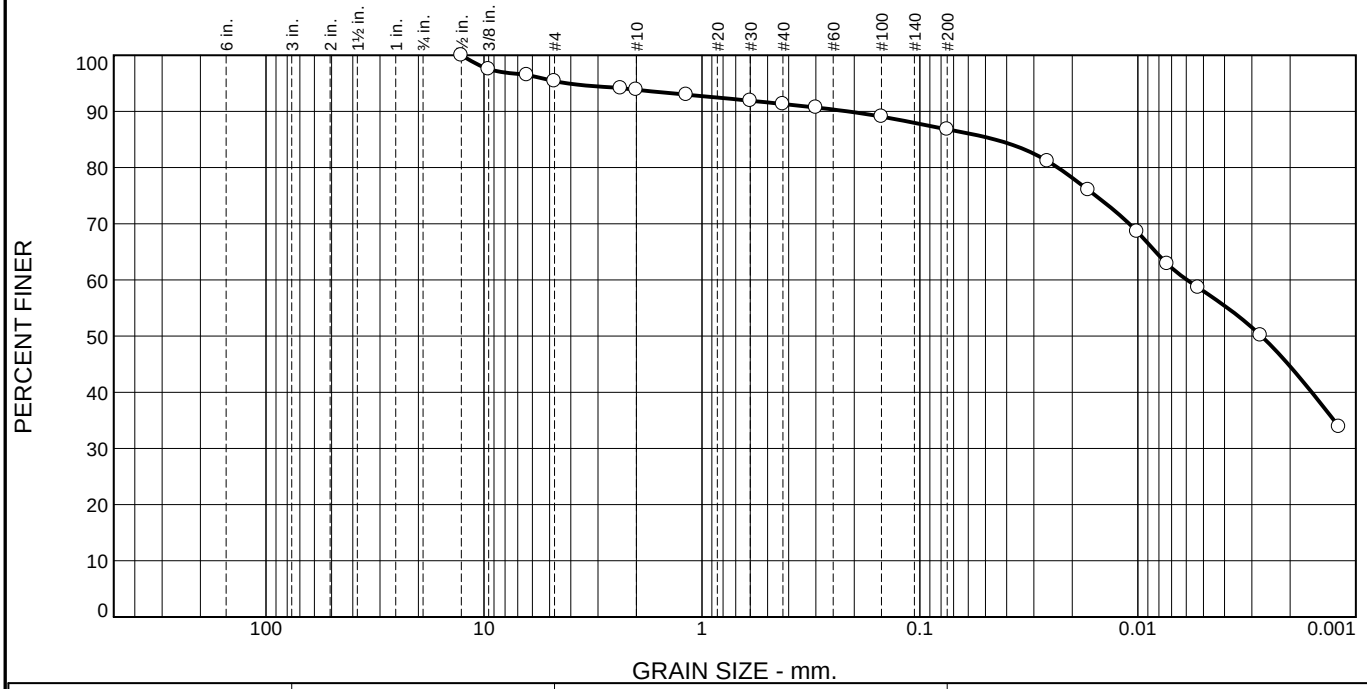
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.6	1.5	2.6	4.5	28.8	58.0

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.5"	100.0		
.375	97.5		
.25	96.5		
#4	95.4		
#8	94.1		
#10	93.9		
#16	93.0		
#30	91.9		
#40	91.3		
#50	90.7		
#100	89.1		
#200	86.8		
0.0260 mm.	81.2		
0.0169 mm.	76.0		
0.0101 mm.	68.6		
0.0073 mm.	62.9		
0.0053 mm.	58.6		
0.0027 mm.	50.2		
0.0012 mm.	33.9		

* (no specification provided)

Material Description

LAB ID# 19-803

Atterberg Limits (ASTM D 4318)

PL= 20 **LL=** 31 **PI=** 11

Classification

USCS (D 2487)= CL **AASHTO (M 145)=** A-6(9)

Coefficients

D_{90}= 0.2144 D_{85}= 0.0452 D_{60}= 0.0059
D_{50}= 0.0027 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

F.M.=0.48

Date Received: 10/17/19 **Date Tested:** 10/23/19

Tested By: JJZ

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 34-43.5' **Date Sampled:**

Sample Number: PZBA2D-19

3rd Rock, LLC

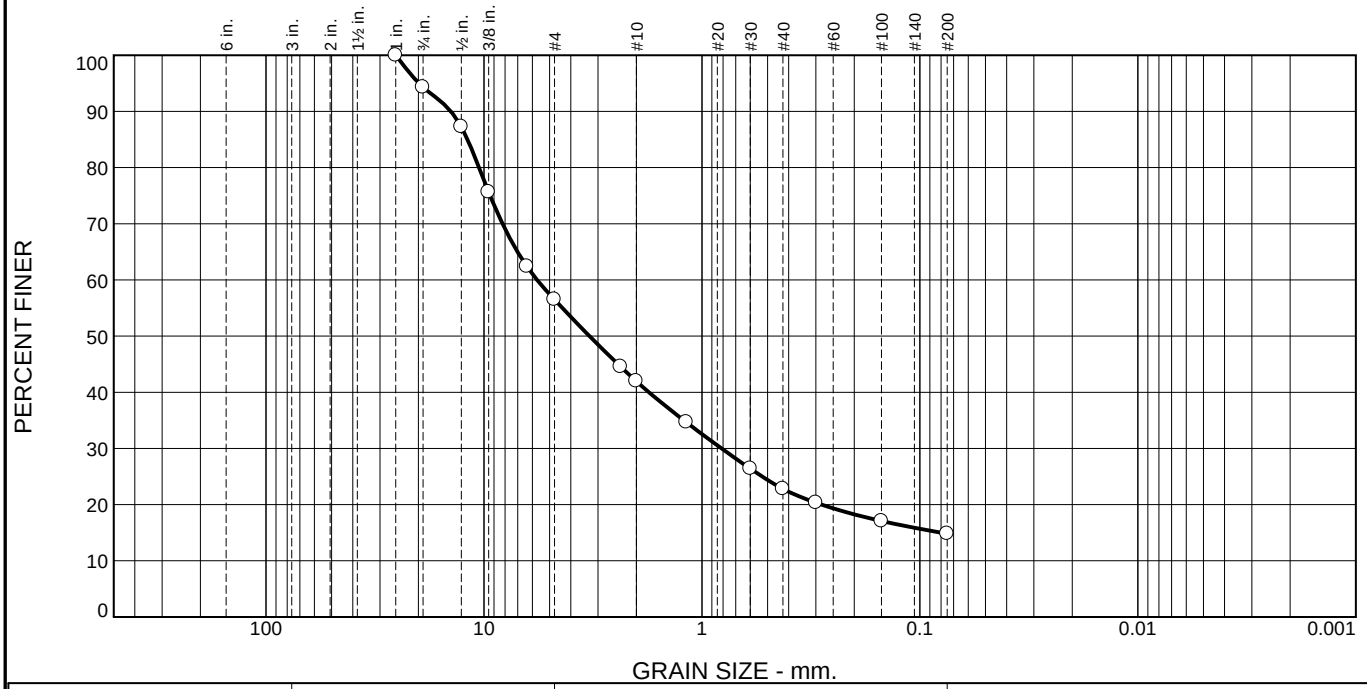
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.7	37.8	14.5	19.2	8.0	14.8	

TEST RESULTS (ASTM D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
.75	94.3		
.5	87.3		
.375	75.6		
.25	62.4		
#4	56.5		
#8	44.6		
#10	42.0		
#16	34.7		
#30	26.4		
#40	22.8		
#50	20.3		
#100	17.1		
#200	14.8		

* (no specification provided)

Material Description

LAB ID# 19-806

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 14.1693 D_{85}= 11.8921 D_{60}= 5.7046
D_{50}= 3.2796 D_{30}= 0.8133 D_{15}= 0.0797
D_{10}= C_u= C_c=

Remarks

Used entire sample provided for testing.
F.M.=4.30

Date Received: 10/17/19 **Date Tested:** 10/23/19

Tested By: JJZ

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 44-48' **Date Sampled:**

Sample Number: PZBA2D-19

3rd Rock, LLC

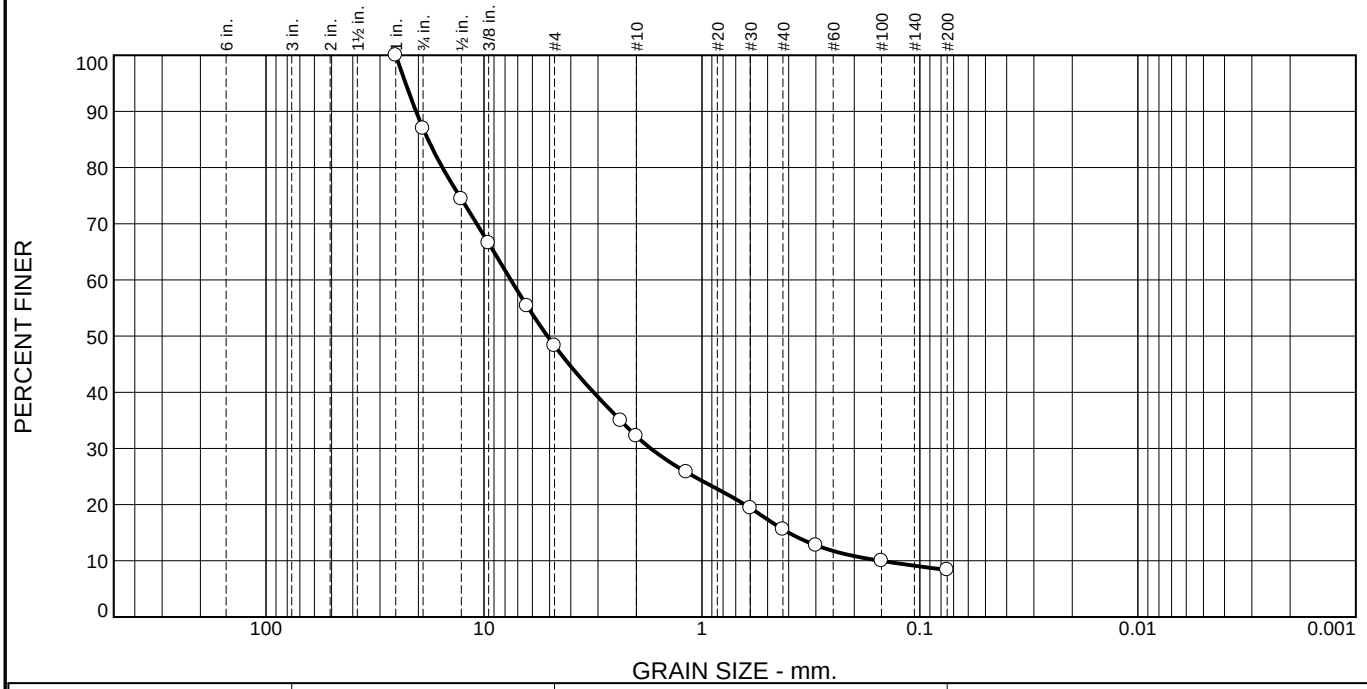
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	13.0	38.7	16.1	16.6	7.2	8.4	

TEST RESULTS (ASTM D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
.75	87.0		
.5	74.4		
.375	66.6		
.25	55.4		
#4	48.3		
#8	35.0		
#10	32.2		
#16	25.8		
#30	19.4		
#40	15.6		
#50	12.8		
#100	10.0		
#200	8.4		

* (no specification provided)

Material Description

LAB ID# 19-805

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 20.4985 D_{85}= 18.0825 D_{60}= 7.5301
D_{50}= 5.1152 D_{30}= 1.7191 D_{15}= 0.4002
D_{10}= 0.1515 C_u= 49.70 C_c= 2.59

Remarks

Used entire sample for testing.
F.M.=4.95

Date Received: 10/17/19 **Date Tested:** 10/23/19

Tested By: JJZ

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 52-58' **Date Sampled:**

Sample Number: PZBA2D-19

3rd Rock, LLC

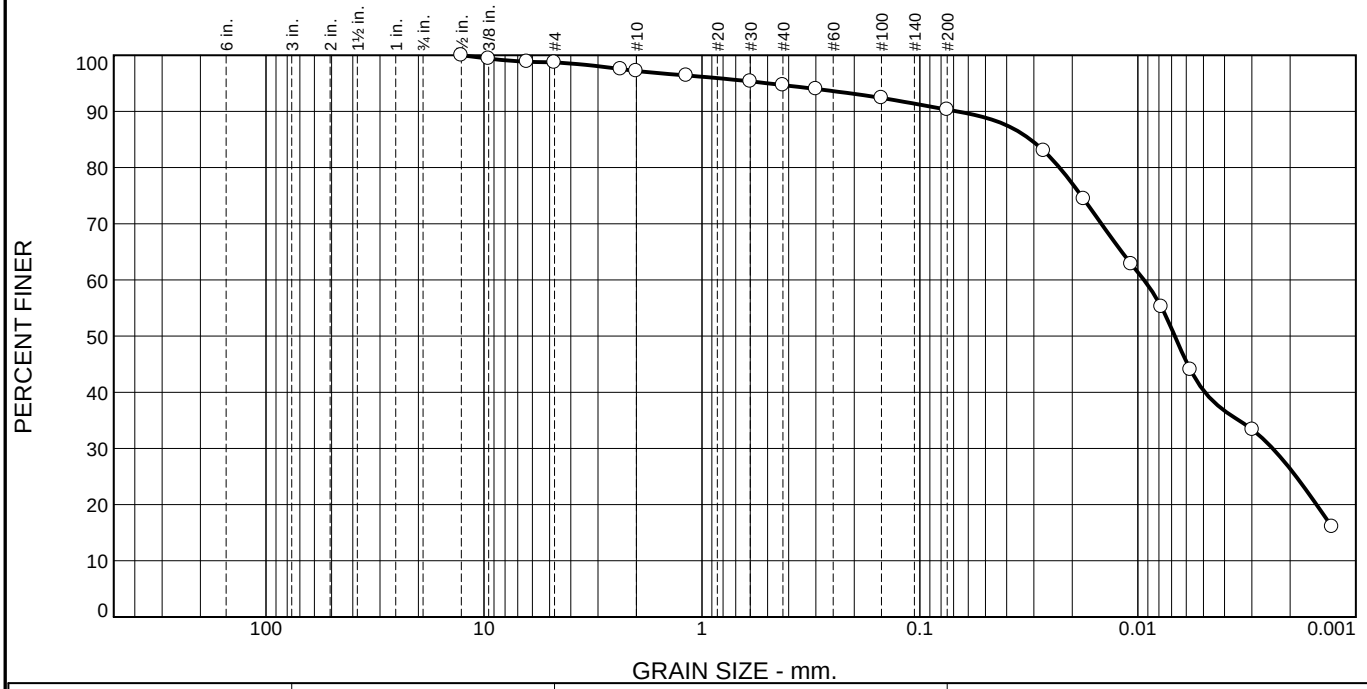
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.3	1.5	2.5	4.4	50.0	40.3

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.5"	100.0		
.375	99.4		
.25	98.9		
#4	98.7		
#8	97.5		
#10	97.2		
#16	96.4		
#30	95.3		
#40	94.7		
#50	94.0		
#100	92.4		
#200	90.3		
0.0270 mm.	83.0		
0.0177 mm.	74.4		
0.0107 mm.	62.8		
0.0078 mm.	55.2		
0.0057 mm.	44.0		
0.0030 mm.	33.3		
0.0013 mm.	16.0		

* (no specification provided)

Material Description

LAB ID# 19-799

Atterberg Limits (ASTM D 4318)

PL= 18 **LL=** 25 **PI=** 7

Classification

USCS (D 2487)= CL-ML **AASHTO (M 145)=** A-4(5)

Coefficients

D_{90}= 0.0675 D_{85}= 0.0311 D_{60}= 0.0094
D_{50}= 0.0068 D_{30}= 0.0024 D_{15}=
D_{10}= C_u= C_c=

Remarks

F.M.=0.26

Date Received: 10/15/19 **Date Tested:** 10/18/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 41.7-46' **Date Sampled:**

Sample Number: PZMWSE3D-19

3rd Rock, LLC

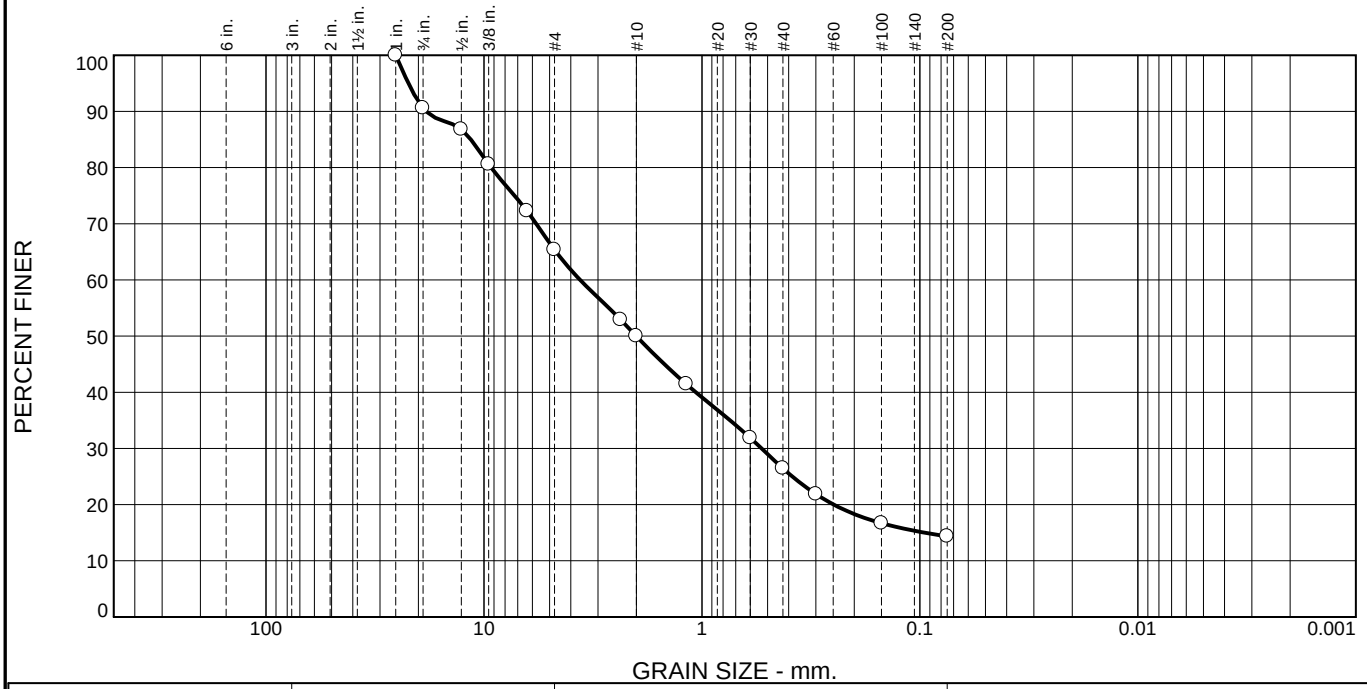
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.4	25.2	15.4	23.6	12.1	14.3	

TEST RESULTS (ASTM D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
.75	90.6		
.5	86.8		
.375	80.6		
.25	72.3		
#4	65.4		
#8	52.9		
#10	50.0		
#16	41.5		
#30	31.9		
#40	26.4		
#50	21.9		
#100	16.7		
#200	14.3		

* (no specification provided)

Material Description

LAB ID# 19-800

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 18.4116 D_{85}= 11.4900 D_{60}= 3.6204
D_{50}= 2.0012 D_{30}= 0.5328 D_{15}= 0.0948
D_{10}= C_u= C_c=

Remarks

Used entire sample provided.
F.M.=3.99

Date Received: 10/15/19 **Date Tested:** 10/18/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 49-53' **Date Sampled:**

Sample Number: PZMWSE3D-19

3rd Rock, LLC

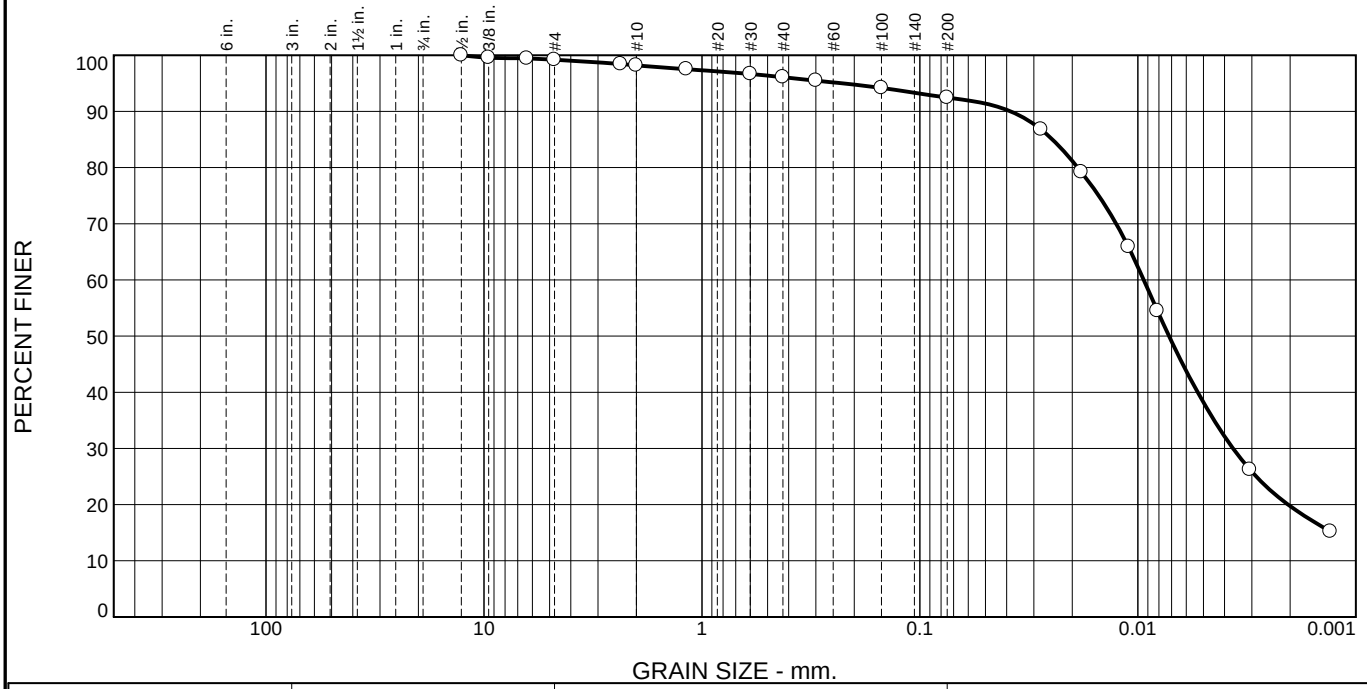
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.8	1.0	2.1	3.6	54.3	38.2

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.5"	100.0		
.375	99.6		
.25	99.4		
#4	99.2		
#8	98.4		
#10	98.2		
#16	97.5		
#30	96.7		
#40	96.1		
#50	95.5		
#100	94.2		
#200	92.5		
0.0278 mm.	86.8		
0.0182 mm.	79.2		
0.0110 mm.	65.9		
0.0081 mm.	54.5		
0.0031 mm.	26.2		
0.0013 mm.	15.2		

* (no specification provided)

Material Description

LAB ID# 19-801

Atterberg Limits (ASTM D 4318)

PL= 18 **LL=** 25 **PI=** 7

Classification

USCS (D 2487)= CL-ML **AASHTO (M 145)=** A-4(5)

Coefficients

D_{90}= 0.0383 D_{85}= 0.0247 D_{60}= 0.0094
D_{50}= 0.0072 D_{30}= 0.0037 D_{15}=
D_{10}= C_u= C_c=

Remarks

F.M.=0.19

Date Received: 10/15/19 **Date Tested:** 10/18/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 58-60' **Date Sampled:**

Sample Number: PZMWSE3D-19

3rd Rock, LLC

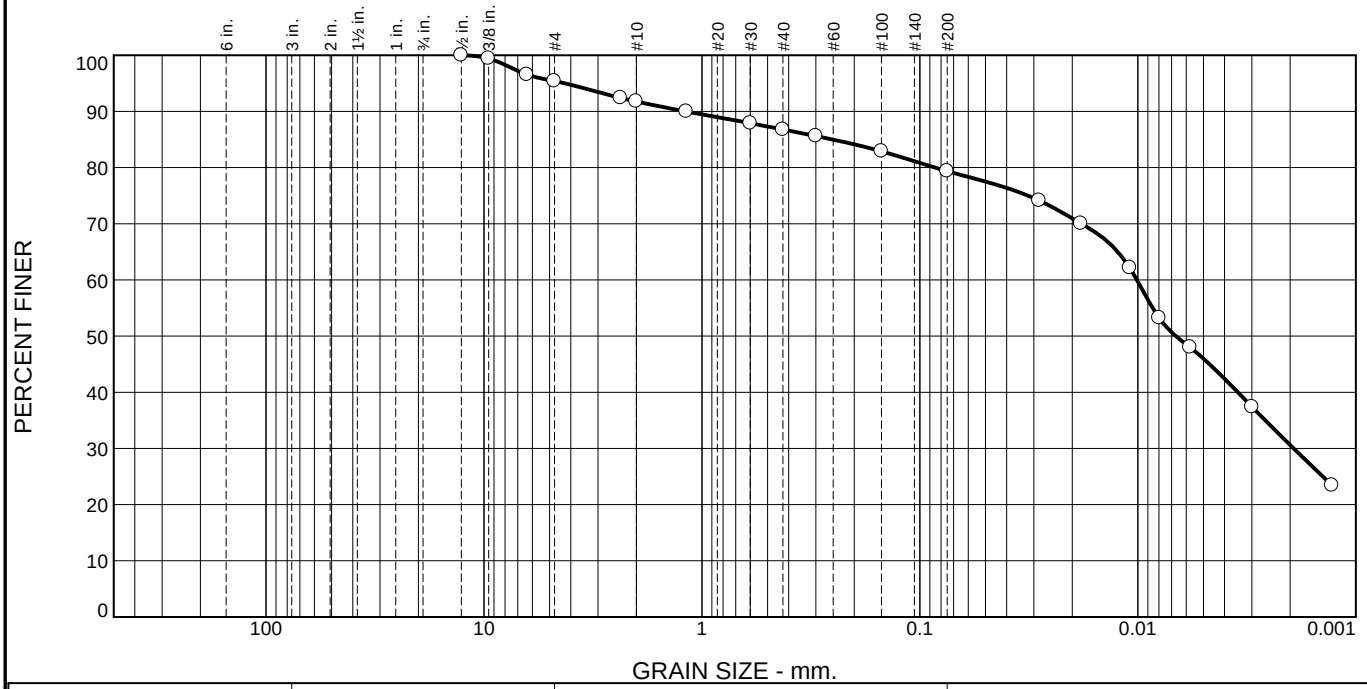
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.6	3.6	5.0	7.4	33.4	46.0

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.5"	100.0		
.375	99.4		
.25	96.6		
#4	95.4		
#8	92.4		
#10	91.8		
#16	90.0		
#30	87.9		
#40	86.8		
#50	85.6		
#100	82.9		
#200	79.4		
0.0283 mm.	74.1		
0.0182 mm.	70.1		
0.0109 mm.	62.1		
0.0080 mm.	53.2		
0.0058 mm.	48.0		
0.0030 mm.	37.4		
0.0013 mm.	23.4		

* (no specification provided)

Material Description

LAB ID# 19-795

Atterberg Limits (ASTM D 4318)

PL= 18 **LL=** 27 **PI=** 9

Classification

USCS (D 2487)= CL **AASHTO (M 145)=** A-4(5)

Coefficients

D_{90}= 1.1879 D_{85}= 0.2517 D_{60}= 0.0101
D_{50}= 0.0067 D_{30}= 0.0019 D_{15}=
D_{10}= C_u= C_c=

Remarks

F.M.=0.66

Date Received: 10/15/19 **Date Tested:** 10/18/19

Tested By: EBS

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 36.5-42' **Date Sampled:**

Sample Number: PZ04D-19

3rd Rock, LLC

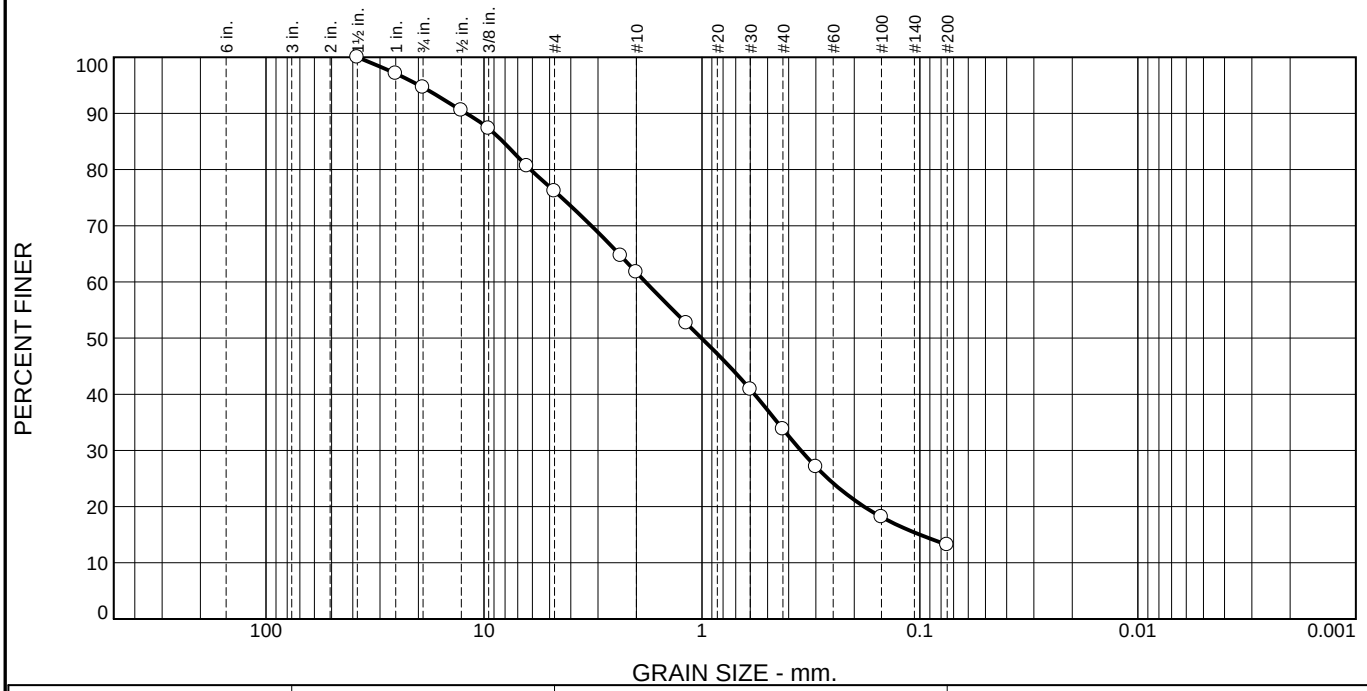
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.4	18.4	14.5	27.9	20.6	13.2	

TEST RESULTS (ASTM D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1.5"	100.0		
1	97.1		
.75	94.6		
.5	90.5		
.375	87.3		
.25	80.6		
#4	76.2		
#8	64.7		
#10	61.7		
#16	52.6		
#30	40.9		
#40	33.8		
#50	27.1		
#100	18.1		
#200	13.2		

* (no specification provided)

Material Description

LAB ID# 19-796

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 12.0426 D_{85}= 8.1942 D_{60}= 1.8154
D_{50}= 1.0057 D_{30}= 0.3516 D_{15}= 0.0999
D_{10}= C_u= C_c=

Remarks

Used entire sample provided.
F.M.=3.38

Date Received: 10/15/19 **Date Tested:** 10/23/19

Tested By: JJZ

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 43.3-60' **Date Sampled:**

Sample Number: PZ04D-19

3rd Rock, LLC

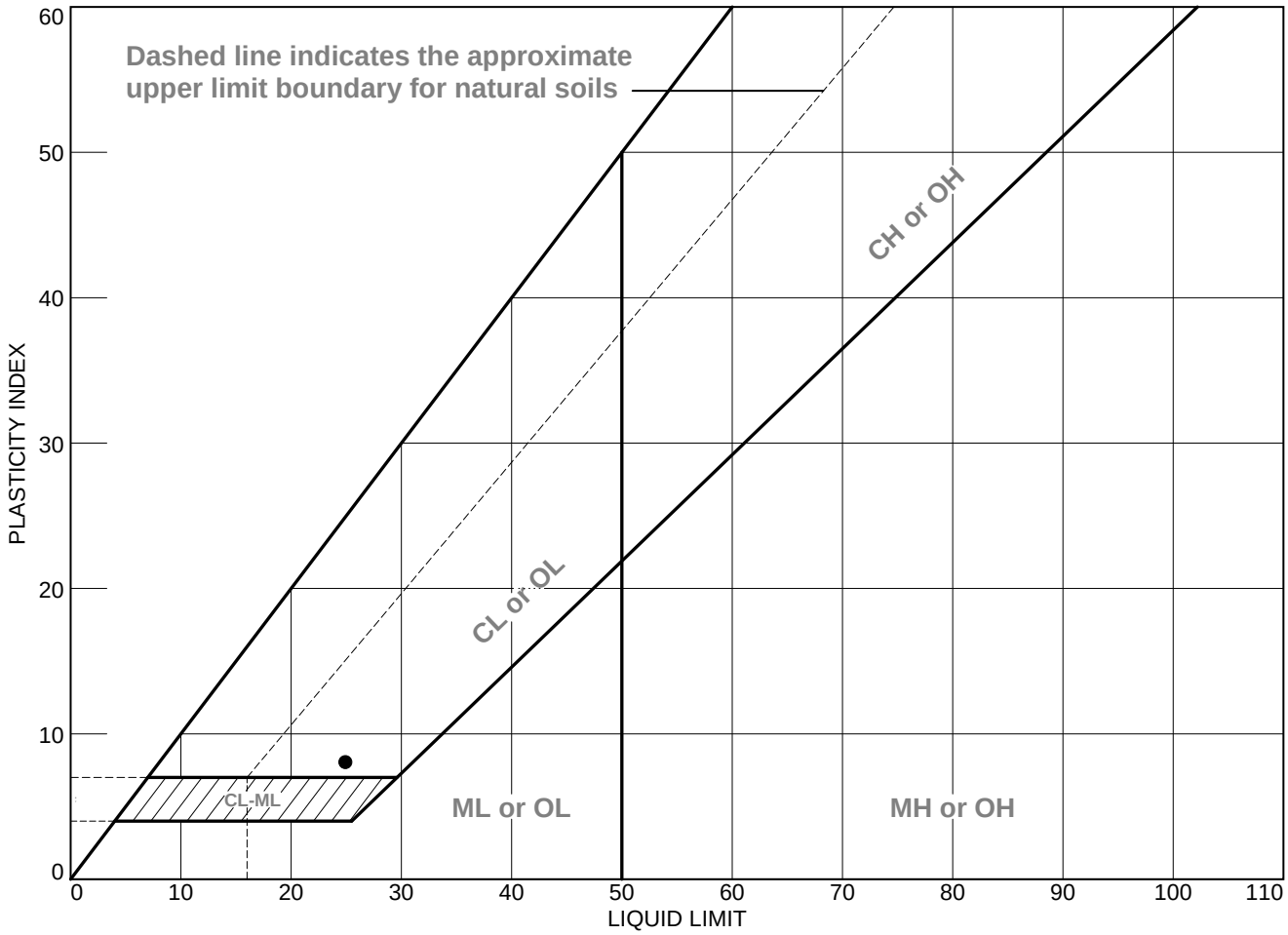
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	SBPZ01D-19	36-38'		17	25	8	CL

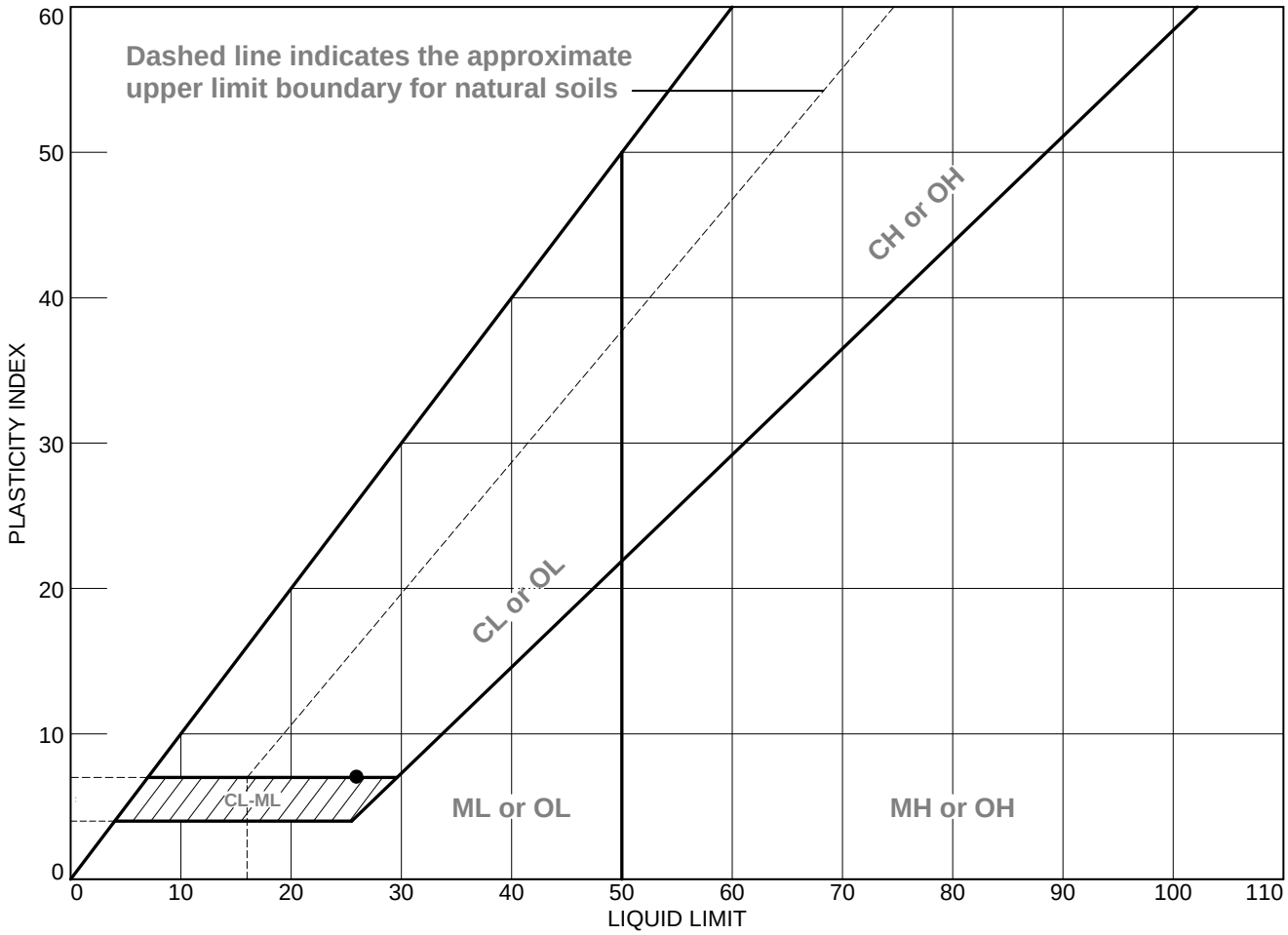
3rd Rock, LLC

East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee
Project No.: 19-028 **Figure**

Tested By: EBS 10/22/19 **Checked By:** JMA

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	SBPZ01D-19	56-58'		19	26	7	CL-ML

3rd Rock, LLC

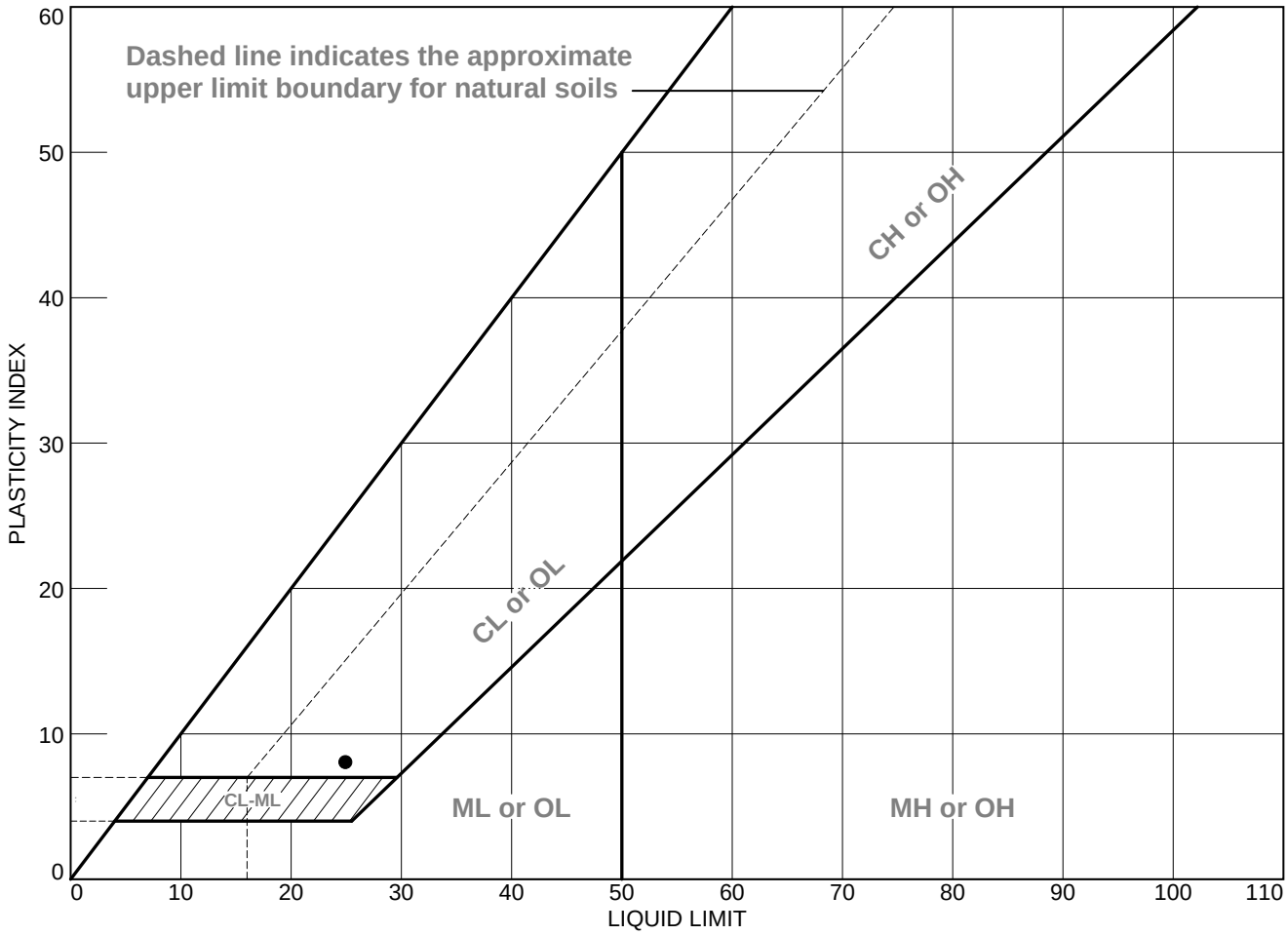
East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee

Project No.: 19-028 **Figure**

Tested By: EBS

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	PZSB11-19	36-44'		17	25	8	CL

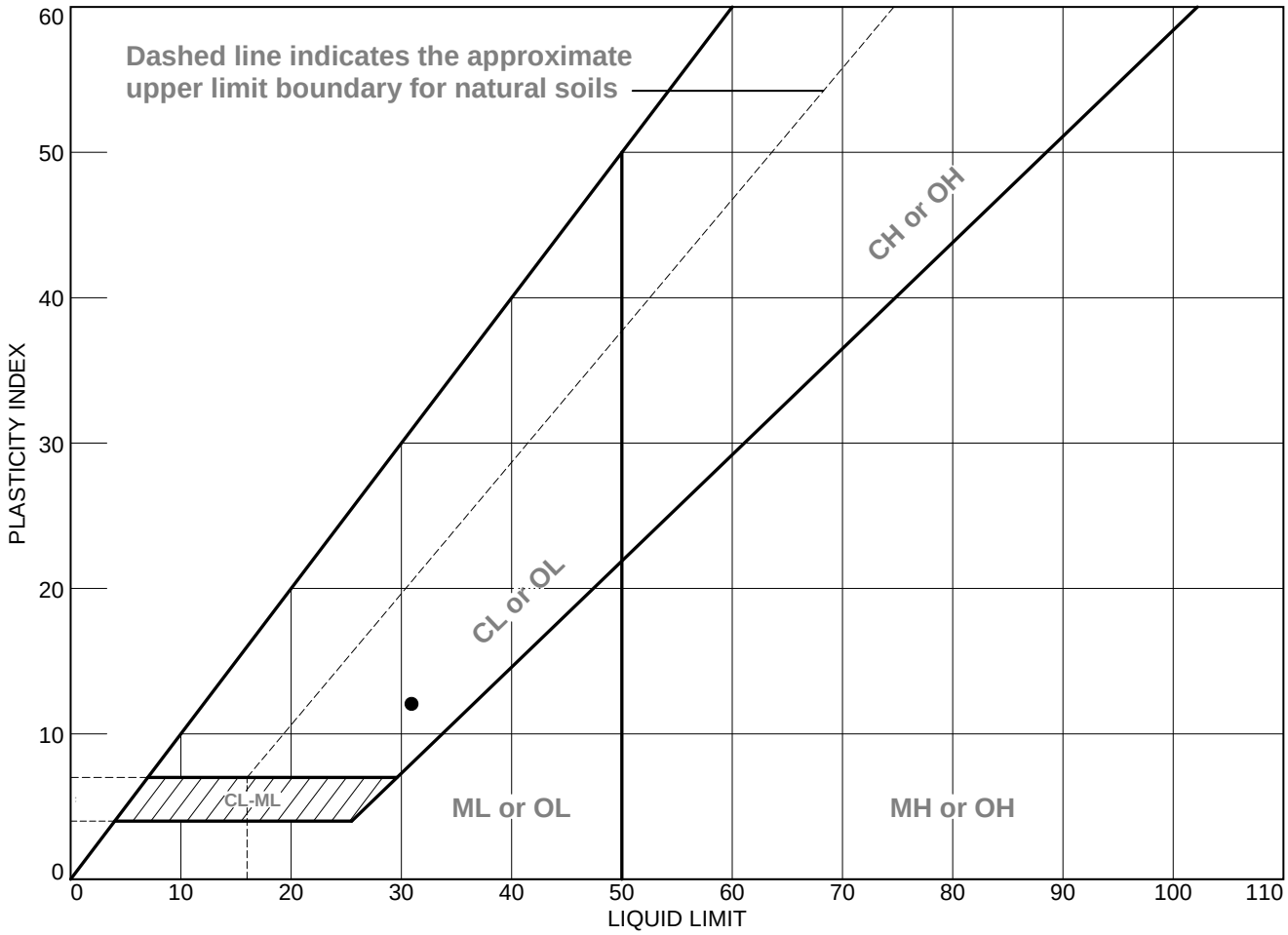
3rd Rock, LLC

East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee
Project No.: 19-028 **Figure**

Tested By: EBS 10/18/19 **Checked By:** JMA

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	SB12-19	28-37.5'		19	31	12	CL

3rd Rock, LLC

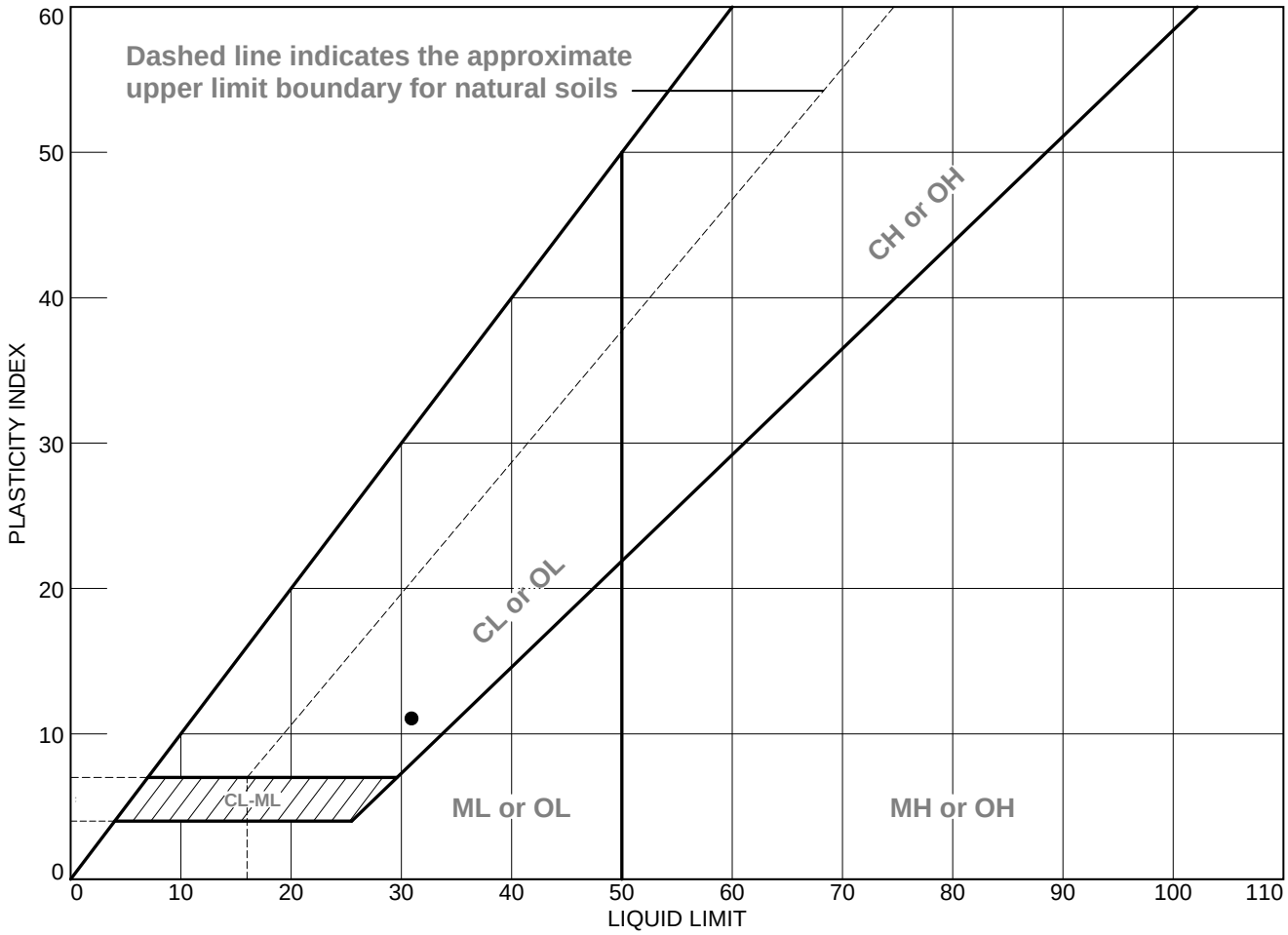
East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee

Project No.: 19-028 **Figure**

Tested By: EBS

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	PZBA2D-19	34-43.5'		20	31	11	CL

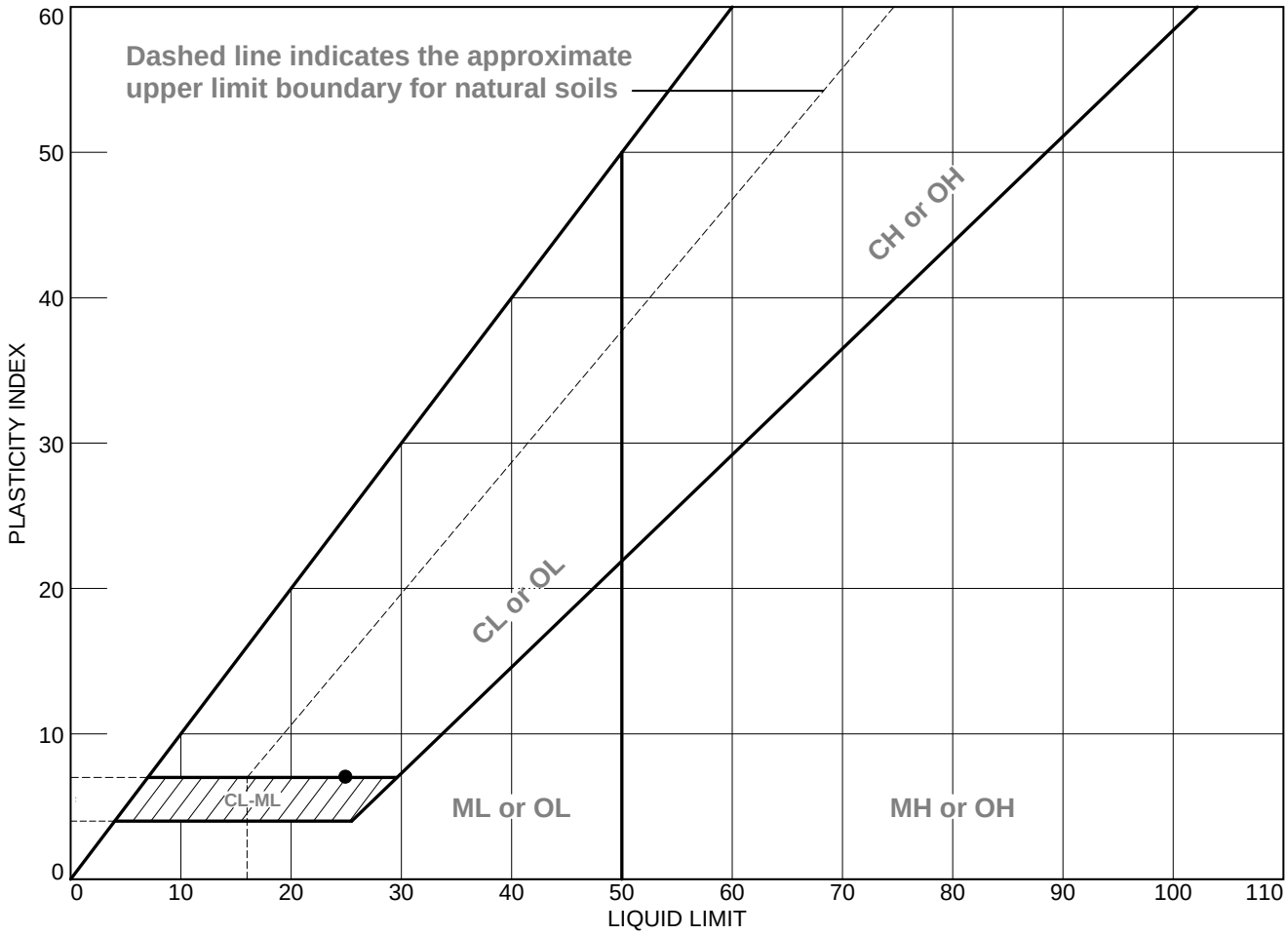
3rd Rock, LLC

East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee
Project No.: 19-028
Figure

Tested By: EBS 10/23/19 **Checked By:** JMA

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	PZMWSE3D-19	41.7-46'		18	25	7	CL-ML

3rd Rock, LLC

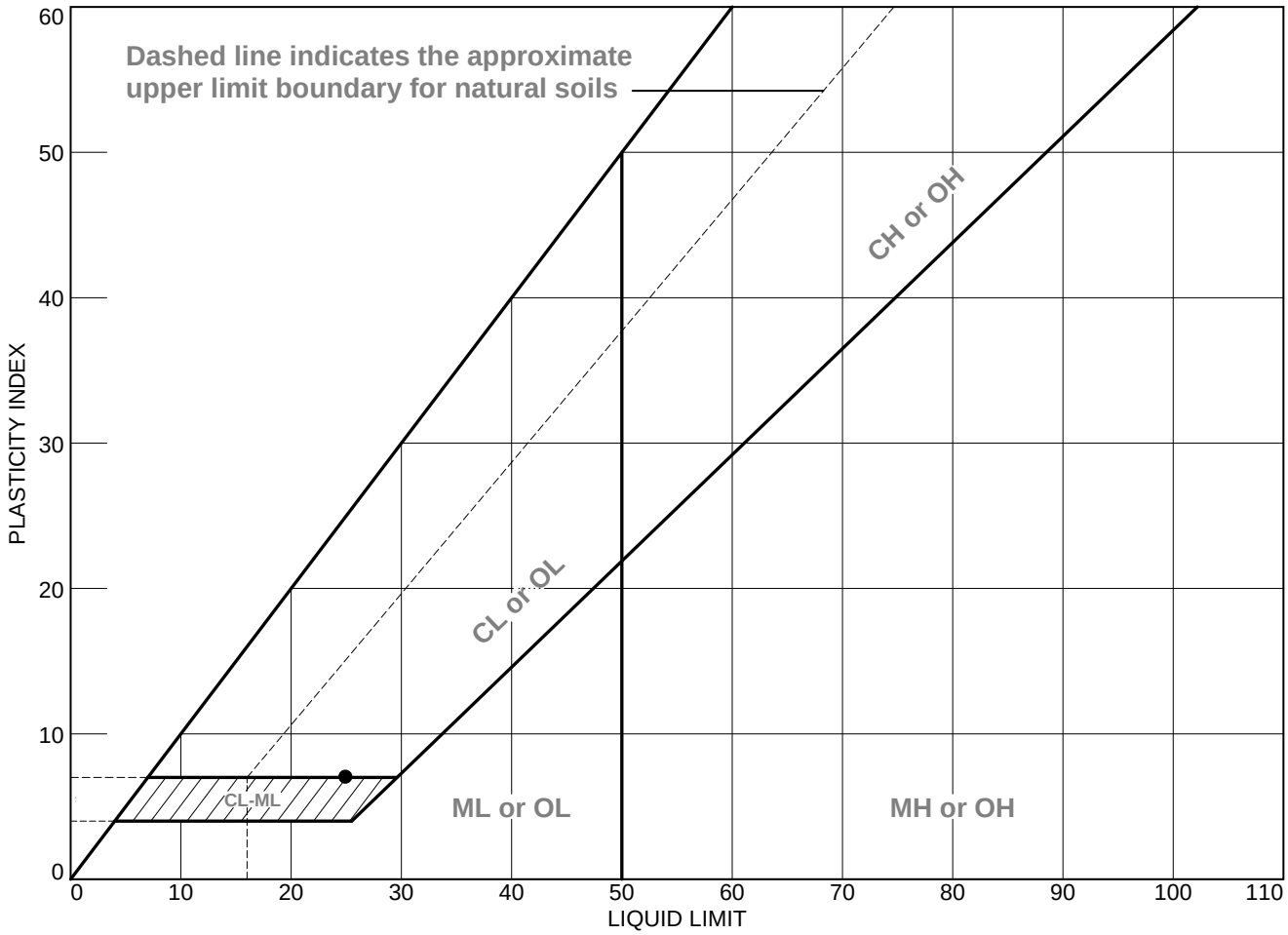
East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee

Project No.: 19-028 **Figure**

Tested By: EBS 10/22/19 **Checked By:** JMA

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	PZMWSE3D-19	58-60'		18	25	7	CL-ML

3rd Rock, LLC

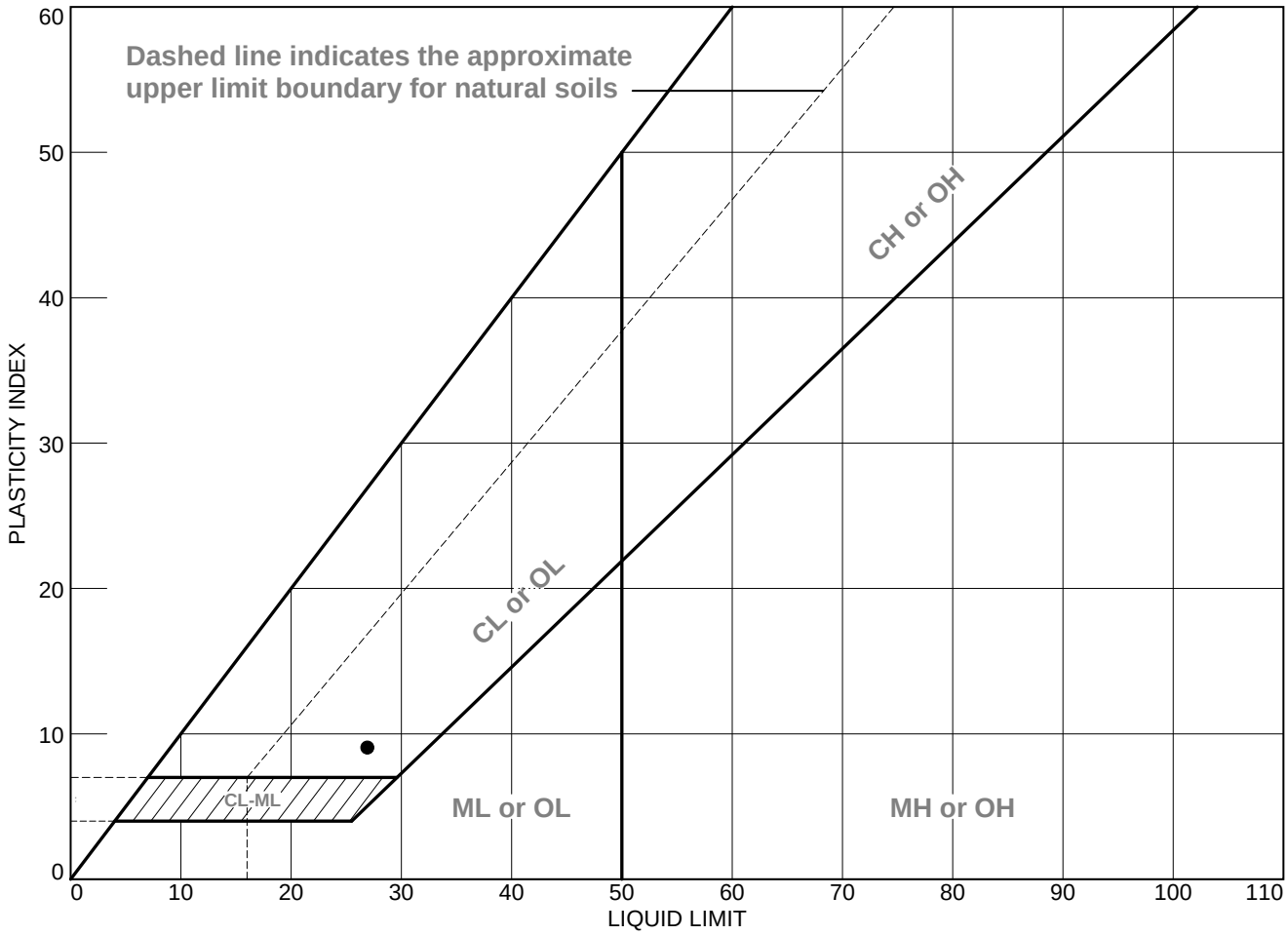
East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee

Project No.: 19-028 **Figure**

Tested By: EBS

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Chaffee Landfill Hydrogeo. Inv.	PZ04D-19	36.5-42'		18	27	9	CL

3rd Rock, LLC

East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee

Project No.: 19-028 **Figure**

Tested By: EBS

FINAL PERMEABILITY REPORT

Project Name:	GEI, WMNY Chaffee LF Hydrogeo.	Date:	10/29/19
Project No.:	19-028	Tested By:	EBS
Sample No.:	SBPZB01D-19, 38-38.5'	Check By:	JMA
Sample I.D.:	19-792	Date of Test:	10/21/19
Laboratory Method:	ASTM D5084, Method C, Shelby Tube Sample	Date Test Complete:	10/25/19
Remarks:	*None*	CELL NO.:	1

INITIAL SAMPLE DATA:

Height, in.:	2.787	Wet Density, pcf:	140.7
Diameter, in.:	2.863	Dry Density, pcf:	126.8
Moisture Content,%:	11.00	Compaction, %:	NA

FINAL SAMPLE DATA:

Height, in.:	2.769	Wet Density, pcf:	141.8
Diameter, in.:	2.851	Dry Density, pcf:	125.1
Moisture Content,%:	13.40		

SATURATION AND CONSOLIDATION DATA:

Consolidation Pressure: 85 psi

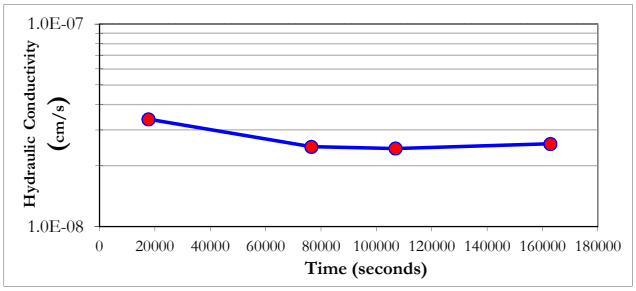
Backpressure: 80 psi

Saturation (B parameter): 98%

AVERAGE PERMEABILITY RESULT (average of last 4 readings, K, cm/s):

Trial #	Testing Pressures (psi)			Q (ml/sec)	Final K (cm/s)
	1	2	3		
1	85.2	80.2	79.9	8.50E-06	3.4E-08
2	85.2	80.2	79.9	6.20E-06	2.5E-08
3	85.2	80.2	79.9	5.91E-06	2.4E-08
4	85.2	80.2	79.9	6.17E-06	2.6E-08

Average K	2.7E-08
Average K , ft/day	7.7E-05



3rd Rock, LLC
580 Olean Road
East Aurora, NY 14052
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FINAL PERMEABILITY REPORT

Project Name:	GEI, WMNY Chaffee LF Hydrogeo.	Date:	10/29/19
Project No.:	19-028	Tested By:	EBS
Sample No.:	PZBA2D-19, 36-38'	Check By:	JMA
Sample I.D.:	19-804	Date of Test:	10/21/19
Laboratory Method:	ASTM D5084, Method C, Shelby Tube sample	Date Test Complete:	10/25/19
Remarks:	*None*	CELL NO.:	5A

INITIAL SAMPLE DATA:

Height, in.:	2.901	Wet Density, pcf:	129.8
Diameter, in.:	2.836	Dry Density, pcf:	104.4
Moisture Content,%:	24.30	Compaction, %:	NA

FINAL SAMPLE DATA:

Height, in.:	2.879	Wet Density, pcf:	130.8
Diameter, in.:	2.841	Dry Density, pcf:	106.1
Moisture Content,%:	23.30		

SATURATION AND CONSOLIDATION DATA:

Consolidation Pressure: 85 psi

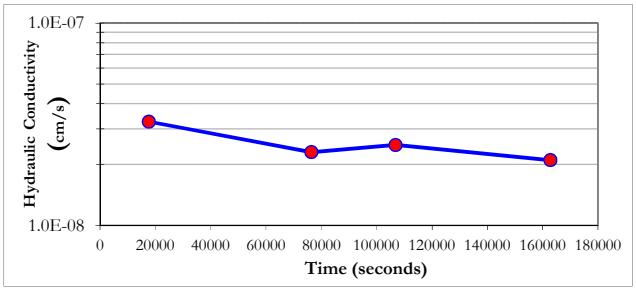
Backpressure: 80 psi

Saturation (B parameter): 97%

AVERAGE PERMEABILITY RESULT (average of last 4 readings, K, cm/s):

Trial #	Testing Pressures (psi)			Q (ml/sec)	Final K (cm/s)
	1	2	3		
1	85	80.2	79.9	7.65E-06	3.3E-08
2	85	80.2	79.9	5.36E-06	2.3E-08
3	85	80.2	79.9	5.75E-06	2.5E-08
4	85	80.2	79.9	4.74E-06	2.1E-08

Average K	2.5E-08
Average K , ft/day	7.2E-05



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FINAL PERMEABILITY REPORT

Project Name:	GEI, WMNY Chaffee LF Hydrogeo.	Date:	10/29/19
Project No.:	19-028	Tested By:	EBS
Sample No.:	PZMWSE3D-19, 44-46'	Check By:	JMA
Sample I.D.:	19-798	Date of Test:	10/21/19
Laboratory Method:	ASTM D5084, Method C, Shelby Tube sample	Date Test Complete:	10/25/19
Remarks:	*None*	CELL NO.:	3

INITIAL SAMPLE DATA:

Height, in.:	2.860	Wet Density, pcf:	144.3
Diameter, in.:	2.847	Dry Density, pcf:	121.8
Moisture Content,%:	18.40	Compaction, %:	NA

FINAL SAMPLE DATA:

Height, in.:	2.861	Wet Density, pcf:	138.5
Diameter, in.:	2.851	Dry Density, pcf:	117.9
Moisture Content,%:	17.50		

SATURATION AND CONSOLIDATION DATA:

Consolidation Pressure: 85 psi

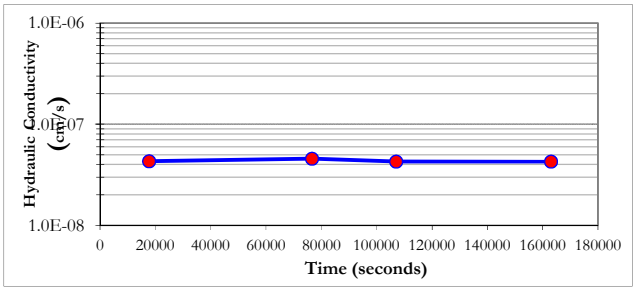
Backpressure: 80 psi

Saturation (B parameter): 99%

AVERAGE PERMEABILITY RESULT (average of last 4 readings, K, cm/s):

Trial #	Testing Pressures (psi)			Q (ml/sec)	Final K (cm/s)
	1	2	3		
1	85	80.2	79.9	9.57E-06	4.3E-08
2	85	80.2	79.9	9.85E-06	4.6E-08
3	85	80.2	79.9	8.88E-06	4.3E-08
4	85	80.2	79.9	8.75E-06	4.3E-08

Average K	4.4E-08
Average K , ft/day	1.2E-04



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FINAL PERMEABILITY REPORT

Project Name:	GEI, WMNY Chaffee LF Hydrogeo.	Date:	10/29/19
Project No.:	19-028	Tested By:	EBS
Sample No.:	PZ04D-19, 38-40'	Check By:	JMA
Sample I.D.:	19-794	Date of Test:	10/21/19
Laboratory Method:	ASTM D5084, Method C, Shelby tube sample	Date Test Complete:	10/25/19
Remarks:	*None*	CELL NO.:	2

INITIAL SAMPLE DATA:

Height, in.:	2.838	Wet Density, pcf:	132.9
Diameter, in.:	2.876	Dry Density, pcf:	114.3
Moisture Content,%:	16.20	Compaction, %:	NA

FINAL SAMPLE DATA:

Height, in.:	2.841	Wet Density, pcf:	136.2
Diameter, in.:	2.850	Dry Density, pcf:	114.1
Moisture Content,%:	19.40		

SATURATION AND CONSOLIDATION DATA:

Consolidation Pressure: 85 psi

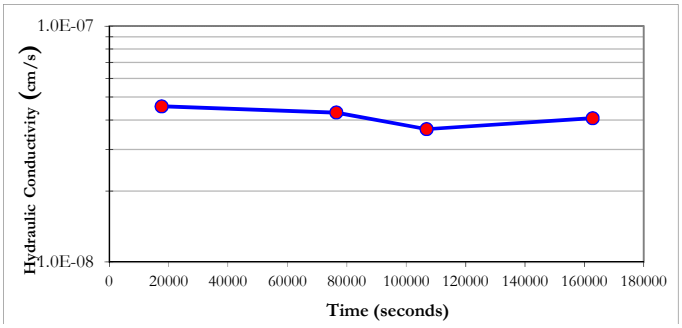
Backpressure: 80 psi

Saturation (B parameter): 100%

AVERAGE PERMEABILITY RESULT (average of last 4 readings, K, cm/s):

Trial #	Testing Pressures (psi)			Q (ml/sec)	Final K (cm/s)
	1	2	3		
1	85	80.2	79.9	1.11E-05	4.6E-08
2	85	80.2	79.9	1.00E-05	4.3E-08
3	85	80.2	79.9	8.38E-06	3.7E-08
4	85	80.2	79.9	9.02E-06	4.1E-08

Average K	4.2E-08
Average K , ft/day	1.2E-04



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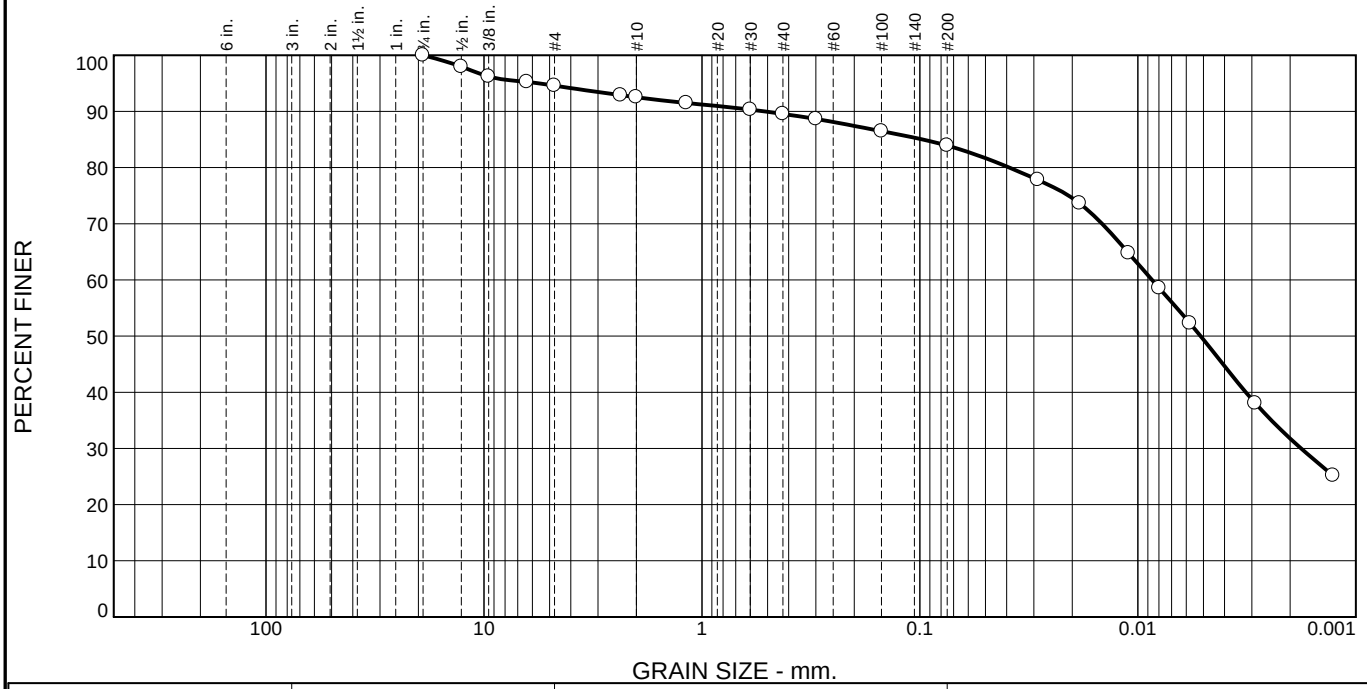
2019 Test Pit Geotechnical Laboratory Reports

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.4	2.1	2.9	5.7	34.5	49.4

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.75"	100.0		
.5	98.0		
.375	96.2		
.25	95.3		
#4	94.6		
#8	92.9		
#10	92.5		
#16	91.5		
#30	90.3		
#40	89.6		
#50	88.7		
#100	86.5		
#200	83.9		
0.0288 mm.	77.8		
0.0185 mm.	73.6		
0.0110 mm.	64.8		
0.0080 mm.	58.5		
0.0058 mm.	52.3		
0.0029 mm.	38.1		
0.0013 mm.	25.2		

* (no specification provided)

Material Description

ID#19-621

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.5154 D_{85}= 0.0969 D_{60}= 0.0086
D_{50}= 0.0052 D_{30}= 0.0018 D_{15}=
D_{10}= C_u= C_c=

Remarks

F.M.=0.59

Date Received: 7/30/19 **Date Tested:** 8/20/19

Tested By: JJZ

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 4.5' **Date Sampled:**
Sample Number: TP-01-19

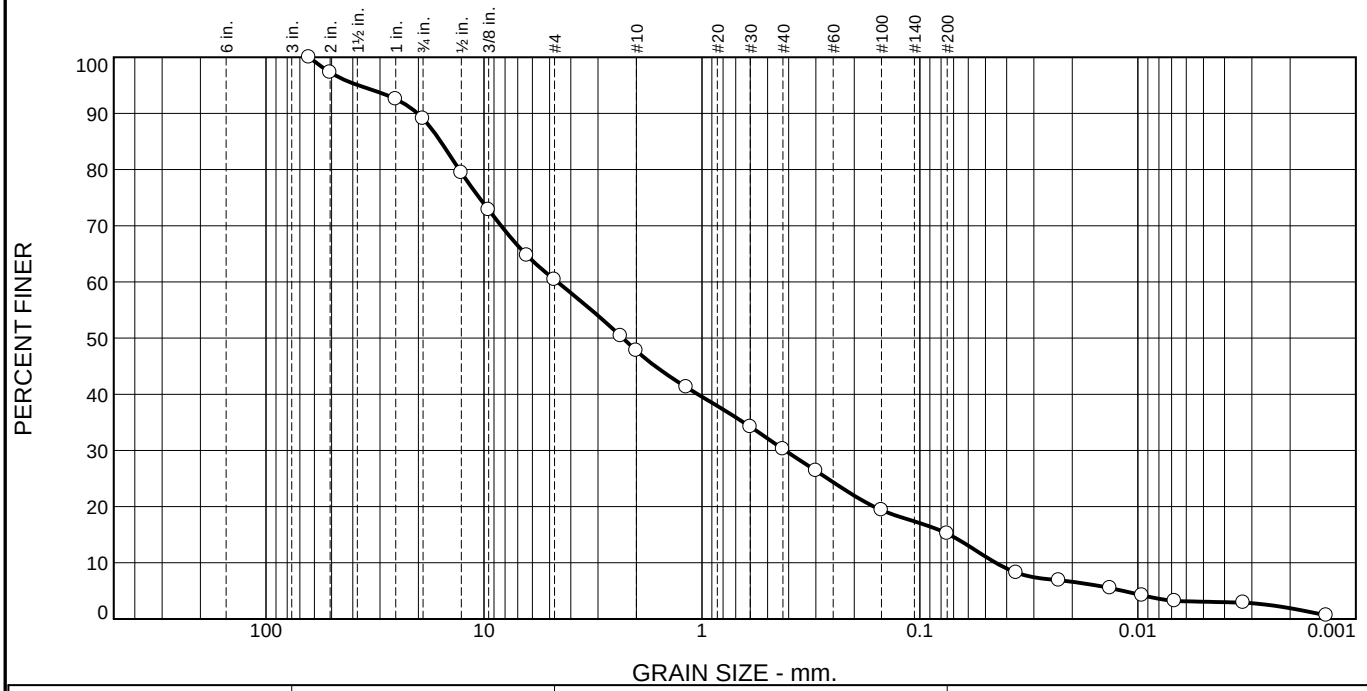
3rd Rock, LLC

East Aurora, NY

Client: GEI Consultants, Inc.
Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	10.9	28.7	12.6	17.6	15.0	12.1	3.1

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2.5"	100.0		
2	97.3		
1	92.6		
.75	89.1		
.5	79.4		
.375	72.8		
.25	64.7		
#4	60.4		
#8	50.4		
#10	47.8		
#16	41.3		
#30	34.2		
#40	30.2		
#50	26.4		
#100	19.4		
#200	15.2		
0.0361 mm.	8.2		
0.0230 mm.	6.9		
0.0134 mm.	5.5		
0.0096 mm.	4.2		
0.0068 mm.	3.2		
0.0033 mm.	2.9		
0.0014 mm.	0.6		

* (no specification provided)

Material Description

ID#19-622

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 20.1582 D_{85}= 15.8049 D_{60}= 4.6084
D_{50}= 2.3060 D_{30}= 0.4163 D_{15}= 0.0733
D_{10}= 0.0449 C_u= 102.72 C_c= 0.84

Remarks

F.M.=4.11

Date Received: 7/30/19 **Date Tested:** 8/16/19

Tested By: JJZ

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 5-7' **Date Sampled:**

Sample Number: TP-02-19

3rd Rock, LLC

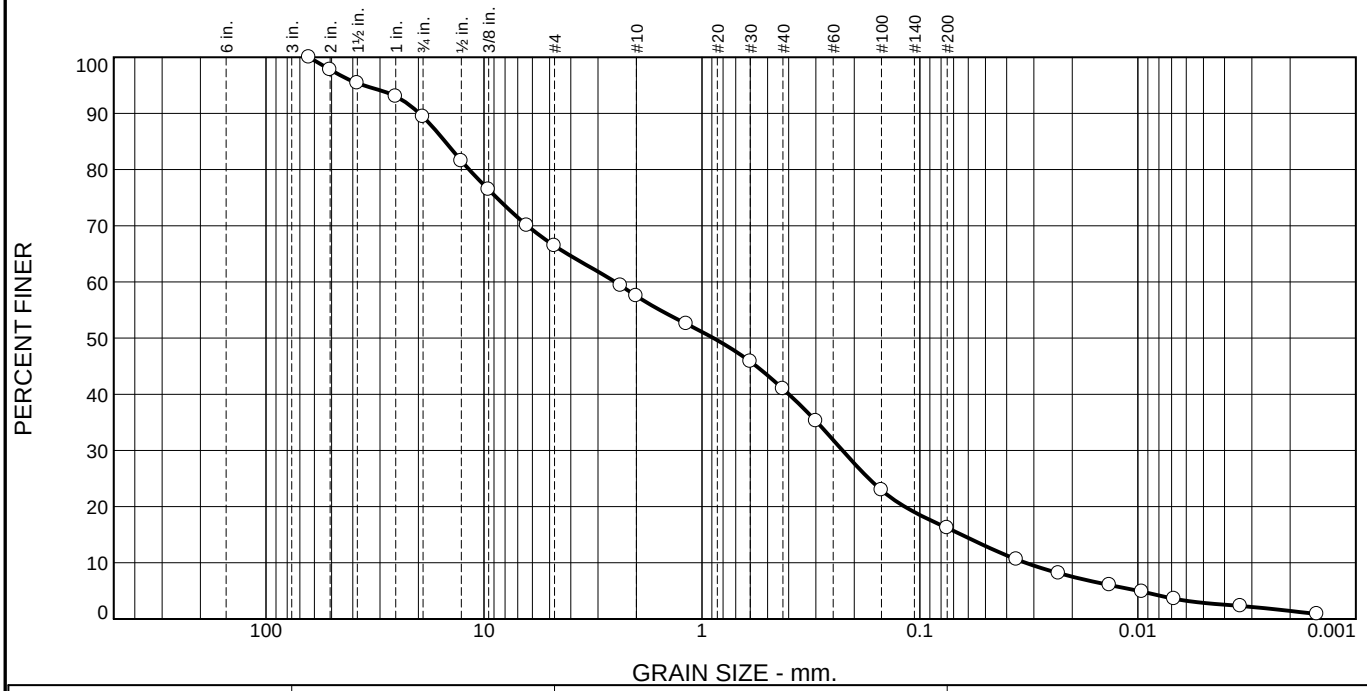
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	10.6	23.0	8.9	16.5	24.8	13.3	2.9

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2.5"	100.0		
2	97.8		
1.5	95.4		
1	93.0		
.75	89.4		
.5	81.6		
.375	76.4		
.25	70.1		
#4	66.4		
#8	59.4		
#10	57.5		
#16	52.5		
#30	45.8		
#40	41.0		
#50	35.2		
#100	22.9		
#200	16.2		
0.0360 mm.	10.6		
0.0231 mm.	8.2		
0.0135 mm.	6.0		
0.0096 mm.	4.9		
0.0068 mm.	3.6		
0.0034 mm.	2.3		
0.0015 mm.	0.9		

* (no specification provided)

Material Description

ID#19-623

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 19.7573 D_{85}= 15.0866 D_{60}= 2.5016
D_{50}= 0.8855 D_{30}= 0.2265 D_{15}= 0.0644
D_{10}= 0.0328 C_u= 76.38 C_c= 0.63

Remarks

F.M.=3.56

Date Received: 7/30/19 **Date Tested:** 8/16/19

Tested By: JJZ

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 3.5-5' **Date Sampled:**

Sample Number: TP-03-19

3rd Rock, LLC

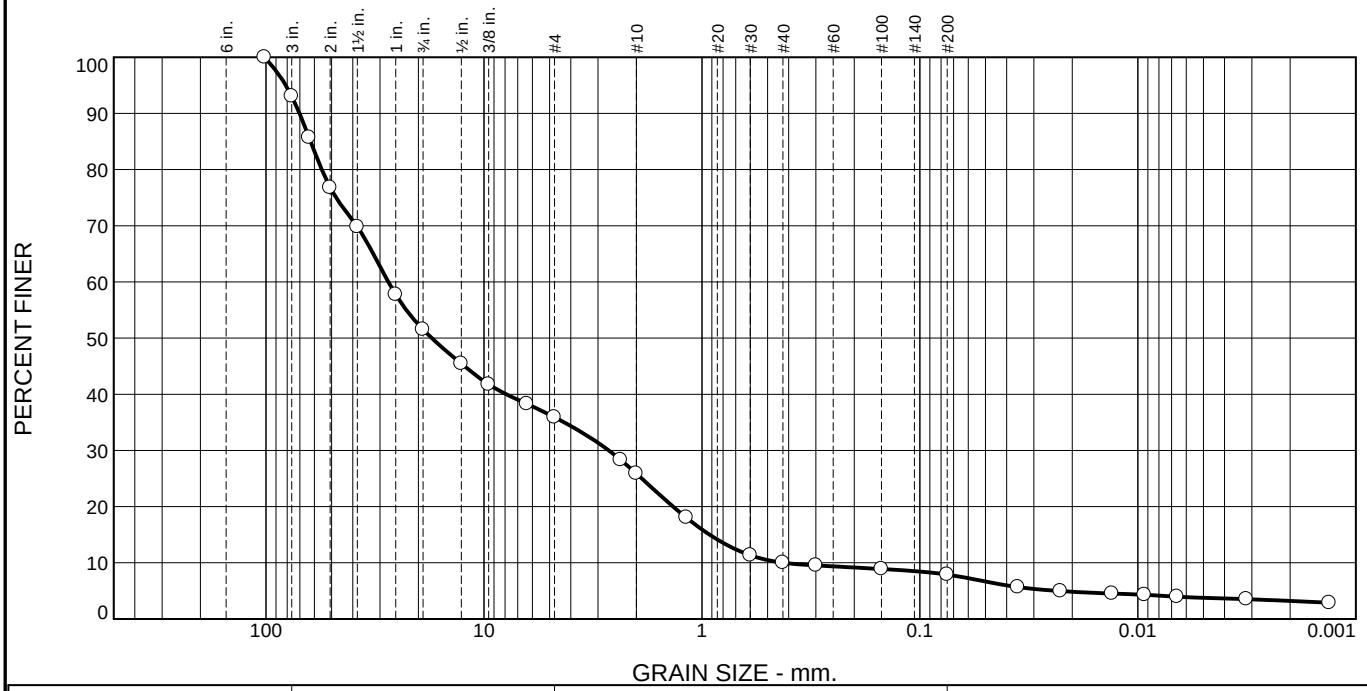
East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
6.9	41.6	15.6	10.0	15.9	2.1	4.1	3.8

TEST RESULTS (ASTM D 422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
4"	100.0		
3"	93.1		
2.5	85.7		
2	76.8		
1.5	69.8		
1	57.7		
.75	51.5		
.5	45.5		
.375	41.8		
.25	38.3		
#4	35.9		
#8	28.3		
#10	25.9		
#16	18.0		
#30	11.3		
#40	10.0		
#50	9.5		
#100	8.9		
#200	7.9		
0.0355 mm.	5.7		
0.0226 mm.	5.0		
0.0132 mm.	4.5		
0.0093 mm.	4.3		
0.0066 mm.	4.0		
0.0032 mm.	3.5		
0.0013 mm.	2.9		

* (no specification provided)

Material Description

ID#19-624

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 70.2058 D_{85}= 62.4785 D_{60}= 27.4715
D_{50}= 17.3688 D_{30}= 2.6782 D_{15}= 0.9214
D_{10}= 0.4233 C_u= 64.90 C_c= 0.62

Remarks

F.M.=6.32

Date Received: 7/30/19 **Date Tested:** 8/15/19

Tested By: CF

Checked By: JMA

Title: LM

Source of Sample: Chaffee Landfill Hydrogeo. Inv. **Depth:** 11-11.5' **Date Sampled:**

Sample Number: TP-03-19

3rd Rock, LLC

East Aurora, NY

Client: GEI Consultants, Inc.

Project: Chaffee

Project No: 19-028 **Figure**

FINAL PERMEABILITY REPORT

Project Name:	GEI, WMNY Chaffee LF Hydrogeo.	Date:	08/22/19
Project No.:	19-028	Tested By:	CF
Sample No.:	TP01-19, 4.5'	Check By:	JMA
Sample I.D.:	19-625	Date of Test:	08/12/19
Laboratory Method:	ASTM D5084, Method C	Date Test Complete:	08/20/19
Remarks:	*None*	CELL NO.:	5A

INITIAL SAMPLE DATA:

Height, in.:	2.312	Wet Density, pcf:	125.2
Diameter, in.:	2.800	Dry Density, pcf:	105.7
Moisture Content,%:	18.50	Compaction, %:	NA

FINAL SAMPLE DATA:

Height, in.:	2.314	Wet Density, pcf:	129.6
Diameter, in.:	2.798	Dry Density, pcf:	105.7
Moisture Content,%:	22.60		

SATURATION AND CONSOLIDATION DATA:

Consolidation Pressure: 85 psi

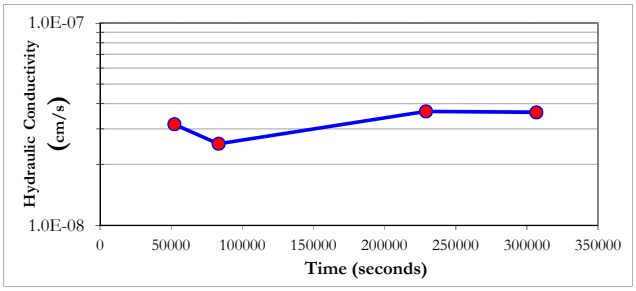
Backpressure: 80 psi

Saturation (B parameter): 97%

AVERAGE PERMEABILITY RESULT (average of last 4 readings, K, cm/s):

Trial #	Testing Pressures (psi)			Q (ml/sec)	Final K (cm/s)
	1	2	3		
1	85	80.3	80	5.75E-06	3.2E-08
2	85	80.3	80	4.49E-06	2.5E-08
3	85	80.3	80	6.18E-06	3.7E-08
4	85	80.3	80	5.73E-06	3.6E-08

Average K	3.2E-08
Average K , ft/day	9.2E-05



3rd Rock, LLC
580 Olean Road
East Aurora, NY 14052
(716)655-4933

FINAL PERMEABILITY REPORT

Project Name:	GEI, WMNY Chaffee LF Hydrogeo.	Date:	06/17/07
Project No.:	19-028	Tested By:	EBS
Sample No.:	TP02-19, 7'	Check By:	JMA
Sample I.D.:	19-626	Date of Test:	08/06/19
Laboratory Method:	ASTM D5084, Method C	Date Test Complete:	08/10/19
Remarks:	*None*	CELL NO.:	6

INITIAL SAMPLE DATA:

Height, in.:	2.912	Wet Density, pcf:	125.6
Diameter, in.:	2.797	Dry Density, pcf:	108.5
Moisture Content,%:	15.80	Compaction, %:	NA

FINAL SAMPLE DATA:

Height, in.:	2.826	Wet Density, pcf:	131.2
Diameter, in.:	2.814	Dry Density, pcf:	112.0
Moisture Content,%:	17.10		

SATURATION AND CONSOLIDATION DATA:

Consolidation Pressure: 85 psi

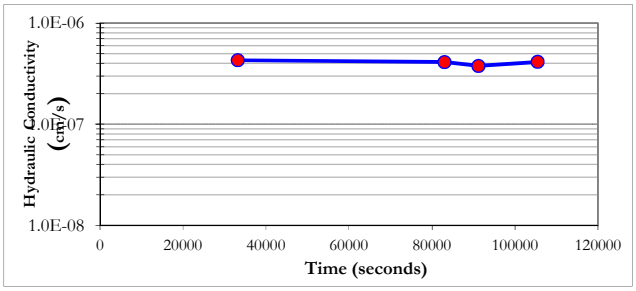
Backpressure: 80 psi

Saturation (B parameter): 97%

AVERAGE PERMEABILITY RESULT (average of last 4 readings, K, cm/s):

Trial #	Testing Pressures (psi)			Q (ml/sec)	Final K (cm/s)
	1	2	3		
1	85	80	80	1.85E-05	4.3E-07
2	85	80	80	1.43E-05	4.1E-07
3	85	80	80	1.10E-05	3.8E-07
4	85	80	80	1.16E-05	4.1E-07

Average K	4.1E-07
Average K , ft/day	1.2E-03



3rd Rock, LLC
580 Olean Road
East Aurora, NY 14052
(716)655-4933

FINAL PERMEABILITY REPORT

Project Name:	GEI, WMNY Chaffee LF Hydrogeo.	**Date:**	08/22/19
Project No.:	19-028	**Tested By:**	EBS
Sample No.:	TP03-19, 8.5'	**Check By:**	JMA
Sample I.D.:	19-627	**Date of Test:**	08/05/19
Laboratory Method:	ASTM D5084, Method C	**Date Test Complete:**	08/07/19
Remarks:	*None*	**CELL NO.:**	5A

INITIAL SAMPLE DATA:

Height, in.:	2.179	**Wet Density, pcf:**	116.2
Diameter, in.:	2.870	**Dry Density, pcf:**	104.0
Moisture Content,%:	11.70	**Compaction, %:**	NA

FINAL SAMPLE DATA:

Height, in.:	2.110	**Wet Density, pcf:**	118.8
Diameter, in.:	2.888	**Dry Density, pcf:**	105.1
Moisture Content,%:	13.00		

SATURATION AND CONSOLIDATION DATA:

Consolidation Pressure: 85 psi

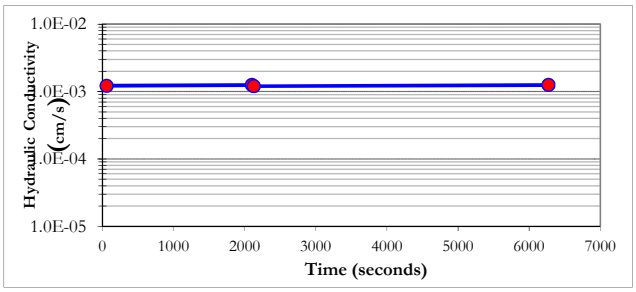
Backpressure: 80 psi

Saturation (B parameter): 95%

AVERAGE PERMEABILITY RESULT (average of last 4 readings, K, cm/s):

Trial #	Testing Pressures (psi)			Q (ml/sec)	Final K (cm/s)
	1	2	3		
1	85	80	80	8.43E-02	1.2E-03
2	85	80	80	1.28E-01	1.3E-03
3	85	80	80	4.50E-02	1.2E-03
4	85	80	80	1.11E-01	1.3E-03

Average K	1.2E-03
Average K , ft/day	3.5E+00



3rd Rock, LLC
580 Olean Road
East Aurora, NY 14052
(716)655-4933

Organic Fraction laboratory data for Test Pits TP-01, TP-02, and TP-03

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

Laboratory Job ID: 480-156995-1
Client Project/Site: Chaffee Landfill-Solid Walkly black

For:
Waste Management
Chaffee Landfill
10860 Olean Road
Chaffee, New York 14030-9799

Attn: Christopher Chapman

Katelyn Ferguson

Authorized for release by:
8/8/2019 4:48:55 PM
Katelyn Ferguson, Project Management Assistant I
katelyn.ferguson@testamericainc.com

Designee for

Denise Giglia, Project Manager I
(716)691-2600
denise.giglia@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Waste Management
Job ID: 480-156995-1
Project/Site: Chaffee Landfill-Solid Walkly black

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Waste Management
Project/Site: Chaffee Landfill-Solid Walkly black

Job ID: 480-156995-1

Job ID: 480-156995-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-156995-1

Comments
No additional comments.

Receipt
The samples were received on 7/31/2019 9:43 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9º C.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Waste Management
Project/Site: Chaffee Landfill-Solid Walkly black

Job ID: 480-156995-1

Client Sample ID: TP01-19-4.5 — Lab Sample ID: 480-156995-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	2970		1280		mg/Kg	1	☼	Walkley Black	Total/NA

Client Sample ID: TP02-19-5-7 — Lab Sample ID: 480-156995-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	2820		1360		mg/Kg	1	☼	Walkley Black	Total/NA

Client Sample ID: TP02-19-9.5 — Lab Sample ID: 480-156995-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	2130		1220		mg/Kg	1	☼	Walkley Black	Total/NA

Client Sample ID: TP03-19-3.5-5 — Lab Sample ID: 480-156995-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	1470		1270		mg/Kg	1	☼	Walkley Black	Total/NA

Client Sample ID: TP03-19-11-11.5 — Lab Sample ID: 480-156995-5

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Waste Management
Project/Site: Chaffee Landfill-Solid Walkly black

Job ID: 480-156995-1

Client Sample ID: TP01-19-4.5
Date Collected: 07/30/19 10:30
Date Received: 07/31/19 09:43

Lab Sample ID: 480-156995-1
Matrix: Solid
Percent Solids: 79.2

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	2970		1280		mg/Kg	☼		08/07/19 12:19	1

Client Sample Results

Client: Waste Management
Project/Site: Chaffee Landfill-Solid Walkly black

Job ID: 480-156995-1

Client Sample ID: TP02-19-5-7
Date Collected: 07/30/19 12:30
Date Received: 07/31/19 09:43

Lab Sample ID: 480-156995-2
Matrix: Solid
Percent Solids: 73.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	2820		1360		mg/Kg	☼		08/07/19 12:25	1

Client Sample Results

Client: Waste Management
Project/Site: Chaffee Landfill-Solid Walkly black

Job ID: 480-156995-1

Client Sample ID: TP02-19-9.5
Date Collected: 07/30/19 12:30
Date Received: 07/31/19 09:43

Lab Sample ID: 480-156995-3
Matrix: Solid
Percent Solids: 82.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	2130		1220		mg/Kg	☼		08/07/19 12:37	1

Client Sample Results

Client: Waste Management
Project/Site: Chaffee Landfill-Solid Walkly black

Job ID: 480-156995-1

Client Sample ID: TP03-19-3.5-5
Date Collected: 07/30/19 13:10
Date Received: 07/31/19 09:43

Lab Sample ID: 480-156995-4
Matrix: Solid
Percent Solids: 77.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1470		1270		mg/Kg	☼		08/07/19 12:42	1

Client Sample Results

Client: Waste Management
Project/Site: Chaffee Landfill-Solid Walkly black

Job ID: 480-156995-1

Client Sample ID: TP03-19-11-11.5
Date Collected: 07/30/19 14:20
Date Received: 07/31/19 09:43

Lab Sample ID: 480-156995-5
Matrix: Solid
Percent Solids: 83.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1210		mg/Kg	☼		08/07/19 12:48	1

QC Sample Results

Client: Waste Management
Project/Site: Chaffee Landfill-Solid Walkly black

Job ID: 480-156995-1

Method: Walkley Black - Organic Carbon, Total (TOC)

Lab Sample ID: MB 240-394846/4
Matrix: Solid
Analysis Batch: 394846

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		992		mg/Kg			08/07/19 11:17	1

Lab Sample ID: LCS 240-394846/5
Matrix: Solid
Analysis Batch: 394846

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			1920	1934		mg/Kg		101	51 - 126		

Lab Sample ID: 480-156995-3 DU
Matrix: Solid
Analysis Batch: 394846

Client Sample ID: TP02-19-9.5
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Organic Carbon	2130			2473		mg/Kg	☼			15	20

QC Association Summary

Client: Waste Management
Project/Site: Chaffee Landfill-Solid Walkly black

Job ID: 480-156995-1

General Chemistry

Analysis Batch: 394418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-156995-1	TP01-19-4.5	Total/NA	Solid	Moisture	
480-156995-2	TP02-19-5-7	Total/NA	Solid	Moisture	
480-156995-3	TP02-19-9.5	Total/NA	Solid	Moisture	
480-156995-4	TP03-19-3.5-5	Total/NA	Solid	Moisture	
480-156995-5	TP03-19-11-11.5	Total/NA	Solid	Moisture	

Analysis Batch: 394846

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-156995-1	TP01-19-4.5	Total/NA	Solid	Walkley Black	
480-156995-2	TP02-19-5-7	Total/NA	Solid	Walkley Black	
480-156995-3	TP02-19-9.5	Total/NA	Solid	Walkley Black	
480-156995-4	TP03-19-3.5-5	Total/NA	Solid	Walkley Black	
480-156995-5	TP03-19-11-11.5	Total/NA	Solid	Walkley Black	
MB 240-394846/4	Method Blank	Total/NA	Solid	Walkley Black	
LCS 240-394846/5	Lab Control Sample	Total/NA	Solid	Walkley Black	
480-156995-3 DU	TP02-19-9.5	Total/NA	Solid	Walkley Black	

Lab Chronicle

Client: Waste Management
Project/Site: Chaffee Landfill-Solid Walkly black

Job ID: 480-156995-1

Client Sample ID: TP01-19-4.5
Date Collected: 07/30/19 10:30
Date Received: 07/31/19 09:43

Lab Sample ID: 480-156995-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	394418	08/05/19 10:26	AJO	TAL CAN

Client Sample ID: TP01-19-4.5
Date Collected: 07/30/19 10:30
Date Received: 07/31/19 09:43

Lab Sample ID: 480-156995-1
Matrix: Solid
Percent Solids: 79.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Walkley Black		1	394846	08/07/19 12:19	TPH	TAL CAN

Client Sample ID: TP02-19-5-7
Date Collected: 07/30/19 12:30
Date Received: 07/31/19 09:43

Lab Sample ID: 480-156995-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	394418	08/05/19 10:26	AJO	TAL CAN

Client Sample ID: TP02-19-5-7
Date Collected: 07/30/19 12:30
Date Received: 07/31/19 09:43

Lab Sample ID: 480-156995-2
Matrix: Solid
Percent Solids: 73.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Walkley Black		1	394846	08/07/19 12:25	TPH	TAL CAN

Client Sample ID: TP02-19-9.5
Date Collected: 07/30/19 12:30
Date Received: 07/31/19 09:43

Lab Sample ID: 480-156995-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	394418	08/05/19 10:26	AJO	TAL CAN

Client Sample ID: TP02-19-9.5
Date Collected: 07/30/19 12:30
Date Received: 07/31/19 09:43

Lab Sample ID: 480-156995-3
Matrix: Solid
Percent Solids: 82.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Walkley Black		1	394846	08/07/19 12:37	TPH	TAL CAN

Client Sample ID: TP03-19-3.5-5
Date Collected: 07/30/19 13:10
Date Received: 07/31/19 09:43

Lab Sample ID: 480-156995-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	394418	08/05/19 10:26	AJO	TAL CAN

Lab Chronicle

Client: Waste Management
Job ID: 480-156995-1
Project/Site: Chaffee Landfill-Solid Walkly black

Client Sample ID: TP03-19-3.5-5
Lab Sample ID: 480-156995-4
Date Collected: 07/30/19 13:10
Matrix: Solid
Date Received: 07/31/19 09:43
Percent Solids: 77.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Walkley Black		1	394846	08/07/19 12:42	TPH	TAL CAN

Client Sample ID: TP03-19-11-11.5
Lab Sample ID: 480-156995-5
Date Collected: 07/30/19 14:20
Matrix: Solid
Date Received: 07/31/19 09:43

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	394418	08/05/19 10:50	AJO	TAL CAN

Client Sample ID: TP03-19-11-11.5
Lab Sample ID: 480-156995-5
Date Collected: 07/30/19 14:20
Matrix: Solid
Date Received: 07/31/19 09:43
Percent Solids: 83.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Walkley Black		1	394846	08/07/19 12:48	TPH	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: Waste Management
Job ID: 480-156995-1
Project/Site: Chaffee Landfill-Solid Walkly black

Laboratory: Eurofins TestAmerica, Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-20

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State		2927	02-23-20
California	State Program	9	2927	02-23-20
Connecticut	State		PH-0590	12-31-19
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-20
Florida	NELAP		E87225	06-30-20
Georgia	State Program	4	N/A	02-23-20
Illinois	NELAP	5	200004	07-31-20
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kansas	NELAP		E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State		KY98016	12-31-19
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota	NELAP		OH00048	12-31-19
Minnesota (Petrofund)	State Program	1	3506	07-31-21
New Jersey	NELAP	2	OH001	06-30-20
New Jersey	NELAP		OH001	06-30-20
New York	NELAP	2	10975	03-31-20
New York	NELAP		10975	03-31-20
Ohio VAP	State		CL0024	06-05-21
Ohio VAP	State Program	5	CL0024	06-05-21
Oregon	NELAP	10	4062	02-23-20
Oregon	NELAP		4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Pennsylvania	NELAP		68-00340	08-31-19
Texas	NELAP	6	T104704517-19-11	08-31-20
Texas	NELAP		T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Virginia	NELAP		010101	09-14-19
Washington	State		C971	01-12-20
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State		210	12-31-19
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Waste Management
Project/Site: Chaffee Landfill-Solid Walkly black

Job ID: 480-156995-1

Method	Method Description	Protocol	Laboratory
Moisture	Percent Moisture	EPA	TAL CAN
Walkley Black	Organic Carbon, Total (TOC)	MSA	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

MSA = "Methods Of Soil Analysis, Chemical And Microbiological Properties", Part 2, 2nd Ed., 1982 And Subsequent Revisions.

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: Waste Management
Project/Site: Chaffee Landfill-Solid Walkly black

Job ID: 480-156995-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-156995-1	TP01-19-4.5	Solid	07/30/19 10:30	07/31/19 09:43	
480-156995-2	TP02-19-5-7	Solid	07/30/19 12:30	07/31/19 09:43	
480-156995-3	TP02-19-9.5	Solid	07/30/19 12:30	07/31/19 09:43	
480-156995-4	TP03-19-3.5-5	Solid	07/30/19 13:10	07/31/19 09:43	
480-156995-5	TP03-19-11-11.5	Solid	07/30/19 14:20	07/31/19 09:43	

TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: R. Frappa	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-133483-30067.1
Client Contact: Richard Frappa	Phone: 716 204-7156	E-Mail: denise.giglia@testamericainc.com		Page: Page 1 of 1
Company: GEI Consultants, Inc.				Job #:
Address: 100 Sylvan Parkway Suite 400	Due Date Requested:			
City: Amherst	TAT Requested (days): 21 day			
State, Zip: NY, 14228				
Phone: 716-863-3438(Tel) 204-7156	PO #: Purchase Order Requested WM Chaffee			
Email: rfrappa@geiconsultants.com	WO #: Invoice to: Chaffee LF			
Project Name: Chaffee Landfill	Project #: 48002636 Contact Denise Giglia for Details			
Site: New York	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

480-156995 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Moisture, WalkleyBlk_Calc	Total Number	Special Instructions/Note:
			Preservation Code:				N		
TP01-19_4.5	7/30/19	1030	G	Solid				1	
TP02-19_5-7		1230	C	Solid				1	
TP02-19_9.5		12:30	G	Solid				1	
TP03-19_3.5-5		13:10	C	Solid				1	
TP03-19_11-11.5		14:10	C	Solid				1	
				~~Solid~~ RHF					5 samples collected

Possible Hazard Identification: [X] Non-Hazard [ ] Flammable [ ] Skin Irritant [ ] Poison B [ ] Unknown [ ] Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): [ ] Return To Client [X] Disposal By Lab [ ] Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	R. Frappa	7/31/19 943	GEI	[illegible]	7/31/19 0943	TAL
2						
3						

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: #1 3.9°C

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

11.6/11.7

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-50909.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.giglia@testamericainc.com	State of Origin: New York	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-156995-1
Address: 4101 Shuffel Street NW,	Due Date Requested: 8/6/2019			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Chaffee Landfill	Project #: 48002636			
Site: Chaffee Landfill (formerly CID)	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

C37

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	WalkleyBlk_Calc/ Organic Carbon, Total (TOC)	Moisture/ Percent Moisture	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
TP01-19-4.5 (480-156995-1)	7/30/19	10:30 Eastern		Solid			X	X	1	
TP02-19-5-7 (480-156995-2)	7/30/19	12:30 Eastern		Solid			X	X	1	
TP02-19-9.5 (480-156995-3)	7/30/19	12:30 Eastern		Solid			X	X	1	
TP03-19-3.5-5 (480-156995-4)	7/30/19	13:10 Eastern		Solid			X	X	1	
TP03-19-11-11.5 (480-156995-5)	7/30/19	14:20 Eastern		Solid			X	X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	7-31-19 1630	QAB	[signature]	8-2-19 915	ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

8/8/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____
Canton Facility

Client ETA Site Name _____ Cooler unpacked by: Ryan Cribley

Cooler Received on 8-2-19 Opened on 8-2-19

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **+0.1** °C) Observed Cooler Temp. 11.6 °C Corrected Cooler Temp. 11.7 °C
   IR GUN #36 (CF **+0.6**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC984738**
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes No
16. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-156995-1

Login Number: 156995
List Number: 1
Creator: Harper, Marcus D

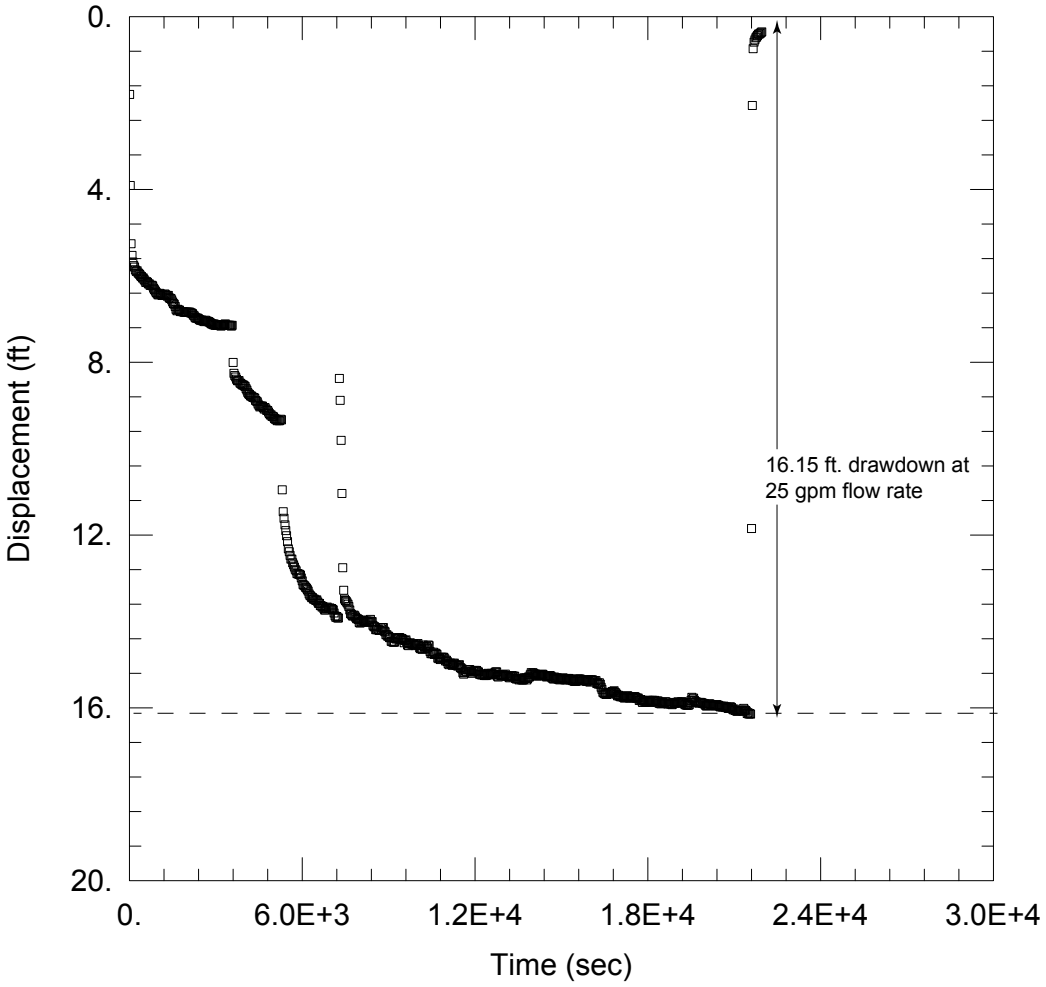
List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GEI
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Appendix D

Hydraulic Testing: Slug Tests and Pumping Test Data

PZ-5D Calculation of Specific Capacity



PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZ-05D
Test Date: 7/9/19

AQUIFER DATA

Saturated Thickness: 17. ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
PZ-05D	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
▫ PZ-05D	0	0

CALCULATION OF SPECIFIC CAPACITY

$$S_c = Q / (h_o - h)$$

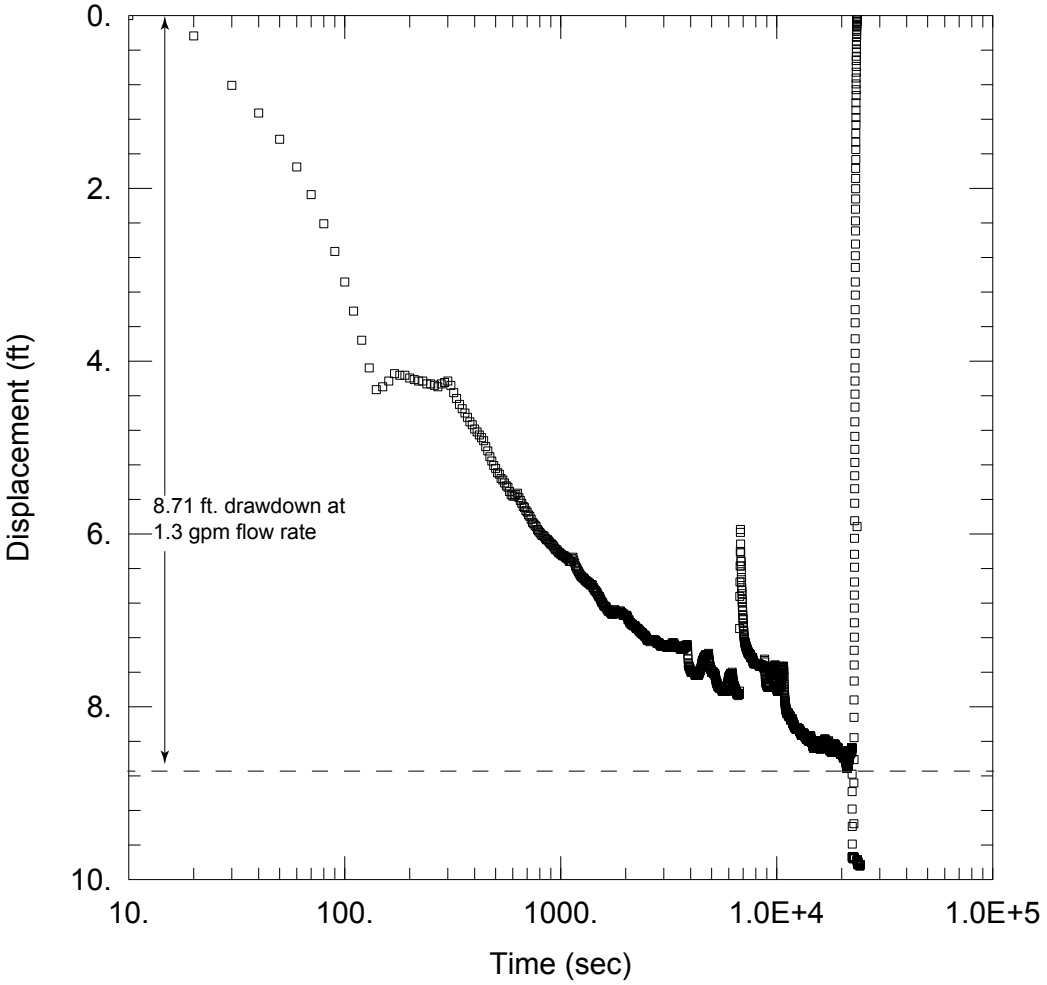
$$S_c = 25\ gpm / 16.15\ ft.$$

$$= \mathbf{1.5\ gpm/ft}$$

Where:

Sc = Specific capacity in gallons /min / foot
Q = Discharge rate in gallons/min
(h_0-h) = Total drawdown in feet

PZ-5S Calculation of Specific Capacity



PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZ-05S
Test Date: 8/23/19

AQUIFER DATA

Saturated Thickness: 15. ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
PZ-05S	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
▫ PZ-05S	0	0

CALCULATION OF SPECIFIC CAPACITY

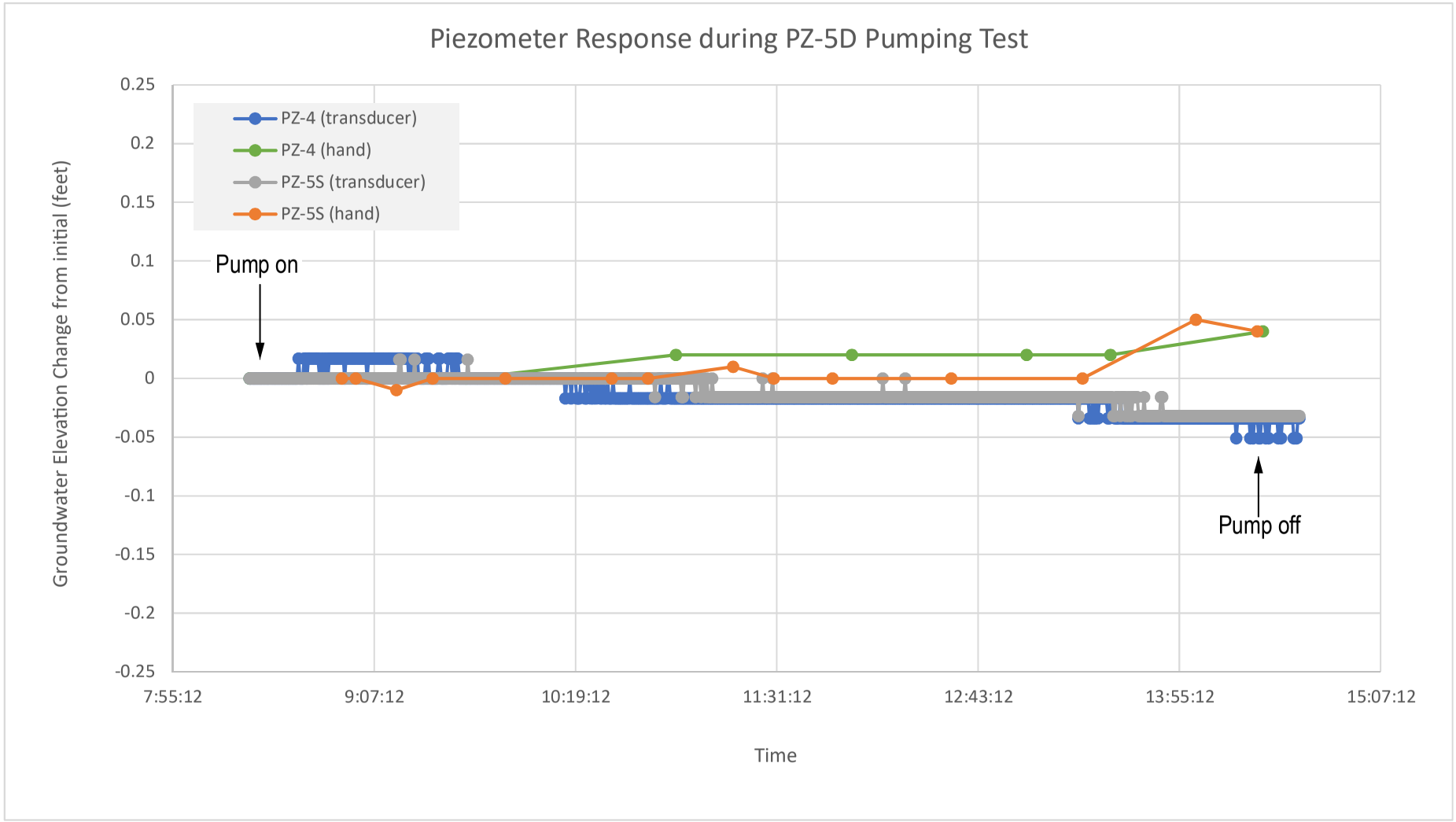
$S_c = Q / (h_o - h)$

$S_c = 1.3\ gpm / 8.71\ ft.$

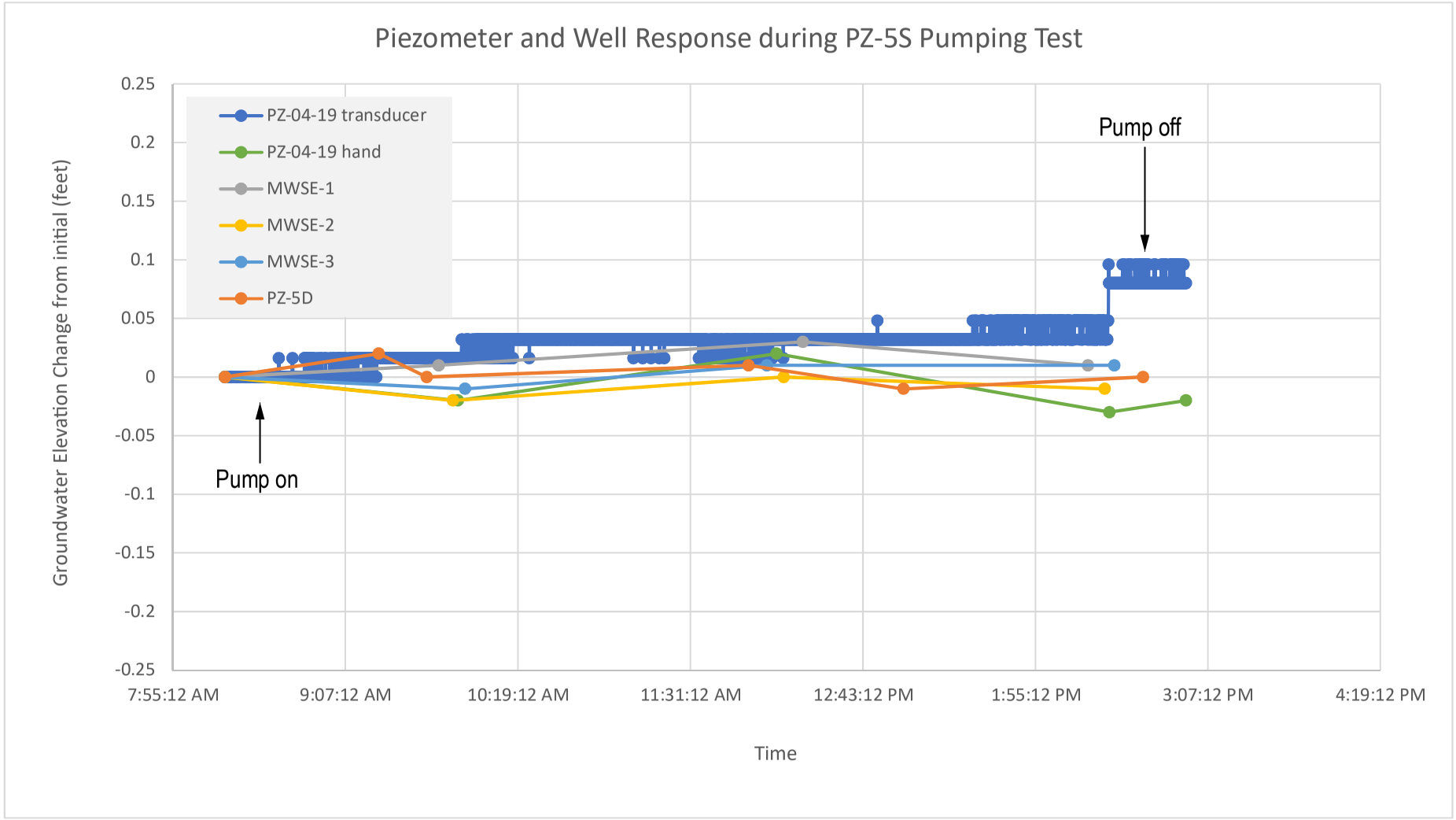
$= \mathbf{0.15\ gpm/ft}$

Where:

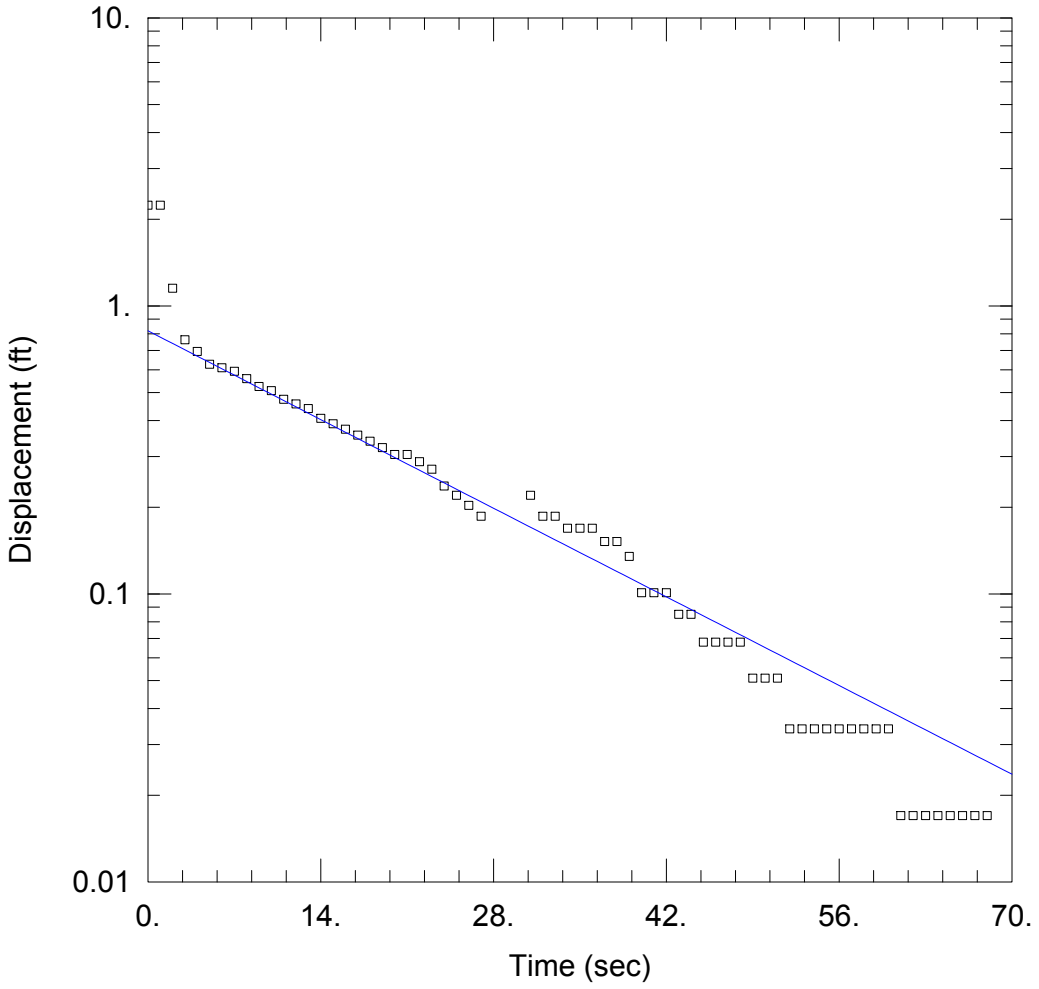
Sc = Specific capacity in gallons / min / foot
Q = Discharge rate in gallons/min
(h_0-h) = Total drawdown in feet



Maximum drawdown in PZ-5D during pumping=16.15 ft.



Maximum drawdown in PZ-5S during pumping=8.71 ft.



WELL TEST ANALYSIS

Data Set: B:\...\MWSE-1(in).aqt
Date: 06/18/19 Time: 11:27:35

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: MWSE-1
Test Date: 6/12/19

AQUIFER DATA

Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

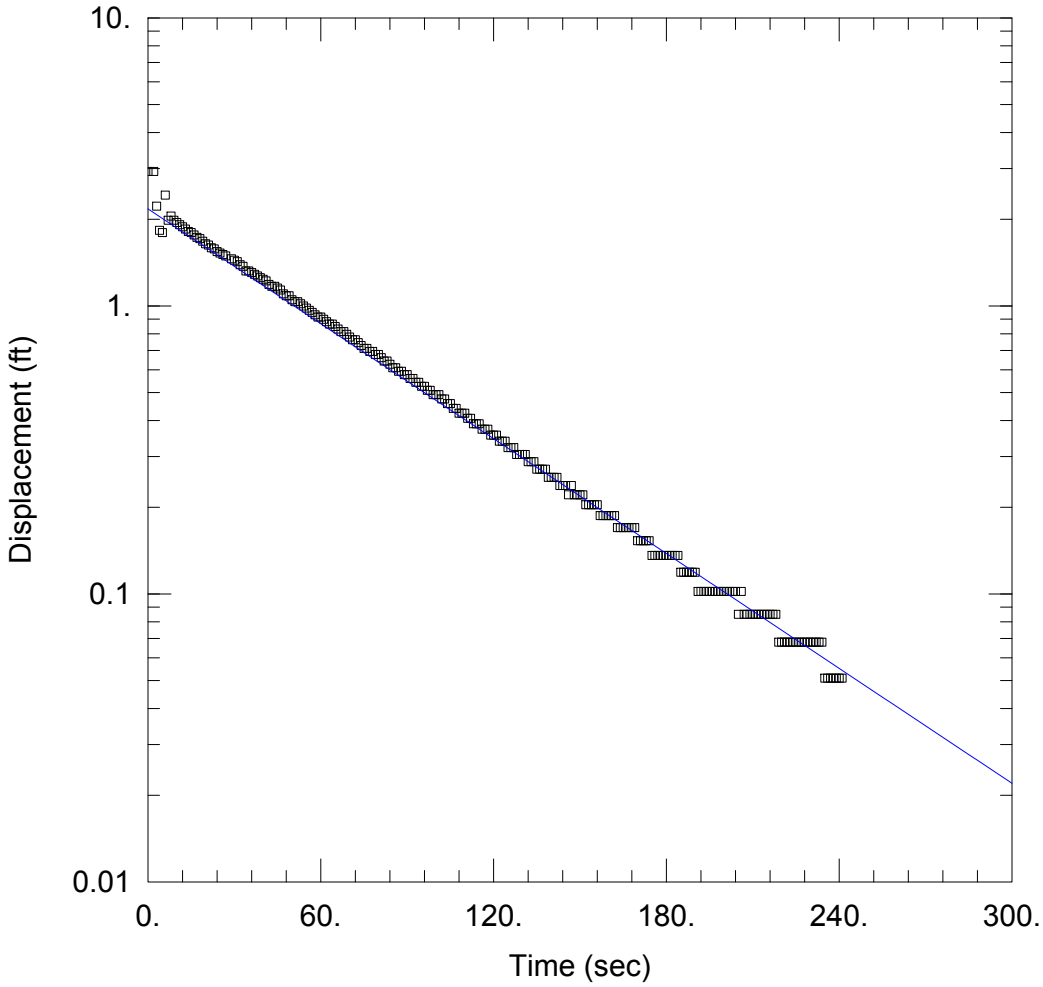
WELL DATA (MWSE-1)

Initial Displacement: 2.237 ft
Total Well Penetration Depth: 25. ft
Casing Radius: 0.08 ft
Static Water Column Height: 8.95 ft
Screen Length: 10. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0003624 cm/sec y0 = 0.8193 ft



WELL TEST ANALYSIS

Data Set: B:\...\MWSE-1(out).aqt
Date: 06/18/19 Time: 11:30:08

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: MWSE-1
Test Date: 6/12/19

AQUIFER DATA

Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

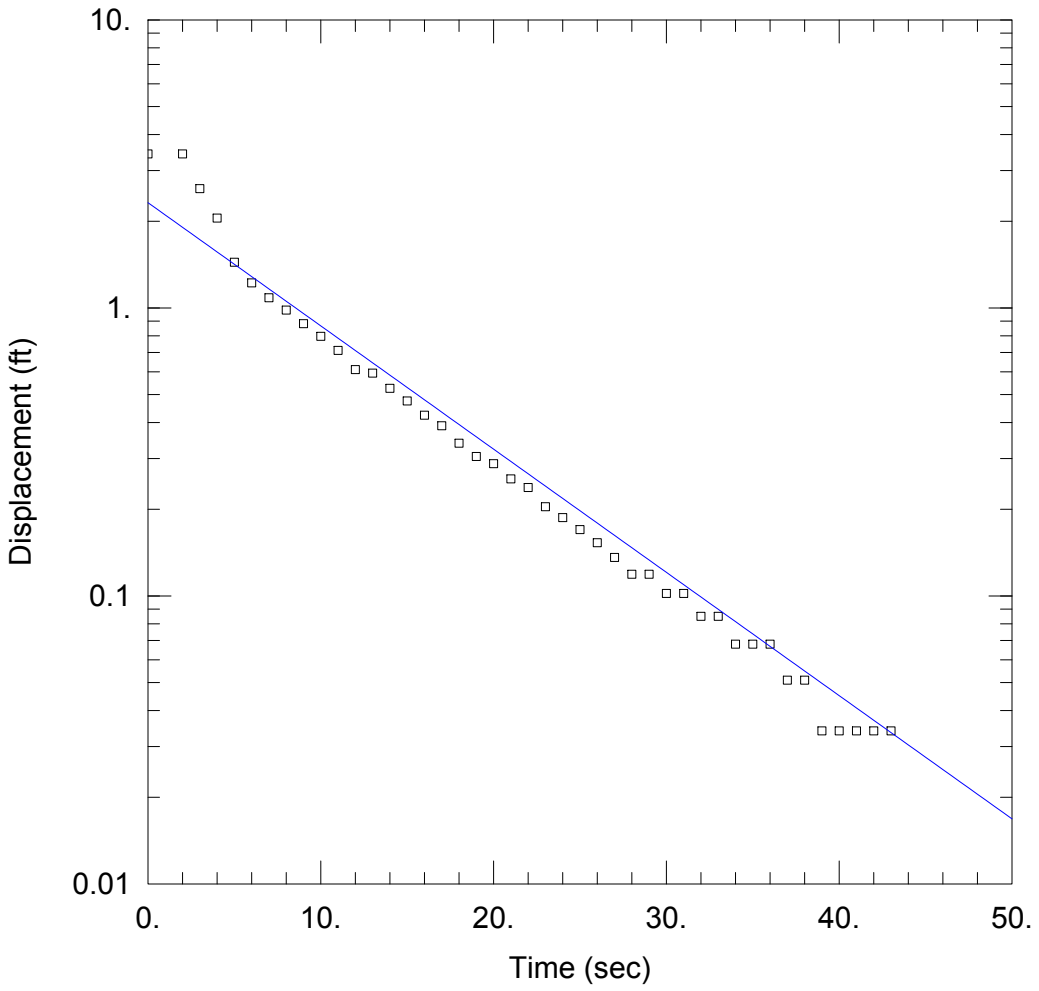
WELL DATA (MWSE-1)

Initial Displacement: 2.932 ft
Total Well Penetration Depth: 25. ft
Casing Radius: 0.08 ft
Static Water Column Height: 8.95 ft
Screen Length: 10. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0001095 cm/sec y0 = 2.172 ft



WELL TEST ANALYSIS

Data Set: B:\...\MWSE-2(out).aqt
Date: 06/18/19 Time: 10:56:50

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: MWSE-2
Test Date: 6/12/19

AQUIFER DATA

Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

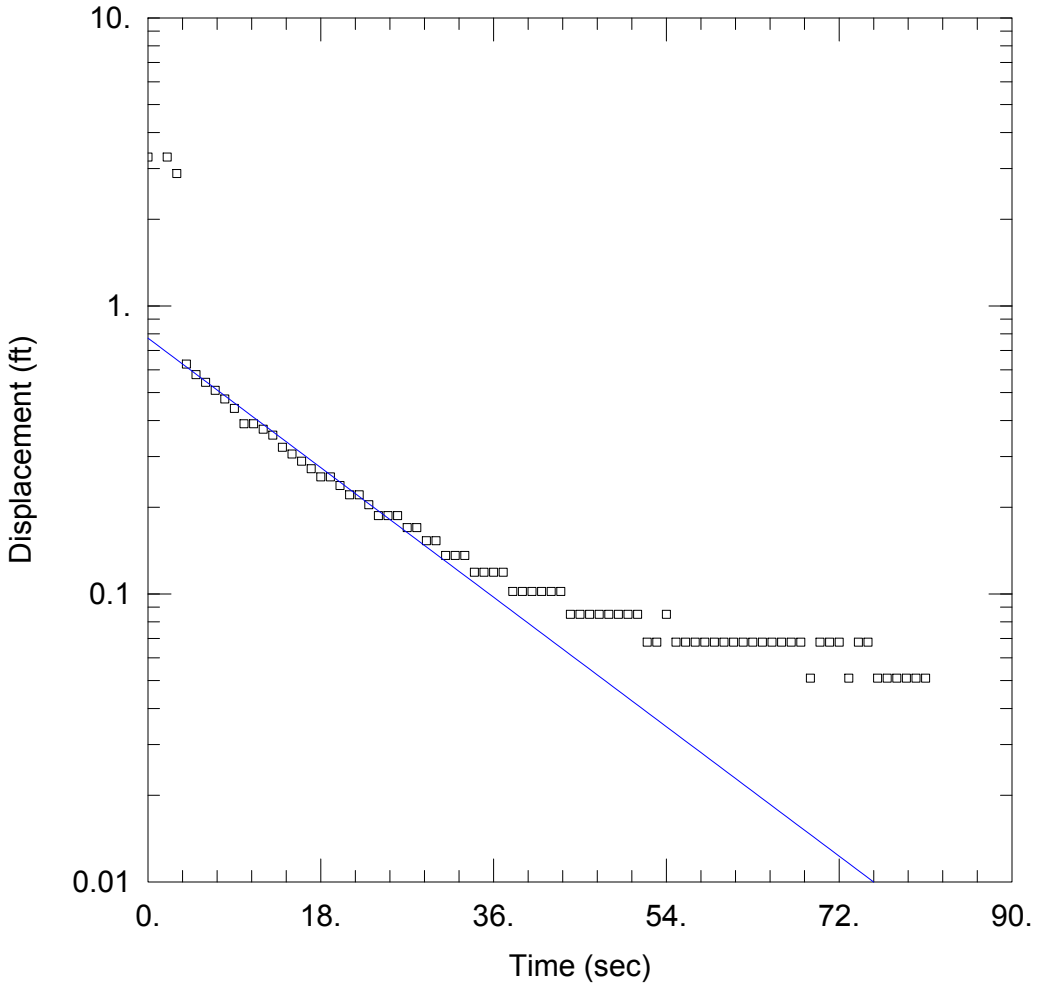
WELL DATA (MWSE-2)

Initial Displacement: 3.424 ft
Total Well Penetration Depth: 25. ft
Casing Radius: 0.08 ft
Static Water Column Height: 12.83 ft
Screen Length: 10. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0007051 cm/sec y0 = 2.32 ft



WELL TEST ANALYSIS

Data Set: B:\...\MWSE-3(in).aqt
Date: 08/02/19 Time: 12:53:02

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: MWSE-3
Test Date: 6/12/19

AQUIFER DATA

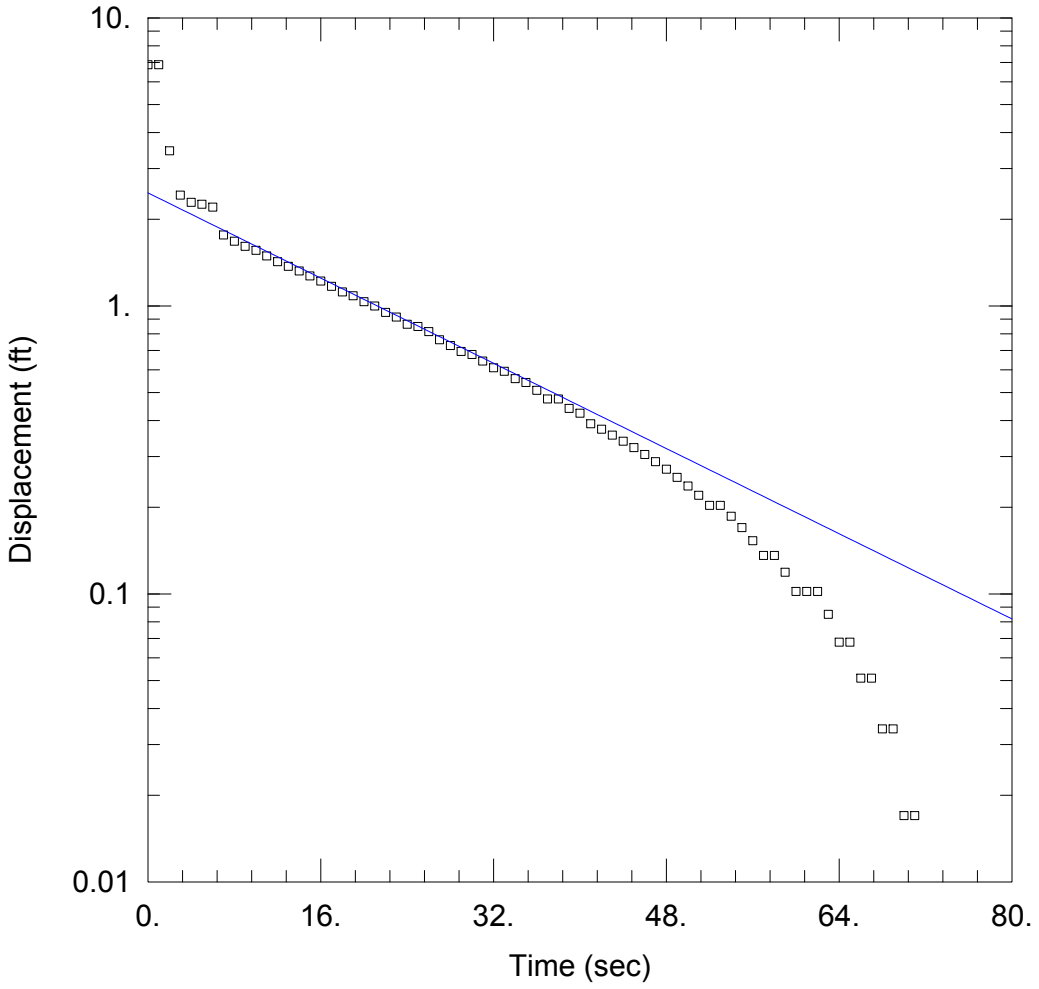
Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MWSE-3)

Initial Displacement: 3.289 ft Static Water Column Height: 4.11 ft
Total Well Penetration Depth: 25. ft Screen Length: 10. ft
Casing Radius: 0.08 ft Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0004115 cm/sec y0 = 0.7728 ft



WELL TEST ANALYSIS

Data Set: B:\...\MWSE-3(out).aqt
Date: 06/18/19 Time: 10:48:50

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: MWSE-3
Test Date: 6/12/19

AQUIFER DATA

Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

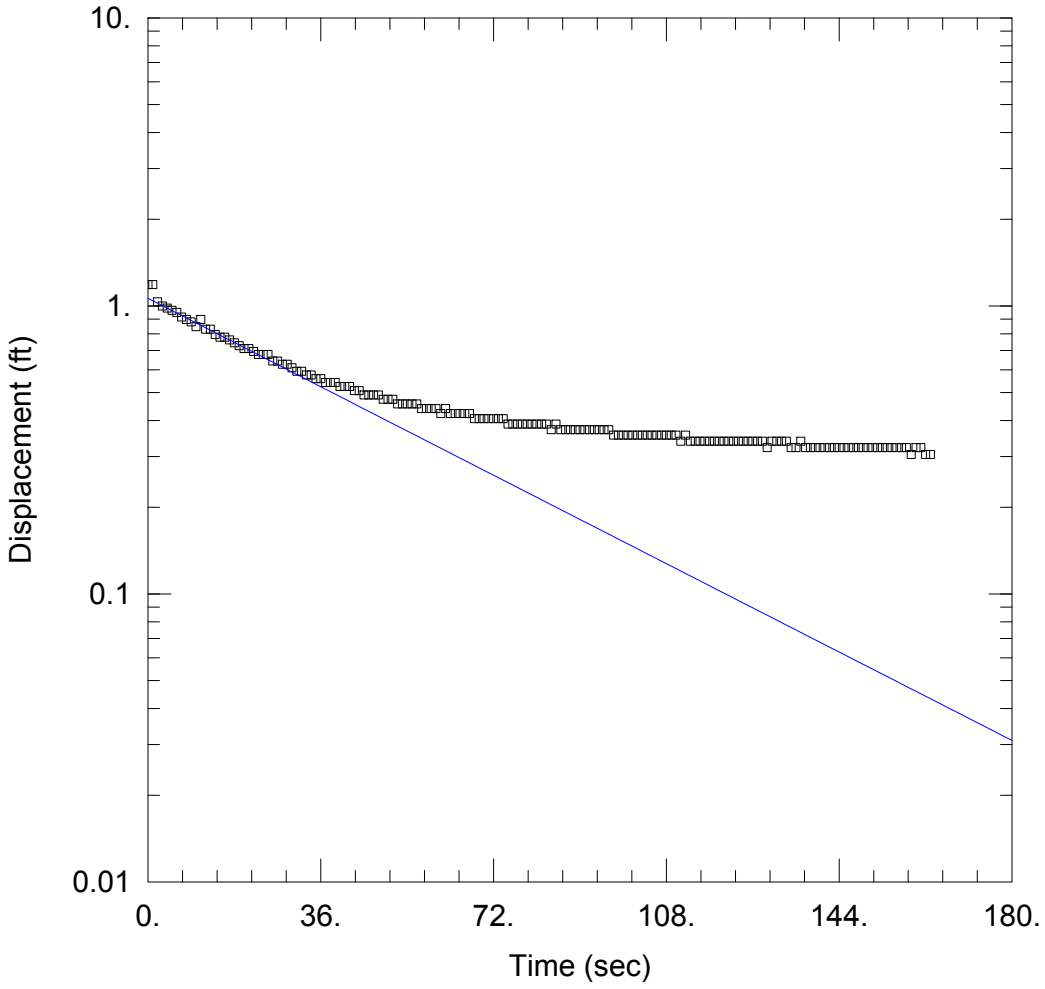
WELL DATA (MWSE-3)

Initial Displacement: 6.881 ft
Total Well Penetration Depth: 28. ft
Casing Radius: 0.08 ft
Static Water Column Height: 4.11 ft
Screen Length: 10. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0003109 cm/sec y0 = 2.468 ft



WELL TEST ANALYSIS

Data Set: B:\...\MWSE-4(in).aqt
Date: 06/18/19 Time: 11:02:49

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: MWSE-4
Test Date: 6/12/19

AQUIFER DATA

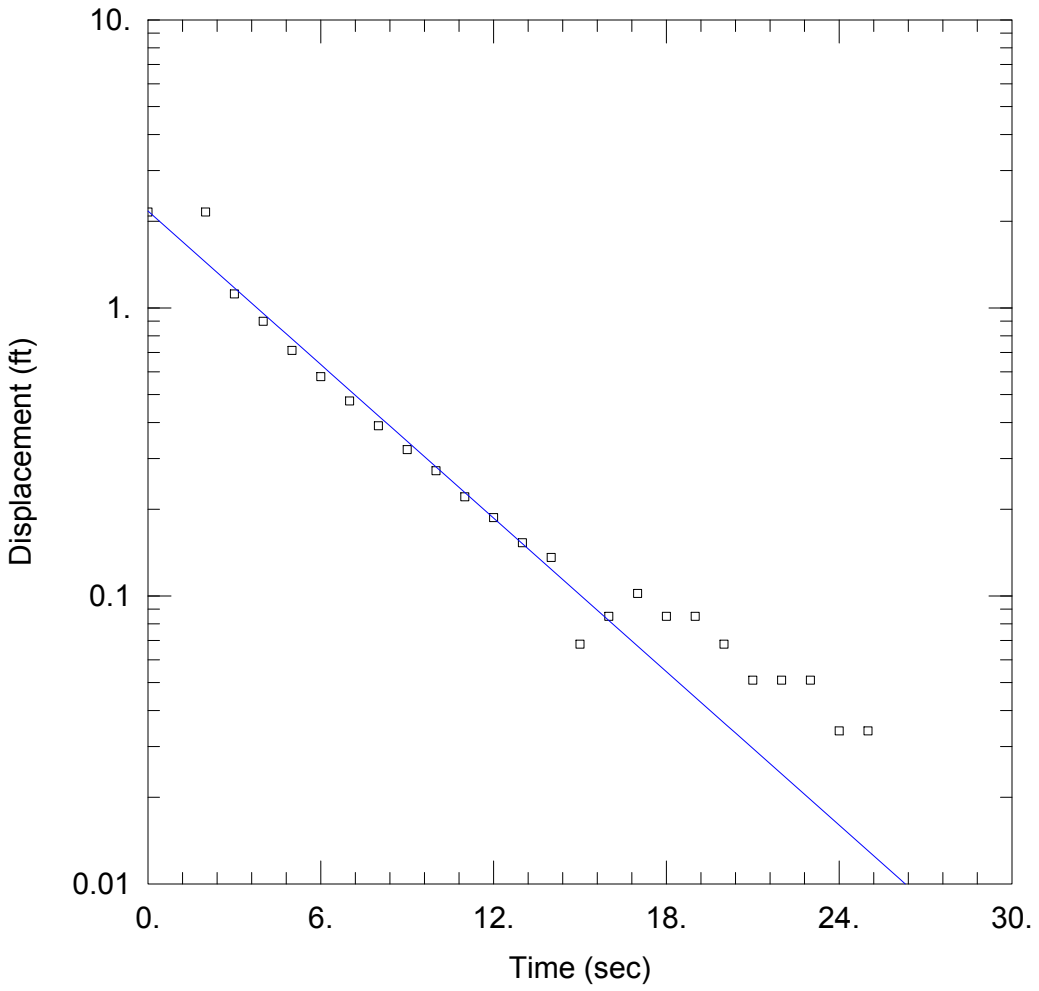
Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MWSE-4)

Initial Displacement: 1.186 ft Static Water Column Height: 5.57 ft
Total Well Penetration Depth: 20. ft Screen Length: 10. ft
Casing Radius: 0.08 ft Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0001347 cm/sec y0 = 1.063 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZ-01(out).aqt
Date: 06/18/19 Time: 10:51:28

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZ-01
Test Date: 6/12/19

AQUIFER DATA

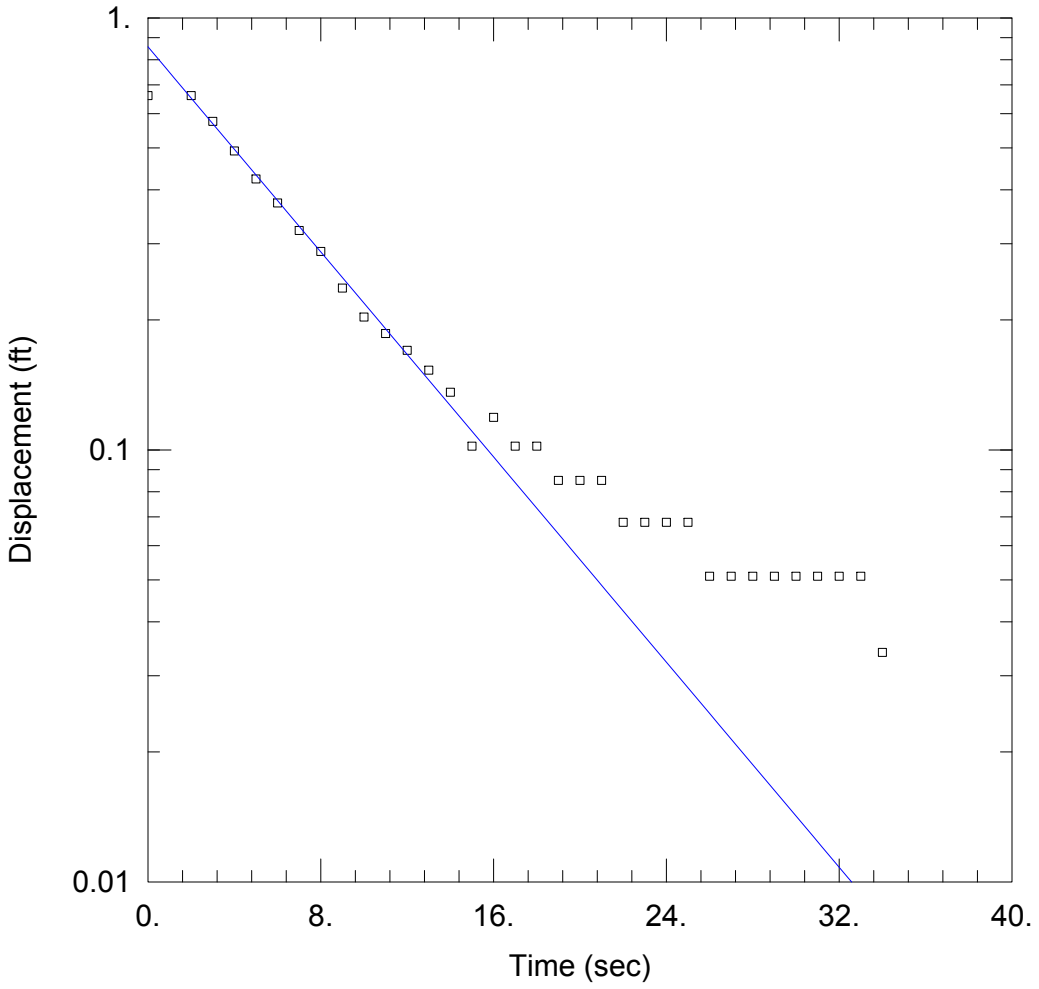
Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ-01)

Initial Displacement: 2.153 ft Static Water Column Height: 5.28 ft
Total Well Penetration Depth: 25. ft Screen Length: 10. ft
Casing Radius: 0.08 ft Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.001464 cm/sec y0 = 2.17 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZ-02(out).aqt
Date: 06/18/19 Time: 10:46:40

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZ-02
Test Date: 6/12/19

AQUIFER DATA

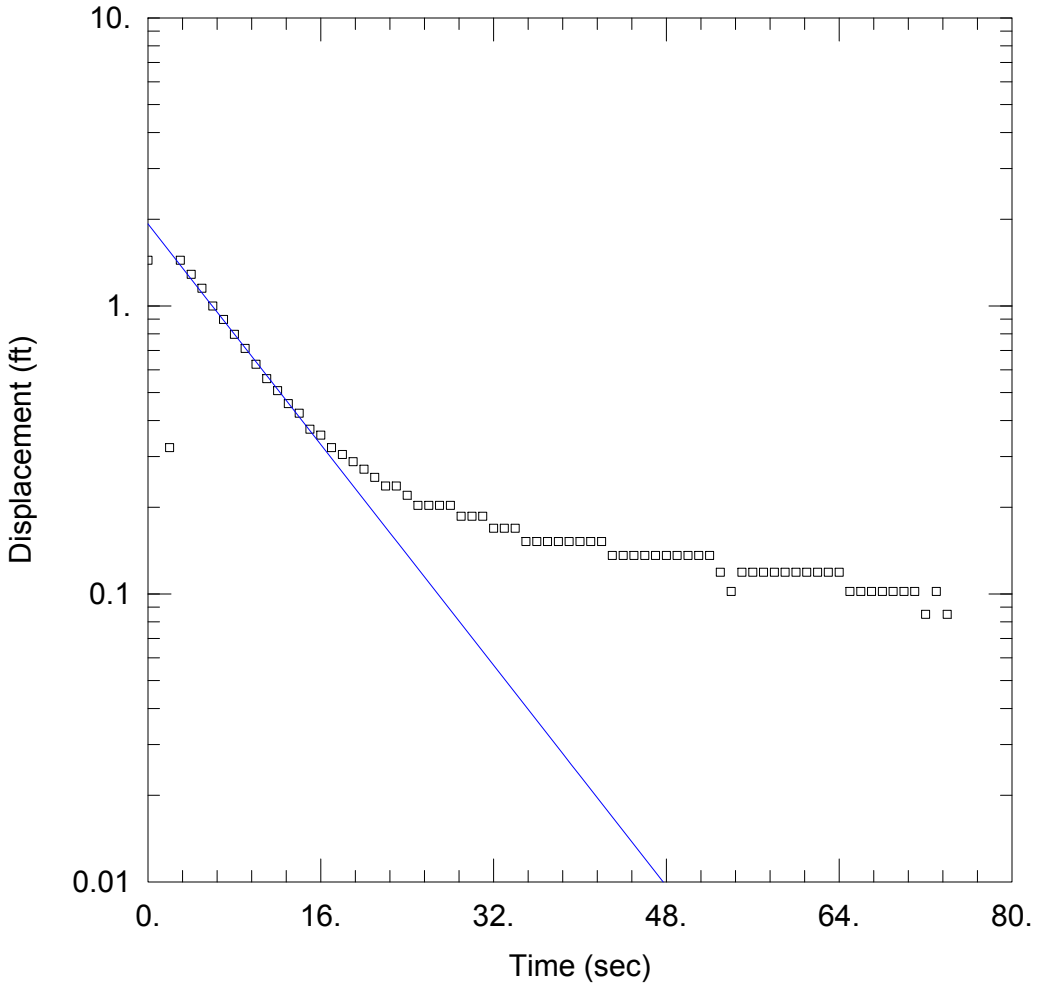
Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ-02)

Initial Displacement: 0.661 ft
Total Well Penetration Depth: 28. ft
Casing Radius: 0.08 ft
Static Water Column Height: 5.12 ft
Screen Length: 10. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0009978 cm/sec
y0 = 0.8571 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZ-03(out).aqt
Date: 06/18/19 Time: 10:54:04

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZ-03
Test Date: 6/12/19

AQUIFER DATA

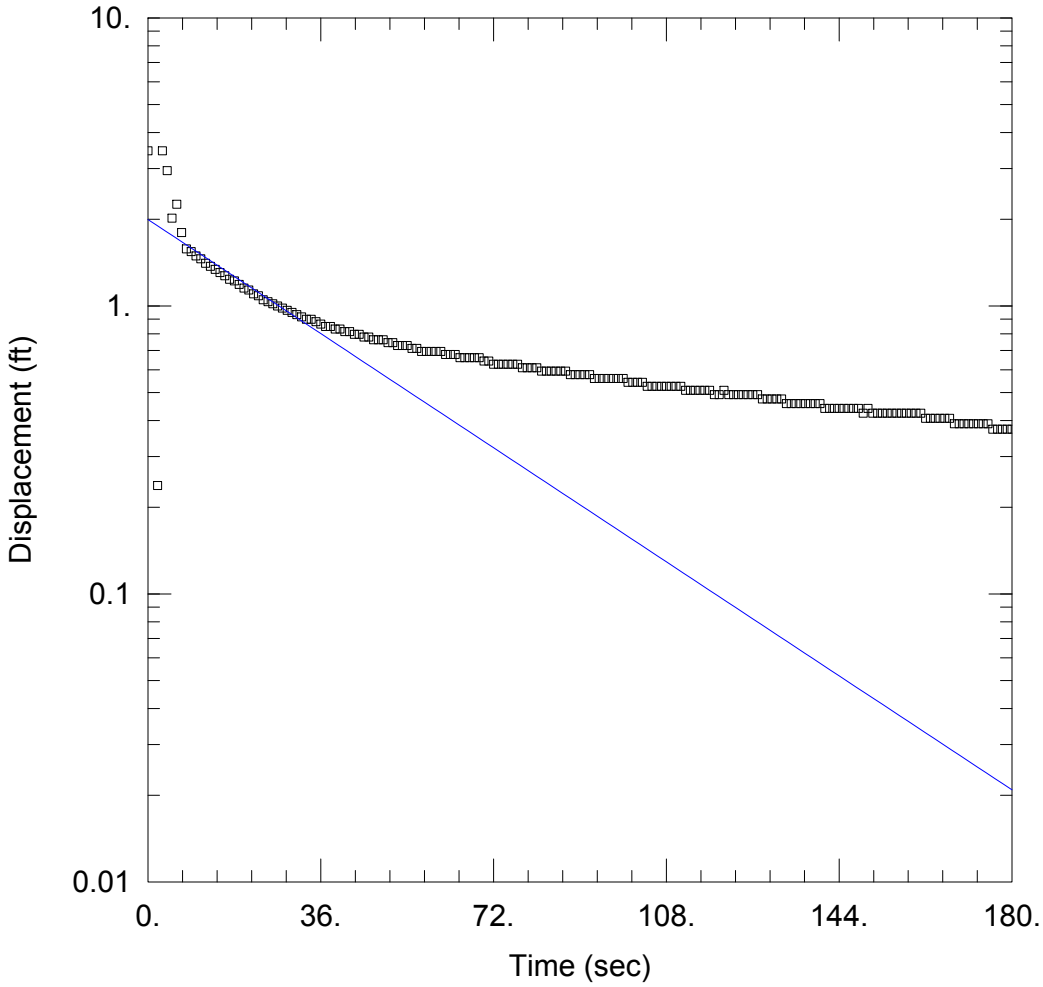
Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ-03)

Initial Displacement: 1.441 ft Static Water Column Height: 5.14 ft
Total Well Penetration Depth: 25. ft Screen Length: 10. ft
Casing Radius: 0.08 ft Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.0007889 cm/sec y0 = 1.927 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZ-04(out).aqt
Date: 06/18/19 Time: 11:05:09

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZ-04
Test Date: 6/12/19

AQUIFER DATA

Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

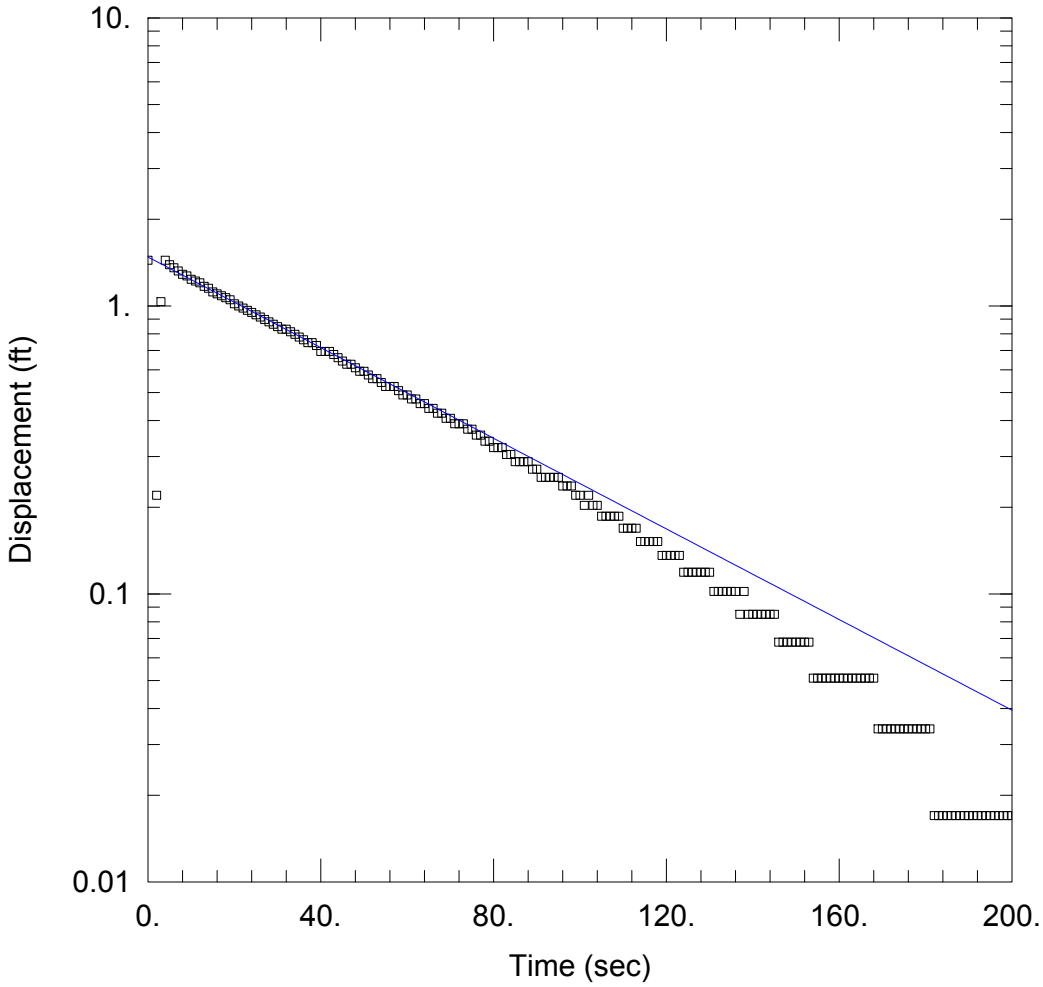
WELL DATA (PZ-04)

Initial Displacement: 3.458 ft
Total Well Penetration Depth: 28. ft
Casing Radius: 0.08 ft
Static Water Column Height: 6.5 ft
Screen Length: 10. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.000185 cm/sec y0 = 1.995 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZ-05S(out).aqt
Date: 06/18/19 Time: 11:20:12

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZ-05S
Test Date: 6/12/19

AQUIFER DATA

Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

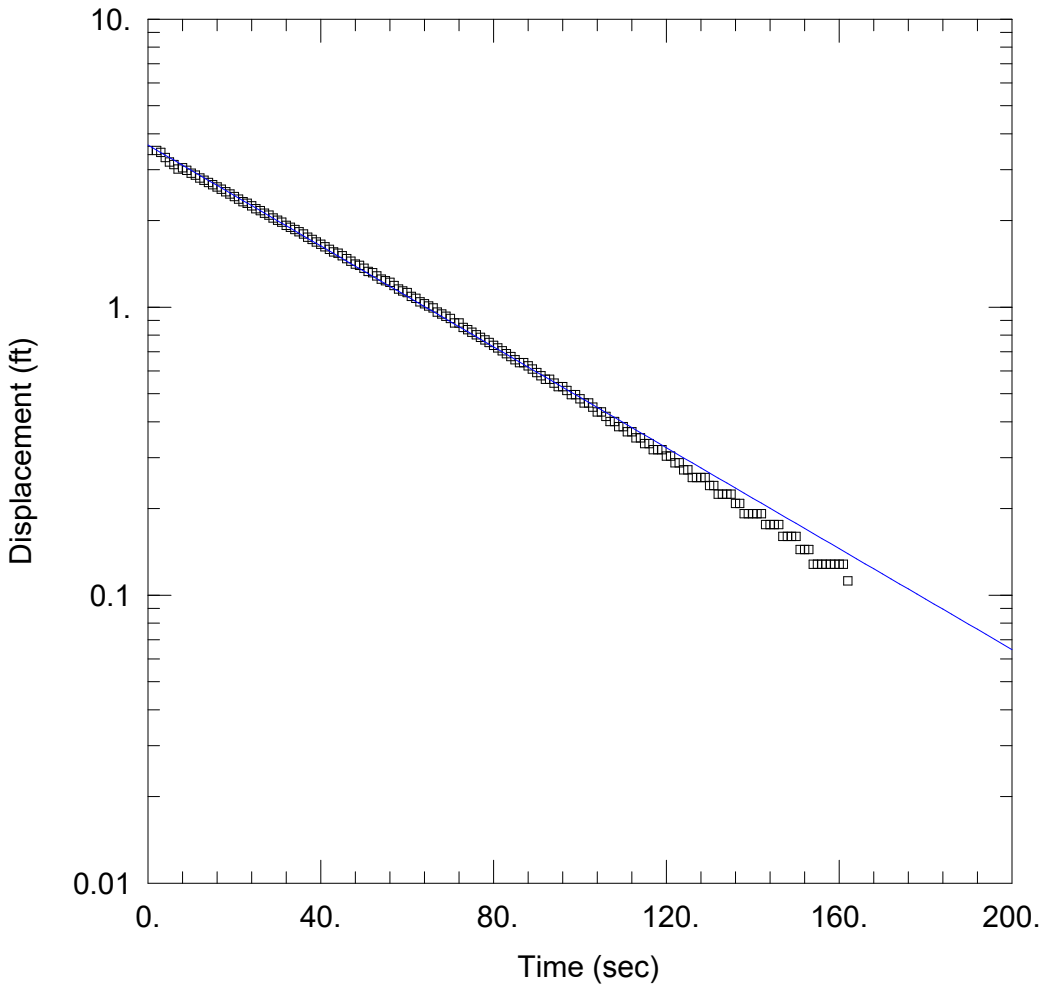
WELL DATA (PZ-05S)

Initial Displacement: 1.441 ft Static Water Column Height: 9.85 ft
Total Well Penetration Depth: 28. ft Screen Length: 10. ft
Casing Radius: 0.166 ft Well Radius: 0.66 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0005593 cm/sec y0 = 1.479 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZMWSE3D-19 (out).aqt
Date: 10/21/19 Time: 11:39:06

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZMWSE3D-19
Test Date: 10/18/19

AQUIFER DATA

Saturated Thickness: 5. ft Anisotropy Ratio (Kz/Kr): 1.

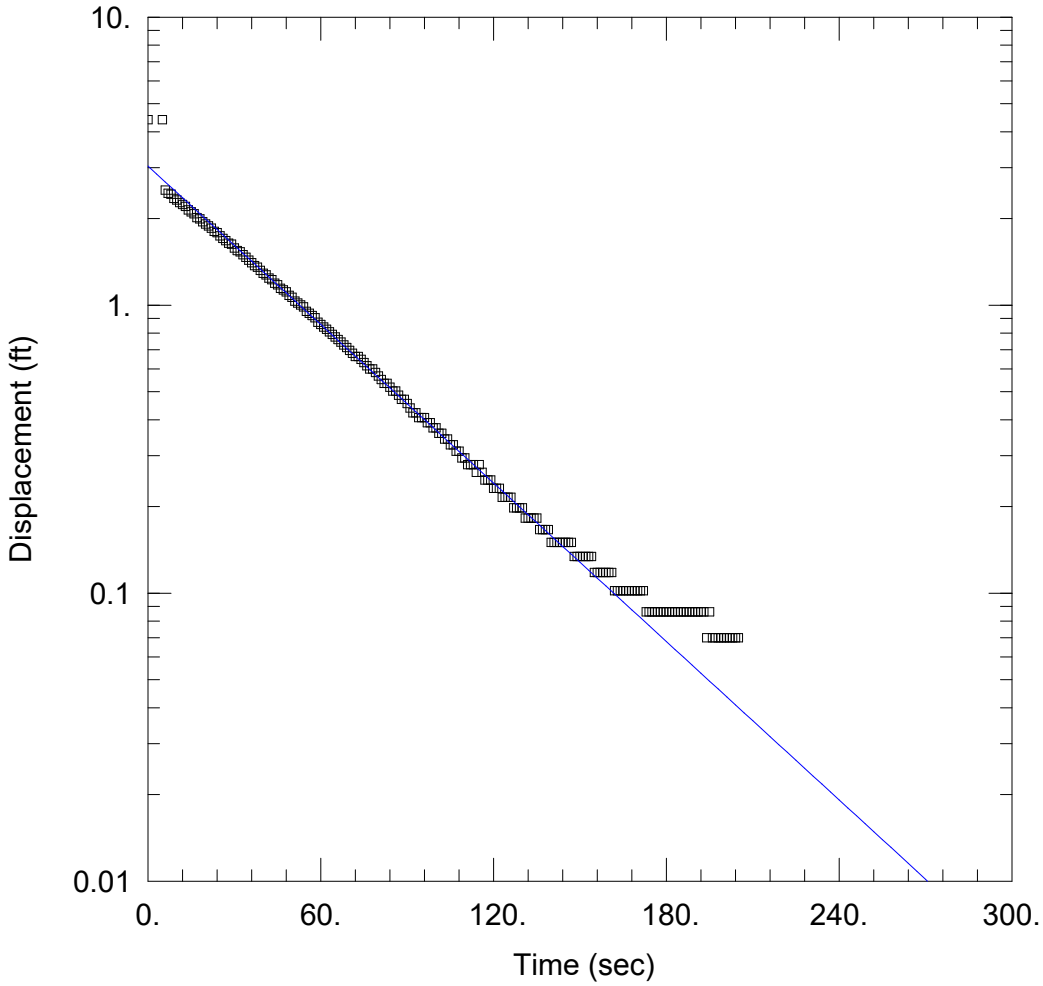
WELL DATA (PZMWSE3D-19)

Initial Displacement: 3.497 ft
Total Well Penetration Depth: 58. ft
Casing Radius: 0.08 ft
Static Water Column Height: 25.86 ft
Screen Length: 5. ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.0002954 cm/sec y0 = 3.652 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZMWSE3D-19 (in).aqt
Date: 10/21/19 Time: 11:43:13

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZMWSE3D-19
Test Date: 10/18/19

AQUIFER DATA

Saturated Thickness: 5. ft Anisotropy Ratio (Kz/Kr): 1.

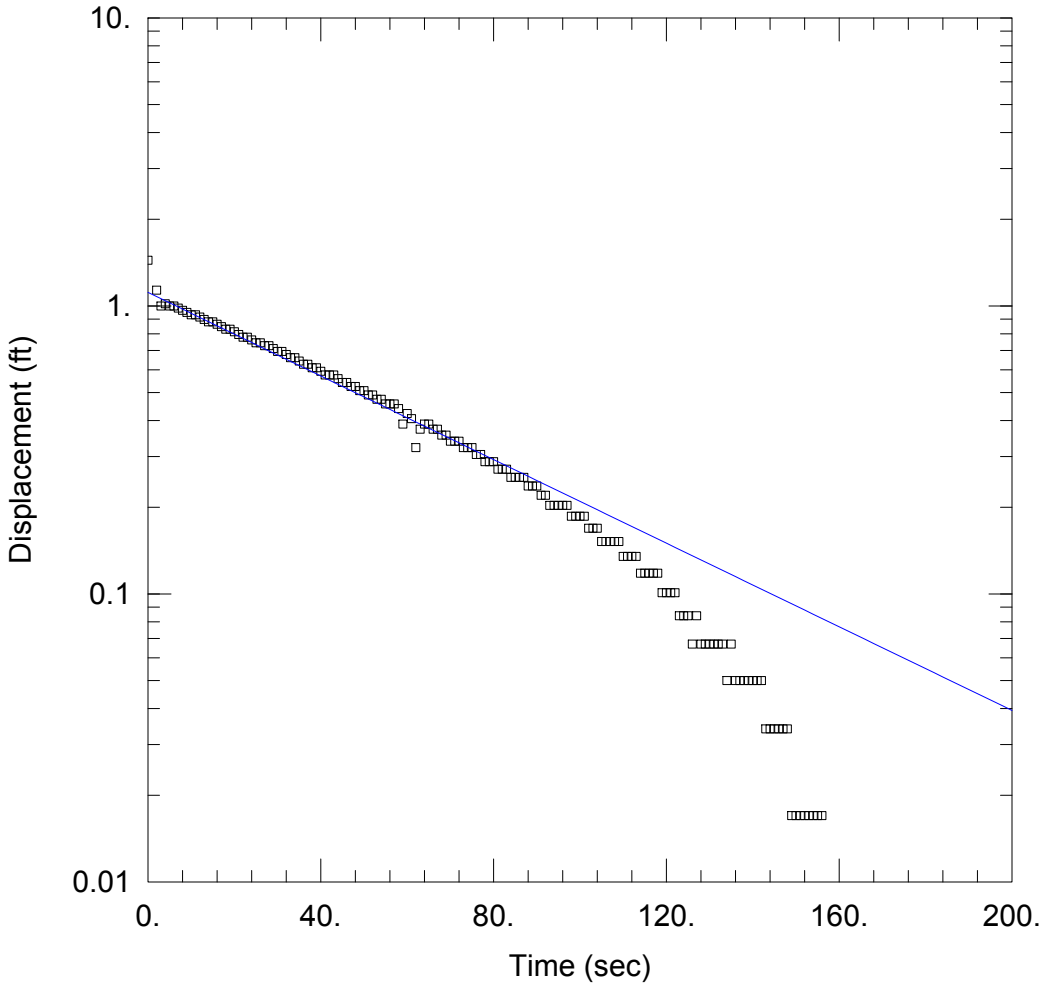
WELL DATA (PZMWSE3D-19)

Initial Displacement: 4.402 ft
Total Well Penetration Depth: 58. ft
Casing Radius: 0.08 ft
Static Water Column Height: 25.86 ft
Screen Length: 5. ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.0003094 cm/sec y0 = 3.038 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZ-05D(in).aqt
Date: 06/18/19 Time: 11:23:07

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZ-05D
Test Date: 6/12/19

AQUIFER DATA

Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

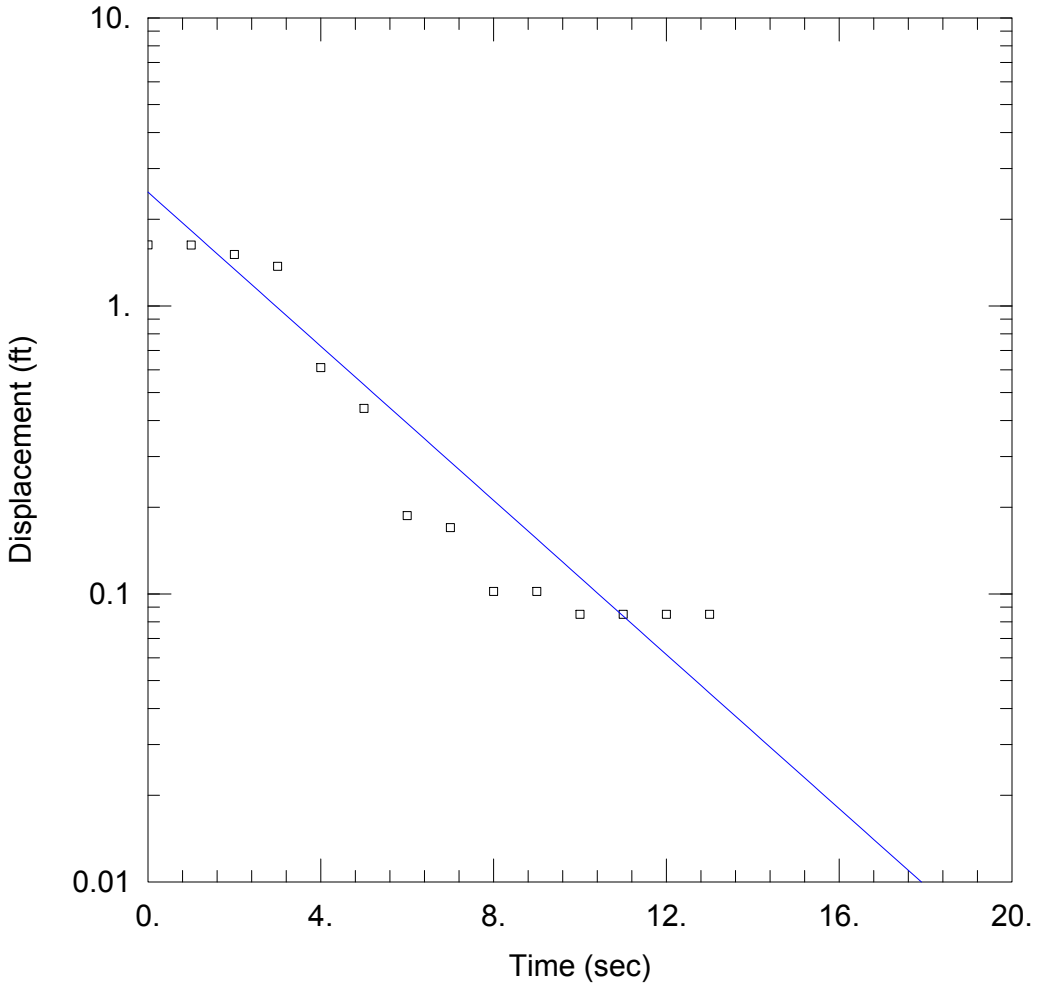
WELL DATA (PZ-05D)

Initial Displacement: 1.441 ft
Total Well Penetration Depth: 62.5 ft
Casing Radius: 0.166 ft
Static Water Column Height: 45.57 ft
Screen Length: 10. ft
Well Radius: 0.66 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 0.0005942 cm/sec y0 = 1.114 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZ-05D(out).aqt
Date: 06/18/19 Time: 10:59:51

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZ-05D
Test Date: 6/12/19

AQUIFER DATA

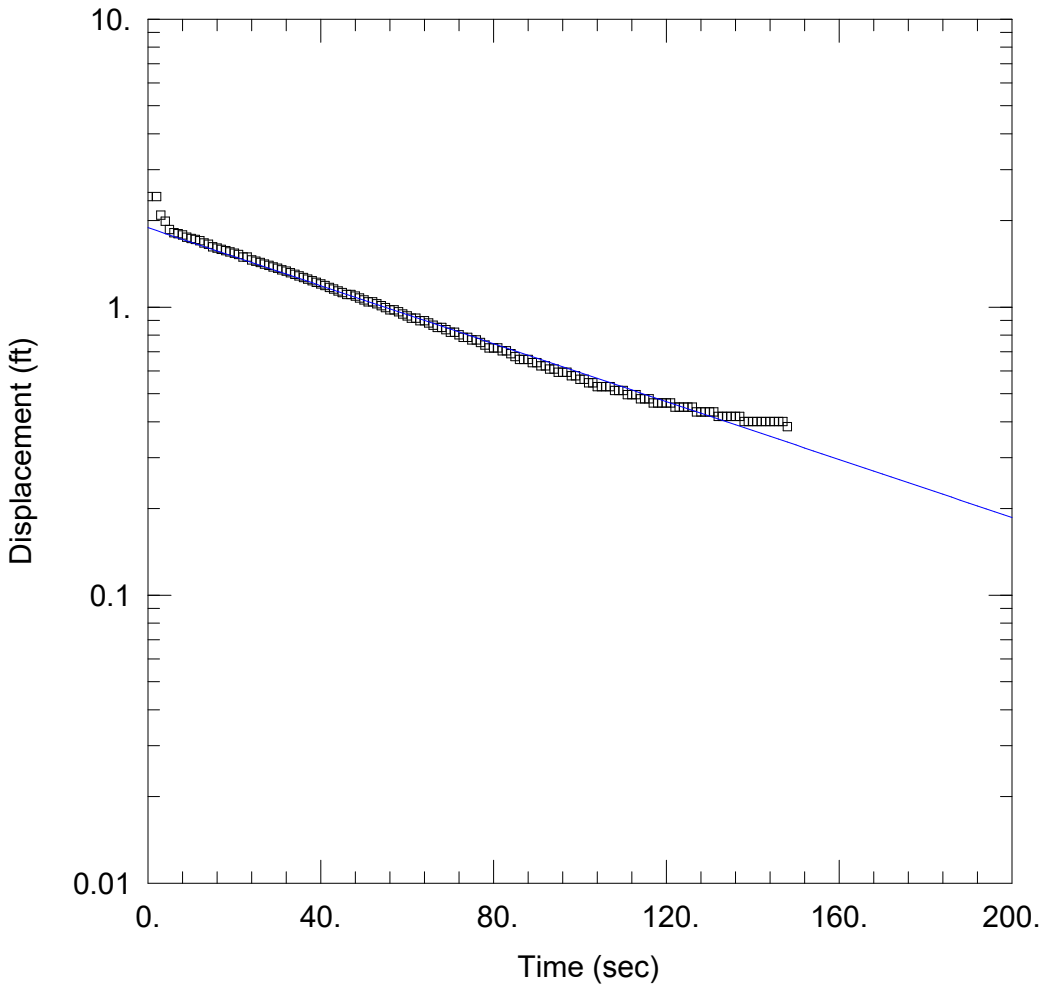
Saturated Thickness: 15. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ-05D)

Initial Displacement: 1.63 ft Static Water Column Height: 45.57 ft
Total Well Penetration Depth: 62.5 ft Screen Length: 10. ft
Casing Radius: 0.166 ft Well Radius: 0.66 ft

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
K = 0.01095 cm/sec y0 = 2.483 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZBA02D(out).aqt
Date: 10/21/19 Time: 12:50:01

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZBA02D-19
Test Date: 10/18/19

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

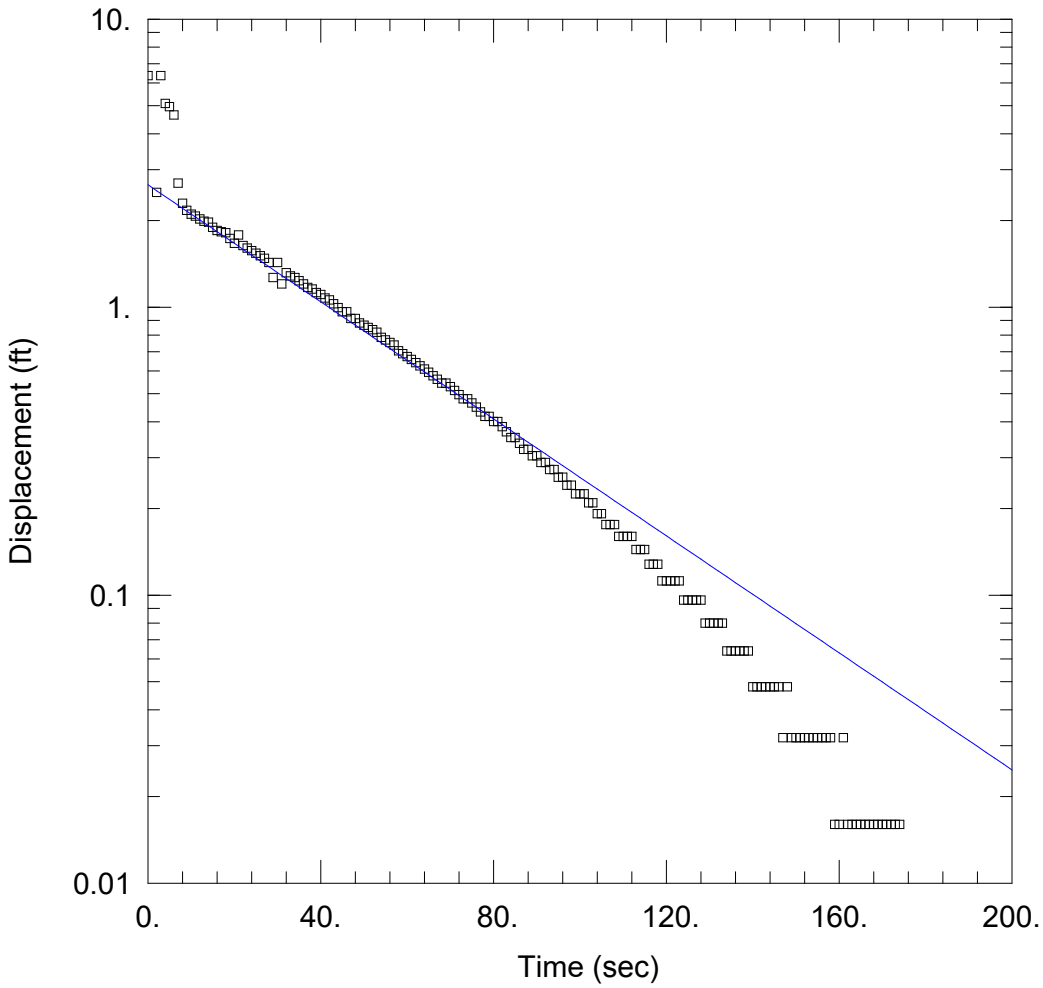
WELL DATA (PZBA02D-19)

Initial Displacement: 2.423 ft
Total Well Penetration Depth: 60. ft
Casing Radius: 0.08 ft
Static Water Column Height: 36.41 ft
Screen Length: 10. ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 9.637E-5 cm/sec y0 = 1.886 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZBA02D(in).aqt
Date: 10/21/19 Time: 12:43:33

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZBA02D-19
Test Date: 10/18/19

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

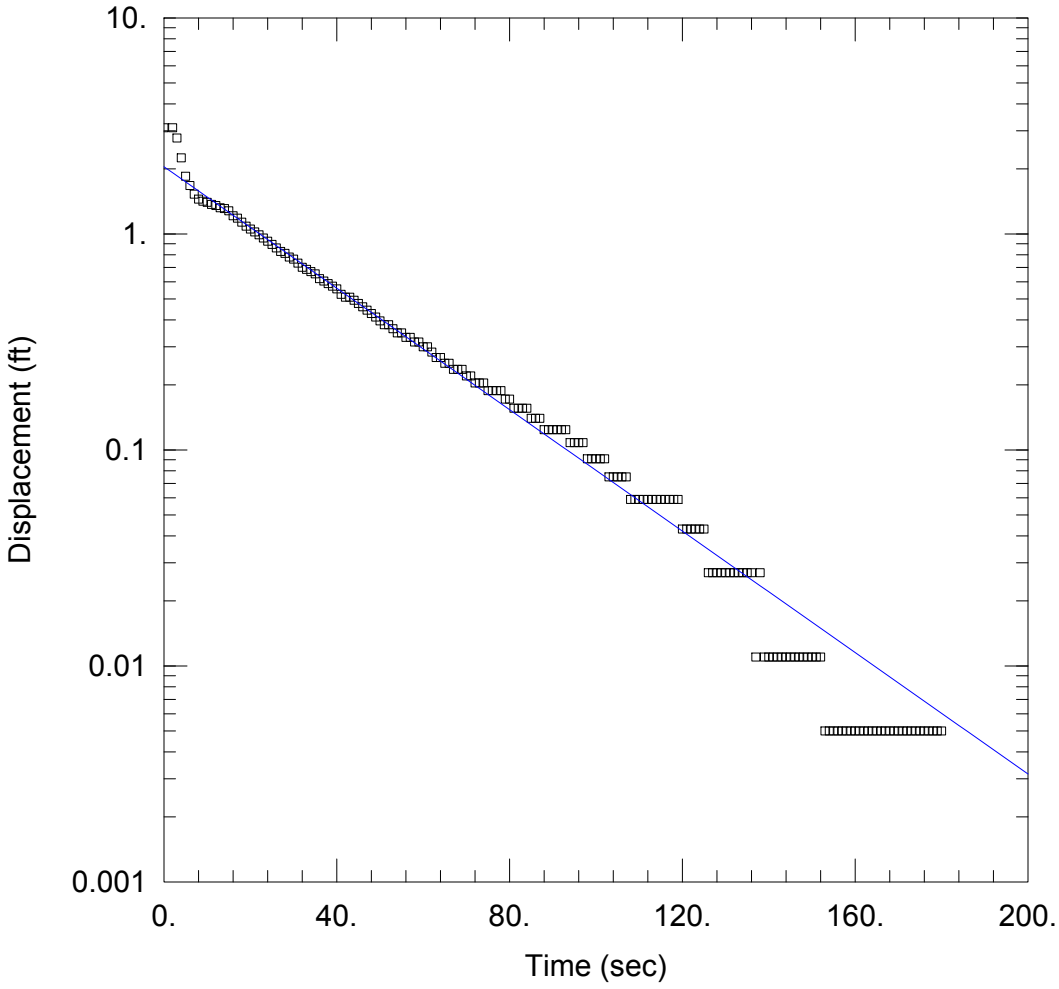
WELL DATA (PZBA02D-19)

Initial Displacement: 6.369 ft
Total Well Penetration Depth: 60. ft
Casing Radius: 0.08 ft
Static Water Column Height: 36.41 ft
Screen Length: 10. ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.0001946 cm/sec y0 = 2.658 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZ04D-19(in).aqt
Date: 10/22/19 Time: 09:38:20

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZ04D-19
Test Date: 10/18/19

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

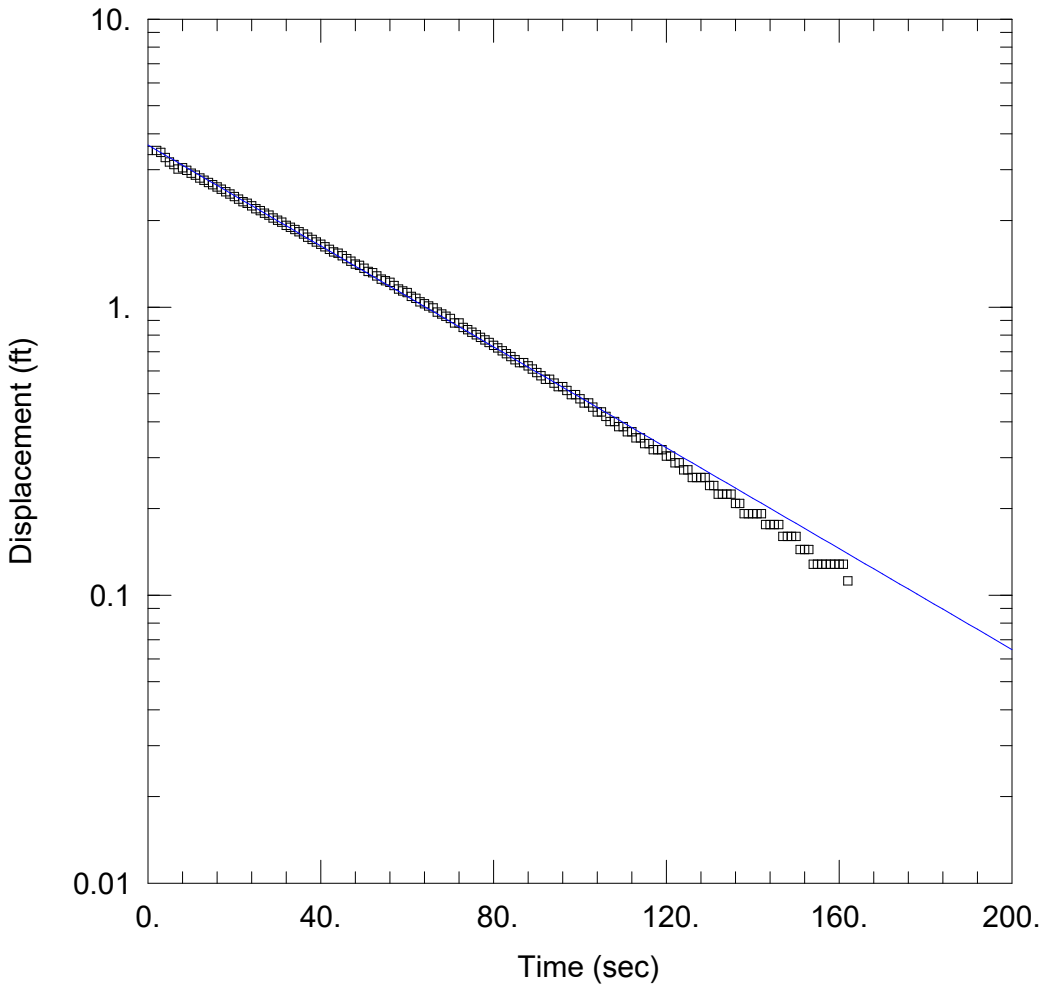
WELL DATA (PZ04D-19)

Initial Displacement: 3.102 ft
Total Well Penetration Depth: 58. ft
Casing Radius: 0.08 ft
Static Water Column Height: 33.91 ft
Screen Length: 10. ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.0002674 cm/sec y0 = 2.047 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZMWSE3D-19 (out).aqt
Date: 10/21/19 Time: 11:39:06

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZMWSE3D-19
Test Date: 10/18/19

AQUIFER DATA

Saturated Thickness: 5. ft Anisotropy Ratio (Kz/Kr): 1.

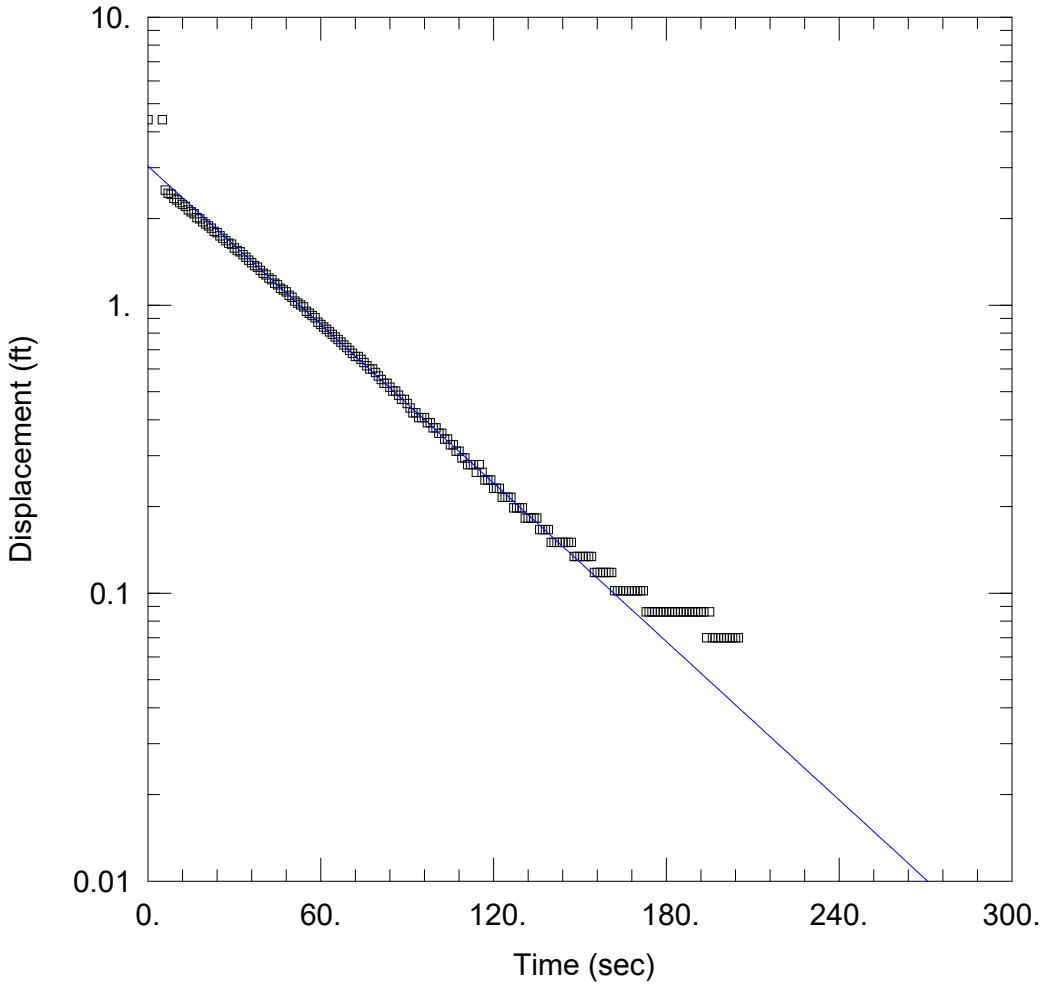
WELL DATA (PZMWSE3D-19)

Initial Displacement: 3.497 ft
Total Well Penetration Depth: 58. ft
Casing Radius: 0.08 ft
Static Water Column Height: 25.86 ft
Screen Length: 5. ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.0002954 cm/sec y0 = 3.652 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZMWSE3D-19 (in).aqt
Date: 10/21/19 Time: 11:43:13

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZMWSE3D-19
Test Date: 10/18/19

AQUIFER DATA

Saturated Thickness: 5. ft Anisotropy Ratio (Kz/Kr): 1.

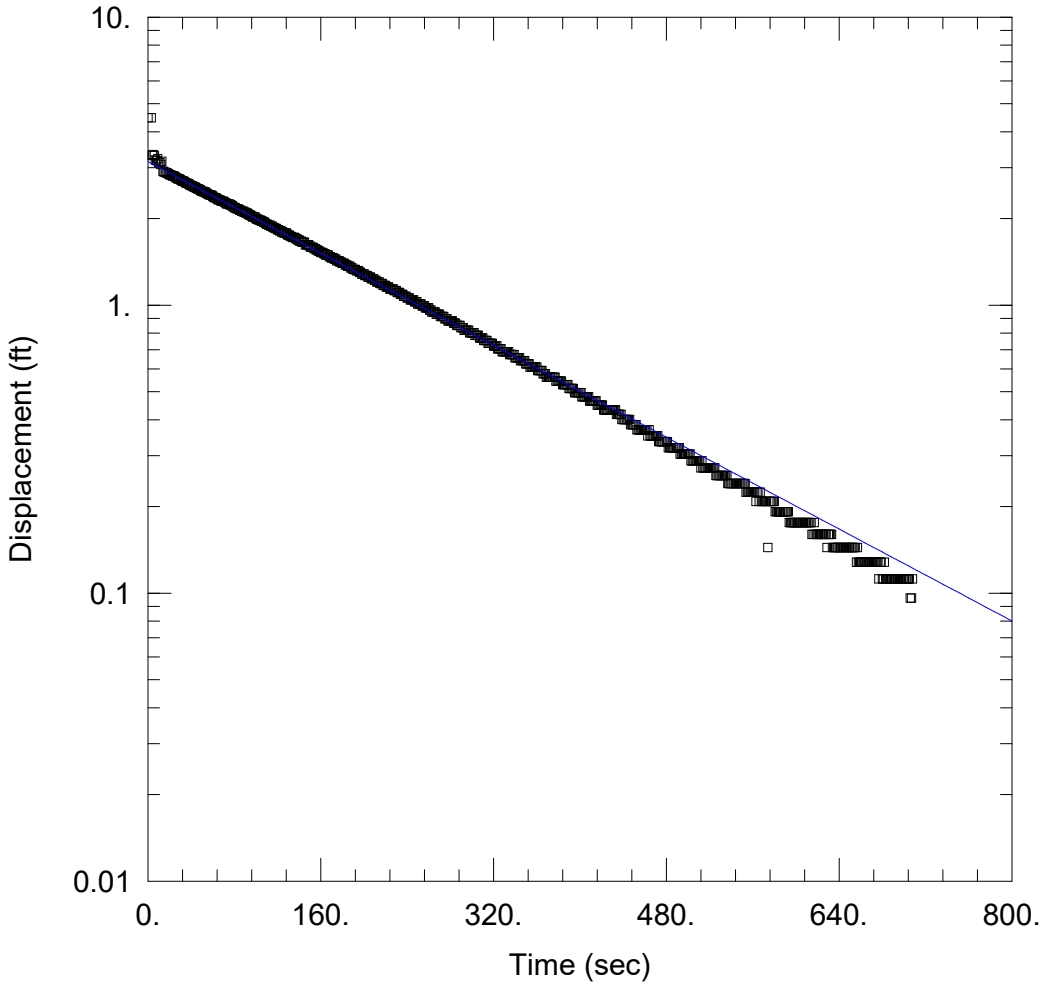
WELL DATA (PZMWSE3D-19)

Initial Displacement: 4.402 ft
Total Well Penetration Depth: 58. ft
Casing Radius: 0.08 ft
Static Water Column Height: 25.86 ft
Screen Length: 5. ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 0.0003094 cm/sec y0 = 3.038 ft



WELL TEST ANALYSIS

Data Set: B:\...\PZ04D-19(out).aqt
Date: 10/21/19 Time: 13:13:13

PROJECT INFORMATION

Company: GEI Consultants, Inc.
Client: Waste Management
Location: Chaffee Landfill
Test Well: PZ04D-19
Test Date: 10/18/19

AQUIFER DATA

Saturated Thickness: 10. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PZ04D-19)

Initial Displacement: 4.475 ft
Total Well Penetration Depth: 58. ft
Casing Radius: 0.08 ft
Static Water Column Height: 33.91 ft
Screen Length: 10. ft
Well Radius: 0.33 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 3.794E-5 cm/sec y0 = 3.154 ft

Appendix E

Groundwater Laboratory Reports (on enclosed CD) and Data Validations

Site: Waste Management Chaffee Landfill New Wells Groundwater Monitoring
Laboratory: Test America, Amherst, NY, Pittsburgh, PA, and West Sacramento, CA
Eberline Analytical, Oak Ridge, TN
Report No.: 480-155710-1 and 480-155710-2
Reviewer: Lorie MacKinnon/GEI Consultants
Date: January 15, 2020

Samples Reviewed and Evaluation Summary

Groundwater samples were collected July 2, 3, 12, and 13, 2019 from the Chaffee Landfill located in Chaffee, NY. Analytical results for samples MWSE-4, representing a minimum of 5% of groundwater samples, were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, January 2017 (USEPA-540-R-2017-002) and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2017 (USEPA-540-R-2017-001), as well as by the methods referenced by the data package and professional and technical judgment.

The sample and analyses included in this review are listed below:

FIELD ID	LAB ID	Sampling Date	FRACTIONS VALIDATED
REPORT 480-155710-1			
MWSE-4	480-155757-2	07/03/19	VOC, SVOC, 1,4-Dioxane, PFAS, Pesticides, PCB, Herbicides, Metals, General Chemistry
MWSE-4	480-156080-4	07/12/19	Thionazin, Hexavalent chromium
REPORT 480-155710-2			
MWSE-4	480-155757-2	07/03/19	Radium-226, Radium-228, Uranium

Associated QC Samples:
Trip Blanks: Trip Blank

The above-listed aqueous sample was analyzed for volatile organic compounds (VOCs) by SW-846 method 8260C, semivolatile organic compounds (SVOCs) by SW-846 method 8270D, 1,4-dioxane by SW-846 method 8270DSIM Isotope Dilution, pesticides by SW-846 method 8081B, polychlorinated biphenyls (PCBs) by SW-846 method 8082A, herbicides by SW-846 method 8151A, perfluorinated alkyl substances (PFAS) by modified EPA method 537, metals by SW-846 methods 6010C/7470A, hardness by calculation method SM 2340B, hexavalent chromium by SW-846 method 7196A, SVOC compound thionazin by EPA method 625.1, Radium-226 by EPA method 903.0, Radium-228 by EPA method 904.0, Uranium by EPA method 908.0, and general chemistry parameters which included bromide by EPA method 300.0, sulfate by SW-846 method 9038, chloride by SW-846 method 9251, ammonia as nitrogen by EPA method 350.1, total kjeldahl nitrogen (TKN) by EPA method 351.2, chemical oxygen demand (COD) by EPA method 410.4, total recoverable phenolics by SW846 method 9065, total cyanide by SW-846 method 9012B, nitrate by EPA method 353.2, color by Standard Methods (SM) 2120B, alkalinity by EPA method 350.1, total dissolved solids (TDS) by SM 2540C, biochemical oxygen demand (BOD) by SM 5210B, and total organic carbon (TOC) by SM 5310C.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Gas Chromatography/Mass Spectrometry (GC/MS) Tunes
- Initial and Continuing Calibrations
- Laboratory and Trip Blanks
- Surrogate Recoveries
- Isotope Dilution Analyte (IDA) Recoveries
- Tracer Yield (Radiochemistry)
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results
- Internal Standards
- Field Duplicate Results
- ICP Serial Dilution Results
- Quantitation Limits

In general, the data appear usable as reported or usable with minor qualification due to sample matrix or laboratory quality control outliers.

The validation findings were based on the following information. Validation qualifiers are defined in Attachment 1 at the end of this report.

Data Completeness

The data packages were complete as received by the laboratory. It should be noted that the samples were received at the laboratory with cooler temperatures recorded at 13.6° and 10.2° Celsius with ice. The samples were not adversely affected as the last sample collection time was recorded as 13:15, the samples were received at the laboratory at 17:00 the same day, and there is evidence that the sample chilling process had begun.

Holding Times and Sample Preservation

All hold time and sample preservation criteria were met.

GC/MS Tunes

All criteria were met.

Initial and Continuing Calibrations

All initial and continuing calibration criteria were met except where noted below.

VOC, SVOC, Pesticides, and PCBs

Analytes that did not meet criteria in the calibrations are summarized in the following table.

Instrument/ Calibration Standard	Compound	Calibration Exceedance	Validation Qualifier
VOCs			
HP5975T CCAL 07/12/19 9:16	Isobutyl alcohol	21.7 %D	Estimate (UJ) the nondetect result for isobutyl alcohol in sample MWSE-4.
Associated sample: MWSE-4			
SVOCs			
HP5973Y CCAL 07/10/19 15:21/16:17/17:13	N-nitroso-dimethylamine	43.9 %D	Estimate (UJ) the nondetect results for the affected compounds in sample MWSE-4.
	4-Nitrophenol	45.3 %D	
	p-Phenylene diamine	28.5 %D	
	Pentachloronitrobenzene	34.4 %D	
	3,3'-Dimethylbenzidine	35.2 %D	
	Famphur	29.1 %D	
	Kepone	84.1 %D	
	o-Toluidine	21.1 %D	
Associated sample: MWSE-4			
Pesticides			
HP6890-5 CCAL 07/09/19 09:06	Endosulfan sulfate (col 1)	22.2 %D	Estimate (UJ) the nondetect result for endosulfan sulfate in sample MWSE-4.
	Endosulfan sulfate (col 2)	24.7 %D	
Associated sample: MWSE-4			
PCBs			
CCAL 07/10/19 11:43	Aroclor 1260	22.0 %D	Estimate (UJ) the nondetect result for Aroclor 1260 in sample MWSE-4.
Associated sample: MWSE-4			

Initial calibration (ICAL) relative standard deviation (%RSD) > 20%; Estimate (J) positive and blank-qualified (UJ) results only.
Continuing calibration (CCAL) percent difference (%D) > 20%; estimate (J/UJ) positive and nondetect results.
Response factor (RF) < 0.05; Estimate (J) positive results and reject (R) nondetect results.

Laboratory and Trip Blanks

Contamination was not detected in the associated laboratory method and instrument blank samples and trip blank samples except where noted below.

General Chemistry

The following table summarizes the contamination and validation actions taken.

Analyte	Blank ID/ Associated Samples	Concentration Detected	10X Action Level	Validation Actions
Sulfate	Method MB480-483565: MWSE-4	3.78 mg/L	37.8 mg/L	Validation action was not required.

Blank Actions:
If the sample result is <5x blank contamination detected; report the result as nondetect (U) at the reported value or RL.
If the sample result is 5x blank contamination and < 10x blank contamination detected; professional judgment was taken to report the sample result as estimated (J); biased high.
If the sample result is nondetect or > 10x blank contamination detected; validation action is not required.

Surrogate Recoveries

All criteria were met.

Isotope Dilution Analyte Recoveries (PFAS and 1,4-Dioxane)

All isotope dilution recoveries were within the laboratory control limits.

Tracer Yield (Radionuclides)

For Uranium isotopes by alpha spectroscopy and Radium isotopes by GFPC, chemical carriers and/or isotopic tracers were added to monitor efficacy of chemical separation techniques. All tracer yields were acceptable. No qualifications were required based on tracer yield.

MS/MSD Results

MS/MSD analyses were performed on project sample MWSE-2 for bromide, alkalinity, ammonia, and chloride, sample MWSE-3 for alkalinity, hexavalent chromium, cyanide, and chloride, and sample MWSE-1 for mercury and hexavalent chromium. All recovery and precision criteria were met.

Laboratory Duplicate Results

Laboratory duplicate analyses were performed on sample MWSE-2 for hexavalent chromium, color, and total dissolved solids, sample MWSE-1 for color and uranium, and sample MWSE-4 for hexavalent chromium and total dissolved solids. All criteria were met.

LCS Results

All criteria were met except where noted below.

SVOC, Pesticides, Cyanide, and Radiochemistry

The following table lists the compounds recovered outside of control limits in the LCS and the resulting actions.

LCS ID	Compound	Recovery (%)	RPD (%)	Control Limits (%)	Validation Action/Bias
Thionazin by Method 625					
LCS180-285394	Thionazin	Not present	NA	NA	A second source standard was not available for this compound. The nondetect result is estimated (UJ) due to lack of verification.
SVOC					
LCS 480-480988	4-Nitrophenol	LCSD 121	-	45-120	Validation action was not required as the result for 4-nitrophenol was nondetect in sample MWSE-4 and therefore was not affected by the potential high bias.
Pesticides					
LCS480-481166	Endosulfan sulfate	138, 142	-	66-136	Validation action was not required as the affected results were nondetect in sample MWSE-4 and therefore were not affected by the potential high bias and precision results.
	Dieldrin	-	37	24	
	Endosulfan I	-	33	30	
	4,4'-DDD	-	26	23	
Total Cyanide					
LCS480-481527	Total cyanide	82	-	90-110	Estimate (UJ) the nondetect result for total cyanide in sample MWSE-4; Low bias.
Radiochemistry					
LCS 160-434862	Radium-226	-	1.15	1	Validation action was not required as the affected results were nondetect in sample MWSE-4 and therefore were not affected by the high precision results.
LCS 160-434867	Radium-228	-	1.21	1	
Associated Sample: MWSE-4					
- Criteria met.					

Internal Standards

All criteria were met.

Serial Dilution Results

A serial dilution analysis was performed on sample MWSE-1 for mercury. Criteria were met.

Quantitation Limits

Sample results were reported down to the reporting or quantitation limit (QL). All quantitation limit criteria were met, except where noted below. The following table lists the requested project

specific reporting limits which were less than the laboratory standard quantitation limits but greater than the laboratory method detection limits.

Analyte	Project Reporting Limits	Laboratory PQL	Validation Assessment
Alkalinity	5.0 mg/L	10 mg/L	Validation action was not required as all affected project results were greater than the laboratory PQL of 10 mg/L.
Total Kjeldahl Nitrogen	0.15 mg/L as N	0.20 mg/L	The low point calibration standard analyzed was at the laboratory PQL level, therefore accuracy was not confirmed at the lower project reporting limit. The nondetect result for total kjeldahl nitrogen in sample MWSE-4 was estimated (UJ).
Chemical Oxygen Demand	5 mg/L	10 mg/L	A standard level of 5 mg/L was utilized in the calibration curve and curve linearity criteria were met, therefore accuracy at the project reporting limit of 5 was demonstrated and results are accepted without qualification.
Total Recoverable Phenolics	0.005 mg/L	0.010 mg/L	The low point calibration standard analyzed was at the laboratory PQL level, therefore accuracy was not confirmed at the lower project reporting limit. The nondetect result for total recoverable phenolics in sample MWSE-4 was estimated (UJ).
Sulfate	1.5 mg/L	5.0 mg/L	Validation action was not required as the result for MWSE-4 was greater than the laboratory PQL of 5.0 mg/L.

General Chemistry

Sample MWSE-4 was analyzed at dilutions for bromide (2-fold), alkalinity (2-fold), and sulfate (5-fold). Bromide was not detected in sample MWSE-4 and the reporting limit was therefore elevated.

Attachments: MWSE-4 validated data sheets

Attachment 1

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

JN - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

Client Sample ID: MWSE-1

Date Collected: 07/03/19 13:05
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-1
Matrix: Water

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.025		mg/L		07/08/19 07:30	07/09/19 00:31	1
Silver	ND		0.0060		mg/L		07/08/19 07:30	07/09/19 00:31	1
Sodium	**4.4**		1.0		mg/L		07/08/19 07:30	07/09/19 00:31	1
Thallium	ND		0.020		mg/L		07/08/19 07:30	07/09/19 00:31	1
Zinc	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:31	1
Vanadium	ND		0.0050		mg/L		07/08/19 07:30	07/09/19 00:31	1
Tin	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:31	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		07/08/19 11:51	07/08/19 16:08	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium and Magnesium Hardness	**362**		0.50		mg/L			07/10/19 11:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.40		mg/L			07/08/19 19:24	2
Alkalinity, Total	**192**		10.0		mg/L			07/14/19 14:57	2
Ammonia (as N)	ND		0.020		mg/L as N			07/10/19 09:50	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		07/18/19 09:10	07/21/19 10:22	1
Nitrate	ND		0.050		mg/L as N			07/03/19 21:26	1
Chemical Oxygen Demand	ND		5.0		mg/L			07/14/19 09:32	1
Cyanide, Total	ND	*	0.010		mg/L		07/10/19 15:50	07/11/19 13:16	1
Sulfate	**136**	**B**	15.0		mg/L			07/24/19 12:55	10
Phenolics, Total Recoverable	ND		0.0050		mg/L		07/11/19 19:18	07/12/19 14:51	1
Chloride	**8.5**		1.0		mg/L			07/14/19 14:39	1
Total Dissolved Solids	**480**		10.0		mg/L			07/09/19 07:49	1
Biochemical Oxygen Demand	ND		2.0		mg/L			07/04/19 09:11	1
Total Organic Carbon	**1.4**		1.0		mg/L			07/13/19 07:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	**10.0**		5.00		Color Units			07/05/19 09:12	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**7.23**				SU			07/03/19 13:05	1
Specific Conductance	**692**				umhos/cm			07/03/19 13:05	1
Temperature	**11.9**				Degrees C			07/03/19 13:05	1
Oxidation Reduction Potential	**79**				millivolts			07/03/19 13:05	1
Turbidity	**6.8**				NTU			07/03/19 13:05	1

Client Sample ID: MWSE-4

Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			07/12/19 11:50	1
1,1,1-Trichloroethane	ND		1.0		ug/L			07/12/19 11:50	1

Client Sample ID: MWSE-4
Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			07/12/19 11:50	1
1,1,2-Trichloroethane	ND		1.0		ug/L			07/12/19 11:50	1
1,1-Dichloroethane	ND		1.0		ug/L			07/12/19 11:50	1
1,1-Dichloroethene	ND		1.0		ug/L			07/12/19 11:50	1
1,1-Dichloropropene	ND		1.0		ug/L			07/12/19 11:50	1
1,2,3-Trichloropropane	ND		1.0		ug/L			07/12/19 11:50	1
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			07/12/19 11:50	1
1,2-Dichlorobenzene	ND		1.0		ug/L			07/12/19 11:50	1
1,2-Dichloroethane	ND		1.0		ug/L			07/12/19 11:50	1
1,2-Dichloropropane	ND		1.0		ug/L			07/12/19 11:50	1
1,3-Dichloropropane	ND		1.0		ug/L			07/12/19 11:50	1
1,4-Dichlorobenzene	ND		1.0		ug/L			07/12/19 11:50	1
2,2-Dichloropropane	ND		1.0		ug/L			07/12/19 11:50	1
2-Butanone (MEK)	ND		10		ug/L			07/12/19 11:50	1
2-Hexanone	ND		5.0		ug/L			07/12/19 11:50	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			07/12/19 11:50	1
Acetone	ND		10		ug/L			07/12/19 11:50	1
Acetonitrile	ND		15		ug/L			07/12/19 11:50	1
Acrolein	ND		20		ug/L			07/12/19 11:50	1
Acrylonitrile	ND		5.0		ug/L			07/12/19 11:50	1
Allyl chloride	ND		1.0		ug/L			07/12/19 11:50	1
Benzene	ND		1.0		ug/L			07/12/19 11:50	1
Chlorobromomethane	ND		1.0		ug/L			07/12/19 11:50	1
Bromodichloromethane	ND		1.0		ug/L			07/12/19 11:50	1
Bromoform	ND		1.0		ug/L			07/12/19 11:50	1
Bromomethane	ND		1.0		ug/L			07/12/19 11:50	1
Carbon disulfide	ND		1.0		ug/L			07/12/19 11:50	1
Carbon tetrachloride	ND		1.0		ug/L			07/12/19 11:50	1
Chlorobenzene	ND		1.0		ug/L			07/12/19 11:50	1
Dibromochloromethane	ND		1.0		ug/L			07/12/19 11:50	1
Chloroethane	ND		1.0		ug/L			07/12/19 11:50	1
Chloroform	ND		1.0		ug/L			07/12/19 11:50	1
Chloromethane	ND		1.0		ug/L			07/12/19 11:50	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			07/12/19 11:50	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			07/12/19 11:50	1
Chloroprene	ND		1.0		ug/L			07/12/19 11:50	1
Dibromomethane	ND		1.0		ug/L			07/12/19 11:50	1
Dichlorodifluoromethane	ND		1.0		ug/L			07/12/19 11:50	1
Ethyl methacrylate	ND		1.0		ug/L			07/12/19 11:50	1
Ethylbenzene	ND		1.0		ug/L			07/12/19 11:50	1
1,2-Dibromoethane	ND		1.0		ug/L			07/12/19 11:50	1
Hexachlorobutadiene	ND		2.0		ug/L			07/12/19 11:50	1
Iodomethane	ND		1.0		ug/L			07/12/19 11:50	1
Isobutyl alcohol	ND	UJ	25		ug/L			07/12/19 11:50	1
Methacrylonitrile	ND		5.0		ug/L			07/12/19 11:50	1
Methyl methacrylate	ND		1.0		ug/L			07/12/19 11:50	1
Methylene Chloride	ND		1.0		ug/L			07/12/19 11:50	1
Naphthalene	ND		1.0		ug/L			07/12/19 11:50	1
Propionitrile	ND		10		ug/L			07/12/19 11:50	1

Client Sample ID: MWSE-4
Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	ND		1.0		ug/L			07/12/19 11:50	1
Tetrachloroethene	ND		1.0		ug/L			07/12/19 11:50	1
Toluene	ND		1.0		ug/L			07/12/19 11:50	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			07/12/19 11:50	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			07/12/19 11:50	1
trans-1,4-Dichloro-2-butene	ND		1.0		ug/L			07/12/19 11:50	1
Trichloroethene	ND		1.0		ug/L			07/12/19 11:50	1
Trichlorofluoromethane	ND		1.0		ug/L			07/12/19 11:50	1
Vinyl acetate	ND		5.0		ug/L			07/12/19 11:50	1
Vinyl chloride	ND		1.0		ug/L			07/12/19 11:50	1
Xylenes, Total	ND		2.0		ug/L			07/12/19 11:50	1
o-Xylene	ND		1.0		ug/L			07/12/19 11:50	1
m,p-Xylene	ND		2.0		ug/L			07/12/19 11:50	1
1,2-Dichloroethene, Total	ND		2.0		ug/L			07/12/19 11:50	1
1,3-Dichlorobenzene	ND		1.0		ug/L			07/12/19 11:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*07/12/19 11:50*	*1*
4-Bromofluorobenzene (Surr)	*105*		*73 - 120*		*07/12/19 11:50*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*07/12/19 11:50*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*07/12/19 11:50*	*1*

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20		ug/L		07/05/19 15:22	07/10/19 03:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*33*		*15 - 110*	*07/05/19 15:22*	*07/10/19 03:01*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,2,4-Trichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,2-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,3,5-Trinitrobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,3-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,3-Dinitrobenzene	ND		20		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,4-Naphthoquinone	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,4-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
1-Naphthylamine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,3,4,6-Tetrachlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,4,5-Trichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,4,6-Trichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,4-Dichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,4-Dimethylphenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,4-Dinitrophenol	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,4-Dinitrotoluene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,6-Dichlorophenol	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,6-Dinitrotoluene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Acetylaminofluorene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Chloronaphthalene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1

Client Sample ID: MWSE-4
Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Chlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Methylnaphthalene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Methylphenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Naphthylamine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Nitrophenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
o-Toluidine	ND	UJ	10		ug/L		07/05/19 15:02	07/11/19 00:12	1
3-Methylphenol	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Methylphenol	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
3,3'-Dichlorobenzidine	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
3,3'-Dimethylbenzidine	ND	UJ	40		ug/L		07/05/19 15:02	07/11/19 00:12	1
3-Methylcholanthrene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
3-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
4,6-Dinitro-2-methylphenol	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Aminobiphenyl	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Bromophenyl phenyl ether	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Chloro-3-methylphenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
p-Chloroaniline	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Chlorophenyl phenyl ether	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Nitrophenol	ND	UJ	10		ug/L		07/05/19 15:02	07/11/19 00:12	1
7,12-Dimethylbenz(a)anthracene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Acenaphthene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Acenaphthylene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Acetophenone	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Anthracene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Benzo[a]anthracene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Benzo[a]pyrene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Benzo[b]fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Benzo[g,h,i]perylene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Benzo[k]fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Benzyl alcohol	ND		20		ug/L		07/05/19 15:02	07/11/19 00:12	1
Bis(2-chloroethoxy)methane	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Bis(2-chloroethyl)ether	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Bis(2-ethylhexyl) phthalate	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
bis(2 chloro-1-methylethyl) ether	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Butyl benzyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Chrysene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Diallate	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Dibenz(a,h)anthracene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Dibenzofuran	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Diethyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Dimethoate	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Dimethyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Di-n-butyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Di-n-octyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Dinoseb	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Diphenylamine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Disulfoton	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1

Client Sample ID: MWSE-4
Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl methanesulfonate	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Famphur	ND	UJ	40		ug/L		07/05/19 15:02	07/11/19 00:12	1
Fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Fluorene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Hexachlorobenzene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Hexachlorobutadiene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Hexachlorocyclopentadiene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Hexachloroethane	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Hexachloropropene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Indeno[1,2,3-cd]pyrene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Isodrin	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Isophorone	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Isosafrole	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Kepone	ND	UJ	50		ug/L		07/05/19 15:02	07/11/19 00:12	1
Methapyrilene	ND		50		ug/L		07/05/19 15:02	07/11/19 00:12	1
Methyl methanesulfonate	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Safrole	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Thionazin	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Naphthalene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Nitrobenzene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
5-Nitro-o-toluidine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosodiethylamine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Chlorobenzilate	ND		20		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosodimethylamine	ND	UJ	10		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosodi-n-butylamine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosodipropylamine	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosodiphenylamine	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosomethylethylamine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosopiperidine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosopyrrolidine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Triethyl phosphorothioate	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Parathion	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Parathion methyl	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
p-Dimethylamino azobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Pentachlorobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Pentachloronitrobenzene	ND	UJ	10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Pentachlorophenol	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Phenacetin	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Phenanthrene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Phenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Phorate	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
p-Phenylene diamine	ND	UJ	800		ug/L		07/05/19 15:02	07/11/19 00:12	1
Pyrene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Pronamide	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*84*		*48 - 120*	*07/05/19 15:02*	*07/11/19 00:12*	*1*
2-Fluorophenol (Surr)	*54*		*35 - 120*	*07/05/19 15:02*	*07/11/19 00:12*	*1*
2,4,6-Tribromophenol (Surr)	*70*		*41 - 120*	*07/05/19 15:02*	*07/11/19 00:12*	*1*
Nitrobenzene-d5 (Surr)	*80*		*46 - 120*	*07/05/19 15:02*	*07/11/19 00:12*	*1*

Client Sample ID: MWSE-4
Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Phenol-d5 (Surr)	40		22 - 120	07/05/19 15:02	07/11/19 00:12	1
p-Terphenyl-d14 (Surr)	84		59 - 136	07/05/19 15:02	07/11/19 00:12	1

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
4,4'-DDE	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
4,4'-DDT	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Aldrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
alpha-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
beta-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Chlordane (technical)	ND		0.50		ug/L		07/08/19 15:10	07/09/19 15:18	1
delta-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Dieldrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Endosulfan I	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Endosulfan II	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Endosulfan sulfate	ND	UJ	0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Endrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Endrin aldehyde	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
gamma-BHC (Lindane)	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Heptachlor	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Methoxychlor	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Toxaphene	ND		0.50		ug/L		07/08/19 15:10	07/09/19 15:18	1
Heptachlor epoxide	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	50		20 - 120	07/08/19 15:10	07/09/19 15:18	1
Tetrachloro-m-xylene	55		44 - 120	07/08/19 15:10	07/09/19 15:18	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1
PCB-1221	ND		0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1
PCB-1232	ND		0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1
PCB-1242	ND		0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1
PCB-1248	ND		0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1
PCB-1254	ND		0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1
PCB-1260	ND	UJ	0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	58		39 - 121	07/05/19 08:16	07/10/19 19:23	1
DCB Decachlorobiphenyl	49		19 - 120	07/05/19 08:16	07/10/19 19:23	1

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND		0.52		ug/L		07/09/19 09:24	07/10/19 15:33	1
2,4-D	ND		0.52		ug/L		07/09/19 09:24	07/10/19 15:33	1
Silvex (2,4,5-TP)	ND		0.52		ug/L		07/09/19 09:24	07/10/19 15:33	1

Client Sample ID: MWSE-4
Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	62		48 - 132	07/09/19 09:24	07/10/19 15:33	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**16**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluoropentanoic acid (PFPeA)	**19**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorohexanoic acid (PFHxA)	**23**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluoroheptanoic acid (PFHpA)	**7.3**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorooctanoic acid (PFOA)	**11**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorononanoic acid (PFNA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorododecanoic acid (PFDoA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorotridecanoic acid (PFTrA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorobutanesulfonic acid (PFBS)	**4.7**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorooctanesulfonic acid (PFOS)	**2.1**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18		ng/L		07/08/19 05:43	07/10/19 01:04	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18		ng/L		07/08/19 05:43	07/10/19 01:04	1
6:2 FTS	ND		18		ng/L		07/08/19 05:43	07/10/19 01:04	1
8:2 FTS	ND		18		ng/L		07/08/19 05:43	07/10/19 01:04	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	66		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C5 PFPeA	89		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C2 PFHxA	99		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C4 PFHpA	100		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C4 PFOA	96		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C5 PFNA	95		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C2 PFDA	94		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C2 PFUnA	96		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C2 PFDoA	90		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C2 PFTeDA	93		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C3 PFBS	93		25 - 150	07/08/19 05:43	07/10/19 01:04	1
18O2 PFHxS	102		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C4 PFOS	91		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C8 FOSA	82		25 - 150	07/08/19 05:43	07/10/19 01:04	1
d3-NMeFOSAA	96		25 - 150	07/08/19 05:43	07/10/19 01:04	1
d5-NEtFOSAA	97		25 - 150	07/08/19 05:43	07/10/19 01:04	1
M2-6:2 FTS	121		25 - 150	07/08/19 05:43	07/10/19 01:04	1
M2-8:2 FTS	101		25 - 150	07/08/19 05:43	07/10/19 01:04	1

Client Sample ID: MWSE-4

Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2

Matrix: Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		07/08/19 07:30	07/09/19 00:35	1
Antimony	ND		0.020		mg/L		07/08/19 07:30	07/09/19 00:35	1
Arsenic	ND		0.015		mg/L		07/08/19 07:30	07/09/19 00:35	1
Barium	**0.055**		0.0020		mg/L		07/08/19 07:30	07/09/19 00:35	1
Beryllium	ND		0.0020		mg/L		07/08/19 07:30	07/09/19 00:35	1
Boron	**0.052**		0.020		mg/L		07/08/19 07:30	07/09/19 09:53	1
Cadmium	ND		0.0020		mg/L		07/08/19 07:30	07/09/19 00:35	1
Calcium	**69.9**		0.50		mg/L		07/08/19 07:30	07/09/19 00:35	1
Chromium	ND		0.0040		mg/L		07/08/19 07:30	07/09/19 00:35	1
Cobalt	ND		0.0040		mg/L		07/08/19 07:30	07/09/19 00:35	1
Copper	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:35	1
Iron	**0.32**		0.050		mg/L		07/08/19 07:30	07/09/19 00:35	1
Lead	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:35	1
Magnesium	**12.3**		0.20		mg/L		07/08/19 07:30	07/09/19 00:35	1
Manganese	**0.13**		0.0030		mg/L		07/08/19 07:30	07/09/19 00:35	1
Nickel	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:35	1
Potassium	**1.8**		0.50		mg/L		07/08/19 07:30	07/09/19 00:35	1
Selenium	ND		0.025		mg/L		07/08/19 07:30	07/09/19 00:35	1
Silver	ND		0.0060		mg/L		07/08/19 07:30	07/09/19 00:35	1
Sodium	**14.0**		1.0		mg/L		07/08/19 07:30	07/09/19 00:35	1
Thallium	ND		0.020		mg/L		07/08/19 07:30	07/09/19 00:35	1
Zinc	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:35	1
Vanadium	ND		0.0050		mg/L		07/08/19 07:30	07/09/19 00:35	1
Tin	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:35	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		07/08/19 11:51	07/08/19 16:13	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium and Magnesium Hardness	**225**		0.50		mg/L			07/10/19 11:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.40		mg/L			07/08/19 19:38	2
Alkalinity, Total	**139**		10.0		mg/L			07/14/19 14:57	2
Ammonia (as N)	ND		0.020		mg/L as N			07/10/19 09:50	1
Total Kjeldahl Nitrogen	ND	VJ	0.15		mg/L as N		07/18/19 09:10	07/21/19 10:22	1
Nitrate	ND		0.050		mg/L as N			07/03/19 21:28	1
Chemical Oxygen Demand	**6.3**		5.0		mg/L			07/14/19 09:32	1
Cyanide, Total	ND	VJ	0.010		mg/L		07/10/19 15:50	07/11/19 13:17	1
Sulfate	**97.1**	B	7.5		mg/L			07/24/19 12:43	5
Phenolics, Total Recoverable	ND	VJ	0.0050		mg/L		07/11/19 19:18	07/12/19 14:51	1
Chloride	**22.0**		1.0		mg/L			07/14/19 14:39	1
Total Dissolved Solids	**441**		10.0		mg/L			07/09/19 08:53	1
Biochemical Oxygen Demand	ND		2.0		mg/L			07/04/19 09:11	1
Total Organic Carbon	**2.0**		1.0		mg/L			07/13/19 08:09	1

Client Sample ID: MWSE-4

Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2
Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	5.00		5.00		Color Units			07/05/19 09:12	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	7.52				SU			07/03/19 13:15	1
Specific Conductance	516				umhos/cm			07/03/19 13:15	1
Temperature	16.2				Degrees C			07/03/19 13:15	1
Oxidation Reduction Potential	70.0				millivolts			07/03/19 13:15	1
Turbidity	6.9				NTU			07/03/19 13:15	1

Client Sample ID: TRIP BLANK

Date Collected: 07/03/19 09:00
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-3
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			07/12/19 12:14	1
1,1,1-Trichloroethane	ND		1.0		ug/L			07/12/19 12:14	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			07/12/19 12:14	1
1,1,2-Trichloroethane	ND		1.0		ug/L			07/12/19 12:14	1
1,1-Dichloroethane	ND		1.0		ug/L			07/12/19 12:14	1
1,1-Dichloroethene	ND		1.0		ug/L			07/12/19 12:14	1
1,1-Dichloropropene	ND		1.0		ug/L			07/12/19 12:14	1
1,2,3-Trichloropropane	ND		1.0		ug/L			07/12/19 12:14	1
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			07/12/19 12:14	1
1,2-Dichlorobenzene	ND		1.0		ug/L			07/12/19 12:14	1
1,2-Dichloroethane	ND		1.0		ug/L			07/12/19 12:14	1
1,2-Dichloropropane	ND		1.0		ug/L			07/12/19 12:14	1
1,3-Dichloropropane	ND		1.0		ug/L			07/12/19 12:14	1
1,4-Dichlorobenzene	ND		1.0		ug/L			07/12/19 12:14	1
2,2-Dichloropropane	ND		1.0		ug/L			07/12/19 12:14	1
2-Butanone (MEK)	ND		10		ug/L			07/12/19 12:14	1
2-Hexanone	ND		5.0		ug/L			07/12/19 12:14	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			07/12/19 12:14	1
Acetone	ND		10		ug/L			07/12/19 12:14	1
Acetonitrile	ND		15		ug/L			07/12/19 12:14	1
Acrolein	ND		20		ug/L			07/12/19 12:14	1
Acrylonitrile	ND		5.0		ug/L			07/12/19 12:14	1
Allyl chloride	ND		1.0		ug/L			07/12/19 12:14	1
Benzene	ND		1.0		ug/L			07/12/19 12:14	1
Chlorobromomethane	ND		1.0		ug/L			07/12/19 12:14	1
Bromodichloromethane	ND		1.0		ug/L			07/12/19 12:14	1
Bromoform	ND		1.0		ug/L			07/12/19 12:14	1
Bromomethane	ND		1.0		ug/L			07/12/19 12:14	1
Carbon disulfide	ND		1.0		ug/L			07/12/19 12:14	1
Carbon tetrachloride	ND		1.0		ug/L			07/12/19 12:14	1
Chlorobenzene	ND		1.0		ug/L			07/12/19 12:14	1
Dibromochloromethane	ND		1.0		ug/L			07/12/19 12:14	1
Chloroethane	ND		1.0		ug/L			07/12/19 12:14	1
Chloroform	ND		1.0		ug/L			07/12/19 12:14	1
Chloromethane	ND		1.0		ug/L			07/12/19 12:14	1

Client Sample ID: MWSE-1

Date Collected: 07/12/19 13:40
Date Received: 07/12/19 15:40

Lab Sample ID: 480-156080-1
Matrix: Water

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	70		43 - 110	07/19/19 20:48	07/24/19 14:40	1
Phenol-d5 (Surr)	54		40 - 108	07/19/19 20:48	07/24/19 14:40	1
Terphenyl-d14 (Surr)	72		45 - 120	07/19/19 20:48	07/24/19 14:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010		mg/L			07/13/19 10:30	1

Client Sample ID: MWSE-2

Date Collected: 07/12/19 12:30
Date Received: 07/12/19 15:40

Lab Sample ID: 480-156080-2
Matrix: Water

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thionazin	ND		0.94		ug/L		07/19/19 20:48	07/24/19 15:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	61		45 - 106	07/19/19 20:48	07/24/19 15:07	1
2-Fluorophenol (Surr)	47		39 - 105	07/19/19 20:48	07/24/19 15:07	1
2,4,6-Tribromophenol (Surr)	36	X	39 - 125	07/19/19 20:48	07/24/19 15:07	1
Nitrobenzene-d5 (Surr)	76		43 - 110	07/19/19 20:48	07/24/19 15:07	1
Phenol-d5 (Surr)	46		40 - 108	07/19/19 20:48	07/24/19 15:07	1
Terphenyl-d14 (Surr)	74		45 - 120	07/19/19 20:48	07/24/19 15:07	1

Client Sample ID: MWSE-3

Date Collected: 07/12/19 12:10
Date Received: 07/12/19 15:40

Lab Sample ID: 480-156080-3
Matrix: Water

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thionazin	ND		0.94		ug/L		07/19/19 20:48	07/24/19 15:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	65		45 - 106	07/19/19 20:48	07/24/19 15:35	1
2-Fluorophenol (Surr)	73		39 - 105	07/19/19 20:48	07/24/19 15:35	1
2,4,6-Tribromophenol (Surr)	69		39 - 125	07/19/19 20:48	07/24/19 15:35	1
Nitrobenzene-d5 (Surr)	82		43 - 110	07/19/19 20:48	07/24/19 15:35	1
Phenol-d5 (Surr)	71		40 - 108	07/19/19 20:48	07/24/19 15:35	1
Terphenyl-d14 (Surr)	79		45 - 120	07/19/19 20:48	07/24/19 15:35	1

Client Sample ID: MWSE-4

Date Collected: 07/12/19 11:05
Date Received: 07/12/19 15:40

Lab Sample ID: 480-156080-4
Matrix: Water

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thionazin	ND	UJ	0.94		ug/L		07/19/19 20:48	07/24/19 16:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	56		45 - 106	07/19/19 20:48	07/24/19 16:03	1
2-Fluorophenol (Surr)	49		39 - 105	07/19/19 20:48	07/24/19 16:03	1

Client Sample ID: MWSE-4
Date Collected: 07/12/19 11:05
Date Received: 07/12/19 15:40

Lab Sample ID: 480-156080-4
Matrix: Water

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	41		39 - 125	07/19/19 20:48	07/24/19 16:03	1
Nitrobenzene-d5 (Surr)	75		43 - 110	07/19/19 20:48	07/24/19 16:03	1
Phenol-d5 (Surr)	54		40 - 108	07/19/19 20:48	07/24/19 16:03	1
Terphenyl-d14 (Surr)	74		45 - 120	07/19/19 20:48	07/24/19 16:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010		mg/L			07/13/19 10:30	1

Client Sample ID: MWSE-1

Date Collected: 07/03/19 13:05
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-1
Matrix: Water

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.120	U *	0.0939	0.0945	1.00	0.137	pCi/L	07/15/19 14:52	08/20/19 20:42	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	60.5		40 - 110	07/15/19 14:52	08/20/19 20:42	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.138	U *	0.393	0.394	1.00	0.724	pCi/L	07/15/19 15:55	07/29/19 10:12	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	60.5		40 - 110	07/15/19 15:55	07/29/19 10:12	1
Y Carrier	80.4		40 - 110	07/15/19 15:55	07/29/19 10:12	1

Method: 908.0 - Uranium, Total

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
U	0.116		0.135		pCi/L			07/29/19 00:00	1

Client Sample ID: MWSE-4

Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2
Matrix: Water

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0584	U *	0.103	0.103	1.00	0.181	pCi/L	07/15/19 14:52	08/20/19 20:42	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	49.7		40 - 110	07/15/19 14:52	08/20/19 20:42	1

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.600	U *	0.570	0.573	1.00	0.922	pCi/L	07/15/19 15:55	07/29/19 10:13	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	49.7		40 - 110	07/15/19 15:55	07/29/19 10:13	1
Y Carrier	75.5		40 - 110	07/15/19 15:55	07/29/19 10:13	1

Method: 908.0 - Uranium, Total

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
U	0.175		0.148		pCi/L			07/29/19 00:00	1

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins

Client Information	Sampler: TB/SO/ZV	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-131844-29748.1
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.				Job #:
Address: 10 Hazelwood Drive	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228				
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested			
Email: timothy.bly@testamericainc.com	WO #:			
Project Name: Chaffee Landfill/NY05 Event Desc: 2019 Part 363 Expanded -Q2	Project #: 48002636			
Site: New York	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Soil, Sediment, Tissue, Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C - NY Part 363 Expanded Volatiles	903.0, 904.0	904.0 - Standard Target List	903.0 - Radium-226	PFC_IDA - PFAS: Standard List (21 Analytes)	8082A - NY Part 360 Expanded - Aroclors	8081B - NY Part 360 Expanded Pesticides	8270D - NY Part 360 Expanded Semivolatiles	300.0, 28D - Bromide	350.1, 351.2, 410.4	9056 - Phenolics, Total Recoverable	6010C, 7470A, SM2340B	Total Number of containers	Special Instructions/Note:
			Preservation Code				A	D	D	D	N	N	N	N	N	S	D	D	S	
TRIP BLANK	7/3/19	0900	G	Water			3													
MWSE-1	7/3/19	1305	G	Water			3	2	1	1	2	2	2	2	1	1	1	1	1	
MWSE-4	7/3/19	1315	G	Water			3	2	1	1	2	2	2	2	1	1	1	1	1	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

480-155757 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by	Date	Time	Method of Shipment

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	7-3-19 1700	TAL			
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
			[signature]	7-3-19 1700	TAB

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 13.6 10.2 #1

Ver: 07/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins

Client Information	Sampler: TB/SO/ZV	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-131844-29748.2
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc				Job #:
Address: 10 Hazelwood Drive	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14226				
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested			
Email: timothy.bly@testamericainc.com	WO #:			
Project Name: Chaffee Landfill/NY05 Event Desc: 2019 Part 363 Expanded -Q2	Project #: 48002636			
Site: New York	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM5310D - Total Organic Carbon	8151A - NY Part 363 Expanded Herbicides	8270D_SIM_MS_ID - 1,4-Dioxane	5210B - Biochemical Oxygen Demand	2540C_Calcd - Total Dissolved Solids	FieldSampling - (MOD) pH,Cond,Temp,DO,ORP,GWElv	9012B - Cyanide, Total	21208, 353.2, 353.2_Nitrite, 9056, 9251, Nitrate_Calc	7196A - Chromium, hexavalent	310.2 - Alkalinity, Total					Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	N	N	N	N	N	B	N	N	N						
TRIP BLANK	7/3/19	0900	G	Water																		
MWSE-1	7/3/19	1305	G	Water			2	2	2	1	1	0	1	3	1	1						
MWSE-4	7/3/19	1315	G	Water			2	2	2	1	1	0	1	3	1	1						

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	7-3-19/	TAL			
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by [signature]	Date/Time 7-3-19 1700	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 13.6 0.2 #1

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler:	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-131844-29748.1
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.				Job #:

Analysis Requested

Address: 10 Hazelwood Drive	Due Date Requested:	Preservation Codes:
City: Amherst	TAT Requested (days):	A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: NY, 14228		
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested	
Email: timothy.bly@testamericainc.com	WO #:	
Project Name: Chaffee Landfill/NY05 Event Desc: 2019 Part 363 Expanded -Q2	Project #: 48002636	
Site: New York	SSOW#:	

480-156080 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Wastewater, Sewater, Groundwater, Air=Air, Solid, Other)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	900.0 - U	7196A - Chromium, hexavalent	625.1_LL_PREC - Thiotazin	Total	Special Instructions/Note:
			Preservation Code:				D	N	N		
MWSE-1	7/12/19	1340	G	Water			0	1	2		
MWSE-2	7/12/19	1230	G	Water			1	0	2		
MWSE-3	7/12/19	1210	G	Water			1	0	2		
MWSE-4	7/12/19	1105	G	Water			0	1	2		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: Tobly	Date/Time: 7-12-19 1540	Company: TAL	Received by: Date/Time: 07/12/19 1540 Company: TA
Relinquished by:	Date/Time:	Company:	Received by: Date/Time: Company:
Relinquished by:	Date/Time:	Company:	Received by: Date/Time: Company:

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.8 #1 ICE

Ver: 01/16/2019

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ANALYTICAL REPORT

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

Laboratory Job ID: 480-155710-1
Client Project/Site: Chaffee Landfill-New Wells
Sampling Event: 2019 Part 363 Expanded -Q2

For:
Waste Management
425 Perinton Parkway
Fairport, New York 14450

Attn: Martin Miller

Denise L Giglia

Authorized for release by:
9/6/2019 6:48:01 PM

Denise Giglia, Project Manager I
(716)691-2600
denise.giglia@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
X	Surrogate is outside control limits

GC Semi VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits
*	LCS or LCSD is outside acceptance limits.

General Chemistry

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.

Rad

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-155710-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-155710-1

Receipt
The samples were received on 7/2/2019 6:30 PM, 7/3/2019 5:00 PM and 7/12/2019 3:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 2.8º C, 4.4º C, 7.2º C, 10.2º C and 13.6º C.

GC/MS VOA
Method 8260C: The continuing calibration verification (CCV) associated with batch 480-481743 recovered above the upper control limit for Acetonitrile, Vinyl chloride and Propionitrile. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MWSE-2 (480-155710-1) and MWSE-3 (480-155710-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method 625.1: Surrogate recovery for the following sample(s) was outside control limits. Client only requesting one BN compound and all of the BN surrogates were well within criteria thus report as measured: MWSE-2 (480-156080-2). Evidence of matrix interferences is not obvious.

Method 8270D: The continuing calibration verification (CCV) associated with batch 480-481493 recovered outside acceptance criteria, low biased, for 3,3'-Dimethylbenzidine, Kepone and N-Nitro-o-toluidine. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported. The following samples are impacted:MWSE-2 (480-155710-1), MWSE-3 (480-155710-2), MWSE-1 (480-155757-1) and MWSE-4 (480-155757-2).

Method 8270D: The continuing calibration verification (CCV) associated with batch 480-481493 recovered above the upper control limit for Famphur, 4-Nitrophenol and Pentachloronitrobenzene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MWSE-2 (480-155710-1), MWSE-3 (480-155710-2), MWSE-1 (480-155757-1) and MWSE-4 (480-155757-2).

Method 8270D: The laboratory control sample duplicate (LCSD) for preparation batch 480-480988 and analytical batch 480-481493 recovered outside control limits for the analyte 4-Nitrophenol. This analyte was biased high in the LCSD and was not detected in the associated samples; therefore, the data have been reported. The following samples are impacted MWSE-2 (480-155710-1) and MWSE-3 (480-155710-2).

Method 8270D: The laboratory control sample duplicate (LCSD) for preparation batch 480-480988 and analytical batch 480-481493 recovered outside control limits for the analyte 4-Nitrophenol. This analyte was biased high in the LCSD and was not detected in the associated samples; therefore, the data have been reported. The following samples are impacted:MWSE-1 (480-155757-1) and MWSE-4 (480-155757-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
Method 300.0: The following samples were diluted due to the abundance of non-target analytes: MWSE-2 (480-155710-1), MWSE-1 (480-155757-1) and MWSE-4 (480-155757-2). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA
Method 8081B: The continuing calibration verification (CCV) associated with batch 480-481221 recovered above the upper control limit for Endosulfan sulfate. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MWSE-2 (480-155710-1), MWSE-3 (480-155710-2), MWSE-1 (480-155757-1) and MWSE-4 (480-155757-2).

Method 8081B: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 480-481166

Job ID: 480-155710-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

and analytical batch 480-481221 recovered outside control limits for the following analytes: Endosulfan sulfate. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. The following samples are impacted:MWSE-2 (480-155710-1), MWSE-3 (480-155710-2), MWSE-1 (480-155757-1) and MWSE-4 (480-155757-2).

Method 8081B: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch preparation batch 480-481166 and analytical batch 480-481221 recovered outside control limits for the following analytes: 4,4'-DDD, Dieldrin and Endosulfan I.

Method 8082A: The following samples are associated with a continuing calibration verification (CCV 480-481474/5 and 480-481474/31) that had recoveries for the surrogate Decachlorobiphenyl that were below acceptance limits: MWSE-2 (480-155710-1), MWSE-3 (480-155710-2), MWSE-1 (480-155757-1) and MWSE-4 (480-155757-2). The secondary surrogate Tetrachloro-m-xylene is within limits. Therefore, the data has been reported.

Method 8081B: All primary data for analytical batch 481221 is reported from the RTX-CLPI column.

Method 8082A: All primary data for analytical batch 481474 is reported from the ZB-35 column.

Method 8082A: The percent difference in a multi-component continuing calibration verification is assessed on the basis of the total amount, individual peak calculations are only listed for completeness.

Method 8151A: All primary data for analytical batch 480962 is reported from the RTX-CLPI column.

Method 8081B: All primary data for analytical batch 481221 is reported from the RTX-CLPI column.

Method 8082A: All primary data for analytical batch 481474 is reported from the ZB-35 column.

Method 8082A: The percent difference in a multi-component continuing calibration verification is assessed on the basis of the total amount, individual peak calculations are only listed for completeness.

Method 8151A: All primary data for analytical batch 481461 is reported from the RTX-CLPI column.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

LCMS
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
Method 420.1, 9065, 9066: The laboratory control sample (LCS) for preparation batch 480-481746 and analytical batch 480-481919 recovered outside control limits for the following analytes: Total Recoverable Phenolics. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. MWSE-2 (480-155710-1) and MWSE-3 (480-155710-2)

Method 335.4, 9012B: The LCS recovered outside of the method acceptance limits of 90 - 110% for samples: MWSE-1 (480-155757-1) and MWSE-4 (480-155757-2).

Method 9038: The method blank for analytical batch 480-483565 contained Sulfate above the method detection limit. This target analyte concentration was less than the practical quantitation limit (PQL); therefore, re-analysis of samples was not performed. MWSE-2 (480-155710-1), MWSE-3 (480-155710-2), MWSE-1 (480-155757-1) and MWSE-4 (480-155757-2)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

Job ID: 480-155710-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

Method 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 180-285394.

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-306095 for PFC's.

Method 3535: The following sample contains non-settleable particulate matter which plugged the solid-phase extraction column: MWSE-3 (480-155710-2) for PFC method in batch: 320-306095.

Method 3535: The following sample was observed to contain sediment prior to extraction: MWSE-3 (480-155710-2) for PFC method in preparation batch 320-306095.

Method 8151A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 480-480799.

Method 8151A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 480-481261.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Narrative

Job Narrative
480-155710-2

Receipt
The samples were received on 7/2/2019 6:30 PM and 7/3/2019 5:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 4.4º C, 7.2º C, 10.2º C and 13.6º C.

RAD
Method 903.0: Ra-226 Prep Batch 160-434862: The following samples have an RER (replicate error ratio) result outside of the acceptance criteria of 1 (1.15) for Ra-226. Duplicate precision is demonstrated by acceptable relative percent difference (RPD), within the limit of 40% (24%). The data have been reported with this narrative: MWSE-2 (480-155710-1), MWSE-3 (480-155710-2), MWSE-1 (480-155757-1), MWSE-4 (480-155757-2), (LCS 160-434862/1-A), (LCSD 160-434862/2-A) and (MB 160-434862/7-A).

Method 903.0: Ra-226 Prep Batch 160-434862: Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date: MWSE-2 (480-155710-1), MWSE-3 (480-155710-2), MWSE-1 (480-155757-1), MWSE-4 (480-155757-2), (LCS 160-434862/1-A), (LCSD 160-434862/2-A) and (MB 160-434862/7-A).

Method 904.0: Ra-228 Prep Batch 160-434867: The following samples have an RER (replicate error ratio) result outside of the acceptance criteria of 1 (1.21) for Ra-228. Duplicate precision is demonstrated by acceptable relative percent difference (RPD), within the limit of 40% (30%). The data have been reported with this narrative: MWSE-2 (480-155710-1), MWSE-3 (480-155710-2), MWSE-1 (480-155757-1), MWSE-4 (480-155757-2), (LCS 160-434867/1-A), (LCSD 160-434867/2-A) and (MB 160-434867/7-A).

Method 904.0: Ra-228 Prep Batch 160-434867: Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date: MWSE-2 (480-155710-1), MWSE-3 (480-155710-2), MWSE-1 (480-155757-1), MWSE-4 (480-155757-2), (LCS 160-434867/1-A), (LCSD 160-434867/2-A) and (MB 160-434867/7-A).

Method 904.0: Ra-228 Prep Batch 160-434867: The detector on which the sample was counted failed its background count for the gross beta daily background check, indicating a potential high bias to the sample result. The sample result (-0.138 pCi/L) was a factor of more than 5 times below the MDC achieved (0.724 pCi/L), indicating this excursion did not adversely affect the data: MWSE-1 (480-155757-1).

Method PrecSep_0: Radium 228 Prep Batch 160-434867: Insufficient sample volume was available to perform a sample duplicate for the following samples: MWSE-2 (480-155710-1), MWSE-3 (480-155710-2), MWSE-1 (480-155757-1) and MWSE-4 (480-155757-2). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Job ID: 480-155710-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

Method PrecSep STD: Radium 226 Prep Batch 160-434862: Insufficient sample volume was available to perform a sample duplicate for the following samples: MWSE-2 (480-155710-1), MWSE-3 (480-155710-2), MWSE-1 (480-155757-1) and MWSE-4 (480-155757-2). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-2 — Lab Sample ID: 480-155710-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	1.4		0.20		mg/L	1		6010C	Total/NA
Barium	0.12		0.0020		mg/L	1		6010C	Total/NA
Boron	0.046		0.020		mg/L	1		6010C	Total/NA
Calcium	122		0.50		mg/L	1		6010C	Total/NA
Iron	2.5		0.050		mg/L	1		6010C	Total/NA
Magnesium	27.8		0.20		mg/L	1		6010C	Total/NA
Manganese	0.30		0.0030		mg/L	1		6010C	Total/NA
Potassium	4.6		0.50		mg/L	1		6010C	Total/NA
Sodium	12.7		1.0		mg/L	1		6010C	Total/NA
Zinc	0.017		0.010		mg/L	1		6010C	Total/NA
Calcium and Magnesium Hardness	420		0.50		mg/L	1		SM 2340B	Total/NA
Alkalinity, Total	186		10.0		mg/L	2		310.2	Total/NA
Total Kjeldahl Nitrogen	0.22		0.15		mg/L as N	1		351.2	Total/NA
Nitrate	0.058		0.050		mg/L as N	1		353.2	Total/NA
Sulfate	217	B	15.0		mg/L	10		9038	Total/NA
Chloride	14.1		1.0		mg/L	1		9251	Total/NA
Color	10.0		5.00		Color Units	1		SM 2120B	Total/NA
Total Dissolved Solids	587		10.0		mg/L	1		SM 2540C	Total/NA
Total Organic Carbon	1.5		1.0		mg/L	1		SM 5310D	Total/NA
Field pH	7.45				SU	1		Field Sampling	Total/NA
Specific Conductance	832				umhos/cm	1		Field Sampling	Total/NA
Temperature	13.2				Degrees C	1		Field Sampling	Total/NA
Oxidation Reduction Potential	111				millivolts	1		Field Sampling	Total/NA
Turbidity	30.9				NTU	1		Field Sampling	Total/NA
U	0.235		0.147		pCi/L	1		908.0	Total/NA

Client Sample ID: MWSE-3 — Lab Sample ID: 480-155710-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	2.8		0.20		mg/L	1		6010C	Total/NA
Barium	0.061		0.0020		mg/L	1		6010C	Total/NA
Calcium	12.3		0.50		mg/L	1		6010C	Total/NA
Iron	4.0		0.050		mg/L	1		6010C	Total/NA
Magnesium	3.0		0.20		mg/L	1		6010C	Total/NA
Manganese	0.20		0.0030		mg/L	1		6010C	Total/NA
Potassium	1.8		0.50		mg/L	1		6010C	Total/NA
Sodium	1.3		1.0		mg/L	1		6010C	Total/NA
Zinc	0.041		0.010		mg/L	1		6010C	Total/NA
Vanadium	0.0050		0.0050		mg/L	1		6010C	Total/NA
Calcium and Magnesium Hardness	43.1		0.50		mg/L	1		SM 2340B	Total/NA
Alkalinity, Total	25.9		5.0		mg/L	1		310.2	Total/NA
Total Kjeldahl Nitrogen	0.23		0.15		mg/L as N	1		351.2	Total/NA
Nitrate	2.4		0.050		mg/L as N	1		353.2	Total/NA
Sulfate	14.5	B	1.5		mg/L	1		9038	Total/NA
Color	40.0		5.00		Color Units	1		SM 2120B	Total/NA
Total Dissolved Solids	57.0		10.0		mg/L	1		SM 2540C	Total/NA
Field pH	5.98				SU	1		Field Sampling	Total/NA
Specific Conductance	104				umhos/cm	1		Field Sampling	Total/NA
Temperature	13.0				Degrees C	1		Field Sampling	Total/NA
Oxidation Reduction Potential	288				millivolts	1		Field Sampling	Total/NA
Turbidity	29.2				NTU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MWSE-3 (Continued)

Lab Sample ID: 480-155710-2

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
U	0.0765		0.161		pCi/L	1		908.0	Total/NA

Client Sample ID: MWSE-1

Lab Sample ID: 480-155757-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.5		1.9		ng/L	1		537 (modified)	Total/NA
Barium	0.10		0.0020		mg/L	1		6010C	Total/NA
Boron	0.023		0.020		mg/L	1		6010C	Total/NA
Calcium	102		0.50		mg/L	1		6010C	Total/NA
Iron	0.061		0.050		mg/L	1		6010C	Total/NA
Magnesium	26.4		0.20		mg/L	1		6010C	Total/NA
Manganese	0.059		0.0030		mg/L	1		6010C	Total/NA
Potassium	1.2		0.50		mg/L	1		6010C	Total/NA
Sodium	4.4		1.0		mg/L	1		6010C	Total/NA
Calcium and Magnesium Hardness	362		0.50		mg/L	1		SM 2340B	Total/NA
Alkalinity, Total	192		10.0		mg/L	2		310.2	Total/NA
Sulfate	136	B	15.0		mg/L	10		9038	Total/NA
Chloride	8.5		1.0		mg/L	1		9251	Total/NA
Color	10.0		5.00		Color Units	1		SM 2120B	Total/NA
Total Dissolved Solids	480		10.0		mg/L	1		SM 2540C	Total/NA
Total Organic Carbon	1.4		1.0		mg/L	1		SM 5310D	Total/NA
Field pH	7.23				SU	1		Field Sampling	Total/NA
Specific Conductance	692				umhos/cm	1		Field Sampling	Total/NA
Temperature	11.9				Degrees C	1		Field Sampling	Total/NA
Oxidation Reduction Potential	79				millivolts	1		Field Sampling	Total/NA
Turbidity	6.8				NTU	1		Field Sampling	Total/NA
U	0.116		0.135		pCi/L	1		908.0	Total/NA

Client Sample ID: MWSE-4

Lab Sample ID: 480-155757-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	16		1.8		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	19		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	23		1.8		ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.3		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	11		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.7		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.1		1.8		ng/L	1		537 (modified)	Total/NA
Barium	0.055		0.0020		mg/L	1		6010C	Total/NA
Boron	0.052		0.020		mg/L	1		6010C	Total/NA
Calcium	69.9		0.50		mg/L	1		6010C	Total/NA
Iron	0.32		0.050		mg/L	1		6010C	Total/NA
Magnesium	12.3		0.20		mg/L	1		6010C	Total/NA
Manganese	0.13		0.0030		mg/L	1		6010C	Total/NA
Potassium	1.8		0.50		mg/L	1		6010C	Total/NA
Sodium	14.0		1.0		mg/L	1		6010C	Total/NA
Calcium and Magnesium Hardness	225		0.50		mg/L	1		SM 2340B	Total/NA
Alkalinity, Total	139		10.0		mg/L	2		310.2	Total/NA
Chemical Oxygen Demand	6.3		5.0		mg/L	1		410.4	Total/NA
Sulfate	97.1	B	7.5		mg/L	5		9038	Total/NA
Chloride	22.0		1.0		mg/L	1		9251	Total/NA
Color	5.00		5.00		Color Units	1		SM 2120B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MWSE-4 (Continued) — Lab Sample ID: 480-155757-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	441		10.0		mg/L	1		SM 2540C	Total/NA
Total Organic Carbon	2.0		1.0		mg/L	1		SM 5310D	Total/NA
Field pH	7.52				SU	1		Field Sampling	Total/NA
Specific Conductance	516				umhos/cm	1		Field Sampling	Total/NA
Temperature	16.2				Degrees C	1		Field Sampling	Total/NA
Oxidation Reduction Potential	70.0				millivolts	1		Field Sampling	Total/NA
Turbidity	6.9				NTU	1		Field Sampling	Total/NA
U	0.175		0.148		pCi/L	1		908.0	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 480-155757-3

No Detections.

Client Sample ID: MWSE-1 — Lab Sample ID: 480-156080-1

No Detections.

Client Sample ID: MWSE-2 — Lab Sample ID: 480-156080-2

No Detections.

Client Sample ID: MWSE-3 — Lab Sample ID: 480-156080-3

No Detections.

Client Sample ID: MWSE-4 — Lab Sample ID: 480-156080-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-2
Date Collected: 07/02/19 13:00
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			07/11/19 23:25	1
1,1,1-Trichloroethane	ND		1.0		ug/L			07/11/19 23:25	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			07/11/19 23:25	1
1,1,2-Trichloroethane	ND		1.0		ug/L			07/11/19 23:25	1
1,1-Dichloroethane	ND		1.0		ug/L			07/11/19 23:25	1
1,1-Dichloroethene	ND		1.0		ug/L			07/11/19 23:25	1
1,1-Dichloropropene	ND		1.0		ug/L			07/11/19 23:25	1
1,2,3-Trichloropropane	ND		1.0		ug/L			07/11/19 23:25	1
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			07/11/19 23:25	1
1,2-Dichlorobenzene	ND		1.0		ug/L			07/11/19 23:25	1
1,2-Dichloroethane	ND		1.0		ug/L			07/11/19 23:25	1
1,2-Dichloropropane	ND		1.0		ug/L			07/11/19 23:25	1
1,3-Dichloropropane	ND		1.0		ug/L			07/11/19 23:25	1
1,4-Dichlorobenzene	ND		1.0		ug/L			07/11/19 23:25	1
2,2-Dichloropropane	ND		1.0		ug/L			07/11/19 23:25	1
2-Butanone (MEK)	ND		10		ug/L			07/11/19 23:25	1
2-Hexanone	ND		5.0		ug/L			07/11/19 23:25	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			07/11/19 23:25	1
Acetone	ND		10		ug/L			07/11/19 23:25	1
Acetonitrile	ND		15		ug/L			07/11/19 23:25	1
Acrolein	ND		20		ug/L			07/11/19 23:25	1
Acrylonitrile	ND		5.0		ug/L			07/11/19 23:25	1
Allyl chloride	ND		1.0		ug/L			07/11/19 23:25	1
Benzene	ND		1.0		ug/L			07/11/19 23:25	1
Chlorobromomethane	ND		1.0		ug/L			07/11/19 23:25	1
Bromodichloromethane	ND		1.0		ug/L			07/11/19 23:25	1
Bromoform	ND		1.0		ug/L			07/11/19 23:25	1
Bromomethane	ND		1.0		ug/L			07/11/19 23:25	1
Carbon disulfide	ND		1.0		ug/L			07/11/19 23:25	1
Carbon tetrachloride	ND		1.0		ug/L			07/11/19 23:25	1
Chlorobenzene	ND		1.0		ug/L			07/11/19 23:25	1
Dibromochloromethane	ND		1.0		ug/L			07/11/19 23:25	1
Chloroethane	ND		1.0		ug/L			07/11/19 23:25	1
Chloroform	ND		1.0		ug/L			07/11/19 23:25	1
Chloromethane	ND		1.0		ug/L			07/11/19 23:25	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			07/11/19 23:25	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			07/11/19 23:25	1
Chloroprene	ND		1.0		ug/L			07/11/19 23:25	1
Dibromomethane	ND		1.0		ug/L			07/11/19 23:25	1
Dichlorodifluoromethane	ND		1.0		ug/L			07/11/19 23:25	1
Ethyl methacrylate	ND		1.0		ug/L			07/11/19 23:25	1
Ethylbenzene	ND		1.0		ug/L			07/11/19 23:25	1
1,2-Dibromoethane	ND		1.0		ug/L			07/11/19 23:25	1
Hexachlorobutadiene	ND		2.0		ug/L			07/11/19 23:25	1
Iodomethane	ND		1.0		ug/L			07/11/19 23:25	1
Isobutyl alcohol	ND		25		ug/L			07/11/19 23:25	1
Methacrylonitrile	ND		5.0		ug/L			07/11/19 23:25	1
Methyl methacrylate	ND		1.0		ug/L			07/11/19 23:25	1
Methylene Chloride	ND		1.0		ug/L			07/11/19 23:25	1

Client Sample ID: MWSE-2

Date Collected: 07/02/19 13:00
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-1

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0		ug/L			07/11/19 23:25	1
Propionitrile	ND		10		ug/L			07/11/19 23:25	1
Styrene	ND		1.0		ug/L			07/11/19 23:25	1
Tetrachloroethene	ND		1.0		ug/L			07/11/19 23:25	1
Toluene	ND		1.0		ug/L			07/11/19 23:25	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			07/11/19 23:25	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			07/11/19 23:25	1
trans-1,4-Dichloro-2-butene	ND		1.0		ug/L			07/11/19 23:25	1
Trichloroethene	ND		1.0		ug/L			07/11/19 23:25	1
Trichlorofluoromethane	ND		1.0		ug/L			07/11/19 23:25	1
Vinyl acetate	ND		5.0		ug/L			07/11/19 23:25	1
Vinyl chloride	ND		1.0		ug/L			07/11/19 23:25	1
Xylenes, Total	ND		2.0		ug/L			07/11/19 23:25	1
o-Xylene	ND		1.0		ug/L			07/11/19 23:25	1
m,p-Xylene	ND		2.0		ug/L			07/11/19 23:25	1
1,2-Dichloroethene, Total	ND		2.0		ug/L			07/11/19 23:25	1
1,3-Dichlorobenzene	ND		1.0		ug/L			07/11/19 23:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*		*07/11/19 23:25*	*1*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*07/11/19 23:25*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*07/11/19 23:25*	*1*
Dibromofluoromethane (Surr)	*94*		*75 - 123*		*07/11/19 23:25*	*1*

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20		ug/L		07/05/19 15:22	07/10/19 01:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*30*		*15 - 110*	*07/05/19 15:22*	*07/10/19 01:48*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
1,2,4-Trichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
1,2-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
1,3,5-Trinitrobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
1,3-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
1,3-Dinitrobenzene	ND		20		ug/L		07/05/19 15:02	07/10/19 22:49	1
1,4-Naphthoquinone	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
1,4-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
1-Naphthylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
2,3,4,6-Tetrachlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
2,4,5-Trichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
2,4,6-Trichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
2,4-Dichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
2,4-Dimethylphenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
2,4-Dinitrophenol	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
2,4-Dinitrotoluene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
2,6-Dichlorophenol	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
2,6-Dinitrotoluene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1

Client Sample ID: MWSE-2
Date Collected: 07/02/19 13:00
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-1
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Acetylaminofluorene	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
2-Chloronaphthalene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
2-Chlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
2-Methylnaphthalene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
2-Methylphenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
2-Naphthylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
2-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
2-Nitrophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
o-Toluidine	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
3-Methylphenol	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
4-Methylphenol	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
3,3'-Dichlorobenzidine	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
3,3'-Dimethylbenzidine	ND		40		ug/L		07/05/19 15:02	07/10/19 22:49	1
3-Methylcholanthrene	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
3-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
4,6-Dinitro-2-methylphenol	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
4-Aminobiphenyl	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
4-Bromophenyl phenyl ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
4-Chloro-3-methylphenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
p-Chloroaniline	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
4-Chlorophenyl phenyl ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
4-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
4-Nitrophenol	ND	*	10		ug/L		07/05/19 15:02	07/10/19 22:49	1
7,12-Dimethylbenz(a)anthracene	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Acenaphthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Acenaphthylene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Acetophenone	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Anthracene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Benzo[a]anthracene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Benzo[a]pyrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Benzo[b]fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Benzo[g,h,i]perylene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Benzo[k]fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Benzyl alcohol	ND		20		ug/L		07/05/19 15:02	07/10/19 22:49	1
Bis(2-chloroethoxy)methane	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Bis(2-chloroethyl)ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Bis(2-ethylhexyl) phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
bis(2 chloro-1-methylethyl) ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Butyl benzyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Chrysene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Diallate	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Dibenz(a,h)anthracene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Dibenzofuran	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Diethyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Dimethoate	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Dimethyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Di-n-butyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Di-n-octyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Dinoseb	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1

Client Sample ID: MWSE-2
Date Collected: 07/02/19 13:00
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-1
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diphenylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Disulfoton	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Ethyl methanesulfonate	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Famphur	ND		40		ug/L		07/05/19 15:02	07/10/19 22:49	1
Fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Fluorene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Hexachlorobenzene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Hexachlorobutadiene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Hexachlorocyclopentadiene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Hexachloroethane	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Hexachloropropene	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Indeno[1,2,3-cd]pyrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Isodrin	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Isophorone	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Isosafrole	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Kepone	ND		50		ug/L		07/05/19 15:02	07/10/19 22:49	1
Methapyrilene	ND		50		ug/L		07/05/19 15:02	07/10/19 22:49	1
Methyl methanesulfonate	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Safrole	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Thionazin	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Naphthalene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Nitrobenzene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
5-Nitro-o-toluidine	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
N-Nitrosodiethylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Chlorobenzilate	ND		20		ug/L		07/05/19 15:02	07/10/19 22:49	1
N-Nitrosodimethylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
N-Nitrosodi-n-butylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
N-Nitrosodipropylamine	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
N-Nitrosodiphenylamine	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
N-Nitrosomethylethylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
N-Nitrosopiperidine	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
N-Nitrosopyrrolidine	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Triethyl phosphorothioate	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Parathion	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Parathion methyl	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
p-Dimethylamino azobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Pentachlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Pentachloronitrobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Pentachlorophenol	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Phenacetin	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
Phenanthrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Phenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Phorate	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1
p-Phenylene diamine	ND		800		ug/L		07/05/19 15:02	07/10/19 22:49	1
Pyrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 22:49	1
Pronamide	ND		10		ug/L		07/05/19 15:02	07/10/19 22:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*100*		*48 - 120*	*07/05/19 15:02*	*07/10/19 22:49*	*1*
2-Fluorophenol (Surr)	*64*		*35 - 120*	*07/05/19 15:02*	*07/10/19 22:49*	*1*

Client Sample ID: MWSE-2

Date Collected: 07/02/19 13:00
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-1

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*85*		*41 - 120*	*07/05/19 15:02*	*07/10/19 22:49*	*1*
Nitrobenzene-d5 (Surr)	*94*		*46 - 120*	*07/05/19 15:02*	*07/10/19 22:49*	*1*
Phenol-d5 (Surr)	*46*		*22 - 120*	*07/05/19 15:02*	*07/10/19 22:49*	*1*
p-Terphenyl-d14 (Surr)	*94*		*59 - 136*	*07/05/19 15:02*	*07/10/19 22:49*	*1*

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
4,4'-DDE	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
4,4'-DDT	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
Aldrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
alpha-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
beta-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
Chlordane (technical)	ND		0.50		ug/L		07/08/19 15:10	07/09/19 14:19	1
delta-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
Dieldrin	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
Endosulfan I	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
Endosulfan II	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
Endosulfan sulfate	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
Endrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
Endrin aldehyde	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
gamma-BHC (Lindane)	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
Heptachlor	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
Methoxychlor	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1
Toxaphene	ND		0.50		ug/L		07/08/19 15:10	07/09/19 14:19	1
Heptachlor epoxide	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*74*		*20 - 120*	*07/08/19 15:10*	*07/09/19 14:19*	*1*
Tetrachloro-m-xylene	*91*		*44 - 120*	*07/08/19 15:10*	*07/09/19 14:19*	*1*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.54		ug/L		07/05/19 08:16	07/10/19 18:07	1
PCB-1221	ND		0.54		ug/L		07/05/19 08:16	07/10/19 18:07	1
PCB-1232	ND		0.54		ug/L		07/05/19 08:16	07/10/19 18:07	1
PCB-1242	ND		0.54		ug/L		07/05/19 08:16	07/10/19 18:07	1
PCB-1248	ND		0.54		ug/L		07/05/19 08:16	07/10/19 18:07	1
PCB-1254	ND		0.54		ug/L		07/05/19 08:16	07/10/19 18:07	1
PCB-1260	ND		0.54		ug/L		07/05/19 08:16	07/10/19 18:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*62*		*39 - 121*	*07/05/19 08:16*	*07/10/19 18:07*	*1*
DCB Decachlorobiphenyl	*52*		*19 - 120*	*07/05/19 08:16*	*07/10/19 18:07*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND		0.49		ug/L		07/03/19 14:11	07/05/19 17:11	1
2,4-D	ND		0.49		ug/L		07/03/19 14:11	07/05/19 17:11	1
Silvex (2,4,5-TP)	ND		0.49		ug/L		07/03/19 14:11	07/05/19 17:11	1

Client Sample ID: MWSE-2

Date Collected: 07/02/19 13:00
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-1

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	*57*		*48 - 132*	*07/03/19 14:11*	*07/05/19 17:11*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluoropentanoic acid (PFPeA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluorohexanoic acid (PFHxA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluorooctanoic acid (PFOA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluorononanoic acid (PFNA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluorododecanoic acid (PFDoA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:12	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18		ng/L		07/08/19 05:43	07/10/19 01:12	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18		ng/L		07/08/19 05:43	07/10/19 01:12	1
6:2 FTS	ND		18		ng/L		07/08/19 05:43	07/10/19 01:12	1
8:2 FTS	ND		18		ng/L		07/08/19 05:43	07/10/19 01:12	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	*83*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
13C5 PFPeA	*100*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
13C2 PFHxA	*106*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
13C4 PFHpA	*102*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
13C4 PFOA	*101*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
13C5 PFNA	*99*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
13C2 PFDA	*103*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
13C2 PFUnA	*100*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
13C2 PFDoA	*97*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
13C2 PFTeDA	*106*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
13C3 PFBS	*94*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
18O2 PFHxS	*102*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
13C4 PFOS	*96*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
13C8 FOSA	*87*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
d3-NMeFOSAA	*100*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
d5-NEtFOSAA	*100*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
M2-6:2 FTS	*132*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*
M2-8:2 FTS	*104*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:12*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.4**		0.20		mg/L		07/05/19 07:47	07/05/19 19:18	1

Client Sample ID: MWSE-2
Date Collected: 07/02/19 13:00
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-1
Matrix: Water

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020		mg/L		07/05/19 07:47	07/05/19 19:18	1
Arsenic	ND		0.015		mg/L		07/05/19 07:47	07/05/19 19:18	1
Barium	**0.12**		0.0020		mg/L		07/05/19 07:47	07/05/19 19:18	1
Beryllium	ND		0.0020		mg/L		07/05/19 07:47	07/05/19 19:18	1
Boron	**0.046**		0.020		mg/L		07/05/19 07:47	07/05/19 19:18	1
Cadmium	ND		0.0020		mg/L		07/05/19 07:47	07/05/19 19:18	1
Calcium	**122**		0.50		mg/L		07/05/19 07:47	07/05/19 19:18	1
Chromium	ND		0.0040		mg/L		07/05/19 07:47	07/05/19 19:18	1
Cobalt	ND		0.0040		mg/L		07/05/19 07:47	07/05/19 19:18	1
Copper	ND		0.010		mg/L		07/05/19 07:47	07/05/19 19:18	1
Iron	**2.5**		0.050		mg/L		07/05/19 07:47	07/05/19 19:18	1
Lead	ND		0.010		mg/L		07/05/19 07:47	07/05/19 19:18	1
Magnesium	**27.8**		0.20		mg/L		07/05/19 07:47	07/05/19 19:18	1
Manganese	**0.30**		0.0030		mg/L		07/05/19 07:47	07/05/19 19:18	1
Nickel	ND		0.010		mg/L		07/05/19 07:47	07/05/19 19:18	1
Potassium	**4.6**		0.50		mg/L		07/05/19 07:47	07/05/19 19:18	1
Selenium	ND		0.025		mg/L		07/05/19 07:47	07/05/19 19:18	1
Silver	ND		0.0060		mg/L		07/05/19 07:47	07/05/19 19:18	1
Sodium	**12.7**		1.0		mg/L		07/05/19 07:47	07/05/19 19:18	1
Thallium	ND		0.020		mg/L		07/05/19 07:47	07/05/19 19:18	1
Zinc	**0.017**		0.010		mg/L		07/05/19 07:47	07/05/19 19:18	1
Vanadium	ND		0.0050		mg/L		07/05/19 07:47	07/05/19 19:18	1
Tin	ND		0.010		mg/L		07/05/19 07:47	07/05/19 19:18	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		07/05/19 11:55	07/05/19 15:49	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium and Magnesium Hardness	**420**		0.50		mg/L			07/16/19 09:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		1.0		mg/L			07/08/19 17:56	5
Alkalinity, Total	**186**		10.0		mg/L			07/14/19 14:57	2
Ammonia (as N)	ND		0.020		mg/L as N			07/10/19 09:35	1
Total Kjeldahl Nitrogen	**0.22**		0.15		mg/L as N		07/18/19 09:10	07/21/19 10:22	1
Nitrate	**0.058**		0.050		mg/L as N			07/03/19 21:42	1
Chemical Oxygen Demand	ND		5.0		mg/L			07/18/19 09:44	1
Chromium, hexavalent	ND		0.010		mg/L			07/03/19 11:45	1
Cyanide, Total	ND		0.010		mg/L		07/09/19 14:15	07/10/19 15:16	1
Sulfate	**217**	**B**	15.0		mg/L			07/24/19 12:52	10
Phenolics, Total Recoverable	ND	*	0.0050		mg/L		07/11/19 19:10	07/12/19 14:38	1
Chloride	**14.1**		1.0		mg/L			07/14/19 14:39	1
Total Dissolved Solids	**587**		10.0		mg/L			07/08/19 08:38	1
Biochemical Oxygen Demand	ND		2.0		mg/L			07/04/19 04:48	1
Total Organic Carbon	**1.5**		1.0		mg/L			07/13/19 06:12	1

Client Sample ID: MWSE-2

Date Collected: 07/02/19 13:00
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-1

Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	**10.0**		5.00		Color Units			07/03/19 17:25	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.131	U *	0.103	0.104	1.00	0.153	pCi/L	07/15/19 14:52	08/20/19 20:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*58.2*		*40 - 110*	*07/15/19 14:52*	*08/20/19 20:42*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.590	U *	0.481	0.484	1.00	0.766	pCi/L	07/15/19 15:55	07/29/19 10:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*58.2*		*40 - 110*	*07/15/19 15:55*	*07/29/19 10:12*	*1*
Y Carrier	*79.6*		*40 - 110*	*07/15/19 15:55*	*07/29/19 10:12*	*1*

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**7.45**				SU			07/02/19 13:00	1
Specific Conductance	**832**				umhos/cm			07/02/19 13:00	1
Temperature	**13.2**				Degrees C			07/02/19 13:00	1
Oxidation Reduction Potential	**111**				millivolts			07/02/19 13:00	1
Turbidity	**30.9**				NTU			07/02/19 13:00	1

Method: 908.0 - Uranium, Total

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
U	**0.235**		0.147		pCi/L			08/05/19 00:00	1

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-3
Date Collected: 07/02/19 12:20
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			07/11/19 23:48	1
1,1,1-Trichloroethane	ND		1.0		ug/L			07/11/19 23:48	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			07/11/19 23:48	1
1,1,2-Trichloroethane	ND		1.0		ug/L			07/11/19 23:48	1
1,1-Dichloroethane	ND		1.0		ug/L			07/11/19 23:48	1
1,1-Dichloroethene	ND		1.0		ug/L			07/11/19 23:48	1
1,1-Dichloropropene	ND		1.0		ug/L			07/11/19 23:48	1
1,2,3-Trichloropropane	ND		1.0		ug/L			07/11/19 23:48	1
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			07/11/19 23:48	1
1,2-Dichlorobenzene	ND		1.0		ug/L			07/11/19 23:48	1
1,2-Dichloroethane	ND		1.0		ug/L			07/11/19 23:48	1
1,2-Dichloropropane	ND		1.0		ug/L			07/11/19 23:48	1
1,3-Dichloropropane	ND		1.0		ug/L			07/11/19 23:48	1
1,4-Dichlorobenzene	ND		1.0		ug/L			07/11/19 23:48	1
2,2-Dichloropropane	ND		1.0		ug/L			07/11/19 23:48	1
2-Butanone (MEK)	ND		10		ug/L			07/11/19 23:48	1
2-Hexanone	ND		5.0		ug/L			07/11/19 23:48	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			07/11/19 23:48	1
Acetone	ND		10		ug/L			07/11/19 23:48	1
Acetonitrile	ND		15		ug/L			07/11/19 23:48	1
Acrolein	ND		20		ug/L			07/11/19 23:48	1
Acrylonitrile	ND		5.0		ug/L			07/11/19 23:48	1
Allyl chloride	ND		1.0		ug/L			07/11/19 23:48	1
Benzene	ND		1.0		ug/L			07/11/19 23:48	1
Chlorobromomethane	ND		1.0		ug/L			07/11/19 23:48	1
Bromodichloromethane	ND		1.0		ug/L			07/11/19 23:48	1
Bromoform	ND		1.0		ug/L			07/11/19 23:48	1
Bromomethane	ND		1.0		ug/L			07/11/19 23:48	1
Carbon disulfide	ND		1.0		ug/L			07/11/19 23:48	1
Carbon tetrachloride	ND		1.0		ug/L			07/11/19 23:48	1
Chlorobenzene	ND		1.0		ug/L			07/11/19 23:48	1
Dibromochloromethane	ND		1.0		ug/L			07/11/19 23:48	1
Chloroethane	ND		1.0		ug/L			07/11/19 23:48	1
Chloroform	ND		1.0		ug/L			07/11/19 23:48	1
Chloromethane	ND		1.0		ug/L			07/11/19 23:48	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			07/11/19 23:48	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			07/11/19 23:48	1
Chloroprene	ND		1.0		ug/L			07/11/19 23:48	1
Dibromomethane	ND		1.0		ug/L			07/11/19 23:48	1
Dichlorodifluoromethane	ND		1.0		ug/L			07/11/19 23:48	1
Ethyl methacrylate	ND		1.0		ug/L			07/11/19 23:48	1
Ethylbenzene	ND		1.0		ug/L			07/11/19 23:48	1
1,2-Dibromoethane	ND		1.0		ug/L			07/11/19 23:48	1
Hexachlorobutadiene	ND		2.0		ug/L			07/11/19 23:48	1
Iodomethane	ND		1.0		ug/L			07/11/19 23:48	1
Isobutyl alcohol	ND		25		ug/L			07/11/19 23:48	1
Methacrylonitrile	ND		5.0		ug/L			07/11/19 23:48	1
Methyl methacrylate	ND		1.0		ug/L			07/11/19 23:48	1
Methylene Chloride	ND		1.0		ug/L			07/11/19 23:48	1

Client Sample ID: MWSE-3

Date Collected: 07/02/19 12:20
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-2

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0		ug/L			07/11/19 23:48	1
Propionitrile	ND		10		ug/L			07/11/19 23:48	1
Styrene	ND		1.0		ug/L			07/11/19 23:48	1
Tetrachloroethene	ND		1.0		ug/L			07/11/19 23:48	1
Toluene	ND		1.0		ug/L			07/11/19 23:48	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			07/11/19 23:48	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			07/11/19 23:48	1
trans-1,4-Dichloro-2-butene	ND		1.0		ug/L			07/11/19 23:48	1
Trichloroethene	ND		1.0		ug/L			07/11/19 23:48	1
Trichlorofluoromethane	ND		1.0		ug/L			07/11/19 23:48	1
Vinyl acetate	ND		5.0		ug/L			07/11/19 23:48	1
Vinyl chloride	ND		1.0		ug/L			07/11/19 23:48	1
Xylenes, Total	ND		2.0		ug/L			07/11/19 23:48	1
o-Xylene	ND		1.0		ug/L			07/11/19 23:48	1
m,p-Xylene	ND		2.0		ug/L			07/11/19 23:48	1
1,2-Dichloroethene, Total	ND		2.0		ug/L			07/11/19 23:48	1
1,3-Dichlorobenzene	ND		1.0		ug/L			07/11/19 23:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*77 - 120*		*07/11/19 23:48*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*07/11/19 23:48*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*07/11/19 23:48*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 123*		*07/11/19 23:48*	*1*

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20		ug/L		07/05/19 15:22	07/10/19 02:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*30*		*15 - 110*	*07/05/19 15:22*	*07/10/19 02:12*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
1,2,4-Trichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
1,2-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
1,3,5-Trinitrobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
1,3-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
1,3-Dinitrobenzene	ND		20		ug/L		07/05/19 15:02	07/10/19 23:17	1
1,4-Naphthoquinone	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
1,4-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
1-Naphthylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
2,3,4,6-Tetrachlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
2,4,5-Trichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
2,4,6-Trichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
2,4-Dichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
2,4-Dimethylphenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
2,4-Dinitrophenol	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
2,4-Dinitrotoluene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
2,6-Dichlorophenol	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
2,6-Dinitrotoluene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1

Client Sample ID: MWSE-3
Date Collected: 07/02/19 12:20
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-2
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Acetylaminofluorene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
2-Chloronaphthalene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
2-Chlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
2-Methylnaphthalene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
2-Methylphenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
2-Naphthylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
2-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
2-Nitrophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
o-Toluidine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
3-Methylphenol	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
4-Methylphenol	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
3,3'-Dichlorobenzidine	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
3,3'-Dimethylbenzidine	ND		40		ug/L		07/05/19 15:02	07/10/19 23:17	1
3-Methylcholanthrene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
3-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
4,6-Dinitro-2-methylphenol	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
4-Aminobiphenyl	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
4-Bromophenyl phenyl ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
4-Chloro-3-methylphenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
p-Chloroaniline	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
4-Chlorophenyl phenyl ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
4-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
4-Nitrophenol	ND	*	10		ug/L		07/05/19 15:02	07/10/19 23:17	1
7,12-Dimethylbenz(a)anthracene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Acenaphthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Acenaphthylene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Acetophenone	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Anthracene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Benzo[a]anthracene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Benzo[a]pyrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Benzo[b]fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Benzo[g,h,i]perylene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Benzo[k]fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Benzyl alcohol	ND		20		ug/L		07/05/19 15:02	07/10/19 23:17	1
Bis(2-chloroethoxy)methane	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Bis(2-chloroethyl)ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Bis(2-ethylhexyl) phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
bis(2 chloro-1-methylethyl) ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Butyl benzyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Chrysene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Diallate	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Dibenz(a,h)anthracene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Dibenzofuran	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Diethyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Dimethoate	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Dimethyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Di-n-butyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Di-n-octyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Dinoseb	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1

Client Sample ID: MWSE-3
Date Collected: 07/02/19 12:20
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-2
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diphenylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Disulfoton	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Ethyl methanesulfonate	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Famphur	ND		40		ug/L		07/05/19 15:02	07/10/19 23:17	1
Fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Fluorene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Hexachlorobenzene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Hexachlorobutadiene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Hexachlorocyclopentadiene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Hexachloroethane	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Hexachloropropene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Indeno[1,2,3-cd]pyrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Isodrin	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Isophorone	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Isosafrole	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Kepone	ND		50		ug/L		07/05/19 15:02	07/10/19 23:17	1
Methapyrilene	ND		50		ug/L		07/05/19 15:02	07/10/19 23:17	1
Methyl methanesulfonate	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Safrole	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Thionazin	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Naphthalene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Nitrobenzene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
5-Nitro-o-toluidine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
N-Nitrosodiethylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Chlorobenzilate	ND		20		ug/L		07/05/19 15:02	07/10/19 23:17	1
N-Nitrosodimethylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
N-Nitrosodi-n-butylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
N-Nitrosodipropylamine	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
N-Nitrosodiphenylamine	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
N-Nitrosomethylethylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
N-Nitrosopiperidine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
N-Nitrosopyrrolidine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Triethyl phosphorothioate	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Parathion	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Parathion methyl	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
p-Dimethylamino azobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Pentachlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Pentachloronitrobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Pentachlorophenol	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Phenacetin	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
Phenanthrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Phenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Phorate	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1
p-Phenylene diamine	ND		800		ug/L		07/05/19 15:02	07/10/19 23:17	1
Pyrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:17	1
Pronamide	ND		10		ug/L		07/05/19 15:02	07/10/19 23:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*95*		*48 - 120*	*07/05/19 15:02*	*07/10/19 23:17*	*1*
2-Fluorophenol (Surr)	*64*		*35 - 120*	*07/05/19 15:02*	*07/10/19 23:17*	*1*

Client Sample ID: MWSE-3

Date Collected: 07/02/19 12:20
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-2

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*82*		*41 - 120*	*07/05/19 15:02*	*07/10/19 23:17*	*1*
Nitrobenzene-d5 (Surr)	*93*		*46 - 120*	*07/05/19 15:02*	*07/10/19 23:17*	*1*
Phenol-d5 (Surr)	*45*		*22 - 120*	*07/05/19 15:02*	*07/10/19 23:17*	*1*
p-Terphenyl-d14 (Surr)	*94*		*59 - 136*	*07/05/19 15:02*	*07/10/19 23:17*	*1*

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
4,4'-DDE	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
4,4'-DDT	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
Aldrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
alpha-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
beta-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
Chlordane (technical)	ND		0.50		ug/L		07/08/19 15:10	07/09/19 14:39	1
delta-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
Dieldrin	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
Endosulfan I	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
Endosulfan II	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
Endosulfan sulfate	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
Endrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
Endrin aldehyde	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
gamma-BHC (Lindane)	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
Heptachlor	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
Methoxychlor	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1
Toxaphene	ND		0.50		ug/L		07/08/19 15:10	07/09/19 14:39	1
Heptachlor epoxide	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*59*		*20 - 120*	*07/08/19 15:10*	*07/09/19 14:39*	*1*
Tetrachloro-m-xylene	*80*		*44 - 120*	*07/08/19 15:10*	*07/09/19 14:39*	*1*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.56		ug/L		07/05/19 08:16	07/10/19 18:45	1
PCB-1221	ND		0.56		ug/L		07/05/19 08:16	07/10/19 18:45	1
PCB-1232	ND		0.56		ug/L		07/05/19 08:16	07/10/19 18:45	1
PCB-1242	ND		0.56		ug/L		07/05/19 08:16	07/10/19 18:45	1
PCB-1248	ND		0.56		ug/L		07/05/19 08:16	07/10/19 18:45	1
PCB-1254	ND		0.56		ug/L		07/05/19 08:16	07/10/19 18:45	1
PCB-1260	ND		0.56		ug/L		07/05/19 08:16	07/10/19 18:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*59*		*39 - 121*	*07/05/19 08:16*	*07/10/19 18:45*	*1*
DCB Decachlorobiphenyl	*33*		*19 - 120*	*07/05/19 08:16*	*07/10/19 18:45*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND		0.51		ug/L		07/03/19 14:11	07/05/19 17:40	1
2,4-D	ND		0.51		ug/L		07/03/19 14:11	07/05/19 17:40	1
Silvex (2,4,5-TP)	ND		0.51		ug/L		07/03/19 14:11	07/05/19 17:40	1

Client Sample ID: MWSE-3

Date Collected: 07/02/19 12:20
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-2

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	*54*		*48 - 132*	*07/03/19 14:11*	*07/05/19 17:40*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluoropentanoic acid (PFPeA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluorohexanoic acid (PFHxA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluorooctanoic acid (PFOA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluorononanoic acid (PFNA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluorodecanoic acid (PFDA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluorododecanoic acid (PFDoA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 01:20	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20		ng/L		07/08/19 05:43	07/10/19 01:20	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20		ng/L		07/08/19 05:43	07/10/19 01:20	1
6:2 FTS	ND		20		ng/L		07/08/19 05:43	07/10/19 01:20	1
8:2 FTS	ND		20		ng/L		07/08/19 05:43	07/10/19 01:20	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	*76*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
13C5 PFPeA	*84*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
13C2 PFHxA	*96*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
13C4 PFHpA	*93*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
13C4 PFOA	*91*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
13C5 PFNA	*87*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
13C2 PFDA	*88*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
13C2 PFUnA	*83*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
13C2 PFDoA	*74*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
13C2 PFTeDA	*72*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
13C3 PFBS	*87*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
18O2 PFHxS	*92*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
13C4 PFOS	*85*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
13C8 FOSA	*66*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
d3-NMeFOSAA	*84*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
d5-NEtFOSAA	*87*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
M2-6:2 FTS	*128*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*
M2-8:2 FTS	*106*		*25 - 150*	*07/08/19 05:43*	*07/10/19 01:20*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**2.8**		0.20		mg/L		07/05/19 07:47	07/05/19 19:22	1

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-3

Date Collected: 07/02/19 12:20
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-2

Matrix: Water

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020		mg/L		07/05/19 07:47	07/05/19 19:22	1
Arsenic	ND		0.015		mg/L		07/05/19 07:47	07/05/19 19:22	1
Barium	**0.061**		0.0020		mg/L		07/05/19 07:47	07/05/19 19:22	1
Beryllium	ND		0.0020		mg/L		07/05/19 07:47	07/05/19 19:22	1
Boron	ND		0.020		mg/L		07/05/19 07:47	07/05/19 19:22	1
Cadmium	ND		0.0020		mg/L		07/05/19 07:47	07/05/19 19:22	1
Calcium	**12.3**		0.50		mg/L		07/05/19 07:47	07/05/19 19:22	1
Chromium	ND		0.0040		mg/L		07/05/19 07:47	07/05/19 19:22	1
Cobalt	ND		0.0040		mg/L		07/05/19 07:47	07/05/19 19:22	1
Copper	ND		0.010		mg/L		07/05/19 07:47	07/05/19 19:22	1
Iron	**4.0**		0.050		mg/L		07/05/19 07:47	07/05/19 19:22	1
Lead	ND		0.010		mg/L		07/05/19 07:47	07/05/19 19:22	1
Magnesium	**3.0**		0.20		mg/L		07/05/19 07:47	07/05/19 19:22	1
Manganese	**0.20**		0.0030		mg/L		07/05/19 07:47	07/05/19 19:22	1
Nickel	ND		0.010		mg/L		07/05/19 07:47	07/05/19 19:22	1
Potassium	**1.8**		0.50		mg/L		07/05/19 07:47	07/05/19 19:22	1
Selenium	ND		0.025		mg/L		07/05/19 07:47	07/05/19 19:22	1
Silver	ND		0.0060		mg/L		07/05/19 07:47	07/05/19 19:22	1
Sodium	**1.3**		1.0		mg/L		07/05/19 07:47	07/05/19 19:22	1
Thallium	ND		0.020		mg/L		07/05/19 07:47	07/05/19 19:22	1
Zinc	**0.041**		0.010		mg/L		07/05/19 07:47	07/05/19 19:22	1
Vanadium	**0.0050**		0.0050		mg/L		07/05/19 07:47	07/05/19 19:22	1
Tin	ND		0.010		mg/L		07/05/19 07:47	07/05/19 19:22	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		07/05/19 11:55	07/05/19 15:51	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium and Magnesium Hardness	**43.1**		0.50		mg/L			07/16/19 09:25	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.20		mg/L			07/08/19 19:09	1
Alkalinity, Total	**25.9**		5.0		mg/L			07/14/19 14:41	1
Ammonia (as N)	ND		0.020		mg/L as N			07/10/19 09:37	1
Total Kjeldahl Nitrogen	**0.23**		0.15		mg/L as N		07/18/19 09:10	07/21/19 10:22	1
Nitrate	**2.4**		0.050		mg/L as N			07/03/19 21:44	1
Chemical Oxygen Demand	ND		5.0		mg/L			07/18/19 09:44	1
Chromium, hexavalent	ND		0.010		mg/L			07/03/19 11:45	1
Cyanide, Total	ND		0.010		mg/L		07/09/19 14:15	07/10/19 15:17	1
Sulfate	**14.5**	**B**	1.5		mg/L			07/24/19 12:31	1
Phenolics, Total Recoverable	ND	*	0.0050		mg/L		07/11/19 19:10	07/12/19 14:40	1
Chloride	ND		1.0		mg/L			07/14/19 14:39	1
Total Dissolved Solids	**57.0**		10.0		mg/L			07/08/19 08:38	1
Biochemical Oxygen Demand	ND		2.0		mg/L			07/04/19 04:48	1
Total Organic Carbon	ND		1.0		mg/L			07/13/19 06:26	1

Client Sample ID: MWSE-3

Date Collected: 07/02/19 12:20
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-2

Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	**40.0**		5.00		Color Units			07/03/19 17:25	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0768	U *	0.0671	0.0675	1.00	0.101	pCi/L	07/15/19 14:52	08/20/19 20:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.8*		*40 - 110*	*07/15/19 14:52*	*08/20/19 20:42*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.108	U *	0.352	0.352	1.00	0.605	pCi/L	07/15/19 15:55	07/29/19 10:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.8*		*40 - 110*	*07/15/19 15:55*	*07/29/19 10:12*	*1*
Y Carrier	*80.7*		*40 - 110*	*07/15/19 15:55*	*07/29/19 10:12*	*1*

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**5.98**				SU			07/02/19 12:20	1
Specific Conductance	**104**				umhos/cm			07/02/19 12:20	1
Temperature	**13.0**				Degrees C			07/02/19 12:20	1
Oxidation Reduction Potential	**288**				millivolts			07/02/19 12:20	1
Turbidity	**29.2**				NTU			07/02/19 12:20	1

Method: 908.0 - Uranium, Total

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
U	**0.0765**		0.161		pCi/L			08/05/19 00:00	1

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-1
Date Collected: 07/03/19 13:05
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			07/12/19 11:26	1
1,1,1-Trichloroethane	ND		1.0		ug/L			07/12/19 11:26	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			07/12/19 11:26	1
1,1,2-Trichloroethane	ND		1.0		ug/L			07/12/19 11:26	1
1,1-Dichloroethane	ND		1.0		ug/L			07/12/19 11:26	1
1,1-Dichloroethene	ND		1.0		ug/L			07/12/19 11:26	1
1,1-Dichloropropene	ND		1.0		ug/L			07/12/19 11:26	1
1,2,3-Trichloropropane	ND		1.0		ug/L			07/12/19 11:26	1
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			07/12/19 11:26	1
1,2-Dichlorobenzene	ND		1.0		ug/L			07/12/19 11:26	1
1,2-Dichloroethane	ND		1.0		ug/L			07/12/19 11:26	1
1,2-Dichloropropane	ND		1.0		ug/L			07/12/19 11:26	1
1,3-Dichloropropane	ND		1.0		ug/L			07/12/19 11:26	1
1,4-Dichlorobenzene	ND		1.0		ug/L			07/12/19 11:26	1
2,2-Dichloropropane	ND		1.0		ug/L			07/12/19 11:26	1
2-Butanone (MEK)	ND		10		ug/L			07/12/19 11:26	1
2-Hexanone	ND		5.0		ug/L			07/12/19 11:26	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			07/12/19 11:26	1
Acetone	ND		10		ug/L			07/12/19 11:26	1
Acetonitrile	ND		15		ug/L			07/12/19 11:26	1
Acrolein	ND		20		ug/L			07/12/19 11:26	1
Acrylonitrile	ND		5.0		ug/L			07/12/19 11:26	1
Allyl chloride	ND		1.0		ug/L			07/12/19 11:26	1
Benzene	ND		1.0		ug/L			07/12/19 11:26	1
Chlorobromomethane	ND		1.0		ug/L			07/12/19 11:26	1
Bromodichloromethane	ND		1.0		ug/L			07/12/19 11:26	1
Bromoform	ND		1.0		ug/L			07/12/19 11:26	1
Bromomethane	ND		1.0		ug/L			07/12/19 11:26	1
Carbon disulfide	ND		1.0		ug/L			07/12/19 11:26	1
Carbon tetrachloride	ND		1.0		ug/L			07/12/19 11:26	1
Chlorobenzene	ND		1.0		ug/L			07/12/19 11:26	1
Dibromochloromethane	ND		1.0		ug/L			07/12/19 11:26	1
Chloroethane	ND		1.0		ug/L			07/12/19 11:26	1
Chloroform	ND		1.0		ug/L			07/12/19 11:26	1
Chloromethane	ND		1.0		ug/L			07/12/19 11:26	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			07/12/19 11:26	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			07/12/19 11:26	1
Chloroprene	ND		1.0		ug/L			07/12/19 11:26	1
Dibromomethane	ND		1.0		ug/L			07/12/19 11:26	1
Dichlorodifluoromethane	ND		1.0		ug/L			07/12/19 11:26	1
Ethyl methacrylate	ND		1.0		ug/L			07/12/19 11:26	1
Ethylbenzene	ND		1.0		ug/L			07/12/19 11:26	1
1,2-Dibromoethane	ND		1.0		ug/L			07/12/19 11:26	1
Hexachlorobutadiene	ND		2.0		ug/L			07/12/19 11:26	1
Iodomethane	ND		1.0		ug/L			07/12/19 11:26	1
Isobutyl alcohol	ND		25		ug/L			07/12/19 11:26	1
Methacrylonitrile	ND		5.0		ug/L			07/12/19 11:26	1
Methyl methacrylate	ND		1.0		ug/L			07/12/19 11:26	1
Methylene Chloride	ND		1.0		ug/L			07/12/19 11:26	1

Client Sample ID: MWSE-1

Date Collected: 07/03/19 13:05
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-1

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0		ug/L			07/12/19 11:26	1
Propionitrile	ND		10		ug/L			07/12/19 11:26	1
Styrene	ND		1.0		ug/L			07/12/19 11:26	1
Tetrachloroethene	ND		1.0		ug/L			07/12/19 11:26	1
Toluene	ND		1.0		ug/L			07/12/19 11:26	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			07/12/19 11:26	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			07/12/19 11:26	1
trans-1,4-Dichloro-2-butene	ND		1.0		ug/L			07/12/19 11:26	1
Trichloroethene	ND		1.0		ug/L			07/12/19 11:26	1
Trichlorofluoromethane	ND		1.0		ug/L			07/12/19 11:26	1
Vinyl acetate	ND		5.0		ug/L			07/12/19 11:26	1
Vinyl chloride	ND		1.0		ug/L			07/12/19 11:26	1
Xylenes, Total	ND		2.0		ug/L			07/12/19 11:26	1
o-Xylene	ND		1.0		ug/L			07/12/19 11:26	1
m,p-Xylene	ND		2.0		ug/L			07/12/19 11:26	1
1,2-Dichloroethene, Total	ND		2.0		ug/L			07/12/19 11:26	1
1,3-Dichlorobenzene	ND		1.0		ug/L			07/12/19 11:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*77 - 120*		*07/12/19 11:26*	*1*
4-Bromofluorobenzene (Surr)	*105*		*73 - 120*		*07/12/19 11:26*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*07/12/19 11:26*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 123*		*07/12/19 11:26*	*1*

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20		ug/L		07/05/19 15:22	07/10/19 02:36	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*31*		*15 - 110*	*07/05/19 15:22*	*07/10/19 02:36*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
1,2,4-Trichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
1,2-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
1,3,5-Trinitrobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
1,3-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
1,3-Dinitrobenzene	ND		20		ug/L		07/05/19 15:02	07/10/19 23:44	1
1,4-Naphthoquinone	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
1,4-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
1-Naphthylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
2,3,4,6-Tetrachlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
2,4,5-Trichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
2,4,6-Trichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
2,4-Dichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
2,4-Dimethylphenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
2,4-Dinitrophenol	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
2,4-Dinitrotoluene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
2,6-Dichlorophenol	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
2,6-Dinitrotoluene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1

Client Sample ID: MWSE-1
Date Collected: 07/03/19 13:05
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-1
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Acetylaminofluorene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
2-Chloronaphthalene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
2-Chlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
2-Methylnaphthalene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
2-Methylphenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
2-Naphthylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
2-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
2-Nitrophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
o-Toluidine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
3-Methylphenol	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
4-Methylphenol	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
3,3'-Dichlorobenzidine	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
3,3'-Dimethylbenzidine	ND		40		ug/L		07/05/19 15:02	07/10/19 23:44	1
3-Methylcholanthrene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
3-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
4,6-Dinitro-2-methylphenol	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
4-Aminobiphenyl	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
4-Bromophenyl phenyl ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
4-Chloro-3-methylphenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
p-Chloroaniline	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
4-Chlorophenyl phenyl ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
4-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
4-Nitrophenol	ND	*	10		ug/L		07/05/19 15:02	07/10/19 23:44	1
7,12-Dimethylbenz(a)anthracene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Acenaphthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Acenaphthylene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Acetophenone	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Anthracene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Benzo[a]anthracene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Benzo[a]pyrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Benzo[b]fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Benzo[g,h,i]perylene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Benzo[k]fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Benzyl alcohol	ND		20		ug/L		07/05/19 15:02	07/10/19 23:44	1
Bis(2-chloroethoxy)methane	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Bis(2-chloroethyl)ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Bis(2-ethylhexyl) phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
bis(2 chloro-1-methylethyl) ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Butyl benzyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Chrysene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Diallate	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Dibenz(a,h)anthracene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Dibenzofuran	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Diethyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Dimethoate	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Dimethyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Di-n-butyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Di-n-octyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Dinoseb	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1

Client Sample ID: MWSE-1
Date Collected: 07/03/19 13:05
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-1
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diphenylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Disulfoton	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Ethyl methanesulfonate	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Famphur	ND		40		ug/L		07/05/19 15:02	07/10/19 23:44	1
Fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Fluorene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Hexachlorobenzene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Hexachlorobutadiene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Hexachlorocyclopentadiene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Hexachloroethane	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Hexachloropropene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Indeno[1,2,3-cd]pyrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Isodrin	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Isophorone	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Isosafrole	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Kepone	ND		50		ug/L		07/05/19 15:02	07/10/19 23:44	1
Methapyrilene	ND		50		ug/L		07/05/19 15:02	07/10/19 23:44	1
Methyl methanesulfonate	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Safrole	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Thionazin	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Naphthalene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Nitrobenzene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
5-Nitro-o-toluidine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
N-Nitrosodiethylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Chlorobenzilate	ND		20		ug/L		07/05/19 15:02	07/10/19 23:44	1
N-Nitrosodimethylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
N-Nitrosodi-n-butylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
N-Nitrosodipropylamine	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
N-Nitrosodiphenylamine	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
N-Nitrosomethylethylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
N-Nitrosopiperidine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
N-Nitrosopyrrolidine	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Triethyl phosphorothioate	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Parathion	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Parathion methyl	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
p-Dimethylamino azobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Pentachlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Pentachloronitrobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Pentachlorophenol	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Phenacetin	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
Phenanthrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Phenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Phorate	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1
p-Phenylene diamine	ND		800		ug/L		07/05/19 15:02	07/10/19 23:44	1
Pyrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 23:44	1
Pronamide	ND		10		ug/L		07/05/19 15:02	07/10/19 23:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*93*		*48 - 120*	*07/05/19 15:02*	*07/10/19 23:44*	*1*
2-Fluorophenol (Surr)	*62*		*35 - 120*	*07/05/19 15:02*	*07/10/19 23:44*	*1*

Client Sample ID: MWSE-1
Date Collected: 07/03/19 13:05
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-1
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	*88*		*41 - 120*	*07/05/19 15:02*	*07/10/19 23:44*	*1*
Nitrobenzene-d5 (Surr)	*91*		*46 - 120*	*07/05/19 15:02*	*07/10/19 23:44*	*1*
Phenol-d5 (Surr)	*45*		*22 - 120*	*07/05/19 15:02*	*07/10/19 23:44*	*1*
p-Terphenyl-d14 (Surr)	*92*		*59 - 136*	*07/05/19 15:02*	*07/10/19 23:44*	*1*

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
4,4'-DDE	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
4,4'-DDT	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
Aldrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
alpha-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
beta-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
Chlordane (technical)	ND		0.50		ug/L		07/08/19 15:10	07/09/19 14:58	1
delta-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
Dieldrin	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
Endosulfan I	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
Endosulfan II	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
Endosulfan sulfate	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
Endrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
Endrin aldehyde	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
gamma-BHC (Lindane)	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
Heptachlor	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
Methoxychlor	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1
Toxaphene	ND		0.50		ug/L		07/08/19 15:10	07/09/19 14:58	1
Heptachlor epoxide	ND		0.050		ug/L		07/08/19 15:10	07/09/19 14:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	*56*		*20 - 120*	*07/08/19 15:10*	*07/09/19 14:58*	*1*
Tetrachloro-m-xylene	*73*		*44 - 120*	*07/08/19 15:10*	*07/09/19 14:58*	*1*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.53		ug/L		07/05/19 08:16	07/10/19 19:11	1
PCB-1221	ND		0.53		ug/L		07/05/19 08:16	07/10/19 19:11	1
PCB-1232	ND		0.53		ug/L		07/05/19 08:16	07/10/19 19:11	1
PCB-1242	ND		0.53		ug/L		07/05/19 08:16	07/10/19 19:11	1
PCB-1248	ND		0.53		ug/L		07/05/19 08:16	07/10/19 19:11	1
PCB-1254	ND		0.53		ug/L		07/05/19 08:16	07/10/19 19:11	1
PCB-1260	ND		0.53		ug/L		07/05/19 08:16	07/10/19 19:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	*58*		*39 - 121*	*07/05/19 08:16*	*07/10/19 19:11*	*1*
DCB Decachlorobiphenyl	*58*		*19 - 120*	*07/05/19 08:16*	*07/10/19 19:11*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND		0.48		ug/L		07/09/19 09:24	07/10/19 15:03	1
2,4-D	ND		0.48		ug/L		07/09/19 09:24	07/10/19 15:03	1
Silvex (2,4,5-TP)	ND		0.48		ug/L		07/09/19 09:24	07/10/19 15:03	1

Client Sample ID: MWSE-1

Date Collected: 07/03/19 13:05
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-1

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	*55*		*48 - 132*	*07/09/19 09:24*	*07/10/19 15:03*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.5**		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluoropentanoic acid (PFPeA)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluorohexanoic acid (PFHxA)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluorooctanoic acid (PFOA)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluorononanoic acid (PFNA)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluorodecanoic acid (PFDA)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluorododecanoic acid (PFDoA)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9		ng/L		07/08/19 05:43	07/10/19 00:56	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19		ng/L		07/08/19 05:43	07/10/19 00:56	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19		ng/L		07/08/19 05:43	07/10/19 00:56	1
6:2 FTS	ND		19		ng/L		07/08/19 05:43	07/10/19 00:56	1
8:2 FTS	ND		19		ng/L		07/08/19 05:43	07/10/19 00:56	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	*90*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
13C5 PFPeA	*99*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
13C2 PFHxA	*102*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
13C4 PFHpA	*101*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
13C4 PFOA	*102*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
13C5 PFNA	*94*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
13C2 PFDA	*99*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
13C2 PFUnA	*97*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
13C2 PFDoA	*96*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
13C2 PFTeDA	*109*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
13C3 PFBS	*98*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
18O2 PFHxS	*105*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
13C4 PFOS	*98*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
13C8 FOSA	*85*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
d3-NMeFOSAA	*97*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
d5-NEtFOSAA	*102*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
M2-6:2 FTS	*137*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*
M2-8:2 FTS	*127*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:56*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		07/08/19 07:30	07/09/19 00:31	1

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-1

Date Collected: 07/03/19 13:05
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-1

Matrix: Water

Method: 6010C - Metals (ICP) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.020		mg/L		07/08/19 07:30	07/09/19 00:31	1
Arsenic	ND		0.015		mg/L		07/08/19 07:30	07/09/19 00:31	1
Barium	**0.10**		0.0020		mg/L		07/08/19 07:30	07/09/19 00:31	1
Beryllium	ND		0.0020		mg/L		07/08/19 07:30	07/09/19 00:31	1
Boron	**0.023**		0.020		mg/L		07/08/19 07:30	07/09/19 09:50	1
Cadmium	ND		0.0020		mg/L		07/08/19 07:30	07/09/19 00:31	1
Calcium	**102**		0.50		mg/L		07/08/19 07:30	07/09/19 00:31	1
Chromium	ND		0.0040		mg/L		07/08/19 07:30	07/09/19 00:31	1
Cobalt	ND		0.0040		mg/L		07/08/19 07:30	07/09/19 00:31	1
Copper	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:31	1
Iron	**0.061**		0.050		mg/L		07/08/19 07:30	07/09/19 00:31	1
Lead	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:31	1
Magnesium	**26.4**		0.20		mg/L		07/08/19 07:30	07/09/19 00:31	1
Manganese	**0.059**		0.0030		mg/L		07/08/19 07:30	07/09/19 00:31	1
Nickel	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:31	1
Potassium	**1.2**		0.50		mg/L		07/08/19 07:30	07/09/19 00:31	1
Selenium	ND		0.025		mg/L		07/08/19 07:30	07/09/19 00:31	1
Silver	ND		0.0060		mg/L		07/08/19 07:30	07/09/19 00:31	1
Sodium	**4.4**		1.0		mg/L		07/08/19 07:30	07/09/19 00:31	1
Thallium	ND		0.020		mg/L		07/08/19 07:30	07/09/19 00:31	1
Zinc	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:31	1
Vanadium	ND		0.0050		mg/L		07/08/19 07:30	07/09/19 00:31	1
Tin	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:31	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		07/08/19 11:51	07/08/19 16:08	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium and Magnesium Hardness	**362**		0.50		mg/L			07/10/19 11:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.40		mg/L			07/08/19 19:24	2
Alkalinity, Total	**192**		10.0		mg/L			07/14/19 14:57	2
Ammonia (as N)	ND		0.020		mg/L as N			07/10/19 09:50	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		07/18/19 09:10	07/21/19 10:22	1
Nitrate	ND		0.050		mg/L as N			07/03/19 21:26	1
Chemical Oxygen Demand	ND		5.0		mg/L			07/14/19 09:32	1
Cyanide, Total	ND	*	0.010		mg/L		07/10/19 15:50	07/11/19 13:16	1
Sulfate	**136**	**B**	15.0		mg/L			07/24/19 12:55	10
Phenolics, Total Recoverable	ND		0.0050		mg/L		07/11/19 19:18	07/12/19 14:51	1
Chloride	**8.5**		1.0		mg/L			07/14/19 14:39	1
Total Dissolved Solids	**480**		10.0		mg/L			07/09/19 07:49	1
Biochemical Oxygen Demand	ND		2.0		mg/L			07/04/19 09:11	1
Total Organic Carbon	**1.4**		1.0		mg/L			07/13/19 07:54	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	**10.0**		5.00		Color Units			07/05/19 09:12	1

Client Sample Results

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-1

Date Collected: 07/03/19 13:05
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-1

Matrix: Water

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.120	U *	0.0939	0.0945	1.00	0.137	pCi/L	07/15/19 14:52	08/20/19 20:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*60.5*		*40 - 110*	*07/15/19 14:52*	*08/20/19 20:42*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.138	U *	0.393	0.394	1.00	0.724	pCi/L	07/15/19 15:55	07/29/19 10:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*60.5*		*40 - 110*	*07/15/19 15:55*	*07/29/19 10:12*	*1*
Y Carrier	*80.4*		*40 - 110*	*07/15/19 15:55*	*07/29/19 10:12*	*1*

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**7.23**				SU			07/03/19 13:05	1
Specific Conductance	**692**				umhos/cm			07/03/19 13:05	1
Temperature	**11.9**				Degrees C			07/03/19 13:05	1
Oxidation Reduction Potential	**79**				millivolts			07/03/19 13:05	1
Turbidity	**6.8**				NTU			07/03/19 13:05	1

Method: 908.0 - Uranium, Total

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
U	**0.116**		0.135		pCi/L			07/29/19 00:00	1

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-4
Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			07/12/19 11:50	1
1,1,1-Trichloroethane	ND		1.0		ug/L			07/12/19 11:50	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			07/12/19 11:50	1
1,1,2-Trichloroethane	ND		1.0		ug/L			07/12/19 11:50	1
1,1-Dichloroethane	ND		1.0		ug/L			07/12/19 11:50	1
1,1-Dichloroethene	ND		1.0		ug/L			07/12/19 11:50	1
1,1-Dichloropropene	ND		1.0		ug/L			07/12/19 11:50	1
1,2,3-Trichloropropane	ND		1.0		ug/L			07/12/19 11:50	1
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			07/12/19 11:50	1
1,2-Dichlorobenzene	ND		1.0		ug/L			07/12/19 11:50	1
1,2-Dichloroethane	ND		1.0		ug/L			07/12/19 11:50	1
1,2-Dichloropropane	ND		1.0		ug/L			07/12/19 11:50	1
1,3-Dichloropropane	ND		1.0		ug/L			07/12/19 11:50	1
1,4-Dichlorobenzene	ND		1.0		ug/L			07/12/19 11:50	1
2,2-Dichloropropane	ND		1.0		ug/L			07/12/19 11:50	1
2-Butanone (MEK)	ND		10		ug/L			07/12/19 11:50	1
2-Hexanone	ND		5.0		ug/L			07/12/19 11:50	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			07/12/19 11:50	1
Acetone	ND		10		ug/L			07/12/19 11:50	1
Acetonitrile	ND		15		ug/L			07/12/19 11:50	1
Acrolein	ND		20		ug/L			07/12/19 11:50	1
Acrylonitrile	ND		5.0		ug/L			07/12/19 11:50	1
Allyl chloride	ND		1.0		ug/L			07/12/19 11:50	1
Benzene	ND		1.0		ug/L			07/12/19 11:50	1
Chlorobromomethane	ND		1.0		ug/L			07/12/19 11:50	1
Bromodichloromethane	ND		1.0		ug/L			07/12/19 11:50	1
Bromoform	ND		1.0		ug/L			07/12/19 11:50	1
Bromomethane	ND		1.0		ug/L			07/12/19 11:50	1
Carbon disulfide	ND		1.0		ug/L			07/12/19 11:50	1
Carbon tetrachloride	ND		1.0		ug/L			07/12/19 11:50	1
Chlorobenzene	ND		1.0		ug/L			07/12/19 11:50	1
Dibromochloromethane	ND		1.0		ug/L			07/12/19 11:50	1
Chloroethane	ND		1.0		ug/L			07/12/19 11:50	1
Chloroform	ND		1.0		ug/L			07/12/19 11:50	1
Chloromethane	ND		1.0		ug/L			07/12/19 11:50	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			07/12/19 11:50	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			07/12/19 11:50	1
Chloroprene	ND		1.0		ug/L			07/12/19 11:50	1
Dibromomethane	ND		1.0		ug/L			07/12/19 11:50	1
Dichlorodifluoromethane	ND		1.0		ug/L			07/12/19 11:50	1
Ethyl methacrylate	ND		1.0		ug/L			07/12/19 11:50	1
Ethylbenzene	ND		1.0		ug/L			07/12/19 11:50	1
1,2-Dibromoethane	ND		1.0		ug/L			07/12/19 11:50	1
Hexachlorobutadiene	ND		2.0		ug/L			07/12/19 11:50	1
Iodomethane	ND		1.0		ug/L			07/12/19 11:50	1
Isobutyl alcohol	ND		25		ug/L			07/12/19 11:50	1
Methacrylonitrile	ND		5.0		ug/L			07/12/19 11:50	1
Methyl methacrylate	ND		1.0		ug/L			07/12/19 11:50	1
Methylene Chloride	ND		1.0		ug/L			07/12/19 11:50	1

Client Sample ID: MWSE-4

Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0		ug/L			07/12/19 11:50	1
Propionitrile	ND		10		ug/L			07/12/19 11:50	1
Styrene	ND		1.0		ug/L			07/12/19 11:50	1
Tetrachloroethene	ND		1.0		ug/L			07/12/19 11:50	1
Toluene	ND		1.0		ug/L			07/12/19 11:50	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			07/12/19 11:50	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			07/12/19 11:50	1
trans-1,4-Dichloro-2-butene	ND		1.0		ug/L			07/12/19 11:50	1
Trichloroethene	ND		1.0		ug/L			07/12/19 11:50	1
Trichlorofluoromethane	ND		1.0		ug/L			07/12/19 11:50	1
Vinyl acetate	ND		5.0		ug/L			07/12/19 11:50	1
Vinyl chloride	ND		1.0		ug/L			07/12/19 11:50	1
Xylenes, Total	ND		2.0		ug/L			07/12/19 11:50	1
o-Xylene	ND		1.0		ug/L			07/12/19 11:50	1
m,p-Xylene	ND		2.0		ug/L			07/12/19 11:50	1
1,2-Dichloroethene, Total	ND		2.0		ug/L			07/12/19 11:50	1
1,3-Dichlorobenzene	ND		1.0		ug/L			07/12/19 11:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*07/12/19 11:50*	*1*
4-Bromofluorobenzene (Surr)	*105*		*73 - 120*		*07/12/19 11:50*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*07/12/19 11:50*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*07/12/19 11:50*	*1*

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20		ug/L		07/05/19 15:22	07/10/19 03:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*33*		*15 - 110*	*07/05/19 15:22*	*07/10/19 03:01*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,2,4-Trichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,2-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,3,5-Trinitrobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,3-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,3-Dinitrobenzene	ND		20		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,4-Naphthoquinone	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
1,4-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
1-Naphthylamine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,3,4,6-Tetrachlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,4,5-Trichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,4,6-Trichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,4-Dichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,4-Dimethylphenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,4-Dinitrophenol	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,4-Dinitrotoluene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,6-Dichlorophenol	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
2,6-Dinitrotoluene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-4
Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Acetylaminofluorene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Chloronaphthalene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Chlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Methylnaphthalene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Methylphenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Naphthylamine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
2-Nitrophenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
o-Toluidine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
3-Methylphenol	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Methylphenol	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
3,3'-Dichlorobenzidine	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
3,3'-Dimethylbenzidine	ND		40		ug/L		07/05/19 15:02	07/11/19 00:12	1
3-Methylcholanthrene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
3-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
4,6-Dinitro-2-methylphenol	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Aminobiphenyl	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Bromophenyl phenyl ether	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Chloro-3-methylphenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
p-Chloroaniline	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Chlorophenyl phenyl ether	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
4-Nitrophenol	ND	*	10		ug/L		07/05/19 15:02	07/11/19 00:12	1
7,12-Dimethylbenz(a)anthracene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Acenaphthene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Acenaphthylene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Acetophenone	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Anthracene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Benzo[a]anthracene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Benzo[a]pyrene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Benzo[b]fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Benzo[g,h,i]perylene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Benzo[k]fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Benzyl alcohol	ND		20		ug/L		07/05/19 15:02	07/11/19 00:12	1
Bis(2-chloroethoxy)methane	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Bis(2-chloroethyl)ether	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Bis(2-ethylhexyl) phthalate	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
bis(2 chloro-1-methylethyl) ether	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Butyl benzyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Chrysene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Diallate	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Dibenz(a,h)anthracene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Dibenzofuran	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Diethyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Dimethoate	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Dimethyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Di-n-butyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Di-n-octyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Dinoseb	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1

Client Sample ID: MWSE-4
Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2
Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diphenylamine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Disulfoton	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Ethyl methanesulfonate	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Famphur	ND		40		ug/L		07/05/19 15:02	07/11/19 00:12	1
Fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Fluorene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Hexachlorobenzene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Hexachlorobutadiene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Hexachlorocyclopentadiene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Hexachloroethane	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Hexachloropropene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Indeno[1,2,3-cd]pyrene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Isodrin	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Isophorone	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Isosafrole	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Kepone	ND		50		ug/L		07/05/19 15:02	07/11/19 00:12	1
Methapyrilene	ND		50		ug/L		07/05/19 15:02	07/11/19 00:12	1
Methyl methanesulfonate	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Safrole	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Thionazin	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Naphthalene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Nitrobenzene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
5-Nitro-o-toluidine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosodiethylamine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Chlorobenzilate	ND		20		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosodimethylamine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosodi-n-butylamine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosodipropylamine	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosodiphenylamine	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosomethylethylamine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosopiperidine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
N-Nitrosopyrrolidine	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Triethyl phosphorothioate	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Parathion	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Parathion methyl	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
p-Dimethylamino azobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Pentachlorobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Pentachloronitrobenzene	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Pentachlorophenol	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Phenacetin	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
Phenanthrene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Phenol	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Phorate	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1
p-Phenylene diamine	ND		800		ug/L		07/05/19 15:02	07/11/19 00:12	1
Pyrene	ND		5.0		ug/L		07/05/19 15:02	07/11/19 00:12	1
Pronamide	ND		10		ug/L		07/05/19 15:02	07/11/19 00:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*84*		*48 - 120*	*07/05/19 15:02*	*07/11/19 00:12*	*1*
2-Fluorophenol (Surr)	*54*		*35 - 120*	*07/05/19 15:02*	*07/11/19 00:12*	*1*

Client Sample ID: MWSE-4

Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	*70*		*41 - 120*	*07/05/19 15:02*	*07/11/19 00:12*	*1*
Nitrobenzene-d5 (Surr)	*80*		*46 - 120*	*07/05/19 15:02*	*07/11/19 00:12*	*1*
Phenol-d5 (Surr)	*40*		*22 - 120*	*07/05/19 15:02*	*07/11/19 00:12*	*1*
p-Terphenyl-d14 (Surr)	*84*		*59 - 136*	*07/05/19 15:02*	*07/11/19 00:12*	*1*

Method: 8081B - Organochlorine Pesticides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
4,4'-DDE	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
4,4'-DDT	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Aldrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
alpha-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
beta-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Chlordane (technical)	ND		0.50		ug/L		07/08/19 15:10	07/09/19 15:18	1
delta-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Dieldrin	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Endosulfan I	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Endosulfan II	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Endosulfan sulfate	ND	*	0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Endrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Endrin aldehyde	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
gamma-BHC (Lindane)	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Heptachlor	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Methoxychlor	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1
Toxaphene	ND		0.50		ug/L		07/08/19 15:10	07/09/19 15:18	1
Heptachlor epoxide	ND		0.050		ug/L		07/08/19 15:10	07/09/19 15:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	*50*		*20 - 120*	*07/08/19 15:10*	*07/09/19 15:18*	*1*
Tetrachloro-m-xylene	*55*		*44 - 120*	*07/08/19 15:10*	*07/09/19 15:18*	*1*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1
PCB-1221	ND		0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1
PCB-1232	ND		0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1
PCB-1242	ND		0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1
PCB-1248	ND		0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1
PCB-1254	ND		0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1
PCB-1260	ND		0.60		ug/L		07/05/19 08:16	07/10/19 19:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	*58*		*39 - 121*	*07/05/19 08:16*	*07/10/19 19:23*	*1*
DCB Decachlorobiphenyl	*49*		*19 - 120*	*07/05/19 08:16*	*07/10/19 19:23*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND		0.52		ug/L		07/09/19 09:24	07/10/19 15:33	1
2,4-D	ND		0.52		ug/L		07/09/19 09:24	07/10/19 15:33	1
Silvex (2,4,5-TP)	ND		0.52		ug/L		07/09/19 09:24	07/10/19 15:33	1

Client Sample ID: MWSE-4

Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	62		48 - 132	07/09/19 09:24	07/10/19 15:33	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**16**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluoropentanoic acid (PFPeA)	**19**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorohexanoic acid (PFHxA)	**23**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluoroheptanoic acid (PFHpA)	**7.3**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorooctanoic acid (PFOA)	**11**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorononanoic acid (PFNA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorododecanoic acid (PFDoA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorobutanesulfonic acid (PFBS)	**4.7**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorooctanesulfonic acid (PFOS)	**2.1**		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8		ng/L		07/08/19 05:43	07/10/19 01:04	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18		ng/L		07/08/19 05:43	07/10/19 01:04	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18		ng/L		07/08/19 05:43	07/10/19 01:04	1
6:2 FTS	ND		18		ng/L		07/08/19 05:43	07/10/19 01:04	1
8:2 FTS	ND		18		ng/L		07/08/19 05:43	07/10/19 01:04	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	66		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C5 PFPeA	89		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C2 PFHxA	99		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C4 PFHpA	100		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C4 PFOA	96		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C5 PFNA	95		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C2 PFDA	94		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C2 PFUnA	96		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C2 PFDoA	90		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C2 PFTeDA	93		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C3 PFBS	93		25 - 150	07/08/19 05:43	07/10/19 01:04	1
18O2 PFHxS	102		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C4 PFOS	91		25 - 150	07/08/19 05:43	07/10/19 01:04	1
13C8 FOSA	82		25 - 150	07/08/19 05:43	07/10/19 01:04	1
d3-NMeFOSAA	96		25 - 150	07/08/19 05:43	07/10/19 01:04	1
d5-NEtFOSAA	97		25 - 150	07/08/19 05:43	07/10/19 01:04	1
M2-6:2 FTS	121		25 - 150	07/08/19 05:43	07/10/19 01:04	1
M2-8:2 FTS	101		25 - 150	07/08/19 05:43	07/10/19 01:04	1

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-4

Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2

Matrix: Water

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		07/08/19 07:30	07/09/19 00:35	1
Antimony	ND		0.020		mg/L		07/08/19 07:30	07/09/19 00:35	1
Arsenic	ND		0.015		mg/L		07/08/19 07:30	07/09/19 00:35	1
Barium	**0.055**		0.0020		mg/L		07/08/19 07:30	07/09/19 00:35	1
Beryllium	ND		0.0020		mg/L		07/08/19 07:30	07/09/19 00:35	1
Boron	**0.052**		0.020		mg/L		07/08/19 07:30	07/09/19 09:53	1
Cadmium	ND		0.0020		mg/L		07/08/19 07:30	07/09/19 00:35	1
Calcium	**69.9**		0.50		mg/L		07/08/19 07:30	07/09/19 00:35	1
Chromium	ND		0.0040		mg/L		07/08/19 07:30	07/09/19 00:35	1
Cobalt	ND		0.0040		mg/L		07/08/19 07:30	07/09/19 00:35	1
Copper	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:35	1
Iron	**0.32**		0.050		mg/L		07/08/19 07:30	07/09/19 00:35	1
Lead	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:35	1
Magnesium	**12.3**		0.20		mg/L		07/08/19 07:30	07/09/19 00:35	1
Manganese	**0.13**		0.0030		mg/L		07/08/19 07:30	07/09/19 00:35	1
Nickel	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:35	1
Potassium	**1.8**		0.50		mg/L		07/08/19 07:30	07/09/19 00:35	1
Selenium	ND		0.025		mg/L		07/08/19 07:30	07/09/19 00:35	1
Silver	ND		0.0060		mg/L		07/08/19 07:30	07/09/19 00:35	1
Sodium	**14.0**		1.0		mg/L		07/08/19 07:30	07/09/19 00:35	1
Thallium	ND		0.020		mg/L		07/08/19 07:30	07/09/19 00:35	1
Zinc	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:35	1
Vanadium	ND		0.0050		mg/L		07/08/19 07:30	07/09/19 00:35	1
Tin	ND		0.010		mg/L		07/08/19 07:30	07/09/19 00:35	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		07/08/19 11:51	07/08/19 16:13	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium and Magnesium Hardness	**225**		0.50		mg/L			07/10/19 11:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.40		mg/L			07/08/19 19:38	2
Alkalinity, Total	**139**		10.0		mg/L			07/14/19 14:57	2
Ammonia (as N)	ND		0.020		mg/L as N			07/10/19 09:50	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		07/18/19 09:10	07/21/19 10:22	1
Nitrate	ND		0.050		mg/L as N			07/03/19 21:28	1
Chemical Oxygen Demand	**6.3**		5.0		mg/L			07/14/19 09:32	1
Cyanide, Total	ND	*	0.010		mg/L		07/10/19 15:50	07/11/19 13:17	1
Sulfate	**97.1**	**B**	7.5		mg/L			07/24/19 12:43	5
Phenolics, Total Recoverable	ND		0.0050		mg/L		07/11/19 19:18	07/12/19 14:51	1
Chloride	**22.0**		1.0		mg/L			07/14/19 14:39	1
Total Dissolved Solids	**441**		10.0		mg/L			07/09/19 08:53	1
Biochemical Oxygen Demand	ND		2.0		mg/L			07/04/19 09:11	1
Total Organic Carbon	**2.0**		1.0		mg/L			07/13/19 08:09	1

Client Sample ID: MWSE-4

Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2

Matrix: Water

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	**5.00**		5.00		Color Units			07/05/19 09:12	1

Method: 903.0 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0584	U *	0.103	0.103	1.00	0.181	pCi/L	07/15/19 14:52	08/20/19 20:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*49.7*		*40 - 110*	*07/15/19 14:52*	*08/20/19 20:42*	*1*

Method: 904.0 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.600	U *	0.570	0.573	1.00	0.922	pCi/L	07/15/19 15:55	07/29/19 10:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*49.7*		*40 - 110*	*07/15/19 15:55*	*07/29/19 10:13*	*1*
Y Carrier	*75.5*		*40 - 110*	*07/15/19 15:55*	*07/29/19 10:13*	*1*

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Field pH	**7.52**				SU			07/03/19 13:15	1
Specific Conductance	**516**				umhos/cm			07/03/19 13:15	1
Temperature	**16.2**				Degrees C			07/03/19 13:15	1
Oxidation Reduction Potential	**70.0**				millivolts			07/03/19 13:15	1
Turbidity	**6.9**				NTU			07/03/19 13:15	1

Method: 908.0 - Uranium, Total

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
U	**0.175**		0.148		pCi/L			07/29/19 00:00	1

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: TRIP BLANK

Date Collected: 07/03/19 09:00
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-3

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			07/12/19 12:14	1
1,1,1-Trichloroethane	ND		1.0		ug/L			07/12/19 12:14	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			07/12/19 12:14	1
1,1,2-Trichloroethane	ND		1.0		ug/L			07/12/19 12:14	1
1,1-Dichloroethane	ND		1.0		ug/L			07/12/19 12:14	1
1,1-Dichloroethene	ND		1.0		ug/L			07/12/19 12:14	1
1,1-Dichloropropene	ND		1.0		ug/L			07/12/19 12:14	1
1,2,3-Trichloropropane	ND		1.0		ug/L			07/12/19 12:14	1
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			07/12/19 12:14	1
1,2-Dichlorobenzene	ND		1.0		ug/L			07/12/19 12:14	1
1,2-Dichloroethane	ND		1.0		ug/L			07/12/19 12:14	1
1,2-Dichloropropane	ND		1.0		ug/L			07/12/19 12:14	1
1,3-Dichloropropane	ND		1.0		ug/L			07/12/19 12:14	1
1,4-Dichlorobenzene	ND		1.0		ug/L			07/12/19 12:14	1
2,2-Dichloropropane	ND		1.0		ug/L			07/12/19 12:14	1
2-Butanone (MEK)	ND		10		ug/L			07/12/19 12:14	1
2-Hexanone	ND		5.0		ug/L			07/12/19 12:14	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			07/12/19 12:14	1
Acetone	ND		10		ug/L			07/12/19 12:14	1
Acetonitrile	ND		15		ug/L			07/12/19 12:14	1
Acrolein	ND		20		ug/L			07/12/19 12:14	1
Acrylonitrile	ND		5.0		ug/L			07/12/19 12:14	1
Allyl chloride	ND		1.0		ug/L			07/12/19 12:14	1
Benzene	ND		1.0		ug/L			07/12/19 12:14	1
Chlorobromomethane	ND		1.0		ug/L			07/12/19 12:14	1
Bromodichloromethane	ND		1.0		ug/L			07/12/19 12:14	1
Bromoform	ND		1.0		ug/L			07/12/19 12:14	1
Bromomethane	ND		1.0		ug/L			07/12/19 12:14	1
Carbon disulfide	ND		1.0		ug/L			07/12/19 12:14	1
Carbon tetrachloride	ND		1.0		ug/L			07/12/19 12:14	1
Chlorobenzene	ND		1.0		ug/L			07/12/19 12:14	1
Dibromochloromethane	ND		1.0		ug/L			07/12/19 12:14	1
Chloroethane	ND		1.0		ug/L			07/12/19 12:14	1
Chloroform	ND		1.0		ug/L			07/12/19 12:14	1
Chloromethane	ND		1.0		ug/L			07/12/19 12:14	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			07/12/19 12:14	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			07/12/19 12:14	1
Chloroprene	ND		1.0		ug/L			07/12/19 12:14	1
Dibromomethane	ND		1.0		ug/L			07/12/19 12:14	1
Dichlorodifluoromethane	ND		1.0		ug/L			07/12/19 12:14	1
Ethyl methacrylate	ND		1.0		ug/L			07/12/19 12:14	1
Ethylbenzene	ND		1.0		ug/L			07/12/19 12:14	1
1,2-Dibromoethane	ND		1.0		ug/L			07/12/19 12:14	1
Hexachlorobutadiene	ND		2.0		ug/L			07/12/19 12:14	1
Iodomethane	ND		1.0		ug/L			07/12/19 12:14	1
Isobutyl alcohol	ND		25		ug/L			07/12/19 12:14	1
Methacrylonitrile	ND		5.0		ug/L			07/12/19 12:14	1
Methyl methacrylate	ND		1.0		ug/L			07/12/19 12:14	1
Methylene Chloride	ND		1.0		ug/L			07/12/19 12:14	1

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: TRIP BLANK
Date Collected: 07/03/19 09:00
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-3
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0		ug/L			07/12/19 12:14	1
Propionitrile	ND		10		ug/L			07/12/19 12:14	1
Styrene	ND		1.0		ug/L			07/12/19 12:14	1
Tetrachloroethene	ND		1.0		ug/L			07/12/19 12:14	1
Toluene	ND		1.0		ug/L			07/12/19 12:14	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			07/12/19 12:14	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			07/12/19 12:14	1
trans-1,4-Dichloro-2-butene	ND		1.0		ug/L			07/12/19 12:14	1
Trichloroethene	ND		1.0		ug/L			07/12/19 12:14	1
Trichlorofluoromethane	ND		1.0		ug/L			07/12/19 12:14	1
Vinyl acetate	ND		5.0		ug/L			07/12/19 12:14	1
Vinyl chloride	ND		1.0		ug/L			07/12/19 12:14	1
Xylenes, Total	ND		2.0		ug/L			07/12/19 12:14	1
o-Xylene	ND		1.0		ug/L			07/12/19 12:14	1
m,p-Xylene	ND		2.0		ug/L			07/12/19 12:14	1
1,2-Dichloroethene, Total	ND		2.0		ug/L			07/12/19 12:14	1
1,3-Dichlorobenzene	ND		1.0		ug/L			07/12/19 12:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*		*07/12/19 12:14*	*1*
4-Bromofluorobenzene (Surr)	*111*		*73 - 120*		*07/12/19 12:14*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*07/12/19 12:14*	*1*
Dibromofluoromethane (Surr)	*102*		*75 - 123*		*07/12/19 12:14*	*1*

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-1

Date Collected: 07/12/19 13:40
Date Received: 07/12/19 15:40

Lab Sample ID: 480-156080-1

Matrix: Water

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thionazin	ND		1.0		ug/L		07/19/19 20:48	07/24/19 14:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*55*		*45 - 106*	*07/19/19 20:48*	*07/24/19 14:40*	*1*
2-Fluorophenol (Surr)	*56*		*39 - 105*	*07/19/19 20:48*	*07/24/19 14:40*	*1*
2,4,6-Tribromophenol (Surr)	*58*		*39 - 125*	*07/19/19 20:48*	*07/24/19 14:40*	*1*
Nitrobenzene-d5 (Surr)	*70*		*43 - 110*	*07/19/19 20:48*	*07/24/19 14:40*	*1*
Phenol-d5 (Surr)	*54*		*40 - 108*	*07/19/19 20:48*	*07/24/19 14:40*	*1*
Terphenyl-d14 (Surr)	*72*		*45 - 120*	*07/19/19 20:48*	*07/24/19 14:40*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010		mg/L			07/13/19 10:30	1

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-2
Date Collected: 07/12/19 12:30
Date Received: 07/12/19 15:40

Lab Sample ID: 480-156080-2
Matrix: Water

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thionazin	ND		0.94		ug/L		07/19/19 20:48	07/24/19 15:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*61*		*45 - 106*	*07/19/19 20:48*	*07/24/19 15:07*	*1*
2-Fluorophenol (Surr)	*47*		*39 - 105*	*07/19/19 20:48*	*07/24/19 15:07*	*1*
2,4,6-Tribromophenol (Surr)	*36*	*X*	*39 - 125*	*07/19/19 20:48*	*07/24/19 15:07*	*1*
Nitrobenzene-d5 (Surr)	*76*		*43 - 110*	*07/19/19 20:48*	*07/24/19 15:07*	*1*
Phenol-d5 (Surr)	*46*		*40 - 108*	*07/19/19 20:48*	*07/24/19 15:07*	*1*
Terphenyl-d14 (Surr)	*74*		*45 - 120*	*07/19/19 20:48*	*07/24/19 15:07*	*1*

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-3
Date Collected: 07/12/19 12:10
Date Received: 07/12/19 15:40

Lab Sample ID: 480-156080-3
Matrix: Water

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thionazin	ND		0.94		ug/L		07/19/19 20:48	07/24/19 15:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*65*		*45 - 106*	*07/19/19 20:48*	*07/24/19 15:35*	*1*
2-Fluorophenol (Surr)	*73*		*39 - 105*	*07/19/19 20:48*	*07/24/19 15:35*	*1*
2,4,6-Tribromophenol (Surr)	*69*		*39 - 125*	*07/19/19 20:48*	*07/24/19 15:35*	*1*
Nitrobenzene-d5 (Surr)	*82*		*43 - 110*	*07/19/19 20:48*	*07/24/19 15:35*	*1*
Phenol-d5 (Surr)	*71*		*40 - 108*	*07/19/19 20:48*	*07/24/19 15:35*	*1*
Terphenyl-d14 (Surr)	*79*		*45 - 120*	*07/19/19 20:48*	*07/24/19 15:35*	*1*

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-4

Date Collected: 07/12/19 11:05
Date Received: 07/12/19 15:40

Lab Sample ID: 480-156080-4

Matrix: Water

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thionazin	ND		0.94		ug/L		07/19/19 20:48	07/24/19 16:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*56*		*45 - 106*	*07/19/19 20:48*	*07/24/19 16:03*	*1*
2-Fluorophenol (Surr)	*49*		*39 - 105*	*07/19/19 20:48*	*07/24/19 16:03*	*1*
2,4,6-Tribromophenol (Surr)	*41*		*39 - 125*	*07/19/19 20:48*	*07/24/19 16:03*	*1*
Nitrobenzene-d5 (Surr)	*75*		*43 - 110*	*07/19/19 20:48*	*07/24/19 16:03*	*1*
Phenol-d5 (Surr)	*54*		*40 - 108*	*07/19/19 20:48*	*07/24/19 16:03*	*1*
Terphenyl-d14 (Surr)	*74*		*45 - 120*	*07/19/19 20:48*	*07/24/19 16:03*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010		mg/L			07/13/19 10:30	1

Surrogate Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	BFB	TOL	DBFM
Lab Sample ID	Client Sample ID	(77-120)	(73-120)	(80-120)	(75-123)
480-155710-1	MWSE-2	101	95	100	94
480-155710-2	MWSE-3	107	98	104	97
480-155757-1	MWSE-1	95	105	97	100
480-155757-2	MWSE-4	97	105	97	101
480-155757-3	TRIP BLANK	98	111	98	102
LCS 480-481743/5	Lab Control Sample	100	96	101	95
LCS 480-481776/5	Lab Control Sample	99	107	96	102
MB 480-481743/7	Method Blank	103	91	98	95
MB 480-481776/7	Method Blank	98	105	97	101

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	TBP	NBZ	PHL	TPHd14
Lab Sample ID	Client Sample ID	(48-120)	(35-120)	(41-120)	(46-120)	(22-120)	(59-136)
480-155710-1	MWSE-2	100	64	85	94	46	94
480-155710-2	MWSE-3	95	64	82	93	45	94
480-155757-1	MWSE-1	93	62	88	91	45	92
480-155757-2	MWSE-4	84	54	70	80	40	84
LCS 480-480988/2-A	Lab Control Sample	97	67	97	96	51	95
LCSD 480-480988/3-A	Lab Control Sample Dup	98	70	99	98	54	96
MB 480-480988/1-A	Method Blank	100	66	89	96	45	100

Surrogate Legend

FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	TBP	NBZ	PHL	TPHL
Lab Sample ID	Client Sample ID	(45-106)	(39-105)	(39-125)	(43-110)	(40-108)	(45-120)
480-156080-1	MWSE-1	55	56	58	70	54	72
480-156080-2	MWSE-2	61	47	36 X	76	46	74
480-156080-3	MWSE-3	65	73	69	82	71	79
480-156080-4	MWSE-4	56	49	41	75	54	74
LCS 180-285394/2-A	Lab Control Sample	62	73	66	87	75	73
LCSD 180-285394/3-A	Lab Control Sample Dup	61	81	73	82	81	75
MB 180-285394/1-A	Method Blank	74	93	73	91	91	84

Surrogate Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Surrogate Legend

FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPHL = Terphenyl-d14 (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCBP1	TCX1
Lab Sample ID	Client Sample ID	(20-120)	(44-120)
480-155710-1	MWSE-2	74	91
480-155710-2	MWSE-3	59	80
480-155757-1	MWSE-1	56	73
480-155757-2	MWSE-4	50	55
LCS 480-481166/2-A	Lab Control Sample	41	59
LCSD 480-481166/3-A	Lab Control Sample Dup	44	84
MB 480-481166/1-A	Method Blank	40	78

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX2	DCBP2
Lab Sample ID	Client Sample ID	(39-121)	(19-120)
480-155710-1	MWSE-2	62	52
480-155710-2	MWSE-3	59	33
480-155757-1	MWSE-1	58	58
480-155757-2	MWSE-4	58	49
LCS 480-480888/2-A	Lab Control Sample	59	31
MB 480-480888/1-A	Method Blank	62	38

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCBP = DCB Decachlorobiphenyl

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DCPAA1
Lab Sample ID	Client Sample ID	(48-132)
480-155710-1	MWSE-2	57
480-155710-2	MWSE-3	54
480-155757-1	MWSE-1	55
480-155757-2	MWSE-4	62
LCS 480-480799/2-A	Lab Control Sample	57
LCS 480-481261/2-A	Lab Control Sample	55
LCSD 480-480799/3-A	Lab Control Sample Dup	61
LCSD 480-481261/3-A	Lab Control Sample Dup	73
MB 480-480799/1-A	Method Blank	57

Surrogate Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Method: 8151A - Herbicides (GC) (Continued)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	**Client Sample ID**	**DCPAA1 (48-132)**								
MB 480-481261/1-A	Method Blank	58								

Surrogate Legend

DCPAA = 2,4-Dichlorophenylacetic acid

Isotope Dilution Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	DXE (15-110)							
480-155710-1	MWSE-2	30							
480-155710-2	MWSE-3	30							
480-155757-1	MWSE-1	31							
480-155757-2	MWSE-4	33							
LCS 480-480991/2-A	Lab Control Sample	30							
MB 480-480991/1-A	Method Blank	33							

Surrogate Legend

DXE = 1,4-Dioxane-d8

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
480-155710-1	MWSE-2	83	100	106	102	101	99	103	100
480-155710-2	MWSE-3	76	84	96	93	91	87	88	83
480-155757-1	MWSE-1	90	99	102	101	102	94	99	97
480-155757-2	MWSE-4	66	89	99	100	96	95	94	96
LCS 320-306095/2-A	Lab Control Sample	89	95	99	97	97	97	99	97
LCSD 320-306095/3-A	Lab Control Sample Dup	91	98	106	99	99	101	101	99
MB 320-306095/1-A	Method Blank	88	93	96	97	99	96	94	96

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	3C3-PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	-NMeFOSA (25-150)	-NEtFOSA (25-150)
480-155710-1	MWSE-2	97	106	94	102	96	87	100	100
480-155710-2	MWSE-3	74	72	87	92	85	66	84	87
480-155757-1	MWSE-1	96	109	98	105	98	85	97	102
480-155757-2	MWSE-4	90	93	93	102	91	82	96	97
LCS 320-306095/2-A	Lab Control Sample	96	98	96	100	98	82	101	98
LCSD 320-306095/3-A	Lab Control Sample Dup	100	100	94	104	95	85	106	97
MB 320-306095/1-A	Method Blank	94	96	95	96	91	80	103	102

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)						
480-155710-1	MWSE-2	132	104						
480-155710-2	MWSE-3	128	106						
480-155757-1	MWSE-1	137	127						
480-155757-2	MWSE-4	121	101						
LCS 320-306095/2-A	Lab Control Sample	138	112						
LCSD 320-306095/3-A	Lab Control Sample Dup	135	122						
MB 320-306095/1-A	Method Blank	125	108						

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
PFHpA = 13C4 PFHpA
PFOA = 13C4 PFOA

Isotope Dilution Summary

Client: Waste Management
Job ID: 480-155710-1
Project/Site: Chaffee Landfill-New Wells

PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
13C3-PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS

Tracer/Carrier Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)
480-155710-1	MWSE-2	58.2
480-155710-2	MWSE-3	82.8
480-155757-1	MWSE-1	60.5
480-155757-2	MWSE-4	49.7
LCS 160-434862/1-A	Lab Control Sample	80.8
LCSD 160-434862/2-A	Lab Control Sample Dup	67.2
MB 160-434862/7-A	Method Blank	80.8

Tracer/Carrier Legend

Ba Carrier = Ba Carrier

Method: 904.0 - Radium-228 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
Lab Sample ID	Client Sample ID	Ba Carrier (40-110)	Y Carrier (40-110)
480-155710-1	MWSE-2	58.2	79.6
480-155710-2	MWSE-3	82.8	80.7
480-155757-1	MWSE-1	60.5	80.4
480-155757-2	MWSE-4	49.7	75.5
LCS 160-434867/1-A	Lab Control Sample	80.8	75.9
LCSD 160-434867/2-A	Lab Control Sample Dup	67.2	99.8
MB 160-434867/7-A	Method Blank	80.8	77.4

Tracer/Carrier Legend

Ba Carrier = Ba Carrier
Y Carrier = Y Carrier

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-481743/7
Matrix: Water
Analysis Batch: 481743

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			07/11/19 21:12	1
1,1,1-Trichloroethane	ND		1.0		ug/L			07/11/19 21:12	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			07/11/19 21:12	1
1,1,2-Trichloroethane	ND		1.0		ug/L			07/11/19 21:12	1
1,1-Dichloroethane	ND		1.0		ug/L			07/11/19 21:12	1
1,1-Dichloroethene	ND		1.0		ug/L			07/11/19 21:12	1
1,1-Dichloropropene	ND		1.0		ug/L			07/11/19 21:12	1
1,2,3-Trichloropropane	ND		1.0		ug/L			07/11/19 21:12	1
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			07/11/19 21:12	1
1,2-Dichlorobenzene	ND		1.0		ug/L			07/11/19 21:12	1
1,2-Dichloroethane	ND		1.0		ug/L			07/11/19 21:12	1
1,2-Dichloropropane	ND		1.0		ug/L			07/11/19 21:12	1
1,3-Dichloropropane	ND		1.0		ug/L			07/11/19 21:12	1
1,4-Dichlorobenzene	ND		1.0		ug/L			07/11/19 21:12	1
2,2-Dichloropropane	ND		1.0		ug/L			07/11/19 21:12	1
2-Butanone (MEK)	ND		10		ug/L			07/11/19 21:12	1
2-Hexanone	ND		5.0		ug/L			07/11/19 21:12	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			07/11/19 21:12	1
Acetone	ND		10		ug/L			07/11/19 21:12	1
Acetonitrile	ND		15		ug/L			07/11/19 21:12	1
Acrolein	ND		20		ug/L			07/11/19 21:12	1
Acrylonitrile	ND		5.0		ug/L			07/11/19 21:12	1
Allyl chloride	ND		1.0		ug/L			07/11/19 21:12	1
Benzene	ND		1.0		ug/L			07/11/19 21:12	1
Chlorobromomethane	ND		1.0		ug/L			07/11/19 21:12	1
Bromodichloromethane	ND		1.0		ug/L			07/11/19 21:12	1
Bromoform	ND		1.0		ug/L			07/11/19 21:12	1
Bromomethane	ND		1.0		ug/L			07/11/19 21:12	1
Carbon disulfide	ND		1.0		ug/L			07/11/19 21:12	1
Carbon tetrachloride	ND		1.0		ug/L			07/11/19 21:12	1
Chlorobenzene	ND		1.0		ug/L			07/11/19 21:12	1
Dibromochloromethane	ND		1.0		ug/L			07/11/19 21:12	1
Chloroethane	ND		1.0		ug/L			07/11/19 21:12	1
Chloroform	ND		1.0		ug/L			07/11/19 21:12	1
Chloromethane	ND		1.0		ug/L			07/11/19 21:12	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			07/11/19 21:12	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			07/11/19 21:12	1
Chloroprene	ND		1.0		ug/L			07/11/19 21:12	1
Dibromomethane	ND		1.0		ug/L			07/11/19 21:12	1
Dichlorodifluoromethane	ND		1.0		ug/L			07/11/19 21:12	1
Ethyl methacrylate	ND		1.0		ug/L			07/11/19 21:12	1
Ethylbenzene	ND		1.0		ug/L			07/11/19 21:12	1
1,2-Dibromoethane	ND		1.0		ug/L			07/11/19 21:12	1
Hexachlorobutadiene	ND		2.0		ug/L			07/11/19 21:12	1
Iodomethane	ND		1.0		ug/L			07/11/19 21:12	1
Isobutyl alcohol	ND		25		ug/L			07/11/19 21:12	1
Methacrylonitrile	ND		5.0		ug/L			07/11/19 21:12	1
Methyl methacrylate	ND		1.0		ug/L			07/11/19 21:12	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-481743/7
Matrix: Water
Analysis Batch: 481743

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	ND		1.0		ug/L			07/11/19 21:12	1
Naphthalene	ND		1.0		ug/L			07/11/19 21:12	1
Propionitrile	ND		10		ug/L			07/11/19 21:12	1
Styrene	ND		1.0		ug/L			07/11/19 21:12	1
Tetrachloroethene	ND		1.0		ug/L			07/11/19 21:12	1
Toluene	ND		1.0		ug/L			07/11/19 21:12	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			07/11/19 21:12	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			07/11/19 21:12	1
trans-1,4-Dichloro-2-butene	ND		1.0		ug/L			07/11/19 21:12	1
Trichloroethene	ND		1.0		ug/L			07/11/19 21:12	1
Trichlorofluoromethane	ND		1.0		ug/L			07/11/19 21:12	1
Vinyl acetate	ND		5.0		ug/L			07/11/19 21:12	1
Vinyl chloride	ND		1.0		ug/L			07/11/19 21:12	1
Xylenes, Total	ND		2.0		ug/L			07/11/19 21:12	1
o-Xylene	ND		1.0		ug/L			07/11/19 21:12	1
m,p-Xylene	ND		2.0		ug/L			07/11/19 21:12	1
1,2-Dichloroethene, Total	ND		2.0		ug/L			07/11/19 21:12	1
1,3-Dichlorobenzene	ND		1.0		ug/L			07/11/19 21:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*77 - 120*		*07/11/19 21:12*	*1*
4-Bromofluorobenzene (Surr)	*91*		*73 - 120*		*07/11/19 21:12*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*07/11/19 21:12*	*1*
Dibromofluoromethane (Surr)	*95*		*75 - 123*		*07/11/19 21:12*	*1*

Lab Sample ID: LCS 480-481743/5
Matrix: Water
Analysis Batch: 481743

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	24.5		ug/L		98	80 - 120
1,1,1-Trichloroethane	25.0	23.9		ug/L		95	73 - 126
1,1,2,2-Tetrachloroethane	25.0	24.6		ug/L		99	76 - 120
1,1,2-Trichloroethane	25.0	24.1		ug/L		97	76 - 122
1,1-Dichloroethane	25.0	24.0		ug/L		96	77 - 120
1,1-Dichloroethene	25.0	22.3		ug/L		89	66 - 127
1,1-Dichloropropene	25.0	25.0		ug/L		100	72 - 122
1,2,3-Trichloropropane	25.0	24.8		ug/L		99	68 - 122
1,2-Dibromo-3-Chloropropane	25.0	23.5		ug/L		94	56 - 134
1,2-Dichlorobenzene	25.0	23.7		ug/L		95	80 - 124
1,2-Dichloroethane	25.0	24.0		ug/L		96	75 - 120
1,2-Dichloropropane	25.0	24.5		ug/L		98	76 - 120
1,3-Dichloropropane	25.0	24.7		ug/L		99	75 - 120
1,4-Dichlorobenzene	25.0	24.9		ug/L		100	80 - 120
2,2-Dichloropropane	25.0	26.4		ug/L		105	63 - 136
2-Butanone (MEK)	125	133		ug/L		106	57 - 140
2-Hexanone	125	129		ug/L		103	65 - 127
4-Methyl-2-pentanone (MIBK)	125	129		ug/L		103	71 - 125

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-481743/5
Matrix: Water
Analysis Batch: 481743

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	125	144		ug/L		115	56 - 142
Acrolein	125	97.8		ug/L		78	52 - 143
Acrylonitrile	250	258		ug/L		103	63 - 125
Allyl chloride	25.0	24.5		ug/L		98	60 - 140
Benzene	25.0	24.3		ug/L		97	71 - 124
Chlorobromomethane	25.0	22.4		ug/L		90	72 - 130
Bromodichloromethane	25.0	24.0		ug/L		96	80 - 122
Bromoform	25.0	24.5		ug/L		98	61 - 132
Bromomethane	25.0	26.0		ug/L		104	55 - 144
Carbon disulfide	25.0	23.5		ug/L		94	59 - 134
Carbon tetrachloride	25.0	24.6		ug/L		98	72 - 134
Chlorobenzene	25.0	24.5		ug/L		98	80 - 120
Dibromochloromethane	25.0	23.4		ug/L		94	75 - 125
Chloroethane	25.0	28.2		ug/L		113	69 - 136
Chloroform	25.0	21.5		ug/L		86	73 - 127
Chloromethane	25.0	29.7		ug/L		119	68 - 124
cis-1,2-Dichloroethene	25.0	23.3		ug/L		93	74 - 124
cis-1,3-Dichloropropene	25.0	24.8		ug/L		99	74 - 124
Dibromomethane	25.0	22.8		ug/L		91	76 - 127
Dichlorodifluoromethane	25.0	32.5		ug/L		130	59 - 135
Ethyl methacrylate	25.0	25.3		ug/L		101	74 - 120
Ethylbenzene	25.0	24.3		ug/L		97	77 - 123
1,2-Dibromoethane	25.0	23.7		ug/L		95	77 - 120
Hexachlorobutadiene	25.0	21.5		ug/L		86	68 - 131
Iodomethane	25.0	22.1		ug/L		88	78 - 123
Isobutyl alcohol	625	665		ug/L		106	51 - 150
Methylene Chloride	25.0	23.4		ug/L		93	75 - 124
Naphthalene	25.0	21.5		ug/L		86	66 - 125
Styrene	25.0	24.5		ug/L		98	80 - 120
Tetrachloroethene	25.0	24.1		ug/L		96	74 - 122
Toluene	25.0	23.8		ug/L		95	80 - 122
trans-1,2-Dichloroethene	25.0	24.0		ug/L		96	73 - 127
trans-1,3-Dichloropropene	25.0	24.7		ug/L		99	80 - 120
trans-1,4-Dichloro-2-butene	25.0	16.9		ug/L		68	41 - 131
Trichloroethene	25.0	24.1		ug/L		97	74 - 123
Trichlorofluoromethane	25.0	28.3		ug/L		113	62 - 150
Vinyl acetate	50.0	49.6		ug/L		99	50 - 144
Vinyl chloride	25.0	28.8		ug/L		115	65 - 133
o-Xylene	25.0	24.2		ug/L		97	76 - 122
m,p-Xylene	25.0	24.4		ug/L		97	76 - 122
1,3-Dichlorobenzene	25.0	25.1		ug/L		100	77 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*95*		*75 - 123*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-481776/7
Matrix: Water
Analysis Batch: 481776

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		1.0		ug/L			07/12/19 10:52	1
1,1,1-Trichloroethane	ND		1.0		ug/L			07/12/19 10:52	1
1,1,2,2-Tetrachloroethane	ND		1.0		ug/L			07/12/19 10:52	1
1,1,2-Trichloroethane	ND		1.0		ug/L			07/12/19 10:52	1
1,1-Dichloroethane	ND		1.0		ug/L			07/12/19 10:52	1
1,1-Dichloroethene	ND		1.0		ug/L			07/12/19 10:52	1
1,1-Dichloropropene	ND		1.0		ug/L			07/12/19 10:52	1
1,2,3-Trichloropropane	ND		1.0		ug/L			07/12/19 10:52	1
1,2-Dibromo-3-Chloropropane	ND		1.0		ug/L			07/12/19 10:52	1
1,2-Dichlorobenzene	ND		1.0		ug/L			07/12/19 10:52	1
1,2-Dichloroethane	ND		1.0		ug/L			07/12/19 10:52	1
1,2-Dichloropropane	ND		1.0		ug/L			07/12/19 10:52	1
1,3-Dichloropropane	ND		1.0		ug/L			07/12/19 10:52	1
1,4-Dichlorobenzene	ND		1.0		ug/L			07/12/19 10:52	1
2,2-Dichloropropane	ND		1.0		ug/L			07/12/19 10:52	1
2-Butanone (MEK)	ND		10		ug/L			07/12/19 10:52	1
2-Hexanone	ND		5.0		ug/L			07/12/19 10:52	1
4-Methyl-2-pentanone (MIBK)	ND		5.0		ug/L			07/12/19 10:52	1
Acetone	ND		10		ug/L			07/12/19 10:52	1
Acetonitrile	ND		15		ug/L			07/12/19 10:52	1
Acrolein	ND		20		ug/L			07/12/19 10:52	1
Acrylonitrile	ND		5.0		ug/L			07/12/19 10:52	1
Allyl chloride	ND		1.0		ug/L			07/12/19 10:52	1
Benzene	ND		1.0		ug/L			07/12/19 10:52	1
Chlorobromomethane	ND		1.0		ug/L			07/12/19 10:52	1
Bromodichloromethane	ND		1.0		ug/L			07/12/19 10:52	1
Bromoform	ND		1.0		ug/L			07/12/19 10:52	1
Bromomethane	ND		1.0		ug/L			07/12/19 10:52	1
Carbon disulfide	ND		1.0		ug/L			07/12/19 10:52	1
Carbon tetrachloride	ND		1.0		ug/L			07/12/19 10:52	1
Chlorobenzene	ND		1.0		ug/L			07/12/19 10:52	1
Dibromochloromethane	ND		1.0		ug/L			07/12/19 10:52	1
Chloroethane	ND		1.0		ug/L			07/12/19 10:52	1
Chloroform	ND		1.0		ug/L			07/12/19 10:52	1
Chloromethane	ND		1.0		ug/L			07/12/19 10:52	1
cis-1,2-Dichloroethene	ND		1.0		ug/L			07/12/19 10:52	1
cis-1,3-Dichloropropene	ND		1.0		ug/L			07/12/19 10:52	1
Chloroprene	ND		1.0		ug/L			07/12/19 10:52	1
Dibromomethane	ND		1.0		ug/L			07/12/19 10:52	1
Dichlorodifluoromethane	ND		1.0		ug/L			07/12/19 10:52	1
Ethyl methacrylate	ND		1.0		ug/L			07/12/19 10:52	1
Ethylbenzene	ND		1.0		ug/L			07/12/19 10:52	1
1,2-Dibromoethane	ND		1.0		ug/L			07/12/19 10:52	1
Hexachlorobutadiene	ND		2.0		ug/L			07/12/19 10:52	1
Iodomethane	ND		1.0		ug/L			07/12/19 10:52	1
Isobutyl alcohol	ND		25		ug/L			07/12/19 10:52	1
Methacrylonitrile	ND		5.0		ug/L			07/12/19 10:52	1
Methyl methacrylate	ND		1.0		ug/L			07/12/19 10:52	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-481776/7
Matrix: Water
Analysis Batch: 481776

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methylene Chloride	ND		1.0		ug/L			07/12/19 10:52	1
Naphthalene	ND		1.0		ug/L			07/12/19 10:52	1
Propionitrile	ND		10		ug/L			07/12/19 10:52	1
Styrene	ND		1.0		ug/L			07/12/19 10:52	1
Tetrachloroethene	ND		1.0		ug/L			07/12/19 10:52	1
Toluene	ND		1.0		ug/L			07/12/19 10:52	1
trans-1,2-Dichloroethene	ND		1.0		ug/L			07/12/19 10:52	1
trans-1,3-Dichloropropene	ND		1.0		ug/L			07/12/19 10:52	1
trans-1,4-Dichloro-2-butene	ND		1.0		ug/L			07/12/19 10:52	1
Trichloroethene	ND		1.0		ug/L			07/12/19 10:52	1
Trichlorofluoromethane	ND		1.0		ug/L			07/12/19 10:52	1
Vinyl acetate	ND		5.0		ug/L			07/12/19 10:52	1
Vinyl chloride	ND		1.0		ug/L			07/12/19 10:52	1
Xylenes, Total	ND		2.0		ug/L			07/12/19 10:52	1
o-Xylene	ND		1.0		ug/L			07/12/19 10:52	1
m,p-Xylene	ND		2.0		ug/L			07/12/19 10:52	1
1,2-Dichloroethene, Total	ND		2.0		ug/L			07/12/19 10:52	1
1,3-Dichlorobenzene	ND		1.0		ug/L			07/12/19 10:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*		*07/12/19 10:52*	*1*
4-Bromofluorobenzene (Surr)	*105*		*73 - 120*		*07/12/19 10:52*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*07/12/19 10:52*	*1*
Dibromofluoromethane (Surr)	*101*		*75 - 123*		*07/12/19 10:52*	*1*

Lab Sample ID: LCS 480-481776/5
Matrix: Water
Analysis Batch: 481776

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	27.0		ug/L		108	80 - 120
1,1,1-Trichloroethane	25.0	25.9		ug/L		103	73 - 126
1,1,2,2-Tetrachloroethane	25.0	24.1		ug/L		97	76 - 120
1,1,2-Trichloroethane	25.0	23.4		ug/L		94	76 - 122
1,1-Dichloroethane	25.0	23.4		ug/L		94	77 - 120
1,1-Dichloroethene	25.0	23.0		ug/L		92	66 - 127
1,1-Dichloropropene	25.0	24.4		ug/L		98	72 - 122
1,2,3-Trichloropropane	25.0	25.6		ug/L		103	68 - 122
1,2-Dibromo-3-Chloropropane	25.0	27.2		ug/L		109	56 - 134
1,2-Dichlorobenzene	25.0	24.1		ug/L		96	80 - 124
1,2-Dichloroethane	25.0	23.1		ug/L		93	75 - 120
1,2-Dichloropropane	25.0	23.4		ug/L		93	76 - 120
1,3-Dichloropropane	25.0	23.0		ug/L		92	75 - 120
1,4-Dichlorobenzene	25.0	23.4		ug/L		94	80 - 120
2,2-Dichloropropane	25.0	23.4		ug/L		94	63 - 136
2-Butanone (MEK)	125	119		ug/L		95	57 - 140
2-Hexanone	125	119		ug/L		95	65 - 127
4-Methyl-2-pentanone (MIBK)	125	119		ug/L		95	71 - 125

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-481776/5
Matrix: Water
Analysis Batch: 481776

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	125	115		ug/L		92	56 - 142
Acrolein	125	108		ug/L		87	52 - 143
Acrylonitrile	250	237		ug/L		95	63 - 125
Allyl chloride	25.0	22.6		ug/L		91	60 - 140
Benzene	25.0	22.5		ug/L		90	71 - 124
Chlorobromomethane	25.0	24.2		ug/L		97	72 - 130
Bromodichloromethane	25.0	26.4		ug/L		106	80 - 122
Bromoform	25.0	31.1		ug/L		125	61 - 132
Bromomethane	25.0	21.6		ug/L		86	55 - 144
Carbon disulfide	25.0	23.1		ug/L		93	59 - 134
Carbon tetrachloride	25.0	26.5		ug/L		106	72 - 134
Chlorobenzene	25.0	23.1		ug/L		92	80 - 120
Dibromochloromethane	25.0	29.3		ug/L		117	75 - 125
Chloroethane	25.0	21.0		ug/L		84	69 - 136
Chloroform	25.0	23.0		ug/L		92	73 - 127
Chloromethane	25.0	21.7		ug/L		87	68 - 124
cis-1,2-Dichloroethene	25.0	23.8		ug/L		95	74 - 124
cis-1,3-Dichloropropene	25.0	24.5		ug/L		98	74 - 124
Dibromomethane	25.0	25.2		ug/L		101	76 - 127
Dichlorodifluoromethane	25.0	20.2		ug/L		81	59 - 135
Ethyl methacrylate	25.0	23.3		ug/L		93	74 - 120
Ethylbenzene	25.0	23.1		ug/L		92	77 - 123
1,2-Dibromoethane	25.0	24.8		ug/L		99	77 - 120
Hexachlorobutadiene	25.0	27.2		ug/L		109	68 - 131
Iodomethane	25.0	24.0		ug/L		96	78 - 123
Isobutyl alcohol	625	496		ug/L		79	51 - 150
Methylene Chloride	25.0	23.6		ug/L		94	75 - 124
Naphthalene	25.0	24.7		ug/L		99	66 - 125
Styrene	25.0	23.4		ug/L		94	80 - 120
Tetrachloroethene	25.0	25.8		ug/L		103	74 - 122
Toluene	25.0	22.0		ug/L		88	80 - 122
trans-1,2-Dichloroethene	25.0	23.6		ug/L		94	73 - 127
trans-1,3-Dichloropropene	25.0	24.4		ug/L		97	80 - 120
trans-1,4-Dichloro-2-butene	25.0	22.4		ug/L		89	41 - 131
Trichloroethene	25.0	23.1		ug/L		93	74 - 123
Trichlorofluoromethane	25.0	22.2		ug/L		89	62 - 150
Vinyl acetate	50.0	41.2		ug/L		82	50 - 144
Vinyl chloride	25.0	22.8		ug/L		91	65 - 133
o-Xylene	25.0	23.3		ug/L		93	76 - 122
m,p-Xylene	25.0	23.6		ug/L		94	76 - 122
1,3-Dichlorobenzene	25.0	23.4		ug/L		94	77 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*77 - 120*
4-Bromofluorobenzene (Surr)	*107*		*73 - 120*
Toluene-d8 (Surr)	*96*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*75 - 123*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 480-480988/1-A
Matrix: Water
Analysis Batch: 481493

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480988

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4,5-Tetrachlorobenzene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
1,2,4-Trichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
1,2-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
1,3,5-Trinitrobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
1,3-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
1,3-Dinitrobenzene	ND		20		ug/L		07/05/19 15:02	07/10/19 21:25	1
1,4-Naphthoquinone	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
1,4-Dichlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
1-Naphthylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
2,3,4,6-Tetrachlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
2,4,5-Trichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
2,4,6-Trichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
2,4-Dichlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
2,4-Dimethylphenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
2,4-Dinitrophenol	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
2,4-Dinitrotoluene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
2,6-Dichlorophenol	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
2,6-Dinitrotoluene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
2-Acetylaminofluorene	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
2-Chloronaphthalene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
2-Chlorophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
2-Methylnaphthalene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
2-Methylphenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
2-Naphthylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
2-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
2-Nitrophenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
o-Toluidine	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
3-Methylphenol	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
4-Methylphenol	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
3,3'-Dichlorobenzidine	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
3,3'-Dimethylbenzidine	ND		40		ug/L		07/05/19 15:02	07/10/19 21:25	1
3-Methylcholanthrene	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
3-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
4,6-Dinitro-2-methylphenol	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
4-Aminobiphenyl	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
4-Bromophenyl phenyl ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
4-Chloro-3-methylphenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
p-Chloroaniline	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
4-Chlorophenyl phenyl ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
4-Nitroaniline	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
4-Nitrophenol	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
7,12-Dimethylbenz(a)anthracene	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Acenaphthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Acenaphthylene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Acetophenone	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Anthracene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Benzo[a]anthracene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Benzo[a]pyrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 480-480988/1-A
Matrix: Water
Analysis Batch: 481493

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480988

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Benzo[g,h,i]perylene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Benzo[k]fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Benzyl alcohol	ND		20		ug/L		07/05/19 15:02	07/10/19 21:25	1
Bis(2-chloroethoxy)methane	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Bis(2-chloroethyl)ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Bis(2-ethylhexyl) phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
bis(2 chloro-1-methylethyl) ether	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Butyl benzyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Chrysene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Diallate	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Dibenz(a,h)anthracene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Dibenzofuran	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Diethyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Dimethoate	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Dimethyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Di-n-butyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Di-n-octyl phthalate	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Dinoseb	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Diphenylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Disulfoton	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Ethyl methanesulfonate	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Famphur	ND		40		ug/L		07/05/19 15:02	07/10/19 21:25	1
Fluoranthene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Fluorene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Hexachlorobenzene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Hexachlorobutadiene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Hexachlorocyclopentadiene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Hexachloroethane	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Hexachloropropene	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Indeno[1,2,3-cd]pyrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Isodrin	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Isophorone	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Isosafrole	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Kepone	ND		50		ug/L		07/05/19 15:02	07/10/19 21:25	1
Methapyrilene	ND		50		ug/L		07/05/19 15:02	07/10/19 21:25	1
Methyl methanesulfonate	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Safrole	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Thionazin	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Naphthalene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Nitrobenzene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
5-Nitro-o-toluidine	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
N-Nitrosodiethylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Chlorobenzilate	ND		20		ug/L		07/05/19 15:02	07/10/19 21:25	1
N-Nitrosodimethylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
N-Nitrosodi-n-butylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
N-Nitrosodipropylamine	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
N-Nitrosodiphenylamine	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
N-Nitrosomethylethylamine	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 480-480988/1-A
Matrix: Water
Analysis Batch: 481493

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480988

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Nitrosopiperidine	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
N-Nitrosopyrrolidine	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Triethyl phosphorothioate	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Parathion	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Parathion methyl	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
p-Dimethylamino azobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Pentachlorobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Pentachloronitrobenzene	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Pentachlorophenol	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Phenacetin	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
Phenanthrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Phenol	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Phorate	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1
p-Phenylene diamine	ND		800		ug/L		07/05/19 15:02	07/10/19 21:25	1
Pyrene	ND		5.0		ug/L		07/05/19 15:02	07/10/19 21:25	1
Pronamide	ND		10		ug/L		07/05/19 15:02	07/10/19 21:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*100*		*48 - 120*	*07/05/19 15:02*	*07/10/19 21:25*	*1*
2-Fluorophenol (Surr)	*66*		*35 - 120*	*07/05/19 15:02*	*07/10/19 21:25*	*1*
2,4,6-Tribromophenol (Surr)	*89*		*41 - 120*	*07/05/19 15:02*	*07/10/19 21:25*	*1*
Nitrobenzene-d5 (Surr)	*96*		*46 - 120*	*07/05/19 15:02*	*07/10/19 21:25*	*1*
Phenol-d5 (Surr)	*45*		*22 - 120*	*07/05/19 15:02*	*07/10/19 21:25*	*1*
p-Terphenyl-d14 (Surr)	*100*		*59 - 136*	*07/05/19 15:02*	*07/10/19 21:25*	*1*

Lab Sample ID: LCS 480-480988/2-A
Matrix: Water
Analysis Batch: 481493

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480988

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4,5-Tetrachlorobenzene	32.0	30.1		ug/L		94	53 - 120
1,2,4-Trichlorobenzene	32.0	29.6		ug/L		93	40 - 120
1,2-Dichlorobenzene	32.0	27.4		ug/L		86	49 - 120
1,3-Dichlorobenzene	32.0	27.2		ug/L		85	50 - 120
1,3-Dinitrobenzene	32.0	32.7		ug/L		102	68 - 131
1,4-Dichlorobenzene	32.0	27.4		ug/L		86	51 - 120
2,3,4,6-Tetrachlorophenol	32.0	35.3		ug/L		110	63 - 120
2,4,5-Trichlorophenol	32.0	34.3		ug/L		107	65 - 126
2,4,6-Trichlorophenol	32.0	36.0		ug/L		113	64 - 120
2,4-Dichlorophenol	32.0	32.6		ug/L		102	63 - 120
2,4-Dimethylphenol	32.0	32.2		ug/L		101	47 - 120
2,4-Dinitrophenol	64.0	70.1		ug/L		110	31 - 137
2,4-Dinitrotoluene	32.0	31.9		ug/L		100	69 - 120
2,6-Dichlorophenol	32.0	33.5		ug/L		105	62 - 120
2,6-Dinitrotoluene	32.0	33.4		ug/L		105	68 - 120
2-Chloronaphthalene	32.0	29.8		ug/L		93	58 - 120
2-Chlorophenol	32.0	28.7		ug/L		90	48 - 120
2-Methylnaphthalene	32.0	30.7		ug/L		96	59 - 120

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-480988/2-A
Matrix: Water
Analysis Batch: 481493

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480988

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2-Methylphenol	32.0	31.8		ug/L		99	39 - 120
2-Nitroaniline	32.0	36.4		ug/L		114	54 - 127
2-Nitrophenol	32.0	31.9		ug/L		100	52 - 125
3-Methylphenol	32.0	27.8		ug/L		87	39 - 120
4-Methylphenol	32.0	27.8		ug/L		87	29 - 131
3,3'-Dichlorobenzidine	64.0	74.0		ug/L		116	49 - 135
3-Nitroaniline	32.0	29.2		ug/L		91	51 - 120
4,6-Dinitro-2-methylphenol	64.0	69.3		ug/L		108	46 - 136
4-Bromophenyl phenyl ether	32.0	31.0		ug/L		97	65 - 120
4-Chloro-3-methylphenol	32.0	30.0		ug/L		94	61 - 123
p-Chloroaniline	32.0	21.1		ug/L		66	30 - 120
4-Chlorophenyl phenyl ether	32.0	31.2		ug/L		97	62 - 120
4-Nitroaniline	32.0	29.1		ug/L		91	65 - 120
4-Nitrophenol	64.0	76.3		ug/L		119	45 - 120
Acenaphthene	32.0	33.0		ug/L		103	60 - 120
Acenaphthylene	32.0	32.0		ug/L		100	63 - 120
Acetophenone	32.0	31.8		ug/L		99	45 - 120
Anthracene	32.0	30.4		ug/L		95	67 - 120
Benzo[a]anthracene	32.0	33.5		ug/L		105	70 - 121
Benzo[a]pyrene	32.0	31.1		ug/L		97	60 - 123
Benzo[b]fluoranthene	32.0	33.4		ug/L		104	66 - 126
Benzo[g,h,i]perylene	32.0	33.4		ug/L		104	66 - 150
Benzo[k]fluoranthene	32.0	33.0		ug/L		103	65 - 124
Benzyl alcohol	32.0	27.7		ug/L		86	41 - 126
Bis(2-chloroethoxy)methane	32.0	28.8		ug/L		90	50 - 128
Bis(2-chloroethyl)ether	32.0	27.5		ug/L		86	44 - 120
Bis(2-ethylhexyl) phthalate	32.0	40.7		ug/L		127	63 - 139
bis(2 chloro-1-methylethyl) ether	32.0	30.9		ug/L		97	21 - 136
Butyl benzyl phthalate	32.0	35.0		ug/L		109	70 - 129
Chrysene	32.0	35.0		ug/L		109	69 - 120
Dibenz(a,h)anthracene	32.0	33.4		ug/L		105	65 - 135
Dibenzofuran	32.0	30.5		ug/L		95	66 - 120
Diethyl phthalate	32.0	35.9		ug/L		112	59 - 127
Dimethyl phthalate	32.0	34.9		ug/L		109	68 - 120
Di-n-butyl phthalate	32.0	34.4		ug/L		108	69 - 131
Di-n-octyl phthalate	32.0	36.8		ug/L		115	63 - 140
Diphenylamine	27.4	25.9		ug/L		95	61 - 120
Fluoranthene	32.0	33.1		ug/L		104	69 - 126
Fluorene	32.0	32.5		ug/L		102	66 - 120
Hexachlorobenzene	32.0	29.7		ug/L		93	61 - 120
Hexachlorobutadiene	32.0	30.0		ug/L		94	35 - 120
Hexachlorocyclopentadiene	32.0	24.7		ug/L		77	31 - 120
Hexachloroethane	32.0	29.1		ug/L		91	43 - 120
Indeno[1,2,3-cd]pyrene	32.0	34.9		ug/L		109	69 - 146
Isophorone	32.0	32.4		ug/L		101	55 - 120
Naphthalene	32.0	29.6		ug/L		93	57 - 120
Nitrobenzene	32.0	32.9		ug/L		103	53 - 123
N-Nitrosodimethylamine	32.0	33.8		ug/L		106	10 - 120
N-Nitrosodipropylamine	32.0	31.5		ug/L		98	32 - 140

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 480-480988/2-A
Matrix: Water
Analysis Batch: 481493

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480988

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
N-Nitrosodiphenylamine			32.0	30.3		ug/L		95	61 - 120		
Pentachlorophenol			64.0	58.7		ug/L		92	29 - 136		
Phenanthrene			32.0	35.1		ug/L		110	68 - 120		
Phenol			32.0	18.8		ug/L		59	17 - 120		
Pyrene			32.0	33.1		ug/L		103	70 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*97*		*48 - 120*
2-Fluorophenol (Surr)	*67*		*35 - 120*
2,4,6-Tribromophenol (Surr)	*97*		*41 - 120*
Nitrobenzene-d5 (Surr)	*96*		*46 - 120*
Phenol-d5 (Surr)	*51*		*22 - 120*
p-Terphenyl-d14 (Surr)	*95*		*59 - 136*

Lab Sample ID: LCSD 480-480988/3-A
Matrix: Water
Analysis Batch: 481493

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 480988

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4,5-Tetrachlorobenzene			32.0	31.8		ug/L		99	53 - 120	5	30
1,2,4-Trichlorobenzene			32.0	30.9		ug/L		96	40 - 120	4	30
1,2-Dichlorobenzene			32.0	28.3		ug/L		88	49 - 120	3	29
1,3-Dichlorobenzene			32.0	28.1		ug/L		88	50 - 120	3	37
1,3-Dinitrobenzene			32.0	35.1		ug/L		110	68 - 131	7	18
1,4-Dichlorobenzene			32.0	28.9		ug/L		90	51 - 120	5	36
2,3,4,6-Tetrachlorophenol			32.0	36.9		ug/L		115	63 - 120	4	30
2,4,5-Trichlorophenol			32.0	37.0		ug/L		115	65 - 126	8	18
2,4,6-Trichlorophenol			32.0	37.9		ug/L		118	64 - 120	5	19
2,4-Dichlorophenol			32.0	33.1		ug/L		103	63 - 120	2	19
2,4-Dimethylphenol			32.0	34.0		ug/L		106	47 - 120	5	42
2,4-Dinitrophenol			64.0	71.6		ug/L		112	31 - 137	2	22
2,4-Dinitrotoluene			32.0	33.0		ug/L		103	69 - 120	3	20
2,6-Dichlorophenol			32.0	35.0		ug/L		109	62 - 120	4	30
2,6-Dinitrotoluene			32.0	34.4		ug/L		108	68 - 120	3	15
2-Chloronaphthalene			32.0	30.8		ug/L		96	58 - 120	3	21
2-Chlorophenol			32.0	30.0		ug/L		94	48 - 120	4	25
2-Methylnaphthalene			32.0	32.3		ug/L		101	59 - 120	5	21
2-Methylphenol			32.0	33.1		ug/L		103	39 - 120	4	27
2-Nitroaniline			32.0	38.0		ug/L		119	54 - 127	5	15
2-Nitrophenol			32.0	34.0		ug/L		106	52 - 125	6	18
3-Methylphenol			32.0	28.4		ug/L		89	39 - 120	2	30
4-Methylphenol			32.0	28.4		ug/L		89	29 - 131	2	24
3,3'-Dichlorobenzidine			64.0	72.8		ug/L		114	49 - 135	2	25
3-Nitroaniline			32.0	29.9		ug/L		93	51 - 120	2	19
4,6-Dinitro-2-methylphenol			64.0	75.3		ug/L		118	46 - 136	8	15
4-Bromophenyl phenyl ether			32.0	31.9		ug/L		100	65 - 120	3	15
4-Chloro-3-methylphenol			32.0	31.2		ug/L		97	61 - 123	4	27
p-Chloroaniline			32.0	24.4		ug/L		76	30 - 120	15	22

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 480-480988/3-A
Matrix: Water
Analysis Batch: 481493

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 480988

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4-Chlorophenyl phenyl ether	32.0	33.4		ug/L		104	62 - 120	7	16
4-Nitroaniline	32.0	30.7		ug/L		96	65 - 120	6	24
4-Nitrophenol	64.0	77.1	*	ug/L		121	45 - 120	1	48
Acenaphthene	32.0	34.2		ug/L		107	60 - 120	4	24
Acenaphthylene	32.0	33.0		ug/L		103	63 - 120	3	18
Acetophenone	32.0	32.5		ug/L		102	45 - 120	2	20
Anthracene	32.0	32.2		ug/L		101	67 - 120	6	15
Benzo[a]anthracene	32.0	34.2		ug/L		107	70 - 121	2	15
Benzo[a]pyrene	32.0	31.6		ug/L		99	60 - 123	1	15
Benzo[b]fluoranthene	32.0	34.3		ug/L		107	66 - 126	3	15
Benzo[g,h,i]perylene	32.0	34.9		ug/L		109	66 - 150	5	15
Benzo[k]fluoranthene	32.0	34.2		ug/L		107	65 - 124	4	22
Benzyl alcohol	32.0	29.8		ug/L		93	41 - 126	7	34
Bis(2-chloroethoxy)methane	32.0	30.2		ug/L		94	50 - 128	5	17
Bis(2-chloroethyl)ether	32.0	27.3		ug/L		85	44 - 120	0	21
Bis(2-ethylhexyl) phthalate	32.0	41.0		ug/L		128	63 - 139	1	15
bis(2 chloro-1-methylethyl) ether	32.0	31.9		ug/L		100	21 - 136	3	24
Butyl benzyl phthalate	32.0	35.8		ug/L		112	70 - 129	2	16
Chrysene	32.0	35.9		ug/L		112	69 - 120	3	15
Dibenz(a,h)anthracene	32.0	34.2		ug/L		107	65 - 135	2	15
Dibenzofuran	32.0	32.2		ug/L		101	66 - 120	5	15
Diethyl phthalate	32.0	37.9		ug/L		118	59 - 127	5	15
Dimethyl phthalate	32.0	35.4		ug/L		111	68 - 120	1	15
Di-n-butyl phthalate	32.0	35.2		ug/L		110	69 - 131	2	15
Di-n-octyl phthalate	32.0	37.3		ug/L		117	63 - 140	1	16
Diphenylamine	27.4	27.3		ug/L		100	61 - 120	5	30
Fluoranthene	32.0	34.1		ug/L		107	69 - 126	3	15
Fluorene	32.0	34.1		ug/L		107	66 - 120	5	15
Hexachlorobenzene	32.0	31.4		ug/L		98	61 - 120	5	15
Hexachlorobutadiene	32.0	32.1		ug/L		100	35 - 120	7	44
Hexachlorocyclopentadiene	32.0	25.1		ug/L		79	31 - 120	2	49
Hexachloroethane	32.0	29.9		ug/L		93	43 - 120	3	46
Indeno[1,2,3-cd]pyrene	32.0	35.5		ug/L		111	69 - 146	2	15
Isophorone	32.0	33.9		ug/L		106	55 - 120	4	17
Naphthalene	32.0	31.1		ug/L		97	57 - 120	5	29
Nitrobenzene	32.0	34.7		ug/L		108	53 - 123	5	24
N-Nitrosodimethylamine	32.0	35.9		ug/L		112	10 - 120	6	30
N-Nitrosodipropylamine	32.0	32.1		ug/L		100	32 - 140	2	31
N-Nitrosodiphenylamine	32.0	31.9		ug/L		100	61 - 120	5	15
Pentachlorophenol	64.0	62.6		ug/L		98	29 - 136	6	37
Phenanthrene	32.0	36.8		ug/L		115	68 - 120	5	15
Phenol	32.0	19.5		ug/L		61	17 - 120	4	34
Pyrene	32.0	34.4		ug/L		108	70 - 125	4	19

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*98*		*48 - 120*
2-Fluorophenol (Surr)	*70*		*35 - 120*
2,4,6-Tribromophenol (Surr)	*99*		*41 - 120*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 480-480988/3-A
Matrix: Water
Analysis Batch: 481493

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 480988

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*98*		*46 - 120*
Phenol-d5 (Surr)	*54*		*22 - 120*
p-Terphenyl-d14 (Surr)	*96*		*59 - 136*

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 480-480991/1-A
Matrix: Water
Analysis Batch: 481374

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480991

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20		ug/L		07/05/19 15:22	07/09/19 19:29	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*33*		*15 - 110*	*07/05/19 15:22*	*07/09/19 19:29*	*1*

Lab Sample ID: LCS 480-480991/2-A
Matrix: Water
Analysis Batch: 481374

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480991

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,4-Dioxane	1.00	1.10		ug/L		110	40 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8	*30*		*15 - 110*

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-285394/1-A
Matrix: Water
Analysis Batch: 285773

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 285394

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thionazin	ND		1.0		ug/L		07/19/19 20:48	07/24/19 14:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*74*		*45 - 106*	*07/19/19 20:48*	*07/24/19 14:12*	*1*
2-Fluorophenol (Surr)	*93*		*39 - 105*	*07/19/19 20:48*	*07/24/19 14:12*	*1*
2,4,6-Tribromophenol (Surr)	*73*		*39 - 125*	*07/19/19 20:48*	*07/24/19 14:12*	*1*
Nitrobenzene-d5 (Surr)	*91*		*43 - 110*	*07/19/19 20:48*	*07/24/19 14:12*	*1*
Phenol-d5 (Surr)	*91*		*40 - 108*	*07/19/19 20:48*	*07/24/19 14:12*	*1*
Terphenyl-d14 (Surr)	*84*		*45 - 120*	*07/19/19 20:48*	*07/24/19 14:12*	*1*

Lab Sample ID: LCS 180-285394/2-A
Matrix: Water
Analysis Batch: 285773

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285394

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*62*		*45 - 106*

Method: EPA 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-285394/2-A
Matrix: Water
Analysis Batch: 285773

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285394

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorophenol (Surr)	73		39 - 105
2,4,6-Tribromophenol (Surr)	66		39 - 125
Nitrobenzene-d5 (Surr)	87		43 - 110
Phenol-d5 (Surr)	75		40 - 108
Terphenyl-d14 (Surr)	73		45 - 120

Lab Sample ID: LCSD 180-285394/3-A
Matrix: Water
Analysis Batch: 285773

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 285394

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl	61		45 - 106
2-Fluorophenol (Surr)	81		39 - 105
2,4,6-Tribromophenol (Surr)	73		39 - 125
Nitrobenzene-d5 (Surr)	82		43 - 110
Phenol-d5 (Surr)	81		40 - 108
Terphenyl-d14 (Surr)	75		45 - 120

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 480-481166/1-A
Matrix: Water
Analysis Batch: 481221

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 481166

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,4'-DDD	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
4,4'-DDE	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
4,4'-DDT	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
Aldrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
alpha-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
beta-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
Chlordane (technical)	ND		0.50		ug/L		07/08/19 15:10	07/09/19 13:01	1
delta-BHC	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
Dieldrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
Endosulfan I	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
Endosulfan II	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
Endosulfan sulfate	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
Endrin	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
Endrin aldehyde	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
gamma-BHC (Lindane)	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
Heptachlor	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
Methoxychlor	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1
Toxaphene	ND		0.50		ug/L		07/08/19 15:10	07/09/19 13:01	1
Heptachlor epoxide	ND		0.050		ug/L		07/08/19 15:10	07/09/19 13:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	40		20 - 120	07/08/19 15:10	07/09/19 13:01	1
Tetrachloro-m-xylene	78		44 - 120	07/08/19 15:10	07/09/19 13:01	1

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: LCS 480-481166/2-A
Matrix: Water
Analysis Batch: 481221

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 481166

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
4,4'-DDD			0.400	0.345		ug/L		86	64 - 129		
4,4'-DDE			0.400	0.305		ug/L		76	50 - 120		
4,4'-DDT			0.400	0.383		ug/L		96	59 - 120		
Aldrin			0.400	0.243		ug/L		61	40 - 125		
alpha-BHC			0.400	0.265		ug/L		66	52 - 125		
beta-BHC			0.400	0.309		ug/L		77	51 - 120		
delta-BHC			0.400	0.313		ug/L		78	51 - 120		
Dieldrin			0.400	0.300		ug/L		75	66 - 128		
Endosulfan I			0.400	0.281		ug/L		70	57 - 120		
Endosulfan II			0.400	0.306		ug/L		77	66 - 131		
Endosulfan sulfate			0.400	0.552	*	ug/L		138	66 - 136		
Endrin			0.400	0.397		ug/L		99	65 - 135		
Endrin aldehyde			0.400	0.333		ug/L		83	61 - 134		
gamma-BHC (Lindane)			0.400	0.309		ug/L		77	56 - 120		
Heptachlor			0.400	0.296		ug/L		74	58 - 120		
Methoxychlor			0.400	0.390		ug/L		97	50 - 150		
Heptachlor epoxide			0.400	0.365		ug/L		91	65 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*41*		*20 - 120*
Tetrachloro-m-xylene	*59*		*44 - 120*

Lab Sample ID: LCSD 480-481166/3-A
Matrix: Water
Analysis Batch: 481221

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 481166

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
4,4'-DDD			0.400	0.447	*	ug/L		112	64 - 129	26	23
4,4'-DDE			0.400	0.340		ug/L		85	50 - 120	11	22
4,4'-DDT			0.400	0.413		ug/L		103	59 - 120	8	24
Aldrin			0.400	0.287		ug/L		72	40 - 125	17	25
alpha-BHC			0.400	0.331		ug/L		83	52 - 125	22	24
beta-BHC			0.400	0.362		ug/L		91	51 - 120	16	24
delta-BHC			0.400	0.398		ug/L		99	51 - 120	24	24
Dieldrin			0.400	0.434	*	ug/L		108	66 - 128	37	24
Endosulfan I			0.400	0.392	*	ug/L		98	57 - 120	33	30
Endosulfan II			0.400	0.425		ug/L		106	66 - 131	32	40
Endosulfan sulfate			0.400	0.570	*	ug/L		142	66 - 136	3	24
Endrin			0.400	0.448		ug/L		112	65 - 135	12	24
Endrin aldehyde			0.400	0.342		ug/L		86	61 - 134	3	28
gamma-BHC (Lindane)			0.400	0.386		ug/L		97	56 - 120	22	24
Heptachlor			0.400	0.381		ug/L		95	58 - 120	25	25
Methoxychlor			0.400	0.419		ug/L		105	50 - 150	7	26
Heptachlor epoxide			0.400	0.419		ug/L		105	65 - 125	14	23

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*44*		*20 - 120*
Tetrachloro-m-xylene	*84*		*44 - 120*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 480-480888/1-A
Matrix: Water
Analysis Batch: 481474

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480888

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.50		ug/L		07/05/19 08:16	07/10/19 14:03	1
PCB-1221	ND		0.50		ug/L		07/05/19 08:16	07/10/19 14:03	1
PCB-1232	ND		0.50		ug/L		07/05/19 08:16	07/10/19 14:03	1
PCB-1242	ND		0.50		ug/L		07/05/19 08:16	07/10/19 14:03	1
PCB-1248	ND		0.50		ug/L		07/05/19 08:16	07/10/19 14:03	1
PCB-1254	ND		0.50		ug/L		07/05/19 08:16	07/10/19 14:03	1
PCB-1260	ND		0.50		ug/L		07/05/19 08:16	07/10/19 14:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*62*		*39 - 121*	*07/05/19 08:16*	*07/10/19 14:03*	*1*
DCB Decachlorobiphenyl	*38*		*19 - 120*	*07/05/19 08:16*	*07/10/19 14:03*	*1*

Lab Sample ID: LCS 480-480888/2-A
Matrix: Water
Analysis Batch: 481474

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480888

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	4.00	3.40		ug/L		85	62 - 130
PCB-1260	4.00	2.94		ug/L		74	56 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*59*		*39 - 121*
DCB Decachlorobiphenyl	*31*		*19 - 120*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 480-480799/1-A
Matrix: Water
Analysis Batch: 480962

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480799

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND		0.50		ug/L		07/03/19 14:11	07/05/19 15:12	1
2,4-D	ND		0.50		ug/L		07/03/19 14:11	07/05/19 15:12	1
Silvex (2,4,5-TP)	ND		0.50		ug/L		07/03/19 14:11	07/05/19 15:12	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*57*		*48 - 132*	*07/03/19 14:11*	*07/05/19 15:12*	*1*

Lab Sample ID: LCS 480-480799/2-A
Matrix: Water
Analysis Batch: 480962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480799

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-T	2.00	1.48		ug/L		74	41 - 150
2,4-D	2.00	1.63		ug/L		82	36 - 150
Silvex (2,4,5-TP)	2.00	1.50		ug/L		75	49 - 150

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCS 480-480799/2-A
Matrix: Water
Analysis Batch: 480962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480799

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4-Dichlorophenylacetic acid	57		48 - 132

Lab Sample ID: LCSD 480-480799/3-A
Matrix: Water
Analysis Batch: 480962

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 480799

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-T			2.00	1.42		ug/L		71	41 - 150	5	50
2,4-D			2.00	1.68		ug/L		84	36 - 150	3	50
Silvex (2,4,5-TP)			2.00	1.54		ug/L		77	49 - 150	3	50

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,4-Dichlorophenylacetic acid	61		48 - 132

Lab Sample ID: MB 480-481261/1-A
Matrix: Water
Analysis Batch: 481461

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 481261

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-T	ND		0.50		ug/L		07/09/19 09:24	07/10/19 13:34	1
2,4-D	ND		0.50		ug/L		07/09/19 09:24	07/10/19 13:34	1
Silvex (2,4,5-TP)	ND		0.50		ug/L		07/09/19 09:24	07/10/19 13:34	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	58		48 - 132	07/09/19 09:24	07/10/19 13:34	1

Lab Sample ID: LCS 480-481261/2-A
Matrix: Water
Analysis Batch: 481461

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 481261

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4,5-T			2.00	1.46		ug/L		73	41 - 150
2,4-D			2.00	1.53		ug/L		76	36 - 150
Silvex (2,4,5-TP)			2.00	1.48		ug/L		74	49 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4-Dichlorophenylacetic acid	55		48 - 132

Lab Sample ID: LCSD 480-481261/3-A
Matrix: Water
Analysis Batch: 481461

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 481261

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4,5-T			2.00	1.43		ug/L		72	41 - 150	2	50
2,4-D			2.00	1.66		ug/L		83	36 - 150	9	50
Silvex (2,4,5-TP)			2.00	1.48		ug/L		74	49 - 150	0	50

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCSD 480-481261/3-A
Matrix: Water
Analysis Batch: 481461

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 481261

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,4-Dichlorophenylacetic acid	*73*		*48 - 132*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-306095/1-A
Matrix: Water
Analysis Batch: 306613

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 306095

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluoropentanoic acid (PFPeA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluorohexanoic acid (PFHxA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluorooctanoic acid (PFOA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluorononanoic acid (PFNA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluorodecanoic acid (PFDA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluorododecanoic acid (PFDoA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0		ng/L		07/08/19 05:43	07/10/19 00:32	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20		ng/L		07/08/19 05:43	07/10/19 00:32	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20		ng/L		07/08/19 05:43	07/10/19 00:32	1
6:2 FTS	ND		20		ng/L		07/08/19 05:43	07/10/19 00:32	1
8:2 FTS	ND		20		ng/L		07/08/19 05:43	07/10/19 00:32	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	*88*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*
13C5 PFPeA	*93*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*
13C2 PFHxA	*96*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*
13C4 PFHpA	*97*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*
13C4 PFOA	*99*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*
13C5 PFNA	*96*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*
13C2 PFDA	*94*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*
13C2 PFUnA	*96*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*
13C2 PFDoA	*94*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*
13C2 PFTeDA	*96*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*
13C3 PFBS	*95*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*
18O2 PFHxS	*96*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*
13C4 PFOS	*91*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*
13C8 FOSA	*80*		*25 - 150*	*07/08/19 05:43*	*07/10/19 00:32*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-306095/1-A
Matrix: Water
Analysis Batch: 306613

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 306095

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	103		25 - 150	07/08/19 05:43	07/10/19 00:32	1
d5-NEtFOSAA	102		25 - 150	07/08/19 05:43	07/10/19 00:32	1
M2-6:2 FTS	125		25 - 150	07/08/19 05:43	07/10/19 00:32	1
M2-8:2 FTS	108		25 - 150	07/08/19 05:43	07/10/19 00:32	1

Lab Sample ID: LCS 320-306095/2-A
Matrix: Water
Analysis Batch: 306613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 306095

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	41.3		ng/L		103	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	40.5		ng/L		101	66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	37.8		ng/L		94	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	41.8		ng/L		105	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	43.3		ng/L		108	64 - 124
Perfluorononanoic acid (PFNA)	40.0	39.4		ng/L		99	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	39.3		ng/L		98	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	38.3		ng/L		96	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	41.6		ng/L		104	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	41.9		ng/L		105	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	39.8		ng/L		99	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	37.1		ng/L		105	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.3		ng/L		91	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	38.0		ng/L		100	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	38.4		ng/L		103	67 - 127
Perfluorodecanesulfonic acid (PFDS)	38.6	37.7		ng/L		98	68 - 128
Perfluorooctanesulfonamide (FOSA)	40.0	45.7		ng/L		114	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	39.8		ng/L		100	67 - 127
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	40.4		ng/L		101	65 - 125
6:2 FTS	37.9	32.8		ng/L		86	66 - 126
8:2 FTS	38.3	41.3		ng/L		108	67 - 127

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	89		25 - 150
13C5 PFPeA	95		25 - 150
13C2 PFHxA	99		25 - 150
13C4 PFHpA	97		25 - 150
13C4 PFOA	97		25 - 150
13C5 PFNA	97		25 - 150
13C2 PFDA	99		25 - 150

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-306095/2-A
Matrix: Water
Analysis Batch: 306613

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 306095

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFUnA	*97*		*25 - 150*
13C2 PFDoA	*96*		*25 - 150*
13C2 PFTeDA	*98*		*25 - 150*
13C3 PFBS	*96*		*25 - 150*
18O2 PFHxS	*100*		*25 - 150*
13C4 PFOS	*98*		*25 - 150*
13C8 FOSA	*82*		*25 - 150*
d3-NMeFOSAA	*101*		*25 - 150*
d5-NEtFOSAA	*98*		*25 - 150*
M2-6:2 FTS	*138*		*25 - 150*
M2-8:2 FTS	*112*		*25 - 150*

Lab Sample ID: LCSD 320-306095/3-A
Matrix: Water
Analysis Batch: 306613

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 306095

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	41.8		ng/L		104	70 - 130	1	30
Perfluoropentanoic acid (PFPeA)			40.0	39.7		ng/L		99	66 - 126	2	30
Perfluorohexanoic acid (PFHxA)			40.0	37.3		ng/L		93	66 - 126	1	30
Perfluoroheptanoic acid (PFHpA)			40.0	42.7		ng/L		107	66 - 126	2	30
Perfluorooctanoic acid (PFOA)			40.0	42.1		ng/L		105	64 - 124	3	30
Perfluorononanoic acid (PFNA)			40.0	42.2		ng/L		106	68 - 128	7	30
Perfluorodecanoic acid (PFDA)			40.0	40.7		ng/L		102	69 - 129	4	30
Perfluoroundecanoic acid (PFUnA)			40.0	38.3		ng/L		96	60 - 120	0	30
Perfluorododecanoic acid (PFDoA)			40.0	41.6		ng/L		104	71 - 131	0	30
Perfluorotridecanoic acid (PFTriA)			40.0	40.1		ng/L		100	72 - 132	4	30
Perfluorotetradecanoic acid (PFTeA)			40.0	39.6		ng/L		99	68 - 128	1	30
Perfluorobutanesulfonic acid (PFBS)			35.4	37.6		ng/L		106	73 - 133	1	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	34.2		ng/L		94	63 - 123	3	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	40.8		ng/L		107	68 - 128	7	30
Perfluorooctanesulfonic acid (PFOS)			37.1	39.4		ng/L		106	67 - 127	3	30
Perfluorodecanesulfonic acid (PFDS)			38.6	39.4		ng/L		102	68 - 128	5	30
Perfluorooctanesulfonamide (FOSA)			40.0	45.5		ng/L		114	70 - 130	0	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	39.6		ng/L		99	67 - 127	0	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	40.5		ng/L		101	65 - 125	0	30
6:2 FTS			37.9	33.7		ng/L		89	66 - 126	3	30
8:2 FTS			38.3	37.9		ng/L		99	67 - 127	9	30

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C4 PFBA	91		25 - 150
13C5 PFPeA	98		25 - 150
13C2 PFHxA	106		25 - 150
13C4 PFHpA	99		25 - 150
13C4 PFOA	99		25 - 150
13C5 PFNA	101		25 - 150
13C2 PFDA	101		25 - 150
13C2 PFUnA	99		25 - 150
13C2 PFDoA	100		25 - 150
13C2 PFTeDA	100		25 - 150
13C3 PFBS	94		25 - 150
18O2 PFHxS	104		25 - 150
13C4 PFOS	95		25 - 150
13C8 FOSA	85		25 - 150
d3-NMeFOSAA	106		25 - 150
d5-NEtFOSAA	97		25 - 150
M2-6:2 FTS	135		25 - 150
M2-8:2 FTS	122		25 - 150

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-480833/1-A
Matrix: Water
Analysis Batch: 481076

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480833

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		07/05/19 07:47	07/05/19 18:17	1
Antimony	ND		0.020		mg/L		07/05/19 07:47	07/05/19 18:17	1
Arsenic	ND		0.015		mg/L		07/05/19 07:47	07/05/19 18:17	1
Barium	ND		0.0020		mg/L		07/05/19 07:47	07/05/19 18:17	1
Beryllium	ND		0.0020		mg/L		07/05/19 07:47	07/05/19 18:17	1
Boron	ND		0.020		mg/L		07/05/19 07:47	07/05/19 18:17	1
Cadmium	ND		0.0020		mg/L		07/05/19 07:47	07/05/19 18:17	1
Calcium	ND		0.50		mg/L		07/05/19 07:47	07/05/19 18:17	1
Chromium	ND		0.0040		mg/L		07/05/19 07:47	07/05/19 18:17	1
Cobalt	ND		0.0040		mg/L		07/05/19 07:47	07/05/19 18:17	1
Copper	ND		0.010		mg/L		07/05/19 07:47	07/05/19 18:17	1
Iron	ND		0.050		mg/L		07/05/19 07:47	07/05/19 18:17	1
Lead	ND		0.010		mg/L		07/05/19 07:47	07/05/19 18:17	1
Magnesium	ND		0.20		mg/L		07/05/19 07:47	07/05/19 18:17	1
Manganese	ND		0.0030		mg/L		07/05/19 07:47	07/05/19 18:17	1
Nickel	ND		0.010		mg/L		07/05/19 07:47	07/05/19 18:17	1
Potassium	ND		0.50		mg/L		07/05/19 07:47	07/05/19 18:17	1
Selenium	ND		0.025		mg/L		07/05/19 07:47	07/05/19 18:17	1
Silver	ND		0.0060		mg/L		07/05/19 07:47	07/05/19 18:17	1
Sodium	ND		1.0		mg/L		07/05/19 07:47	07/05/19 18:17	1
Thallium	ND		0.020		mg/L		07/05/19 07:47	07/05/19 18:17	1
Zinc	ND		0.010		mg/L		07/05/19 07:47	07/05/19 18:17	1
Vanadium	ND		0.0050		mg/L		07/05/19 07:47	07/05/19 18:17	1
Tin	ND		0.010		mg/L		07/05/19 07:47	07/05/19 18:17	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-480833/2-A
Matrix: Water
Analysis Batch: 481076

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480833

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10.0	9.29		mg/L		93	80 - 120
Antimony	0.200	0.213		mg/L		106	80 - 120
Arsenic	0.200	0.199		mg/L		99	80 - 120
Barium	0.200	0.200		mg/L		100	80 - 120
Beryllium	0.200	0.200		mg/L		100	80 - 120
Boron	0.200	0.197		mg/L		98	80 - 120
Cadmium	0.200	0.195		mg/L		98	80 - 120
Calcium	10.0	9.47		mg/L		95	80 - 120
Chromium	0.200	0.191		mg/L		96	80 - 120
Cobalt	0.200	0.187		mg/L		93	80 - 120
Copper	0.200	0.196		mg/L		98	80 - 120
Iron	10.0	9.92		mg/L		99	80 - 120
Lead	0.200	0.190		mg/L		95	80 - 120
Magnesium	10.0	9.63		mg/L		96	80 - 120
Manganese	0.200	0.196		mg/L		98	80 - 120
Nickel	0.200	0.198		mg/L		99	80 - 120
Potassium	10.0	9.60		mg/L		96	80 - 120
Selenium	0.200	0.196		mg/L		98	80 - 120
Silver	0.0500	0.0472		mg/L		94	80 - 120
Sodium	10.0	9.31		mg/L		93	80 - 120
Thallium	0.200	0.197		mg/L		99	80 - 120
Zinc	0.200	0.199		mg/L		100	80 - 120
Vanadium	0.200	0.197		mg/L		98	80 - 120
Tin	0.200	0.183		mg/L		92	80 - 120

Lab Sample ID: MB 480-480974/1-A
Matrix: Water
Analysis Batch: 481247

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480974

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		07/08/19 07:30	07/08/19 23:22	1
Antimony	ND		0.020		mg/L		07/08/19 07:30	07/08/19 23:22	1
Arsenic	ND		0.015		mg/L		07/08/19 07:30	07/08/19 23:22	1
Barium	ND		0.0020		mg/L		07/08/19 07:30	07/08/19 23:22	1
Beryllium	ND		0.0020		mg/L		07/08/19 07:30	07/08/19 23:22	1
Boron	ND		0.020		mg/L		07/08/19 07:30	07/08/19 23:22	1
Cadmium	ND		0.0020		mg/L		07/08/19 07:30	07/08/19 23:22	1
Calcium	ND		0.50		mg/L		07/08/19 07:30	07/08/19 23:22	1
Chromium	ND		0.0040		mg/L		07/08/19 07:30	07/08/19 23:22	1
Cobalt	ND		0.0040		mg/L		07/08/19 07:30	07/08/19 23:22	1
Copper	ND		0.010		mg/L		07/08/19 07:30	07/08/19 23:22	1
Iron	ND		0.050		mg/L		07/08/19 07:30	07/08/19 23:22	1
Lead	ND		0.010		mg/L		07/08/19 07:30	07/08/19 23:22	1
Magnesium	ND		0.20		mg/L		07/08/19 07:30	07/08/19 23:22	1
Manganese	ND		0.0030		mg/L		07/08/19 07:30	07/08/19 23:22	1
Nickel	ND		0.010		mg/L		07/08/19 07:30	07/08/19 23:22	1
Potassium	ND		0.50		mg/L		07/08/19 07:30	07/08/19 23:22	1
Selenium	ND		0.025		mg/L		07/08/19 07:30	07/08/19 23:22	1
Silver	ND		0.0060		mg/L		07/08/19 07:30	07/08/19 23:22	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 480-480974/1-A
Matrix: Water
Analysis Batch: 481247

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480974

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium	ND		1.0		mg/L		07/08/19 07:30	07/08/19 23:22	1
Thallium	ND		0.020		mg/L		07/08/19 07:30	07/08/19 23:22	1
Zinc	ND		0.010		mg/L		07/08/19 07:30	07/08/19 23:22	1
Vanadium	ND		0.0050		mg/L		07/08/19 07:30	07/08/19 23:22	1
Tin	ND		0.010		mg/L		07/08/19 07:30	07/08/19 23:22	1

Lab Sample ID: LCS 480-480974/2-A
Matrix: Water
Analysis Batch: 481247

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480974

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10.0	9.36		mg/L		94	80 - 120
Antimony	0.200	0.211		mg/L		105	80 - 120
Arsenic	0.200	0.202		mg/L		101	80 - 120
Barium	0.200	0.199		mg/L		100	80 - 120
Beryllium	0.200	0.201		mg/L		101	80 - 120
Cadmium	0.200	0.195		mg/L		98	80 - 120
Calcium	10.0	9.64		mg/L		96	80 - 120
Chromium	0.200	0.196		mg/L		98	80 - 120
Cobalt	0.200	0.185		mg/L		92	80 - 120
Copper	0.200	0.193		mg/L		97	80 - 120
Iron	10.0	9.93		mg/L		99	80 - 120
Lead	0.200	0.186		mg/L		93	80 - 120
Magnesium	10.0	9.67		mg/L		97	80 - 120
Manganese	0.200	0.199		mg/L		99	80 - 120
Nickel	0.200	0.196		mg/L		98	80 - 120
Potassium	10.0	9.47		mg/L		95	80 - 120
Selenium	0.200	0.188		mg/L		94	80 - 120
Silver	0.0500	0.0489		mg/L		98	80 - 120
Sodium	10.0	9.24		mg/L		92	80 - 120
Thallium	0.200	0.190		mg/L		95	80 - 120
Zinc	0.200	0.206		mg/L		103	80 - 120
Vanadium	0.200	0.197		mg/L		98	80 - 120
Tin	0.200	0.181		mg/L		90	80 - 120

Lab Sample ID: LCS 480-480974/2-A
Matrix: Water
Analysis Batch: 481438

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480974

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.200	0.194		mg/L		97	80 - 120

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-480933/1-A
Matrix: Water
Analysis Batch: 481001

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 480933

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		07/05/19 11:55	07/05/19 15:47	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: LCS 480-480933/2-A
Matrix: Water
Analysis Batch: 481001

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 480933

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00667	0.00683		mg/L		102	80 - 120

Lab Sample ID: MB 480-481119/1-A
Matrix: Water
Analysis Batch: 481183

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 481119

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		07/08/19 11:51	07/08/19 16:04	1

Lab Sample ID: LCS 480-481119/2-A
Matrix: Water
Analysis Batch: 481183

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 481119

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00667	0.00638		mg/L		96	80 - 120

Lab Sample ID: 480-155757-1 MS
Matrix: Water
Analysis Batch: 481183

Client Sample ID: MWSE-1
Prep Type: Total/NA
Prep Batch: 481119

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00667	0.00685		mg/L		103	80 - 120

Lab Sample ID: 480-155757-1 MSD
Matrix: Water
Analysis Batch: 481183

Client Sample ID: MWSE-1
Prep Type: Total/NA
Prep Batch: 481119

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00667	0.00698		mg/L		105	80 - 120	2	20

Method: 300.0 - Bromide

Lab Sample ID: MB 480-481169/4
Matrix: Water
Analysis Batch: 481169

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.20		mg/L			07/08/19 16:29	1

Lab Sample ID: LCS 480-481169/3
Matrix: Water
Analysis Batch: 481169

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	5.00	4.79		mg/L		96	90 - 110

Method: 300.0 - Bromide (Continued)

Lab Sample ID: 480-155710-1 MS
Matrix: Water
Analysis Batch: 481169

Client Sample ID: MWSE-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Bromide	ND		25.0	25.35		mg/L		101	80 - 120		

Lab Sample ID: 480-155710-1 MSD
Matrix: Water
Analysis Batch: 481169

Client Sample ID: MWSE-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromide	ND		25.0	25.61		mg/L		102	80 - 120	1	20

Method: 310.2 - Alkalinity

Lab Sample ID: MB 480-481985/12
Matrix: Water
Analysis Batch: 481985

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0		mg/L			07/14/19 14:41	1

Lab Sample ID: MB 480-481985/24
Matrix: Water
Analysis Batch: 481985

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0		mg/L			07/14/19 14:53	1

Lab Sample ID: MB 480-481985/32
Matrix: Water
Analysis Batch: 481985

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0		mg/L			07/14/19 14:59	1

Lab Sample ID: LCS 480-481985/13
Matrix: Water
Analysis Batch: 481985

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity, Total			50.0	53.46		mg/L		107	90 - 110		

Lab Sample ID: LCS 480-481985/25
Matrix: Water
Analysis Batch: 481985

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity, Total			50.0	53.19		mg/L		106	90 - 110		

Method: 310.2 - Alkalinity (Continued)

Lab Sample ID: LCS 480-481985/33
Matrix: Water
Analysis Batch: 481985

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity, Total			50.0	53.11		mg/L		106	90 - 110		

Lab Sample ID: 480-155710-1 MS
Matrix: Water
Analysis Batch: 481985

Client Sample ID: MWSE-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity, Total	186		20.0	183.3	4	mg/L		-14	60 - 140		

Lab Sample ID: 480-155710-1 MSD
Matrix: Water
Analysis Batch: 481985

Client Sample ID: MWSE-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity, Total	186		20.0	199.9	4	mg/L		69	60 - 140	9	20

Lab Sample ID: 480-155710-2 MS
Matrix: Water
Analysis Batch: 481985

Client Sample ID: MWSE-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity, Total	25.9		20.0	44.31		mg/L		92	60 - 140		

Lab Sample ID: 480-155710-2 MSD
Matrix: Water
Analysis Batch: 481985

Client Sample ID: MWSE-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity, Total	25.9		20.0	43.05		mg/L		86	60 - 140	3	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-481459/3
Matrix: Water
Analysis Batch: 481459

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.020		mg/L as N			07/10/19 08:52	1

Lab Sample ID: MB 480-481459/51
Matrix: Water
Analysis Batch: 481459

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.020		mg/L as N			07/10/19 09:33	1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 480-481459/4
Matrix: Water
Analysis Batch: 481459

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	1.00	1.04		mg/L as N		104	90 - 110

Lab Sample ID: LCS 480-481459/52
Matrix: Water
Analysis Batch: 481459

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	1.00	1.04		mg/L as N		104	90 - 110

Lab Sample ID: 480-155710-1 MS
Matrix: Water
Analysis Batch: 481459

Client Sample ID: MWSE-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	ND		0.200	0.196		mg/L as N		98	90 - 110

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 480-482601/1-A
Matrix: Water
Analysis Batch: 482976

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 482601

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		07/18/19 09:10	07/21/19 09:01	1

Lab Sample ID: LCS 480-482601/2-A
Matrix: Water
Analysis Batch: 482976

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 482601

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.26		mg/L as N		90	90 - 110

Method: 410.4 - COD

Lab Sample ID: MB 480-481974/27
Matrix: Water
Analysis Batch: 481974

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		5.0		mg/L			07/14/19 09:32	1

Lab Sample ID: LCS 480-481974/28
Matrix: Water
Analysis Batch: 481974

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	26.47		mg/L		106	90 - 110

Method: 410.4 - COD (Continued)

Lab Sample ID: MB 480-482652/3
Matrix: Water
Analysis Batch: 482652

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		5.0		mg/L			07/18/19 09:44	1

Lab Sample ID: MB 480-482652/51
Matrix: Water
Analysis Batch: 482652

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		5.0		mg/L			07/18/19 09:44	1

Lab Sample ID: LCS 480-482652/4
Matrix: Water
Analysis Batch: 482652

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	22.62		mg/L		90	90 - 110

Lab Sample ID: LCS 480-482652/52
Matrix: Water
Analysis Batch: 482652

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	22.62		mg/L		90	90 - 110

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 480-480800/3
Matrix: Water
Analysis Batch: 480800

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010		mg/L			07/03/19 11:45	1

Lab Sample ID: LCS 480-480800/4
Matrix: Water
Analysis Batch: 480800

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	0.0500	0.0517		mg/L		103	85 - 115

Lab Sample ID: 480-155710-2 MS
Matrix: Water
Analysis Batch: 480800

Client Sample ID: MWSE-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		0.0500	0.0505		mg/L		101	85 - 115

Method: 7196A - Chromium, Hexavalent (Continued)

Lab Sample ID: 480-155710-1 DU
Matrix: Water
Analysis Batch: 480800

Client Sample ID: MWSE-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chromium, hexavalent	ND			ND		mg/L				NC	20

Lab Sample ID: MB 480-481949/3
Matrix: Water
Analysis Batch: 481949

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010		mg/L			07/13/19 10:30	1

Lab Sample ID: LCS 480-481949/4
Matrix: Water
Analysis Batch: 481949

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			0.0500	0.0517		mg/L		103	85 - 115		

Lab Sample ID: 480-156080-1 MS
Matrix: Water
Analysis Batch: 481949

Client Sample ID: MWSE-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent	ND		0.0500	0.0493		mg/L		99	85 - 115		

Lab Sample ID: 480-156080-4 DU
Matrix: Water
Analysis Batch: 481949

Client Sample ID: MWSE-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chromium, hexavalent	ND			ND		mg/L				NC	20

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 480-481334/1-A
Matrix: Water
Analysis Batch: 481516

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 481334

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010		mg/L		07/09/19 14:15	07/10/19 14:50	1

Lab Sample ID: LCS 480-481334/2-A
Matrix: Water
Analysis Batch: 481516

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 481334

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total			0.250	0.253		mg/L		101	90 - 110		

Method: 9012B - Cyanide, Total andor Amenable (Continued)

Lab Sample ID: 480-155710-2 MS
Matrix: Water
Analysis Batch: 481516

Client Sample ID: MWSE-3
Prep Type: Total/NA
Prep Batch: 481334

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND		0.100	0.0931		mg/L		93	90 - 110

Lab Sample ID: MB 480-481527/1-A
Matrix: Water
Analysis Batch: 481688

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 481527

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010		mg/L		07/10/19 15:50	07/11/19 12:48	1

Lab Sample ID: LCS 480-481527/2-A
Matrix: Water
Analysis Batch: 481688

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 481527

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.400	0.345	*	mg/L		86	90 - 110

Lab Sample ID: LCS 480-481527/3-A
Matrix: Water
Analysis Batch: 481688

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 481527

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.250	0.204	*	mg/L		82	90 - 110

Method: 9038 - Sulfate, Turbidimetric

Lab Sample ID: MB 480-483565/12
Matrix: Water
Analysis Batch: 483565

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	3.72		1.5		mg/L			07/24/19 12:27	1

Lab Sample ID: MB 480-483565/30
Matrix: Water
Analysis Batch: 483565

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	3.78		1.5		mg/L			07/24/19 12:40	1

Lab Sample ID: LCS 480-483565/11
Matrix: Water
Analysis Batch: 483565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	29.63		mg/L		99	90 - 110

Method: 9038 - Sulfate, Turbidimetric (Continued)

Lab Sample ID: LCS 480-483565/29
Matrix: Water
Analysis Batch: 483565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	30.0	29.64		mg/L		99	90 - 110

Method: 9065 - Phenolics, Total Recoverable

Lab Sample ID: MB 480-481746/1-A
Matrix: Water
Analysis Batch: 481919

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 481746

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenolics, Total Recoverable	ND		0.0050		mg/L		07/11/19 19:10	07/12/19 14:35	1

Lab Sample ID: LCS 480-481746/2-A
Matrix: Water
Analysis Batch: 481919

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 481746

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.100	0.161	*	mg/L		161	90 - 110

Lab Sample ID: MB 480-481747/1-A
Matrix: Water
Analysis Batch: 481919

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 481747

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenolics, Total Recoverable	ND		0.0050		mg/L		07/11/19 19:18	07/12/19 14:51	1

Lab Sample ID: LCS 480-481747/2-A
Matrix: Water
Analysis Batch: 481919

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 481747

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.100	0.105		mg/L		105	90 - 110

Method: 9251 - Chloride

Lab Sample ID: MB 480-481986/12
Matrix: Water
Analysis Batch: 481986

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0		mg/L			07/14/19 14:39	1

Lab Sample ID: LCS 480-481986/13
Matrix: Water
Analysis Batch: 481986

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	26.73		mg/L		107	90 - 110

Method: 9251 - Chloride (Continued)

Lab Sample ID: 480-155710-1 MS
Matrix: Water
Analysis Batch: 481986

Client Sample ID: MWSE-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	14.1		20.0	34.74		mg/L		103	74 - 131

Lab Sample ID: 480-155710-1 MSD
Matrix: Water
Analysis Batch: 481986

Client Sample ID: MWSE-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	14.1		20.0	34.82		mg/L		104	74 - 131	0	20

Lab Sample ID: 480-155710-2 MS
Matrix: Water
Analysis Batch: 481986

Client Sample ID: MWSE-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	ND		20.0	24.12		mg/L		116	74 - 131

Lab Sample ID: 480-155710-2 MSD
Matrix: Water
Analysis Batch: 481986

Client Sample ID: MWSE-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	ND		20.0	22.94		mg/L		110	74 - 131	5	20

Method: SM 2120B - Color, Colorimetric

Lab Sample ID: MB 480-480848/3
Matrix: Water
Analysis Batch: 480848

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		5.00		Color Units			07/03/19 17:25	1

Lab Sample ID: LCS 480-480848/4
Matrix: Water
Analysis Batch: 480848

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Color	30.0	30.00		Color Units		100	90 - 110

Lab Sample ID: 480-155710-1 DU
Matrix: Water
Analysis Batch: 480848

Client Sample ID: MWSE-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Color	10.0		10.00		Color Units		0	20

Method: SM 2120B - Color, Colorimetric (Continued)

Lab Sample ID: MB 480-480925/3
Matrix: Water
Analysis Batch: 480925

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		5.00		Color Units			07/05/19 09:12	1

Lab Sample ID: LCS 480-480925/4
Matrix: Water
Analysis Batch: 480925

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Color			30.0	30.00		Color Units		100	90 - 110		

Lab Sample ID: 480-155757-1 DU
Matrix: Water
Analysis Batch: 480925

Client Sample ID: MWSE-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Color	10.0			10.00		Color Units				0	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 480-481085/1
Matrix: Water
Analysis Batch: 481085

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			07/08/19 08:38	1

Lab Sample ID: LCS 480-481085/2
Matrix: Water
Analysis Batch: 481085

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			500	501.0		mg/L		100	85 - 115		

Lab Sample ID: 480-155710-1 DU
Matrix: Water
Analysis Batch: 481085

Client Sample ID: MWSE-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	587			579.0		mg/L				1	10

Lab Sample ID: MB 480-481219/1
Matrix: Water
Analysis Batch: 481219

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			07/09/19 07:49	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 480-481219/2
Matrix: Water
Analysis Batch: 481219

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	500	490.0		mg/L		98	85 - 115

Lab Sample ID: 480-155757-2 DU
Matrix: Water
Analysis Batch: 481219

Client Sample ID: MWSE-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	441		434.0		mg/L		2	10

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 480-480863/1
Matrix: Water
Analysis Batch: 480863

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			07/04/19 04:48	1

Lab Sample ID: LCS 480-480863/2
Matrix: Water
Analysis Batch: 480863

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	210.0		mg/L		106	85 - 115

Lab Sample ID: USB 480-480864/1
Matrix: Water
Analysis Batch: 480864

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			07/04/19 09:11	1

Lab Sample ID: LCS 480-480864/2
Matrix: Water
Analysis Batch: 480864

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	186.1		mg/L		94	85 - 115

Method: SM 5310D - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-481954/51
Matrix: Water
Analysis Batch: 481954

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			07/13/19 02:59	1

Method: SM 5310D - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 480-481954/52
Matrix: Water
Analysis Batch: 481954

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	55.18		mg/L		92	90 - 110

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-434862/7-A
Matrix: Water
Analysis Batch: 440089

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434862

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.03976	U	0.0623	0.0624	1.00	0.138	pCi/L	07/15/19 14:52	08/20/19 20:43	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.8*		*40 - 110*	*07/15/19 14:52*	*08/20/19 20:43*	*1*

Lab Sample ID: LCS 160-434862/1-A
Matrix: Water
Analysis Batch: 439901

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434862

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.4	10.89		1.13	1.00	0.117	pCi/L	96	75 - 125

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*80.8*		*40 - 110*

Lab Sample ID: LCSD 160-434862/2-A
Matrix: Water
Analysis Batch: 441783

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 434862

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	11.4	8.527		0.933	1.00	0.125	pCi/L	75	75 - 125	1.15	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*67.2*		*40 - 110*

Method: 904.0 - Radium-228 (GFPC)

Lab Sample ID: MB 160-434867/7-A
Matrix: Water
Analysis Batch: 436841

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434867

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.5666	U	0.380	0.383	1.00	0.591	pCi/L	07/15/19 15:55	07/29/19 10:13	1

Method: 904.0 - Radium-228 (GFPC) (Continued)

Lab Sample ID: MB 160-434867/7-A
Matrix: Water
Analysis Batch: 436841

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434867

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	80.8		40 - 110	07/15/19 15:55	07/29/19 10:13	1
Y Carrier	77.4		40 - 110	07/15/19 15:55	07/29/19 10:13	1

Lab Sample ID: LCS 160-434867/1-A
Matrix: Water
Analysis Batch: 436841

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434867

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.74	11.53		1.40	1.00	0.672	pCi/L	118	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	80.8		40 - 110
Y Carrier	75.9		40 - 110

Lab Sample ID: LCSD 160-434867/2-A
Matrix: Water
Analysis Batch: 436841

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 434867

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			9.74	8.522	*	1.08	1.00	0.548	pCi/L	88	75 - 125	1.21	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	67.2		40 - 110
Y Carrier	99.8		40 - 110

QC Association Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

GC/MS VOA

Analysis Batch: 481743

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	8260C	
480-155710-2	MWSE-3	Total/NA	Water	8260C	
MB 480-481743/7	Method Blank	Total/NA	Water	8260C	
LCS 480-481743/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 481776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	8260C	
480-155757-2	MWSE-4	Total/NA	Water	8260C	
480-155757-3	TRIP BLANK	Total/NA	Water	8260C	
MB 480-481776/7	Method Blank	Total/NA	Water	8260C	
LCS 480-481776/5	Lab Control Sample	Total/NA	Water	8260C	

GC/MS Semi VOA

Prep Batch: 285394

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-156080-1	MWSE-1	Total/NA	Water	625	
480-156080-2	MWSE-2	Total/NA	Water	625	
480-156080-3	MWSE-3	Total/NA	Water	625	
480-156080-4	MWSE-4	Total/NA	Water	625	
MB 180-285394/1-A	Method Blank	Total/NA	Water	625	
LCS 180-285394/2-A	Lab Control Sample	Total/NA	Water	625	
LCSD 180-285394/3-A	Lab Control Sample Dup	Total/NA	Water	625	

Analysis Batch: 285773

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-156080-1	MWSE-1	Total/NA	Water	EPA 625.1	285394
480-156080-2	MWSE-2	Total/NA	Water	EPA 625.1	285394
480-156080-3	MWSE-3	Total/NA	Water	EPA 625.1	285394
480-156080-4	MWSE-4	Total/NA	Water	EPA 625.1	285394
MB 180-285394/1-A	Method Blank	Total/NA	Water	EPA 625.1	285394
LCS 180-285394/2-A	Lab Control Sample	Total/NA	Water	EPA 625.1	285394
LCSD 180-285394/3-A	Lab Control Sample Dup	Total/NA	Water	EPA 625.1	285394

Prep Batch: 480988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	3510C	
480-155710-2	MWSE-3	Total/NA	Water	3510C	
480-155757-1	MWSE-1	Total/NA	Water	3510C	
480-155757-2	MWSE-4	Total/NA	Water	3510C	
MB 480-480988/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-480988/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 480-480988/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Prep Batch: 480991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	3510C	
480-155710-2	MWSE-3	Total/NA	Water	3510C	
480-155757-1	MWSE-1	Total/NA	Water	3510C	
480-155757-2	MWSE-4	Total/NA	Water	3510C	

GC/MS Semi VOA (Continued)

Prep Batch: 480991 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-480991/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-480991/2-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 481374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	8270D SIM ID	480991
480-155710-2	MWSE-3	Total/NA	Water	8270D SIM ID	480991
480-155757-1	MWSE-1	Total/NA	Water	8270D SIM ID	480991
480-155757-2	MWSE-4	Total/NA	Water	8270D SIM ID	480991
MB 480-480991/1-A	Method Blank	Total/NA	Water	8270D SIM ID	480991
LCS 480-480991/2-A	Lab Control Sample	Total/NA	Water	8270D SIM ID	480991

Analysis Batch: 481493

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	8270D	480988
480-155710-2	MWSE-3	Total/NA	Water	8270D	480988
480-155757-1	MWSE-1	Total/NA	Water	8270D	480988
480-155757-2	MWSE-4	Total/NA	Water	8270D	480988
MB 480-480988/1-A	Method Blank	Total/NA	Water	8270D	480988
LCS 480-480988/2-A	Lab Control Sample	Total/NA	Water	8270D	480988
LCSD 480-480988/3-A	Lab Control Sample Dup	Total/NA	Water	8270D	480988

GC Semi VOA

Prep Batch: 480799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	8151A	
480-155710-2	MWSE-3	Total/NA	Water	8151A	
MB 480-480799/1-A	Method Blank	Total/NA	Water	8151A	
LCS 480-480799/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 480-480799/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	

Prep Batch: 480888

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	3510C	
480-155710-2	MWSE-3	Total/NA	Water	3510C	
480-155757-1	MWSE-1	Total/NA	Water	3510C	
480-155757-2	MWSE-4	Total/NA	Water	3510C	
MB 480-480888/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-480888/2-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 480962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	8151A	480799
480-155710-2	MWSE-3	Total/NA	Water	8151A	480799
MB 480-480799/1-A	Method Blank	Total/NA	Water	8151A	480799
LCS 480-480799/2-A	Lab Control Sample	Total/NA	Water	8151A	480799
LCSD 480-480799/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	480799

GC Semi VOA

Prep Batch: 481166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	3510C	
480-155710-2	MWSE-3	Total/NA	Water	3510C	
480-155757-1	MWSE-1	Total/NA	Water	3510C	
480-155757-2	MWSE-4	Total/NA	Water	3510C	
MB 480-481166/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-481166/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 480-481166/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 481221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	8081B	481166
480-155710-2	MWSE-3	Total/NA	Water	8081B	481166
480-155757-1	MWSE-1	Total/NA	Water	8081B	481166
480-155757-2	MWSE-4	Total/NA	Water	8081B	481166
MB 480-481166/1-A	Method Blank	Total/NA	Water	8081B	481166
LCS 480-481166/2-A	Lab Control Sample	Total/NA	Water	8081B	481166
LCSD 480-481166/3-A	Lab Control Sample Dup	Total/NA	Water	8081B	481166

Prep Batch: 481261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	8151A	
480-155757-2	MWSE-4	Total/NA	Water	8151A	
MB 480-481261/1-A	Method Blank	Total/NA	Water	8151A	
LCS 480-481261/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 480-481261/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	

Analysis Batch: 481461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	8151A	481261
480-155757-2	MWSE-4	Total/NA	Water	8151A	481261
MB 480-481261/1-A	Method Blank	Total/NA	Water	8151A	481261
LCS 480-481261/2-A	Lab Control Sample	Total/NA	Water	8151A	481261
LCSD 480-481261/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	481261

Analysis Batch: 481474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	8082A	480888
480-155710-2	MWSE-3	Total/NA	Water	8082A	480888
480-155757-1	MWSE-1	Total/NA	Water	8082A	480888
480-155757-2	MWSE-4	Total/NA	Water	8082A	480888
MB 480-480888/1-A	Method Blank	Total/NA	Water	8082A	480888
LCS 480-480888/2-A	Lab Control Sample	Total/NA	Water	8082A	480888

LCMS

Prep Batch: 306095

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	3535	
480-155710-2	MWSE-3	Total/NA	Water	3535	
480-155757-1	MWSE-1	Total/NA	Water	3535	
480-155757-2	MWSE-4	Total/NA	Water	3535	

LCMS (Continued)

Prep Batch: 306095 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-306095/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-306095/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-306095/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 306613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	537 (modified)	306095
480-155710-2	MWSE-3	Total/NA	Water	537 (modified)	306095
480-155757-1	MWSE-1	Total/NA	Water	537 (modified)	306095
480-155757-2	MWSE-4	Total/NA	Water	537 (modified)	306095
MB 320-306095/1-A	Method Blank	Total/NA	Water	537 (modified)	306095
LCS 320-306095/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	306095
LCSD 320-306095/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	306095

Metals

Prep Batch: 480833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	3005A	
480-155710-2	MWSE-3	Total/NA	Water	3005A	
MB 480-480833/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-480833/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 480933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	7470A	
480-155710-2	MWSE-3	Total/NA	Water	7470A	
MB 480-480933/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-480933/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 480974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	3005A	
480-155757-2	MWSE-4	Total/NA	Water	3005A	
MB 480-480974/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-480974/2-A	Lab Control Sample	Total/NA	Water	3005A	

Analysis Batch: 481001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	7470A	480933
480-155710-2	MWSE-3	Total/NA	Water	7470A	480933
MB 480-480933/1-A	Method Blank	Total/NA	Water	7470A	480933
LCS 480-480933/2-A	Lab Control Sample	Total/NA	Water	7470A	480933

Analysis Batch: 481076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	6010C	480833
480-155710-2	MWSE-3	Total/NA	Water	6010C	480833
MB 480-480833/1-A	Method Blank	Total/NA	Water	6010C	480833
LCS 480-480833/2-A	Lab Control Sample	Total/NA	Water	6010C	480833

QC Association Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Metals

Prep Batch: 481119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	7470A	
480-155757-2	MWSE-4	Total/NA	Water	7470A	
MB 480-481119/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-481119/2-A	Lab Control Sample	Total/NA	Water	7470A	
480-155757-1 MS	MWSE-1	Total/NA	Water	7470A	
480-155757-1 MSD	MWSE-1	Total/NA	Water	7470A	

Analysis Batch: 481183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	7470A	481119
480-155757-2	MWSE-4	Total/NA	Water	7470A	481119
MB 480-481119/1-A	Method Blank	Total/NA	Water	7470A	481119
LCS 480-481119/2-A	Lab Control Sample	Total/NA	Water	7470A	481119
480-155757-1 MS	MWSE-1	Total/NA	Water	7470A	481119
480-155757-1 MSD	MWSE-1	Total/NA	Water	7470A	481119

Analysis Batch: 481247

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	6010C	480974
480-155757-2	MWSE-4	Total/NA	Water	6010C	480974
MB 480-480974/1-A	Method Blank	Total/NA	Water	6010C	480974
LCS 480-480974/2-A	Lab Control Sample	Total/NA	Water	6010C	480974

Analysis Batch: 481438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	6010C	480974
480-155757-2	MWSE-4	Total/NA	Water	6010C	480974
LCS 480-480974/2-A	Lab Control Sample	Total/NA	Water	6010C	480974

Analysis Batch: 481468

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	SM 2340B	
480-155757-2	MWSE-4	Total/NA	Water	SM 2340B	

Analysis Batch: 482222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	SM 2340B	
480-155710-2	MWSE-3	Total/NA	Water	SM 2340B	

General Chemistry

Analysis Batch: 480800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	7196A	
480-155710-2	MWSE-3	Total/NA	Water	7196A	
MB 480-480800/3	Method Blank	Total/NA	Water	7196A	
LCS 480-480800/4	Lab Control Sample	Total/NA	Water	7196A	
480-155710-2 MS	MWSE-3	Total/NA	Water	7196A	
480-155710-1 DU	MWSE-2	Total/NA	Water	7196A	

General Chemistry

Analysis Batch: 480848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	SM 2120B	
480-155710-2	MWSE-3	Total/NA	Water	SM 2120B	
MB 480-480848/3	Method Blank	Total/NA	Water	SM 2120B	
LCS 480-480848/4	Lab Control Sample	Total/NA	Water	SM 2120B	
480-155710-1 DU	MWSE-2	Total/NA	Water	SM 2120B	

Analysis Batch: 480861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	353.2	
480-155710-2	MWSE-3	Total/NA	Water	353.2	

Analysis Batch: 480862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	353.2	
480-155757-2	MWSE-4	Total/NA	Water	353.2	

Analysis Batch: 480863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	SM 5210B	
480-155710-2	MWSE-3	Total/NA	Water	SM 5210B	
USB 480-480863/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-480863/2	Lab Control Sample	Total/NA	Water	SM 5210B	

Analysis Batch: 480864

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	SM 5210B	
480-155757-2	MWSE-4	Total/NA	Water	SM 5210B	
USB 480-480864/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-480864/2	Lab Control Sample	Total/NA	Water	SM 5210B	

Analysis Batch: 480925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	SM 2120B	
480-155757-2	MWSE-4	Total/NA	Water	SM 2120B	
MB 480-480925/3	Method Blank	Total/NA	Water	SM 2120B	
LCS 480-480925/4	Lab Control Sample	Total/NA	Water	SM 2120B	
480-155757-1 DU	MWSE-1	Total/NA	Water	SM 2120B	

Analysis Batch: 481085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	SM 2540C	
480-155710-2	MWSE-3	Total/NA	Water	SM 2540C	
MB 480-481085/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-481085/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-155710-1 DU	MWSE-2	Total/NA	Water	SM 2540C	

Analysis Batch: 481169

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	300.0	
480-155710-2	MWSE-3	Total/NA	Water	300.0	
480-155757-1	MWSE-1	Total/NA	Water	300.0	

General Chemistry (Continued)

Analysis Batch: 481169 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-2	MWSE-4	Total/NA	Water	300.0	
MB 480-481169/4	Method Blank	Total/NA	Water	300.0	
LCS 480-481169/3	Lab Control Sample	Total/NA	Water	300.0	
480-155710-1 MS	MWSE-2	Total/NA	Water	300.0	
480-155710-1 MSD	MWSE-2	Total/NA	Water	300.0	

Analysis Batch: 481219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	SM 2540C	
480-155757-2	MWSE-4	Total/NA	Water	SM 2540C	
MB 480-481219/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-481219/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-155757-2 DU	MWSE-4	Total/NA	Water	SM 2540C	

Prep Batch: 481334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	9012B	
480-155710-2	MWSE-3	Total/NA	Water	9012B	
MB 480-481334/1-A	Method Blank	Total/NA	Water	9012B	
LCS 480-481334/2-A	Lab Control Sample	Total/NA	Water	9012B	
480-155710-2 MS	MWSE-3	Total/NA	Water	9012B	

Analysis Batch: 481459

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	350.1	
480-155710-2	MWSE-3	Total/NA	Water	350.1	
480-155757-1	MWSE-1	Total/NA	Water	350.1	
480-155757-2	MWSE-4	Total/NA	Water	350.1	
MB 480-481459/3	Method Blank	Total/NA	Water	350.1	
MB 480-481459/51	Method Blank	Total/NA	Water	350.1	
LCS 480-481459/4	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-481459/52	Lab Control Sample	Total/NA	Water	350.1	
480-155710-1 MS	MWSE-2	Total/NA	Water	350.1	

Analysis Batch: 481516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	9012B	481334
480-155710-2	MWSE-3	Total/NA	Water	9012B	481334
MB 480-481334/1-A	Method Blank	Total/NA	Water	9012B	481334
LCS 480-481334/2-A	Lab Control Sample	Total/NA	Water	9012B	481334
480-155710-2 MS	MWSE-3	Total/NA	Water	9012B	481334

Prep Batch: 481527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	9012B	
480-155757-2	MWSE-4	Total/NA	Water	9012B	
MB 480-481527/1-A	Method Blank	Total/NA	Water	9012B	
LCS 480-481527/2-A	Lab Control Sample	Total/NA	Water	9012B	
LCS 480-481527/3-A	Lab Control Sample	Total/NA	Water	9012B	

General Chemistry

Analysis Batch: 481688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	9012B	481527
480-155757-2	MWSE-4	Total/NA	Water	9012B	481527
MB 480-481527/1-A	Method Blank	Total/NA	Water	9012B	481527
LCS 480-481527/2-A	Lab Control Sample	Total/NA	Water	9012B	481527
LCS 480-481527/3-A	Lab Control Sample	Total/NA	Water	9012B	481527

Prep Batch: 481746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	Distill/Phenol	
480-155710-2	MWSE-3	Total/NA	Water	Distill/Phenol	
MB 480-481746/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 480-481746/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Prep Batch: 481747

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	Distill/Phenol	
480-155757-2	MWSE-4	Total/NA	Water	Distill/Phenol	
MB 480-481747/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 480-481747/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 481919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	9065	481746
480-155710-2	MWSE-3	Total/NA	Water	9065	481746
480-155757-1	MWSE-1	Total/NA	Water	9065	481747
480-155757-2	MWSE-4	Total/NA	Water	9065	481747
MB 480-481746/1-A	Method Blank	Total/NA	Water	9065	481746
MB 480-481747/1-A	Method Blank	Total/NA	Water	9065	481747
LCS 480-481746/2-A	Lab Control Sample	Total/NA	Water	9065	481746
LCS 480-481747/2-A	Lab Control Sample	Total/NA	Water	9065	481747

Analysis Batch: 481949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-156080-1	MWSE-1	Total/NA	Water	7196A	
480-156080-4	MWSE-4	Total/NA	Water	7196A	
MB 480-481949/3	Method Blank	Total/NA	Water	7196A	
LCS 480-481949/4	Lab Control Sample	Total/NA	Water	7196A	
480-156080-1 MS	MWSE-1	Total/NA	Water	7196A	
480-156080-4 DU	MWSE-4	Total/NA	Water	7196A	

Analysis Batch: 481954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	SM 5310D	
480-155710-2	MWSE-3	Total/NA	Water	SM 5310D	
480-155757-1	MWSE-1	Total/NA	Water	SM 5310D	
480-155757-2	MWSE-4	Total/NA	Water	SM 5310D	
MB 480-481954/51	Method Blank	Total/NA	Water	SM 5310D	
LCS 480-481954/52	Lab Control Sample	Total/NA	Water	SM 5310D	

General Chemistry

Analysis Batch: 481974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	410.4	
480-155757-2	MWSE-4	Total/NA	Water	410.4	
MB 480-481974/27	Method Blank	Total/NA	Water	410.4	
LCS 480-481974/28	Lab Control Sample	Total/NA	Water	410.4	

Analysis Batch: 481985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	310.2	
480-155710-2	MWSE-3	Total/NA	Water	310.2	
480-155757-1	MWSE-1	Total/NA	Water	310.2	
480-155757-2	MWSE-4	Total/NA	Water	310.2	
MB 480-481985/12	Method Blank	Total/NA	Water	310.2	
MB 480-481985/24	Method Blank	Total/NA	Water	310.2	
MB 480-481985/32	Method Blank	Total/NA	Water	310.2	
LCS 480-481985/13	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-481985/25	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-481985/33	Lab Control Sample	Total/NA	Water	310.2	
480-155710-1 MS	MWSE-2	Total/NA	Water	310.2	
480-155710-1 MSD	MWSE-2	Total/NA	Water	310.2	
480-155710-2 MS	MWSE-3	Total/NA	Water	310.2	
480-155710-2 MSD	MWSE-3	Total/NA	Water	310.2	

Analysis Batch: 481986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	9251	
480-155710-2	MWSE-3	Total/NA	Water	9251	
480-155757-1	MWSE-1	Total/NA	Water	9251	
480-155757-2	MWSE-4	Total/NA	Water	9251	
MB 480-481986/12	Method Blank	Total/NA	Water	9251	
LCS 480-481986/13	Lab Control Sample	Total/NA	Water	9251	
480-155710-1 MS	MWSE-2	Total/NA	Water	9251	
480-155710-1 MSD	MWSE-2	Total/NA	Water	9251	
480-155710-2 MS	MWSE-3	Total/NA	Water	9251	
480-155710-2 MSD	MWSE-3	Total/NA	Water	9251	

Prep Batch: 482601

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	351.2	
480-155710-2	MWSE-3	Total/NA	Water	351.2	
480-155757-1	MWSE-1	Total/NA	Water	351.2	
480-155757-2	MWSE-4	Total/NA	Water	351.2	
MB 480-482601/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-482601/2-A	Lab Control Sample	Total/NA	Water	351.2	

Analysis Batch: 482652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	410.4	
480-155710-2	MWSE-3	Total/NA	Water	410.4	
MB 480-482652/3	Method Blank	Total/NA	Water	410.4	
MB 480-482652/51	Method Blank	Total/NA	Water	410.4	
LCS 480-482652/4	Lab Control Sample	Total/NA	Water	410.4	

General Chemistry (Continued)

Analysis Batch: 482652 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-482652/52	Lab Control Sample	Total/NA	Water	410.4	

Analysis Batch: 482976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	351.2	482601
480-155710-2	MWSE-3	Total/NA	Water	351.2	482601
480-155757-1	MWSE-1	Total/NA	Water	351.2	482601
480-155757-2	MWSE-4	Total/NA	Water	351.2	482601
MB 480-482601/1-A	Method Blank	Total/NA	Water	351.2	482601
LCS 480-482601/2-A	Lab Control Sample	Total/NA	Water	351.2	482601

Analysis Batch: 483565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	9038	
480-155710-2	MWSE-3	Total/NA	Water	9038	
480-155757-1	MWSE-1	Total/NA	Water	9038	
480-155757-2	MWSE-4	Total/NA	Water	9038	
MB 480-483565/12	Method Blank	Total/NA	Water	9038	
MB 480-483565/30	Method Blank	Total/NA	Water	9038	
LCS 480-483565/11	Lab Control Sample	Total/NA	Water	9038	
LCS 480-483565/29	Lab Control Sample	Total/NA	Water	9038	

Rad

Prep Batch: 434862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	PrecSep STD	
480-155710-2	MWSE-3	Total/NA	Water	PrecSep STD	
480-155757-1	MWSE-1	Total/NA	Water	PrecSep STD	
480-155757-2	MWSE-4	Total/NA	Water	PrecSep STD	
MB 160-434862/7-A	Method Blank	Total/NA	Water	PrecSep STD	
LCS 160-434862/1-A	Lab Control Sample	Total/NA	Water	PrecSep STD	
LCSD 160-434862/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep STD	

Prep Batch: 434867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	PrecSep_0	
480-155710-2	MWSE-3	Total/NA	Water	PrecSep_0	
480-155757-1	MWSE-1	Total/NA	Water	PrecSep_0	
480-155757-2	MWSE-4	Total/NA	Water	PrecSep_0	
MB 160-434867/7-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-434867/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-434867/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Field Service / Mobile Lab

Analysis Batch: 483257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	Field Sampling	
480-155710-2	MWSE-3	Total/NA	Water	Field Sampling	
480-155757-1	MWSE-1	Total/NA	Water	Field Sampling	
480-155757-2	MWSE-4	Total/NA	Water	Field Sampling	

QC Association Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Subcontract Lab non-Sister Lab

Analysis Batch: 490568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155757-1	MWSE-1	Total/NA	Water	908.0	
480-155757-2	MWSE-4	Total/NA	Water	908.0	

Analysis Batch: 490572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155710-1	MWSE-2	Total/NA	Water	908.0	
480-155710-2	MWSE-3	Total/NA	Water	908.0	

Lab Chronicle

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-2

Date Collected: 07/02/19 13:00
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	481743	07/11/19 23:25	KMN	TAL BUF
Total/NA	Prep	3510C			480988	07/05/19 15:02	AAP	TAL BUF
Total/NA	Analysis	8270D		1	481493	07/10/19 22:49	RJS	TAL BUF
Total/NA	Prep	3510C			480991	07/05/19 15:22	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	481374	07/10/19 01:48	RJS	TAL BUF
Total/NA	Prep	3510C			481166	07/08/19 15:10	AAP	TAL BUF
Total/NA	Analysis	8081B		1	481221	07/09/19 14:19	JLS	TAL BUF
Total/NA	Prep	3510C			480888	07/05/19 08:16	SMP	TAL BUF
Total/NA	Analysis	8082A		1	481474	07/10/19 18:07	W1T	TAL BUF
Total/NA	Prep	8151A			480799	07/03/19 14:11	JMP	TAL BUF
Total/NA	Analysis	8151A		1	480962	07/05/19 17:11	JLS	TAL BUF
Total/NA	Prep	3535			306095	07/08/19 05:43	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1	306613	07/10/19 01:12	D1R	TAL SAC
Total/NA	Prep	3005A			480833	07/05/19 07:47	EMB	TAL BUF
Total/NA	Analysis	6010C		1	481076	07/05/19 19:18	EMB	TAL BUF
Total/NA	Prep	7470A			480933	07/05/19 11:55	BMB	TAL BUF
Total/NA	Analysis	7470A		1	481001	07/05/19 15:49	BMB	TAL BUF
Total/NA	Analysis	SM 2340B		1	482222	07/16/19 09:25	LMH	TAL BUF
Total/NA	Analysis	300.0		5	481169	07/08/19 17:56	IMZ	TAL BUF
Total/NA	Analysis	310.2		2	481985	07/14/19 14:57	KEB	TAL BUF
Total/NA	Analysis	350.1		1	481459	07/10/19 09:35	CLT	TAL BUF
Total/NA	Prep	351.2			482601	07/18/19 09:10	CAM	TAL BUF
Total/NA	Analysis	351.2		1	482976	07/21/19 10:22	KEB	TAL BUF
Total/NA	Analysis	353.2		1	480861	07/03/19 21:42	SMH	TAL BUF
Total/NA	Analysis	410.4		1	482652	07/18/19 09:44	EAG	TAL BUF
Total/NA	Analysis	7196A		1	480800	07/03/19 11:45	MJB	TAL BUF
Total/NA	Prep	9012B			481334	07/09/19 14:15	AJL	TAL BUF
Total/NA	Analysis	9012B		1	481516	07/10/19 15:16	MDL	TAL BUF
Total/NA	Analysis	9038		10	483565	07/24/19 12:52	KEB	TAL BUF
Total/NA	Prep	Distill/Phenol			481746	07/11/19 19:10	AEF	TAL BUF
Total/NA	Analysis	9065		1	481919	07/12/19 14:38	SRW	TAL BUF
Total/NA	Analysis	9251		1	481986	07/14/19 14:39	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	480848	07/03/19 17:25	AEF	TAL BUF
Total/NA	Analysis	SM 2540C		1	481085	07/08/19 08:38	RAF	TAL BUF
Total/NA	Analysis	SM 5210B		1	480863	07/04/19 04:48	EY	TAL BUF
Total/NA	Analysis	SM 5310D		1	481954	07/13/19 06:12	CLA	TAL BUF
Total/NA	Prep	PrecSep STD			434862	07/15/19 14:52	ORM	TAL SL
Total/NA	Analysis	903.0		1	440092	08/20/19 20:42	CDR	TAL SL
Total/NA	Prep	PrecSep_0			434867	07/15/19 15:55	ORM	TAL SL
Total/NA	Analysis	904.0		1	436841	07/29/19 10:12	CDR	TAL SL
Total/NA	Analysis	Field Sampling		1	483257	07/02/19 13:00	FLD	TAL BUF
Total/NA	Analysis	908.0		1	490572	08/05/19 00:00	CTB	Eberline

Lab Chronicle

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-3

Date Collected: 07/02/19 12:20
Date Received: 07/02/19 18:30

Lab Sample ID: 480-155710-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	481743	07/11/19 23:48	KMN	TAL BUF
Total/NA	Prep	3510C			480988	07/05/19 15:02	AAP	TAL BUF
Total/NA	Analysis	8270D		1	481493	07/10/19 23:17	RJS	TAL BUF
Total/NA	Prep	3510C			480991	07/05/19 15:22	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	481374	07/10/19 02:12	RJS	TAL BUF
Total/NA	Prep	3510C			481166	07/08/19 15:10	AAP	TAL BUF
Total/NA	Analysis	8081B		1	481221	07/09/19 14:39	JLS	TAL BUF
Total/NA	Prep	3510C			480888	07/05/19 08:16	SMP	TAL BUF
Total/NA	Analysis	8082A		1	481474	07/10/19 18:45	W1T	TAL BUF
Total/NA	Prep	8151A			480799	07/03/19 14:11	JMP	TAL BUF
Total/NA	Analysis	8151A		1	480962	07/05/19 17:40	JLS	TAL BUF
Total/NA	Prep	3535			306095	07/08/19 05:43	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1	306613	07/10/19 01:20	D1R	TAL SAC
Total/NA	Prep	3005A			480833	07/05/19 07:47	EMB	TAL BUF
Total/NA	Analysis	6010C		1	481076	07/05/19 19:22	EMB	TAL BUF
Total/NA	Prep	7470A			480933	07/05/19 11:55	BMB	TAL BUF
Total/NA	Analysis	7470A		1	481001	07/05/19 15:51	BMB	TAL BUF
Total/NA	Analysis	SM 2340B		1	482222	07/16/19 09:25	LMH	TAL BUF
Total/NA	Analysis	300.0		1	481169	07/08/19 19:09	IMZ	TAL BUF
Total/NA	Analysis	310.2		1	481985	07/14/19 14:41	KEB	TAL BUF
Total/NA	Analysis	350.1		1	481459	07/10/19 09:37	CLT	TAL BUF
Total/NA	Prep	351.2			482601	07/18/19 09:10	CAM	TAL BUF
Total/NA	Analysis	351.2		1	482976	07/21/19 10:22	KEB	TAL BUF
Total/NA	Analysis	353.2		1	480861	07/03/19 21:44	SMH	TAL BUF
Total/NA	Analysis	410.4		1	482652	07/18/19 09:44	EAG	TAL BUF
Total/NA	Analysis	7196A		1	480800	07/03/19 11:45	MJB	TAL BUF
Total/NA	Prep	9012B			481334	07/09/19 14:15	AJL	TAL BUF
Total/NA	Analysis	9012B		1	481516	07/10/19 15:17	MDL	TAL BUF
Total/NA	Analysis	9038		1	483565	07/24/19 12:31	KEB	TAL BUF
Total/NA	Prep	Distill/Phenol			481746	07/11/19 19:10	AEF	TAL BUF
Total/NA	Analysis	9065		1	481919	07/12/19 14:40	SRW	TAL BUF
Total/NA	Analysis	9251		1	481986	07/14/19 14:39	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	480848	07/03/19 17:25	AEF	TAL BUF
Total/NA	Analysis	SM 2540C		1	481085	07/08/19 08:38	RAF	TAL BUF
Total/NA	Analysis	SM 5210B		1	480863	07/04/19 04:48	EY	TAL BUF
Total/NA	Analysis	SM 5310D		1	481954	07/13/19 06:26	CLA	TAL BUF
Total/NA	Prep	PrecSep STD			434862	07/15/19 14:52	ORM	TAL SL
Total/NA	Analysis	903.0		1	440092	08/20/19 20:42	CDR	TAL SL
Total/NA	Prep	PrecSep_0			434867	07/15/19 15:55	ORM	TAL SL
Total/NA	Analysis	904.0		1	436841	07/29/19 10:12	CDR	TAL SL
Total/NA	Analysis	Field Sampling		1	483257	07/02/19 12:20	FLD	TAL BUF
Total/NA	Analysis	908.0		1	490572	08/05/19 00:00	CTB	Eberline

Lab Chronicle

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-1

Date Collected: 07/03/19 13:05
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	481776	07/12/19 11:26	AEM	TAL BUF
Total/NA	Prep	3510C			480988	07/05/19 15:02	AAP	TAL BUF
Total/NA	Analysis	8270D		1	481493	07/10/19 23:44	RJS	TAL BUF
Total/NA	Prep	3510C			480991	07/05/19 15:22	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	481374	07/10/19 02:36	RJS	TAL BUF
Total/NA	Prep	3510C			481166	07/08/19 15:10	AAP	TAL BUF
Total/NA	Analysis	8081B		1	481221	07/09/19 14:58	JLS	TAL BUF
Total/NA	Prep	3510C			480888	07/05/19 08:16	SMP	TAL BUF
Total/NA	Analysis	8082A		1	481474	07/10/19 19:11	W1T	TAL BUF
Total/NA	Prep	8151A			481261	07/09/19 09:24	JMP	TAL BUF
Total/NA	Analysis	8151A		1	481461	07/10/19 15:03	JLS	TAL BUF
Total/NA	Prep	3535			306095	07/08/19 05:43	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1	306613	07/10/19 00:56	D1R	TAL SAC
Total/NA	Prep	3005A			480974	07/08/19 07:30	EMB	TAL BUF
Total/NA	Analysis	6010C		1	481247	07/09/19 00:31	AMH	TAL BUF
Total/NA	Prep	3005A			480974	07/08/19 07:30	EMB	TAL BUF
Total/NA	Analysis	6010C		1	481438	07/09/19 09:50	AMH	TAL BUF
Total/NA	Prep	7470A			481119	07/08/19 11:51	BMB	TAL BUF
Total/NA	Analysis	7470A		1	481183	07/08/19 16:08	BMB	TAL BUF
Total/NA	Analysis	SM 2340B		1	481468	07/10/19 11:29	LMH	TAL BUF
Total/NA	Analysis	300.0		2	481169	07/08/19 19:24	IMZ	TAL BUF
Total/NA	Analysis	310.2		2	481985	07/14/19 14:57	KEB	TAL BUF
Total/NA	Analysis	350.1		1	481459	07/10/19 09:50	CLT	TAL BUF
Total/NA	Prep	351.2			482601	07/18/19 09:10	CAM	TAL BUF
Total/NA	Analysis	351.2		1	482976	07/21/19 10:22	KEB	TAL BUF
Total/NA	Analysis	353.2		1	480862	07/03/19 21:26	SMH	TAL BUF
Total/NA	Analysis	410.4		1	481974	07/14/19 09:32	EAG	TAL BUF
Total/NA	Prep	9012B			481527	07/10/19 15:50	AJL	TAL BUF
Total/NA	Analysis	9012B		1	481688	07/11/19 13:16	MDL	TAL BUF
Total/NA	Analysis	9038		10	483565	07/24/19 12:55	KEB	TAL BUF
Total/NA	Prep	Distill/Phenol			481747	07/11/19 19:18	AEF	TAL BUF
Total/NA	Analysis	9065		1	481919	07/12/19 14:51	SRW	TAL BUF
Total/NA	Analysis	9251		1	481986	07/14/19 14:39	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	480925	07/05/19 09:12	CSS	TAL BUF
Total/NA	Analysis	SM 2540C		1	481219	07/09/19 07:49	RAF	TAL BUF
Total/NA	Analysis	SM 5210B		1	480864	07/04/19 09:11	EY	TAL BUF
Total/NA	Analysis	SM 5310D		1	481954	07/13/19 07:54	CLA	TAL BUF
Total/NA	Prep	PrecSep STD			434862	07/15/19 14:52	ORM	TAL SL
Total/NA	Analysis	903.0		1	440092	08/20/19 20:42	CDR	TAL SL
Total/NA	Prep	PrecSep_0			434867	07/15/19 15:55	ORM	TAL SL
Total/NA	Analysis	904.0		1	436841	07/29/19 10:12	CDR	TAL SL
Total/NA	Analysis	Field Sampling		1	483257	07/03/19 13:05	FLD	TAL BUF

Lab Chronicle

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-1

Date Collected: 07/03/19 13:05
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	908.0		1	490568	07/29/19 00:00	CTB	Eberline

Client Sample ID: MWSE-4

Date Collected: 07/03/19 13:15
Date Received: 07/03/19 17:00

Lab Sample ID: 480-155757-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	481776	07/12/19 11:50	AEM	TAL BUF
Total/NA	Prep	3510C			480988	07/05/19 15:02	AAP	TAL BUF
Total/NA	Analysis	8270D		1	481493	07/11/19 00:12	RJS	TAL BUF
Total/NA	Prep	3510C			480991	07/05/19 15:22	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	481374	07/10/19 03:01	RJS	TAL BUF
Total/NA	Prep	3510C			481166	07/08/19 15:10	AAP	TAL BUF
Total/NA	Analysis	8081B		1	481221	07/09/19 15:18	JLS	TAL BUF
Total/NA	Prep	3510C			480888	07/05/19 08:16	SMP	TAL BUF
Total/NA	Analysis	8082A		1	481474	07/10/19 19:23	W1T	TAL BUF
Total/NA	Prep	8151A			481261	07/09/19 09:24	JMP	TAL BUF
Total/NA	Analysis	8151A		1	481461	07/10/19 15:33	JLS	TAL BUF
Total/NA	Prep	3535			306095	07/08/19 05:43	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1	306613	07/10/19 01:04	D1R	TAL SAC
Total/NA	Prep	3005A			480974	07/08/19 07:30	EMB	TAL BUF
Total/NA	Analysis	6010C		1	481247	07/09/19 00:35	AMH	TAL BUF
Total/NA	Prep	3005A			480974	07/08/19 07:30	EMB	TAL BUF
Total/NA	Analysis	6010C		1	481438	07/09/19 09:53	AMH	TAL BUF
Total/NA	Prep	7470A			481119	07/08/19 11:51	BMB	TAL BUF
Total/NA	Analysis	7470A		1	481183	07/08/19 16:13	BMB	TAL BUF
Total/NA	Analysis	SM 2340B		1	481468	07/10/19 11:29	LMH	TAL BUF
Total/NA	Analysis	300.0		2	481169	07/08/19 19:38	IMZ	TAL BUF
Total/NA	Analysis	310.2		2	481985	07/14/19 14:57	KEB	TAL BUF
Total/NA	Analysis	350.1		1	481459	07/10/19 09:50	CLT	TAL BUF
Total/NA	Prep	351.2			482601	07/18/19 09:10	CAM	TAL BUF
Total/NA	Analysis	351.2		1	482976	07/21/19 10:22	KEB	TAL BUF
Total/NA	Analysis	353.2		1	480862	07/03/19 21:28	SMH	TAL BUF
Total/NA	Analysis	410.4		1	481974	07/14/19 09:32	EAG	TAL BUF
Total/NA	Prep	9012B			481527	07/10/19 15:50	AJL	TAL BUF
Total/NA	Analysis	9012B		1	481688	07/11/19 13:17	MDL	TAL BUF
Total/NA	Analysis	9038		5	483565	07/24/19 12:43	KEB	TAL BUF
Total/NA	Prep	Distill/Phenol			481747	07/11/19 19:18	AEF	TAL BUF
Total/NA	Analysis	9065		1	481919	07/12/19 14:51	SRW	TAL BUF
Total/NA	Analysis	9251		1	481986	07/14/19 14:39	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	480925	07/05/19 09:12	CSS	TAL BUF
Total/NA	Analysis	SM 2540C		1	481219	07/09/19 08:53	RAF	TAL BUF
Total/NA	Analysis	SM 5210B		1	480864	07/04/19 09:11	EY	TAL BUF

Lab Chronicle

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-4

Lab Sample ID: 480-155757-2
Date Collected: 07/03/19 13:15
Matrix: Water
Date Received: 07/03/19 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 5310D		1	481954	07/13/19 08:09	CLA	TAL BUF
Total/NA	Prep	PrecSep STD			434862	07/15/19 14:52	ORM	TAL SL
Total/NA	Analysis	903.0		1	440089	08/20/19 20:42	CDR	TAL SL
Total/NA	Prep	PrecSep_0			434867	07/15/19 15:55	ORM	TAL SL
Total/NA	Analysis	904.0		1	436841	07/29/19 10:13	CDR	TAL SL
Total/NA	Analysis	Field Sampling		1	483257	07/03/19 13:15	FLD	TAL BUF
Total/NA	Analysis	908.0		1	490568	07/29/19 00:00	CTB	Eberline

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-155757-3
Date Collected: 07/03/19 09:00
Matrix: Water
Date Received: 07/03/19 17:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	481776	07/12/19 12:14	AEM	TAL BUF

Client Sample ID: MWSE-1

Lab Sample ID: 480-156080-1
Date Collected: 07/12/19 13:40
Matrix: Water
Date Received: 07/12/19 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			285394	07/19/19 20:48	BJT	TAL PIT
Total/NA	Analysis	EPA 625.1		1	285773	07/24/19 14:40	VVP	TAL PIT
Total/NA	Analysis	7196A		1	481949	07/13/19 10:30	EAG	TAL BUF

Client Sample ID: MWSE-2

Lab Sample ID: 480-156080-2
Date Collected: 07/12/19 12:30
Matrix: Water
Date Received: 07/12/19 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			285394	07/19/19 20:48	BJT	TAL PIT
Total/NA	Analysis	EPA 625.1		1	285773	07/24/19 15:07	VVP	TAL PIT

Client Sample ID: MWSE-3

Lab Sample ID: 480-156080-3
Date Collected: 07/12/19 12:10
Matrix: Water
Date Received: 07/12/19 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			285394	07/19/19 20:48	BJT	TAL PIT
Total/NA	Analysis	EPA 625.1		1	285773	07/24/19 15:35	VVP	TAL PIT

Lab Chronicle

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Client Sample ID: MWSE-4

Date Collected: 07/12/19 11:05
Date Received: 07/12/19 15:40

Lab Sample ID: 480-156080-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	625			285394	07/19/19 20:48	BJT	TAL PIT
Total/NA	Analysis	EPA 625.1		1	285773	07/24/19 16:03	VVP	TAL PIT
Total/NA	Analysis	7196A		1	481949	07/13/19 10:30	EAG	TAL BUF

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Laboratory: Eurofins TestAmerica, Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10026	03-31-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260C		Water	1,2-Dichloroethene, Total
9038		Water	Sulfate
9251		Water	Chloride
Field Sampling		Water	Field pH
Field Sampling		Water	Oxidation Reduction Potential
Field Sampling		Water	Specific Conductance
Field Sampling		Water	Temperature
Field Sampling		Water	Turbidity
SM 5310D		Water	Total Organic Carbon

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
Arkansas DEQ	State Program	88-0690	06-27-20
California	State	2891	04-30-20
California	State Program	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Connecticut	State Program	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Florida	NELAP	E871008	06-30-20
Illinois	NELAP	200005	06-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	01-31-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State Program	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-19
Kentucky (WW)	State Program	KY98043	12-31-19
Louisiana	NELAP	04041	06-30-20
Minnesota	NELAP	042-999-482	12-31-19
Minnesota	NELAP	042-999-482	12-31-19
Nevada	State Program	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	03-31-20
New York	NELAP	11182	04-01-20
North Carolina (WW/SW)	State Program	434	12-31-19
North Dakota	State	R-227	04-30-20
North Dakota	State Program	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-20
Oregon	NELAP	PA-2151	02-06-20
Pennsylvania	NELAP	02-00416	04-30-20
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-30-19

Accreditation/Certification Summary

Client: Waste Management
Job ID: 480-155710-1
Project/Site: Chaffee Landfill-New Wells

Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Rhode Island	State Program	LAO00362	12-30-19
South Carolina	State Program	89014	04-30-20
Texas	NELAP	T104704528-15-2	03-31-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	Federal	LE94312A-1	07-31-19
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462015-4	05-31-20
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	460189	09-14-19
Virginia	NELAP	10043	09-14-19
West Virginia DEP	State	142	01-31-20
West Virginia DEP	State Program	142	01-31-20
Wisconsin	State	998027800	08-31-19
Wisconsin	State Program	998027800	08-31-19

Accreditation/Certification Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State Program	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	DoD	L2468	01-20-21
ANAB	DOE	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	08-09-21
Arizona	State Program	AZ0708	08-11-20
Arkansas DEQ	State Program	88-0691	06-17-20
California	State	2897	01-31-20
California	State Program	2897	01-31-20
Colorado	State Program	CA00044	08-31-19
Connecticut	State	PH-0691	06-30-21
Connecticut	State Program	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Florida	NELAP	E87570	06-30-20
Hawaii	State	<cert No.>	01-29-20
Hawaii	State Program	N/A	01-29-20
Illinois	NELAP	200060	03-17-20 *
Illinois	NELAP	200060	03-17-20
Kansas	NELAP	E-10375	10-31-19
Louisiana	NELAP	30612	06-30-20
Maine	State Program	CA0004	04-14-20
Michigan	State	9947	01-29-20
Michigan	State Program	9947	01-31-20
Nevada	State Program	CA00044	07-31-19
New Hampshire	NELAP	2997	04-20-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-20
Oregon	NELAP	4040	01-29-20
Pennsylvania	NELAP	68-01272	03-31-20
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399	05-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	Federal	LE148388-0	07-31-20
USDA	Federal	P330-18-00239	01-17-21
USEPA UCMR	Federal	CA00044	12-31-20
Utah	NELAP	CA00044	02-29-20
Vermont	State Program	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-20
Virginia	NELAP	460278	03-14-20
Washington	State	C581	05-05-20
Washington	State Program	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-19
West Virginia (DW)	State Program	9930C	12-31-19
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	DoD	L2305	04-06-22
ANAB	DOE	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-19
Arizona	State Program	AZ0813	12-08-19
California	State	2886	06-30-20
California	State Program	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Connecticut	State Program	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
Florida	NELAP	E87689	06-30-20
Hawaii	State Program	NA	06-30-20
Illinois	NELAP	200023	11-30-19
Illinois	NELAP	004553	11-30-19
Iowa	State Program	373	12-01-20
Kansas	NELAP	E-10236	10-31-19
Kentucky (DW)	State	KY90125	12-31-19
Kentucky (DW)	State Program	KY90125	12-31-19
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	NELAP	LA011	12-31-19
Louisiana (DW)	State	LA011	12-31-19
Maryland	State	310	09-30-20
Maryland	State Program	310	09-30-20
Michigan	State Program	9005	06-30-20
Missouri	State	780	06-30-22
Missouri	State Program	780	06-30-20
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	03-31-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
North Dakota	State Program	R207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Oklahoma	State Program	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20
Pennsylvania	NELAP	68-00540	02-28-20
South Carolina	State Program	85002001	06-30-20
Texas	NELAP	T104704193-19-14	07-31-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	Federal	058448	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P330-17-0028	02-02-20
USDA	US Federal Programs	P330-17-00028	02-02-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	460230	06-14-20
Virginia	NELAP	10310	06-14-20

Accreditation/Certification Summary

Client: Waste Management
Job ID: 480-155710-1
Project/Site: Chaffee Landfill-New Wells

Laboratory: Eurofins TestAmerica, St. Louis (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State Program	C592	08-30-19 *
West Virginia DEP	State Program	381	08-31-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL BUF
8270D SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	TAL BUF
EPA 625.1	Semivolatile Organic Compounds (GC/MS)	40 CFR 761	TAL PIT
8081B	Organochlorine Pesticides (GC)	SW846	TAL BUF
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL BUF
8151A	Herbicides (GC)	SW846	TAL BUF
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
6010C	Metals (ICP)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL BUF
300.0	Bromide	40CFR136A	TAL BUF
310.2	Alkalinity	MCAWW	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
410.4	COD	MCAWW	TAL BUF
7196A	Chromium, Hexavalent	SW846	TAL BUF
9012B	Cyanide, Total andor Amenable	SW846	TAL BUF
9038	Sulfate, Turbidimetric	SW846	TAL BUF
9065	Phenolics, Total Recoverable	SW846	TAL BUF
9251	Chloride	SW846	TAL BUF
SM 2120B	Color, Colorimetric	SM	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 5210B	BOD, 5-Day	SM	TAL BUF
SM 5310D	Organic Carbon, Total (TOC)	SM	TAL BUF
Field Sampling	Field Sampling	EPA	TAL BUF
3005A	Preparation, Total Metals	SW846	TAL BUF
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL BUF
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
5030C	Purge and Trap	SW846	TAL BUF
625	Liquid-Liquid Extraction	40CFR136A	TAL PIT
7470A	Preparation, Mercury	SW846	TAL BUF
8151A	Extraction (Herbicides)	SW846	TAL BUF
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	TAL BUF
Distill/Phenol	Distillation, Phenolics	None	TAL BUF

Protocol References:

40 CFR 761 = Toxic Substances Control Act (TSCA)

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Waste Management
Project/Site: Chaffee Landfill-New Wells

Job ID: 480-155710-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-155710-1	MWSE-2	Water	07/02/19 13:00	07/02/19 18:30	
480-155710-2	MWSE-3	Water	07/02/19 12:20	07/02/19 18:30	
480-155757-1	MWSE-1	Water	07/03/19 13:05	07/03/19 17:00	
480-155757-2	MWSE-4	Water	07/03/19 13:15	07/03/19 17:00	
480-155757-3	TRIP BLANK	Water	07/03/19 09:00	07/03/19 17:00	
480-156080-1	MWSE-1	Water	07/12/19 13:40	07/12/19 15:40	
480-156080-2	MWSE-2	Water	07/12/19 12:30	07/12/19 15:40	
480-156080-3	MWSE-3	Water	07/12/19 12:10	07/12/19 15:40	
480-156080-4	MWSE-4	Water	07/12/19 11:05	07/12/19 15:40	

Quantitation Limit Exceptions Summary

Client: Waste Management
Job ID: 480-155710-1
Project/Site: Chaffee Landfill-New Wells

The requested project specific reporting limits listed below were less than laboratory standard quantitation limits (PQL) but greater than or equal to the laboratory method detection limits (MDL). It must be noted that results reported below lab standard quantitation limits may result in false positive/false negative values and less accurate quantitation. Routine laboratory procedures do not indicate corrective action for detections below the laboratory's PQL.

Method	Analyte	Matrix	Prep Type	Unit	Client RL	Lab PQL
310.2	Alkalinity, Total	Water	Total/NA	mg/L	5.0	10
351.2	Total Kjeldahl Nitrogen	Water	Total/NA	mg/L as N	0.15	0.2
410.4	Chemical Oxygen Demand	Water	Total/NA	mg/L	5.0	10
9038	Sulfate	Water	Total/NA	mg/L	1.5	5.0
9065	Phenolics, Total Recoverable	Water	Total/NA	mg/L	0.0050	0.01

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler:	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-131844-29748.2
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc		**Analysis Requested**		Job #:

Address: 10 Hazelwood Drive	Due Date Requested:	Preservation Codes:
City: Amherst	TAT Requested (days):	
State, Zip: NY, 14228		
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested	
Email: timothy.bly@testamericainc.com	WO #:	
Project Name: Chaffee Landfill/NY05 Event Desc: 2019 Part 363 Expanded -Q2	Project #: 48002636	
Site: New York	SSOW#:	

480-155710 Chain of Custody

K - EDTA W - pH 4-5
L - EDA Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM5310D - Total Organic Carbon	8151A - NY Part 363 Expanded Herbicides	8270D_SIM_MS_ID - 1,4-Dioxane	5210B - Biochemical Oxygen Demand	2540C_Calcd - Total Dissolved Solids	FieldSampling - (MOD) pH,Cond,Temp,DO,ORP,GWElv	9012B - Cyanide, Total	2120B, 353.2, 353.2_Nitrite, 9038, 9251, Nitrate_Calc	7196A - Chromium, hexavalent	310.2 - Alkalinity, Total				Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	N	N	N	N	N	B	N	N	N					
MWSE-2	7/2/19	1300	G	Water			2	2	2	1	1		1	3	1	1					
MWSE-3	7/2/19	1220	G	Water			2	2	2	1	1		1	3	1	1					

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
S.OZ	07-02-19 1830	TAL	Chukow Cikolb	7/02/19 1830	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 7.2 4.4 #1 ICE

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler:	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-131844-29748.1
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc				Job #:

Address: 10 Hazelwood Drive	Due Date Requested:
City: Amherst	TAT Requested (days):
State, Zip: NY, 14228	
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested
Email: timothy.bly@testamericainc.com	WO #:
Project Name: Chaffee Landfill/NY05 Event Desc: 2019 Part 363 Expanded -Q2	Project #: 48002636
Site: New York	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C - NY Part 363 Expanded Volatiles	903.0, 904.0	904.0 - Standard Target List	903.0 - Radium-226	PFC_IDA - PFAS, Standard List (21 Analytes)	8082A - NY Part 360 Expanded - Arocilors	8081B - NY Part 360 Expanded Pesticides	8270D - NY Part 360 Expanded Semivolatiles	300.0_28D - Bromide	350.1, 351.2, 410.4	908.0 - U	6010C, 7470A, SM2340B	9065 - Phenolics, Total Recoverable	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	D	D	N	N	N	N	N	S	D	D	S		
MWSE-2	7/2/19	1300	G	Water			3	2	1	1	2	2	2	2	1	1	1	1	1		
MWSE-3	7/2/19	1220	G	Water			3	2	1	1	2	2	2	2	1	1	1	1	1		

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: S.OZ	Date/Time: 07-02-19/1830	Company: TAL	Received by: Cynthia Cicolo	Date/Time: 07/02/19 1840	Company: TA
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 7.2 4.4 # ICE

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: TB/SO/ZV	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-131844-29748.1
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc				Job #:

Address: 10 Hazelwood Drive	Due Date Requested:
City: Amherst	TAT Requested (days):
State, Zip: NY, 14228	
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested
Email: timothy.bly@testamericainc.com	WO #:
Project Name: Chaffee Landfill/NY05 Event Desc: 2019 Part 363 Expanded -Q2	Project #: 48002636
Site: New York	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C - NY Part 363 Expanded Volatiles	903.0, 904.0	904.0 - Standard Target List	903.0 - Radium-226	PFC_IDA - PFAS, Standard List (21 Analytes)	8082A - NY Part 360 Expanded - Aroclors	8081B - NY Part 360 Expanded Pesticides	8270D - NY Part 360 Expanded Semivolatiles	300.0_28D - Bromide	350.1, 351.2, 410.4	908.0 - U	6010C, 7470A, SM2340B	9065 - Phenolics, Total Recoverable	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	D	D	N	N	N	N	N	S	D	D	S		
TRIP BLANK	7/3/19	0900	G	Water			3														
MWSE-1	7/3/19	1305	G	Water			3	2	1	1	2	2	2	2	1	1	1	1	1		
MWSE-4	7/3/19	1315	G	Water			3	2	1	1	2	2	2	2	1	1	1	1	1		

480-155757 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Tby	7-3-19/ 1700	TAL			
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time: 7-3-19 1700	Company: TAB

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 13.6 10.7 #1

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: TB/SO/ZV	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-131844-29748.2
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc				Job #:
Address: 10 Hazelwood Drive	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228				
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested			
Email: timothy.bly@testamericainc.com	WO #:			
Project Name: Chaffee Landfill/NY05 Event Desc: 2019 Part 363 Expanded -Q2	Project #: 48002636			
Site: New York	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM5310D - Total Organic Carbon	8151A - NY Part 363 Expanded Herbicides	8270D_SIM_MS_ID - 1,4-Dioxane	5210B - Biochemical Oxygen Demand	2540C_Calcd - Total Dissolved Solids	FieldSampling - (MOD) pH,Cond,Temp,DO,ORP,GWElv	9012B - Cyanide, Total	2120B, 353.2, 353.2_Nitrite, 9038, 9251, Nitrate_Calc	7196A - Chromium, hexavalent	310.2 - Alkalinity, Total	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	N	N	N	N	N	B	N	N	N		
TRIP BLANK	7/3/19	0900	G	Water														
MWSE-1	7/3/19	1305	G	Water			2	2	2	1	1	0	1	3	1	1		
MWSE-4	7/3/19	1315	G	Water			2	2	2	1	1	0	1	3	1	1		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	7-3-19/	TAL			
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
			[signature]	7-3-19 1700	

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
		13.6 10.2 #1

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler:	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-131844-29748.1
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc				Job #:

Address: 10 Hazelwood Drive	Due Date Requested:
City: Amherst	TAT Requested (days):
State, Zip: NY, 14228	
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested
Email: timothy.bly@testamericainc.com	WO #:
Project Name: Chaffee Landfill/NY05 Event Desc: 2019 Part 363 Expanded -Q2	Project #: 48002636
Site: New York	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

480-156080 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	908.0 - U	7196A - Chromium, hexavalent	625.1_LL_PREC - Thionazin	Total	Special Instructions/Note:
			Preservation Code:				D	N	N		
MWSE-1	7/12/19	1340	G	Water			0	1	2		
MWSE-2	7/12/19	1230	G	Water			1	0	2		
MWSE-3	7/12/19	1210	G	Water			1	0	2		
MWSE-4	7/12/19	1105	G	Water			0	1	2		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 7-12-19 1540	Company TAL	Received by:	Date/Time: 07/12/19 1540	Company TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.8 #1 ICE

Ver: 01/16/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 180-368247.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.giglia@testamericainc.com	State of Origin: New York	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-155710-1
Address: 13715 Rider Trail North, .	Due Date Requested: 7/22/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: Chaffee Landfill	Project #: 48002636			
Site: Chaffee Landfill (formerly CID)	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	903.0/FIELD_FLTRD Standard Target List	904.0/PrecSep_0 Standard Target List	904.0/FIELD_FLTRD Standard Target List	903.0/PrecSep_STD (MOD) Copy Analytes	Total Number of containers	Special Instructions/Note:
			Preservation Code:									
MWSE-2 (480-155710-1)	7/2/19	13:00 Eastern		Water			X	X	X	X	5	
MWSE-3 (480-155710-2)	7/2/19	12:20 Eastern		Water			X	X	X	X	5	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:
Empty Kit Relinquished by:	Date: Time: Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		7/9/19 1720	TAL PIT	Michael Thum	7-10-19 09:05	TA STL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins

Client Information	Sampler	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-131844-29748.2
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc				Job #:
Address: 10 Hazelwood Drive	Due Date Requested:			Preservation Codes:
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228				
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested			
Email: timothy.bly@testamericainc.com	WO #:			
Project Name: Chaffee Landfill/NY05 Event Desc: 2019 Part 363 Expanded -Q2	Project #: 48002636			
Site: New York	SSOW#:			

480-155710 Chain of Custody

L - EDA Z - other (specify)
Other:

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM5310D - Total Organic Carbon	8151A - NY Part 363 Expanded Herbicides	8270D_SIM_MS_ID - 1,4-Dioxane	5210B - Biochemical Oxygen Demand	2540C_Calcd - Total Dissolved Solids	FieldSampling - (MOD) pH,Cond,Temp,DO,ORP,GWElv	9012B - Cyanide, Total	2120B, 353.2, 353.2_Nitrite, 9038, 9251, Nitrate_Calc	7196A - Chromium, hexavalent	310.2 - Alkalinity, Total	Total Number of containe	Special Instructions/Note:
			Preservation Code:				A	N	N	N	N	N	B	N	N	N		
MWSE-2	7/2/19	1300	G	Water			2	2	2	1	1		1	3	1	1		
MWSE-3	7/2/19	1220	G	Water			2	2	2	1	1		1	3	1	1		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
S.CZ	07-02-19 1830	TAL	[illegible]	7/02/19 1830	TAL
[signature]	7-9-19 1550	TAL	[signature]	7/10/19 9:00	TAL
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 7.2 4.4 #1 ICE

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins

Client Information	Sampler:	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-131844-29748.1
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc				Job #:

Address: 10 Hazelwood Drive	Due Date Requested:
City: Amherst	TAT Requested (days):
State, Zip: NY, 14228	
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested
Email: timothy.bly@testamericainc.com	WO #:
Project Name: Chaffee Landfill/NY05 Event Desc 2019 Part 363 Expanded -Q2	Project #: 48002636
Site: New York	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify); Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260C - NY Part 363 Expanded Volatiles	903.0, 904.0	904.0 - Standard Target List	903.0 - Radium-226	PFC_IDA - PFAS, Standard List (21 Analytes)	8082A - NY Part 360 Expanded - Aroclors	8081B - NY Part 360 Expanded Pesticides	8270D - NY Part 360 Expanded Semivolatiles	300.0_28D - Bromide	350.1, 351.2, 410.4	908.0 - U	6010C, 7470A, SM2340B	9065 - Phenolics, Total Recoverable	Total Number of containers	Special Instructions/Note:
			Preservation Code:				A	D	D	D	N	N	N	N	N	S	D	D	S		
MWSE-2	7/2/19	1300	G	Water			3	2	1	1	2	2	2	2	1	1	1	1	1		
MWSE-3	7/2/19	1220	G	Water			3	2	1	1	2	2	2	2	1	1	1	1	1		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by	Date	Time	Method of Shipment

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
S.OZ	07-02-19/1830	TAL	[illegible]	07/02/19 1840	TA
[signature]	7-09-19 1550	WB	[signature]	7/10/19 gw	TAL
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks: 7.2 4.4 # 1 ICE

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-50582.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.giglia@testamericainc.com	State of Origin: New York	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-155710-1
Address: 880 Riverside Parkway,	Due Date Requested: 7/15/2019			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #			
Email:	WO #:			
Project Name: Chaffee Landfill	Project #: 48002636			
Site: Chaffee Landfill (formerly CID)	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC PFAS, Standard List (21 Analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MWSE-2 (480-155710-1)	7/2/19	13:00 Eastern		Water			X	2	
MWSE-3 (480-155710-2)	7/2/19	12:20 Eastern		Water			X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[signature]	7-5-19 1630	QAD	[signature]	7/6/19 930	TA BUF
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☑ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.1

Ver: 01/16/2019

FIELD INFORMATION FORM

Site Name: Chaffee
Site No.:
Sample Point: MW SE-2 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
07 02 19	1230	130	22		

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark sampling record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Purging Device: B

Sampling Device: B

A- Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

X-Other:

Filter Device: Y or (N) 0.45 µ or ____ µ (circle or fill in)

Filter Type: A-In-line Disposable, B-Pressure, C-Vacuum, X-Other

Sample Tube Type: A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other:

WELL DATA

Well Elevation (at TOC): ____ (ft/msl)

Depth to Water (DTW) (from TOC): 14.48 (ft)

Groundwater Elevation (site datum, from TOC): ____ (ft/msl)

Total Well Depth (from TOC): 27.67 (ft)

Stick Up (from ground elevation): ____ (ft)

Casing ID: 2.0 (in)

Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1245	1st	6.94 1st	816 1st	12.8	358		96	14.49
1250	2nd	7.37 2nd	815 2nd	13.1	360		105	14.49
1255	3rd	7.39 3rd	824 3rd	12.9	385		106	14.49
1300	4th	7.45 4th	832 4th	13.2	309		111	14.49
:								
:								
:								
:								
:								

Suggested range for 3 consec. readings or note Permit/State requirements: | +/- 0.2 | +/- 3% | – | – | +/- 10% | +/- 25 mV | Stabilize

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
07 02 19	7.45	832	13.2	309		111	

Final Field Readings are required (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.

Sample Appearance: clear - sl. tint

Odor: NO

Color: clear sl. brown

Other:

Weather Conditions (required daily, or as conditions change):

Direction/Speed: NW/light

Outlook: 78° cloudy

Precipitation: Y or (N)

FIELD COMMENTS

Specific Comments (including purge/well volume calculations if required):

low flow purged @ 150 ml/min

Tubing @ 19'

Sampled @ 1300 W.L = 14.49

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/02/19	Tom Blasland	TBL	CAL
/ /			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

Site Name: Chaffee
Site No.: 080
Sample Point: MWSG3 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
07 02 19	1150	:30			

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Purging Device: B
Sampling Device: B
X-Other:

A- Submersible Pump; B-Peristaltic Pump; C-QED Bladder Pump; D-Bailer; E-Piston Pump; F-Dipper/Bottle

Filter Device: Y or (N) — 0.45 µ or _____ µ (circle or fill in)
Filter Type: A-In-line Disposable; B-Pressure; C-Vacuum; X-Other
Sample Tube Type: A-Teflon; B-Stainless Steel; C-PVC; D-Polypropylene; X-Other:

WELL DATA

Well Elevation (at TOC): _____ (ft/msl)
Depth to Water (DTW) (from TOC): 21.53 (ft)
Groundwater Elevation (site datum, from TOC): _____ (ft/msl)
Total Well Depth (from TOC): 29.31 (ft)
Stick Up (from ground elevation): _____ (ft)
Casing ID: 2.0 (in)
Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1205	1st	6.00	105	12.9	40.2		202	21.51
1210	2nd	6.00	104	14.7	21.4		284	21.52
1215	3rd	5.98	104	13.0	29.2		288	21.51
	4th							
Suggested range for 3 consec. readings or note Permit/State requirements		+/- 0.2	+/- 3%	--	--	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
07 02 19	5.98	104	13.0	29.2		288	

Final Field Readings are required (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.

FIELD COMMENTS

Sample Appearance: clear
Odor: no
Color: Sl. tan tint
Other:
Weather Conditions (required daily, or as conditions change):
Direction/Speed: WNW 10mph
Outlook: 79° cloudy
Precipitation: Y or (N)
Specific Comments (including purge/well volume calculations if required):

Low flow purge @ 100 ml/min → W.L stable @ 21.52 ft

Sampled @ 1220

Tubing @ 25'

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
7/2/19	Tom Bly	TBly	TAL
/ /			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample; YELLOW - Returned to Client; PINK - Field Copy

FIELD INFORMATION FORM

Site Name: Chaffee
Site No.:
Sample Point: MWSE-1 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
07 03 19	1230	135			

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Purging Device: B
Sampling Device: B
X-Other:

A- Submersible Pump
B-Peristaltic Pump
C-QED Bladder Pump
D-Bailer
E-Piston Pump
F-Dipper/Bottle

Filter Device: Y or (N) 0.45 µ or ____ µ (circle or fill in)
Filter Type: A-In-line Disposable B-Pressure C-Vacuum X-Other
Sample Tube Type: A-Teflon B-Stainless Steel C-PVC D-Polypropylene X-Other:

WELL DATA

Well Elevation (at TOC): (ft/msl)
Depth to Water (DTW) (from TOC): 14.07 (ft)
Groundwater Elevation (site datum, from TOC): (ft/msl)
Total Well Depth (from TOC): 27.57 ft
Stick Up (from ground elevation): (ft)
Casing ID: 2.0 (in)
Casing Material: pvc

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1250	1st	7.21 1st	699 1st	11.7	9.6		90	14.49
1255	2nd	7.21 2nd	699 2nd	11.3	9.2		90	14.49
1300	3rd	7.19 3rd	695 3rd	12.0	7.6		89	14.48
1305	4th	7.23 4th	692 4th	11.9	6.8		79	14.79
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	–	–	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
07 03 19	7.23	692	11.9	6.8		79	

Final Field Readings are required (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.

FIELD COMMENTS

Sample Appearance: Clear
Odor: no
Color: Clear
Other:
Weather Conditions (required daily, or as conditions change):
Direction/Speed: NW/Sight
Outlook: FFF cloudy
Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):
Low Flow purge @ 200 ml/min

Tubing @ 19' Sampled @ 1305

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/03/19	TimBy	TBy	TAL
/ /			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

Site Name: Chaffee
Site No.:
Sample Point: MW5E-14 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
07 03 19	1205	1:05			

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N
Purging Device: B
Sampling Device: B
A- Submersible Pump; (B) Peristaltic Pump; C-QED Bladder Pump; D-Bailer; E-Piston Pump; F-Dipper/Bottle
X-Other:
Filter Device: Y or (N); 0.45 µ or ____ µ (circle or fill in)
Filter Type: A-In-line Disposable; B-Pressure; C-Vacuum; X-Other
Sample Tube Type: A-Teflon; B-Stainless Steel; C-PVC; D-Polypropylene; X-Other:

WELL DATA

Well Elevation (at TOC): (ft/msl)
Depth to Water (DTW) (from TOC): 11.79 (ft)
Groundwater Elevation (site datum, from TOC): (ft/msl)
Total Well Depth (from TOC): 22.16 (ft)
Stick Up (from ground elevation): (ft)
Casing ID: 2.0 (in)
Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1220	1st	6.95	456	17.2	4.3		131.0	
1230	2nd	6.86	464	16.7	5.8		150.0	
1240	3rd	6.90	480	17.1	6.1		180.0	
1245	4th	6.96	489	17.4	5.8		161.0	
1255		7.31	498	16.9	7.4		84.0	
1300		7.45	504	16.5	6.5		65.0	
1305		7.52	508	16.2	7.3		55.0	
1310		7.54	513	16.1	7.8		67.0	
1315		7.52	516	16.2	6.9		70.0	
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	-	-	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
07 03 19	7.52	516	16.2	6.9		70.0	

Final Field Readings are required (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.

FIELD COMMENTS

Sample Appearance: Clear
Odor: NO
Color: -
Other: -
Weather Conditions (required daily, or as conditions change):
Direction/Speed: SW 9 mph
Outlook: Sunny
Precipitation: Y or (N)
Specific Comments (including purge/well volume calculations if required):

Low flow purge @ 100 ml/min

Tubing @ 16'

Sampled @ 1315

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
07/03/19	S.OZ		TAL
/ /			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample; YELLOW - Returned to Client; PINK - Field Copy

eurofins | Environment Testing TestAmerica

Sacramento Sample Receiving Notes

480-155710 Field Sheet

Tracking # : 4276 6720 1280

SO (PO) / FO / SAT / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Job: _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AH10 Corr. Factor: —

Ice X Wet C Gel _____ Other _____

Cooler Custody Seal: Seal

Sample Custody Seal: —

Cooler ID: —

Temp Observed: 1.1 Corrected: 1.1

From: Temp Blank ☐ Sample ☑

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has headspace? (Methods 314, 331, 6850)	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
CoC is complete w/o discrepancies?	☑	☐	☐
Samples received within holding time?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Cooler compromised/tampered with?	☐	☑	☐
Samples compromised/tampered with?	☐	☑	☐
Samples w/o discrepancies?	☑	☐	☐
Sample containers have legible labels?	☑	☐	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided.	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Zero headspace?*	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
Sample temp OK?	☑	☐	☐
Sample out of temp?	☐	☑	☐

Initials: ST Date: 7/16/19

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

WI2E

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-155710-1

Login Number: 155710
List Number: 1
Creator: Harper, Marcus D

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	TAL
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-155710-1

Login Number: 155710
List Number: 4
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh
List Creation: 07/10/19 02:44 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-155710-1

Login Number: 155710
List Number: 2
Creator: Thompson, Sarah W

List Source: Eurofins TestAmerica, Sacramento
List Creation: 07/06/19 03:41 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.1c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-155710-1

Login Number: 155757
List Number: 1
Creator: Harper, Marcus D

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	TAL
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-155710-1

Login Number: 155757
List Number: 3
Creator: Thompson, Sarah W

List Source: Eurofins TestAmerica, Sacramento
List Creation: 07/06/19 03:41 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.1c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-155710-1

Login Number: 156080
List Number: 1
Creator: Harper, Marcus D

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	TAL
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-155710-1

Login Number: 156080
List Number: 2
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh
List Creation: 07/16/19 03:06 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Site: Waste Management Chaffee Landfill Groundwater Monitoring
Laboratory: Test America, Amherst, NY
Report No.: 480-157980
Reviewer: Lorie MacKinnon/Richard Frappa GEI Consultants
Date: January 16, 2020

Samples Reviewed and Evaluation Summary

Ground water samples were collected August 21 and 30, 2019 from the Chaffee Landfill located in Chaffee, New York. Analytical results for samples MW-18BR, MW-P(I), MWBA-2, and MWSE-4 representing a minimum of 5% of groundwater samples, were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, January 2017 (USEPA-540-R-2017-002) and USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2017 (USEPA-540-R-2017-001), as well as by the methods referenced by the data package and professional and technical judgment.

Samples included in this review are listed below:

FIELD ID	LAB ID	FRACTIONS VALIDATED
MW-18BR	480-157980-5	VOCs, Total and Dissolved Metals, Cr6, General Chemistry
MW-P(I)	480-157980-9	VOCs, Total and Dissolved Metals, Cr6, General Chemistry
MWBA-2	480-158409-3	VOCs, Total and Dissolved Metals, Cr6, General Chemistry
MWSE-4	480-158878-4	Fluorinated Alkyl Substances

Associated QC Samples:

Field/Trip Blanks: Field Blank, Trip Blank (08/21), Trip Blank (08/30)
Field Duplicate pair: MW-P(I)/DUP
Field Duplicate pair: MWSE-4/DUP (for Fluorinated Alkyl Substances)

The above-listed aqueous samples were analyzed for volatile organic compounds (VOCs) by SW-846 method 8260C, total and dissolved metals by SW-846 methods 6010C/6020A/7470A, hardness by Standard Methods SM2340C, hexavalent chromium by SW-846 method 7196A, and general chemistry parameters which included bromide, chloride, and sulfate by EPA method 300.0, ammonia as nitrogen by EPA method 350.1, total kjeldahl nitrogen (TKN) as nitrogen by EPA method 351.2, chemical oxygen demand (COD) by EPA method 410.4, total recoverable phenolics by SW846 method 9065, total cyanide by SW846 method 9012B, nitrate by EPA method 353.2, color by Standard Methods (SM) 2120B, alkalinity by EPA 310.2, total dissolved solids (TDS) by SM 2540C, biochemical oxygen demand (BOD) by SM 5210B, and total organic carbon (TOC) by SM 5310C.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Initial and Continuing Calibrations
- Blanks

- Surrogate Recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results
- Internal Standards
- Field Duplicate Results
- ICP Serial Dilution Results
- Quantitation Limits

In general, the data appear usable as reported or usable with minor qualification due to sample matrix or laboratory quality control outliers. However, the following issue was noted which may have a significant impact on the data usability:

- The nondetect results for 1,4-dioxane in samples MW-18BR, MW-P(I), and MWBA-2 were rejected (R) due to low calibration response factors. These results should not be used for decision-making purposes.

All other results were considered valid; even though some were qualified as discussed below.

The validation findings were based on the following information. Validation qualifiers are defined in Attachment 1 at the end of this report.

Data Completeness

The data package was complete as received by the laboratory.

Holding Times and Sample Preservation

All hold time and sample preservation criteria were met, except where noted below.

Cyanide

The recovery for cyanide was slightly below control limits in LCS 480-491744, associated with sample MWBA-2. The sample was re-prepped six days outside of the required hold time with an acceptable LCS recovery and the result was confirmed. Professional judgment was taken to report the initial analysis of cyanide for sample MWBA-2, therefore qualification due to hold time exceedance was not required.

Initial and Continuing Calibrations

Initial and continuing calibration criteria were met, except where noted below.

VOCs

Compounds that did not meet criteria in the VOC calibrations are summarized in the following table.

Instrument/ Calibration Standard	Compound	Calibration Exceedance	Validation Qualifier
VOC			
HP5973C ICAL 08/08/19	1,4-Dioxane	RF 0.0073	Reject (R) the nondetect results for 1,4-dioxane in samples MW-18BR and MW-P(I).
HP5973C CCAL 08/22/19 09:18	1,4-Dioxane	37.2 %D	
Associated samples: MW-18BR, MW-P(I)			
HP5977L ICAL 08/15/19	1,4-Dioxane	RF 0.0032	Reject (R) the nondetect result for 1,4-dioxane in sample MWBA-2.
HP5977L CCAL 09/10/19 21:49	1,4-Dioxane	RF0.0041, 27.4 %D	
	Acetone	31.9 %D	Estimate (UJ) the nondetect result for acetone in sample MWBA-2.
Associated sample: MWBA-2			

Initial calibration (ICAL) relative standard deviation (%RSD) > 20; estimate (J) positive and blank-qualified (UJ) results only.
Continuing calibration (CCAL) percent difference (%D) > 20; estimate (J/UJ) positive and nondetect results.
Response factor (RF) < 0.05 (0.010 for poor responders); Estimate (J) positive results and reject (R) nondetect results.

Metals

The recovery criteria were met in the ICSAB sample analysis. Lead, which should not be present, was detected above the absolute value of the reporting limit in select ICSA sample analyses. Only samples with interferent levels similar (within 15%) to those of the ICSA sample were considered to be affected. As the interferent levels in samples MW-18BR, MW-P(I), and MWBA-2 were less than those of the ICSA sample, validation actions were not required.

Blanks

Contamination was not detected in the laboratory instrument and method blanks and associated field blank and trip blank samples, except where noted below.

Analyte	Blank ID/ Associated Samples	Concentration Detected	Validation Actions
Total alkalinity	09/09 Instrument blank: MWBA-2 (3-fold)	11.65 mg/L	Qualify the result for total alkalinity in sample MWBA-2 as estimated (J+); High bias.
Total recoverable phenolics	MB 480-490474: MW-18BR, MW-P(I)	0.00632 mg/L	Qualify the results for total recoverable phenolics as nondetect (U) at the reported values in samples MW-18BR and MW-P(I).
Total recoverable phenolics	Field Blank: MW-18BR, MW-P(I), MWBA-2	0.0088 mg/L	Qualify the result for total recoverable phenolics as nondetect (U) at the reported value in sample MWBA-2.

Blank Actions:
If the sample result is < QL; report the result as nondetect (U) at the quantitation limit (QL) or reported value.
If the sample result is ≥ QL and <2x blank contamination detected; professional judgment was taken to report the result as nondetect (U) at the reported value.
If the sample result is ≥ QL or 2x contamination and < 10x blank contamination detected; professional judgment was taken to report the sample result as estimated (J); biased high.
If the sample result is nondetect or > 10x blank contamination detected; validation action is not required.

Surrogate Recoveries

All criteria were met.

Isotope Dilution Analyte Recoveries (PFAS)

All isotope dilution recoveries were within the laboratory control limits.

MS/MSD Results

MS/MSD analyses were performed on project sample MW-18BR for VOCs and total and dissolved metals. MS/MSD analyses were performed on various project samples for bromide, chloride, sulfate, ammonia, TKN, COD, total phenolics, hexavalent chromium, cyanide, color, hardness, and TOC. All recovery and precision criteria were met for the MS/MSD samples which were in the preparation batches of the validated samples, except where noted below.

Sample	Analyte	Recovery (%)	RPD (%)	QC Limits (%)	Validation Actions
MW-18BR	Total Cyanide	85, 84	-	90-110	Estimate (UJ) the nondetect results for total cyanide in samples MW-18BR, MW-P(I), and MWBA-2; Low bias.
MW-P(I),		MS 84	NA		
MWBA-2		MS 89	NA		
MW-18BR	Ammonia	72, 72	-	90-110	Estimate (UJ) the nondetect results for ammonia in samples MW-18BR, MW-P(I), and MWBA-2; Low bias.
MW-P(I),		MS 85	NA		
MWBA-2		MS 69	NA		
MW-18BR	Total Recoverable Phenolics	86, 87	-	90-110	Estimate (UJ) the blank-qualified nondetect results for total recoverable phenolics in samples MW-18BR, MW-P(I), and MWBA-2; Low bias.
MW-P(I),		MS 86	NA		
MWBA-2		MS 76	NA		
Associated project samples: MW-18BR, MW-P(I), MWBA-2					
- criterion met NA- Not applicable; MSD not performed on this sample					

Laboratory Duplicate Results

Laboratory duplicate analyses were performed on various project samples for TKN, color, hexavalent chromium, BOD, and total dissolved solids. All criteria were met.

LCS Results

All LCS recovery criteria were met, except where noted below.

Total Cyanide

The following table lists the recoveries outside of control limits in the LCS and the resulting actions.

LCS ID	Analyte	Recovery (%)	Control Limits (%)	Associated Samples	Validation Action/Bias
LCS 480-491744	Total Cyanide	86	90-110	MWBA-2	Estimate (UJ) the nondetect result for total cyanide in sample MWBA-2; Low bias.

Internal Standards

All criteria were met.

Serial Dilution Results

A serial dilution analysis was performed on project sample MW-17 for total and dissolved metals. All criteria were met.

Field Duplicate Results - Inorganics

Samples MW-P(I) and DUP were submitted as the field duplicate pair with this sample set. The following table summarizes the RPDs of the detected analytes in the field duplicate pair, which were within the acceptance criteria.

Analyte	MW-P(I) (mg/L)	DUP (mg/L)	RPD (%)
Boron	0.037	0.037	0
Calcium	107	108	0.9
Iron	1.3	1.4	7.4
Lead	0.0030 U	0.0033	NC, Within 2xRL
Magnesium	37.2	37.6	1.1
Manganese	0.12	0.12	0
Sodium	18.6	19.0	2.1
Dissolved Boron	0.035	0.035	0
Dissolved Calcium	107	104	2.8
Dissolved Iron	0.29	0.48	49.4, Within 2xRL
Dissolved Magnesium	36.8	36.1	1.9
Dissolved Manganese	0.11	0.11	0
Dissolved Sodium	21.4	19.5	9.3
Total alkalinity	296	291	1.7
Chemical oxygen demand	13.7	8.9	42.5, Within 2xRL
Hardness	408	420	2.9
Total dissolved solids	554	650	15.9
Chloride	52.8	48.0	9.5
Sulfate	106	103	2.9
NC – Not calculable			

Analyte	MW-P(I) (mg/L)	DUP (mg/L)	RPD (%)
Criteria: When both results are ≥5x the RL, RPDs must be <30%. When results are < 5x the RL, professional judgment was used to qualify results in which the absolute difference between the original and field duplicate was >2XRL			

Field Duplicate Results – Fluorinated Alkyl Substances

Samples MWSE-4 and DUP were submitted as the field duplicate pair with this sample set. As shown in the table below, the duplicate sample (Blind Duplicate) is inconsistent with the parent sample. The COC was reviewed and the sample collection time of the duplicate sample matched that of MWSE-4 and was listed as such on the COC. GEI reviewed test results for the prior sampling event (July 2019) and found sample results for MWSE-3 were non-detect for fluorinated alkyl substances and sample MWSE-4 contained analyte concentrations near identical to those reported in MWSE-3 during the September 2019 event. GEI discussed this issue with Mr. Robert Hrabak of Test America Sacramento on January 16, 2020. It was mutually agreed that the parent sample MWSE-4 was inappropriately labeled in the field. As a result, the data presented for MWSE-3 and the data for MWSE-4 are considered to be transposed and the laboratory data sheet modified during sample validation.

The following table summarizes the RPDs of the detected analytes in the field duplicate pair (corrected sample ID shown). RPDs were within the acceptance criteria.

Analyte	MWSE-4 ng/L	Blind Duplicate (MWSE-4) ng/L	RPD (%)
Perfluorobutanesulfonic acid (PFBS)	4.8	4.7	2.1
Perfluorobutanoic acid (PFBA)	15	15	0
Perfluoroheptanoic acid (PFHpA)	5.8	6.1	4.1
Perfluorohexanoic acid (PFHxA)	21	21	0
Perfluorooctanesulfonic acid (PFOS)	2.6	2.5	4.0
Perfluorooctanoic acid (PFOA)	9	9	0
Perfluoropentanoic acid (PFPeA)	15	15	0

Quantitation Limits

Sample results were reported down to the reporting or quantitation limit (QL). All quantitation limit criteria were met, except where noted below.

The following table lists the requested project specific reporting limits which were less than the laboratory standard quantitation limits but greater than the laboratory method detection limits.

Analyte	Project Reporting Limits	Laboratory PQL	Validation Assessment
2-Butanone	5.0 ug/L	10 ug/L	Standard levels of 2 and 5 ug/L were utilized in the calibration curve and curve linearity criteria were met, therefore accuracy at the project reporting limit of 5 was demonstrated and results are accepted without qualification.
Acetone	5.0 ug/L	10 ug/L	
Antimony	0.015 mg/L	0.020 mg/L	The low point calibration standard analyzed was at the laboratory PQL levels, therefore accuracy was not confirmed at the lower project reporting limits. The nondetect results for antimony, arsenic, lead, and thallium samples MW-18BR, MW-P(I), and MWBA-2 were estimated (UJ).
Arsenic	0.010 mg/L	0.015 mg/L	
Lead	0.003 mg/L	0.010 mg/L	
Thallium	0.010 mg/L	0.020 mg/L	
Alkalinity	5.0 mg/L	10 mg/L	Validation action was not required as all affected project results were greater than the laboratory PQL of 10 mg/L.
Total Kjeldahl Nitrogen	0.15 mg/L as N	0.20 mg/L	The low point calibration standard analyzed was at the laboratory PQL level, therefore accuracy was not confirmed at the lower project reporting limit. The nondetect results for total kjeldahl nitrogen in samples MW-18BR, MW-P(I), and MWBA-2 were estimated (UJ).
Chemical Oxygen Demand	5 mg/L	10 mg/L	A standard level of 5 mg/L was utilized in the calibration curve and curve linearity criteria were met, therefore accuracy at the project reporting limit of 5 was demonstrated and results are accepted without qualification.
Total Recoverable Phenolics	0.005 mg/L	0.010 mg/L	The low point calibration standard analyzed was at the laboratory PQL level, therefore accuracy was not confirmed at the lower project reporting limit. The nondetect results for total recoverable phenolics in samples MW-18BR, MW-P(I), and MWBA-2 were estimated (UJ).
Color	0.010 Color Units	5 Color Units	The low point calibration standard analyzed was at the laboratory PQL level, therefore accuracy was not confirmed at the lower project reporting limit. The nondetect results for color in samples MW-P(I) and MWBA-2 were estimated (UJ). The result for color in sample MW-18BR was detected at the laboratory PQL therefore it can be accepted without qualification.
Hardness	1.0 mg/L	2.0 mg/L	Validation action was not required as all affected project results were greater than the laboratory PQL of 2 mg/L.

General Chemistry

Anion samples MW-18BR (5-fold), MW-P(I) (5-fold), and MWBA-2 (2-fold) were analyzed at dilutions to bring chloride and sulfate level within the instrument linear range. Bromide was not detected in these analyses and the reporting limits were therefore elevated. Alkalinity samples MW-18BR (2-fold), MW-P(I) (3-fold), and MWBA-2 (3-fold) were analyzed at dilutions due high levels.

Attachments: MW18BR, MW-P(I), MWBA-2, MWSE-4 validated data sheets

Attachment 1

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

JN - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) based on an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

Client Sample ID: MWSE-1

Date Collected: 09/09/19 12:35
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-1

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluoropentanoic acid (PFPeA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorohexanoic acid (PFHxA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorooctanoic acid (PFOA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorononanoic acid (PFNA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorodecanoic acid (PFDA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorododecanoic acid (PFDoA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19		ng/L		09/12/19 07:48	09/13/19 21:30	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19		ng/L		09/12/19 07:48	09/13/19 21:30	1
6:2 FTS	ND		19		ng/L		09/12/19 07:48	09/13/19 21:30	1
8:2 FTS	ND		19		ng/L		09/12/19 07:48	09/13/19 21:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*98*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C5-PFPeA DNU	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C2 PFHxA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C4 PFHpA	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C4 PFOA	*104*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C5 PFNA	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C2 PFDA	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C2 PFUnA	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C2 PFDoA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C2 PFTeDA	*106*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
18O2 PFHxS	*115*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C4 PFOS	*105*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C8 FOSA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
d3-NMeFOSAA	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
d5-NEtFOSAA	*96*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
M2-6:2 FTS	*115*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
M2-8:2 FTS	*129*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*

Client Sample ID: MWSE-2

Date Collected: 09/09/19 11:20
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-2

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1

Client Sample ID: MWSE-2

Lab Sample ID: 480-158878-2

Date Collected: 09/09/19 11:20
Matrix: Water
Date Received: 09/09/19 15:40

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorohexanoic acid (PFHxA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorooctanoic acid (PFOA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorononanoic acid (PFNA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorodecanoic acid (PFDA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorododecanoic acid (PFDoA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19		ng/L		09/12/19 07:48	09/13/19 21:39	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19		ng/L		09/12/19 07:48	09/13/19 21:39	1
6:2 FTS	ND		19		ng/L		09/12/19 07:48	09/13/19 21:39	1
8:2 FTS	ND		19		ng/L		09/12/19 07:48	09/13/19 21:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*102*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C5-PFPeA DNU	*106*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C2 PFHxA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C4 PFHpA	*104*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C4 PFOA	*106*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C5 PFNA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C2 PFDA	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C2 PFUnA	*109*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C2 PFDoA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C2 PFTeDA	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
18O2 PFHxS	*114*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C4 PFOS	*102*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C8 FOSA	*102*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
d3-NMeFOSAA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
d5-NEtFOSAA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
M2-6:2 FTS	*114*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
M2-8:2 FTS	*116*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*

Client Sample ID: MWSE-3

Lab Sample ID: 480-158878-3

Date Collected: 09/09/19 13:41
Matrix: Water
Date Received: 09/09/19 15:40

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**15**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluoropentanoic acid (PFPeA)	**15**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1

Client Sample ID: ~~MWSE-3~~ MWSE-4 RF
Date Collected: 09/09/19 ~~13:41~~ 11:46 RF
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-3
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	**21**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluoroheptanoic acid (PFHpA)	**5.8**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorooctanoic acid (PFOA)	**9.0**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorononanoic acid (PFNA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorodecanoic acid (PFDA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorododecanoic acid (PFDoA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorobutanesulfonic acid (PFBS)	**4.8**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorooctanesulfonic acid (PFOS)	**2.6**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19		ng/L		09/12/19 07:48	09/13/19 21:49	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19		ng/L		09/12/19 07:48	09/13/19 21:49	1
6:2 FTS	ND		19		ng/L		09/12/19 07:48	09/13/19 21:49	1
8:2 FTS	ND		19		ng/L		09/12/19 07:48	09/13/19 21:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*89*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C5-PFPeA DNU	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C2 PFHxA	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C4 PFHpA	*110*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C4 PFOA	*107*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C5 PFNA	*106*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C2 PFDA	*106*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C2 PFUnA	*109*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C2 PFDoA	*105*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C2 PFTeDA	*98*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
18O2 PFHxS	*115*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C4 PFOS	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C8 FOSA	*104*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
d3-NMeFOSAA	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
d5-NEtFOSAA	*102*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
M2-6:2 FTS	*128*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
M2-8:2 FTS	*123*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*

Client Sample ID: ~~MWSE-4~~ MWSE-3 KF
Date Collected: 09/09/19 ~~11:46~~ 13:41 RC
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-4
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluoropentanoic acid (PFPeA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1

RC

Client Sample ID: ~~MWSE-4~~ & MWSE-3 RE
Date Collected: 09/09/19 ~~11:46~~ & 13:41 RE
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-4
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorooctanoic acid (PFOA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorononanoic acid (PFNA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorododecanoic acid (PFDoA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18		ng/L		09/12/19 07:48	09/13/19 21:59	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18		ng/L		09/12/19 07:48	09/13/19 21:59	1
6:2 FTS	ND		18		ng/L		09/12/19 07:48	09/13/19 21:59	1
8:2 FTS	ND		18		ng/L		09/12/19 07:48	09/13/19 21:59	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C5-PFPeA DNU	*104*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C2 PFHxA	*99*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C4 PFHpA	*107*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C4 PFOA	*106*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C5 PFNA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C2 PFDA	*98*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C2 PFUnA	*108*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C2 PFDoA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C2 PFTeDA	*96*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
18O2 PFHxS	*116*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C4 PFOS	*107*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C8 FOSA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
d3-NMeFOSAA	*96*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
d5-NEtFOSAA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
M2-6:2 FTS	*118*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
M2-8:2 FTS	*118*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*

Client Sample ID: BLIND DUP
Date Collected: 09/09/19 11:46
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-5
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**15**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluoropentanoic acid (PFPeA)	**15**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorohexanoic acid (PFHxA)	**21**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1

Client Sample ID: BLIND DUP (mwSE-4) RF

Date Collected: 09/09/19 11:46
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-5
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid (PFHpA)	**6.1**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorooctanoic acid (PFOA)	**9.0**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorononanoic acid (PFNA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorododecanoic acid (PFDoA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorobutanesulfonic acid (PFBS)	**4.7**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorooctanesulfonic acid (PFOS)	**2.5**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18		ng/L		09/12/19 07:48	09/13/19 22:08	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18		ng/L		09/12/19 07:48	09/13/19 22:08	1
6:2 FTS	ND		18		ng/L		09/12/19 07:48	09/13/19 22:08	1
8:2 FTS	ND		18		ng/L		09/12/19 07:48	09/13/19 22:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*84*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C5-PFPeA DNU	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C2 PFHxA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C4 PFHpA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C4 PFOA	*102*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C5 PFNA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C2 PFDA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C2 PFUnA	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C2 PFDoA	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C2 PFTeDA	*91*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
18O2 PFHxS	*110*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C4 PFOS	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C8 FOSA	*99*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
d3-NMeFOSAA	*92*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
d5-NEtFOSAA	*95*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
M2-6:2 FTS	*119*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
M2-8:2 FTS	*116*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*

Client Sample ID: TRIP BLANK

Date Collected: 09/09/19 09:00
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-6
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/20/19 00:45	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/20/19 00:45	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/20/19 00:45	1

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins Environment Testing TestAmerica

480-158878 Chain of Custody

Client Information	Sampler	Lab PM: Giglia, Denise L
Client Contact: Timothy Bly	Phone	E-Mail: denise.giglia@testamericainc.com
Company: TestAmerica Laboratories, Inc		Analysis Requested
Address: 10 Hazelwood Drive	Due Date Requested:	
City: Amherst	TAT Requested (days):	
State, Zip: NY, 14228		
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested	
Email: timothy.bly@testamericainc.com	WO #:	
Project Name: Chaffee Facility Western Expansion	Project #: 48002685	
Site: New York	SSOW#:	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - PFAS, Standard List (21 Analytes)	8260C - NY Part 360 Baseline Volatiles	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N			
MWSE-1	9/9/19	1235	G	Water			2	0		
MWSE-2	9/9/19	1120	G	Water			2	0		
MWSE-3	9/9/19	1341	G	Water			2	0		
MWSE-4	9/9/19	1146	G	Water			2	0		DUP TAKEN
Blind Duplicate	9/9/19	1146	G	Water			2	0		TAKEN AT MWSE-4
TRIP BLANK	9/9/19	0900	G	Water			0	2		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements

Empty Kit Relinquished by	Date	Time	Method of Shipment

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	[signature]	09/09/19 15:40		[signature]	9/9/19	15:40
2						
3						

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No:

Cooler Temperature(s) °C and Other Remarks: 3.3 21

Ver: 01/16/2019

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09/30/2019

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-157980-1

Login Number: 158878
List Number: 2
Creator: Kintaudi, Pauline W

List Source: Eurofins TestAmerica, Sacramento
List Creation: 09/11/19 01:36 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	993303
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Baseline Sampling Event Data

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ANALYTICAL REPORT

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

Laboratory Job ID: 480-157980-1
Client Project/Site: Chaffee Facility Western Exp-GW Baselin
Sampling Event: Chaffee WEXP GW Baseline(9)

For:
Waste Management
Chaffee Landfill
10860 Olean Road
Chaffee, New York 14030-9799

Attn: Christopher Chapman

Denise L Giglia

Authorized for release by:
9/30/2019 7:27:38 PM

Denise Giglia, Project Manager I
(716)691-2600
denise.giglia@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
b	Result Detected in the Unseeded Control blank (USB).
F1	MS and/or MSD Recovery is outside acceptance limits.
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-157980-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-157980-1

Comments
No additional comments.

Receipt
The samples were received on 8/21/2019 5:30 PM, 8/23/2019 4:45 PM, 8/26/2019 4:30 PM, 8/30/2019 4:15 PM, 9/3/2019 4:50 PM and 9/9/2019 3:40 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 11 coolers at receipt time were 2.9º C, 2.9º C, 2.9º C, 3.1º C, 3.1º C, 3.3º C, 3.5º C, 3.6º C, 3.7º C, 3.8º C and 4.2º C.

GC/MS VOA
Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-489143 recovered above the upper control limit for Trichlorofluoromethane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: MW-50 (480-158145-1).

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-491215 recovered above the upper control limit for Acetonitrile. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: FIELD BLANK (480-158409-1), MWBA-1 (480-158409-2), MWBA-2 (480-158409-3), MW-O(I) (480-158409-4) and TRIP BLANK (480-158409-5).

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-491769 recovered outside acceptance criteria, low biased, for 2-Hexanone, 4-Methyl-2-pentanone, Acetonitrile and Tetrahydrofuran. A reporting limit (RL) standard was analyzed, and the target analytes were detected. Since the associated samples were non-detect for these analyte, the data have been reported. The following samples are impacted:MWSE-1 (480-158492-1), MWSE-2 (480-158492-2), MWSE-3 (480-158492-3) and MWSE-4 (480-158492-4).

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-491769 recovered above the upper control limit for Trichlorofluoromethane. The samples associated with this CCV were non-detect for the affected analyte; therefore, the data have been reported. The following samples are impacted: MWSE-1 (480-158492-1), MWSE-2 (480-158492-2), MWSE-3 (480-158492-3) and MWSE-4 (480-158492-4).

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-491707 recovered outside acceptance criteria, low biased, for 1,2-Dichloroethane, 1,4-Dichlorobenzene, Chloroform, Toluene and trans-1,3-Dichloropropene. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported. The following sample is impacted:TRIP BLANK (480-158492-5).

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-491707 recovered above the upper control limit for 1,4-Dioxane and Acetonitrile. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: TRIP BLANK (480-158492-5).

Method(s) 8260C: The laboratory control sample (LCS) for analytical batch 480-491707 recovered outside control limits for the following analyte: 1,4-Dioxane. This analyte was biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. The following sample is impacted:TRIP BLANK (480-158492-5).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

HPLC/IC
Method(s) 300.0: The following samples were diluted due to the abundance of non-target analytes: DUP (480-157980-1), MW-16 (480-157980-2), MW-17 (480-157980-4), MW-18BR (480-157980-5), MW-L(I) (480-157980-6), MW-M(S) (480-157980-8), MW-P(I) (480-157980-9), MW-P(S) (480-157980-10), MW-N(S) (480-158093-2), MW-Q(I) (480-158093-3), MWSE-1 (480-158492-1), MWSE-2 (480-158492-2) and MWSE-4 (480-158492-4). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: The following sample was reported with elevated reporting limits for all analytes: MW-M(I) (480-157980-7), MW-N(I) (480-158093-1), MWBA-1 (480-158409-2), MWBA-2 (480-158409-3) and MW-O(I) (480-158409-4). The sample was analyzed at a dilution

Job ID: 480-157980-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

based on screening results.

Method(s) SM 4110B: The following samples were diluted to bring the concentration of target analytes within the calibration range: DUP (480-157980-1), MW-16 (480-157980-2), MW-17 (480-157980-4), MW-18BR (480-157980-5), MW-L(I) (480-157980-6), MW-M(S) (480-157980-8), MW-P(I) (480-157980-9), MW-P(S) (480-157980-10), MW-N(S) (480-158093-2), MW-Q(I) (480-158093-3), MWBA-1 (480-158409-2), MWBA-2 (480-158409-3), MWSE-1 (480-158492-1), MWSE-2 (480-158492-2) and MWSE-4 (480-158492-4). Elevated reporting limits (RLs) are provided.

Method(s) SM 4110B: The following sample was reported with elevated reporting limits for all analytes: MW-M(I) (480-157980-7), MW-N(I) (480-158093-1) and MW-O(I) (480-158409-4). The sample was analyzed at a dilution based on screening results.

Method(s) SM 4110B: The results reported for the following sample do not concur with results previously reported for this site: MW-P(I) (480-157980-9). Reanalysis was performed, and the result(s) confirmed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

Method(s) 6010C: The Total Aluminum results reported for the following samples do not concur with results previously reported for this site: MW-M(I) (480-157980-7) and MW-M(S) (480-157980-8). Reanalysis was performed, and the results confirmed.

Method(s) 6010C: Dissolved Sodium metals result for the following sample is greater than the corresponding total metals result: MW-Q(I) (480-158093-3). The dissolved metals and total metals results have been confirmed by the analysis of the undigested sample.

Method(s) 6010C: The continuing calibration verifications (CCV 480-489442/37 and 480-489442/49) associated with batch 480-489442 recovered above the upper control limit for Total Silver. The samples MW-50 (480-158145-1) associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method(s) 6010C: The laboratory control sample duplicate (LCSD) for preparation batch 480-489078 and analytical batch 480-489442 recovered outside control limits for the following analytes: Total Copper and Zinc. These analytes were biased high in the LCSD and were not detected in the associated samples MW-50 (480-158145-1) ; therefore, the data have been reported.

Method(s) 6010C: The recovery of post spike, (480-157980-E-4-A PDS), associated with batch 480-488655, exhibited a result outside quality control limits for Dissolved Sodium. However, the serial dilution (SD) of this sample was compliant, therefore no corrective action was necessary.

Method(s) 6010C: The Dissolved Boron results reported for the following sample do not concur with results previously reported for this site: MW-17 (480-157980-4). Reanalysis was performed, and the result(s) confirmed.

Method(s) 6010C: The Dissolved Boron, Calcium, Magnesium, Manganese, and Sodium results reported for the following sample do not concur with results previously reported for this site: MW-M(I) (480-157980-7). Reanalysis was performed, and the result(s) confirmed.

Method(s) 6010C: The Dissolved Calcium, Iron, Magnesium, Manganese, and Sodium results reported for the following sample do not concur with results previously reported for this site: MW-M(S) (480-157980-8). Reanalysis was performed, and the result(s) confirmed.

Method(s) 6010C: The Dissolved Sodium results reported for the following sample do not concur with results previously reported for this site: MW-P(I) (480-157980-9). Reanalysis was performed, and the result(s) confirmed.

Method(s) 6010C: The Dissolved Barium, Manganese, and Sodium results reported for the following sample do not concur with results previously reported for this site: MW-P(S) (480-157980-10). Reanalysis was performed, and the result(s) confirmed.

Method(s) 6010C: Dissolved Manganese metals result for the following sample is greater than the corresponding total metals result: MWSE-2 (480-158492-2). The dissolved metals and total metals results have been confirmed by the analysis of the undigested sample.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Job ID: 480-157980-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

LCMS

Method(s) 537 (modified): Due to a shortage in the marketplace for 13C3-PFBS, the target analyte PFBS and/or Perfluoropentanesulfonic acid (PFPeS) could not be quantitated against 13C3-PFBS (its labeled variant) as listed in the SOP. PFBS and Perfluoropentanesulfonic acid (PFPeS) was quantitated versus 18O2-PFHxS instead. (ICV 320-322933/11)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry

Method(s) SM 2120B: The following samples were filtered prior to analysis, therefore the analytical results are being report as "True Color": DUP (480-157980-1), MW-17 (480-157980-4), MW-17 (480-157980-4[MS]), MW-17 (480-157980-4[MSD]), MW-18BR (480-157980-5), MW-L(I) (480-157980-6), MW-M(I) (480-157980-7), MW-M(S) (480-157980-8), MW-P(I) (480-157980-9), MW-P(S) (480-157980-10), MW-N(I) (480-158093-1), MW-Q(I) (480-158093-3), MW-50 (480-158145-1), MWSE-3 (480-158492-3)

Method(s) SM 2120B: Reanalysis of the following sample(s) was performed outside of the analytical holding time due to matrix spike duplicate inadvertently not having spiking reagent added in original analysis. Both sets of data are reported: MW-17 (480-157980-4), MW-17 (480-157980-4[MS]) and MW-17 (480-157980-4[MSD]).

Method(s) SM 2120B: The following samples in analytical batch 480-490392 were analyzed outside of the allowable frequency of quality control criteria due to laboratory error. The data has been reported due to holding time limitations: MWSE-3 (480-158492-3) and MWSE-4 (480-158492-4)

Method(s) 310.2: The continuing calibration blank (CCB) for analytical batch 480-491046 contained Alkalinity, Total above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed. MWBA-1 (480-158409-2), MWBA-2 (480-158409-3) and MW-O(I) (480-158409-4)

Method(s) 351.2: For preparation batch 480-491906 and analytical batch 480-492180 there is no raw instrument data nor raw preparation logs due to laboratory error. The data results are uploaded directly from the instrument: FIELD BLANK (480-158409-1), MWSE-1 (480-158492-1), MWSE-2 (480-158492-2), MWSE-3 (480-158492-3), MWSE-4 (480-158492-4) and (480-158409-C-1-B DU)

Method(s) 351.2: Reanalysis of the following sample(s) was performed outside of the analytical holding time due to inconsistent results between sample and matrix duplicate (DU) in original analysis. Both sets of data are reported: FIELD BLANK (480-158409-1).

Method(s) 353.2: The results reported for the following sample do not concur with results previously reported for this site: MW-N(I) (480-158093-1). Reanalysis was performed, and the result(s) confirmed.

Method(s) 353.2: The continuing calibration verification (CCV) associated with batch 480-490220 recovered above the upper control limit for Nitrite. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. MWSE-1 (480-158492-1), MWSE-2 (480-158492-2) and MWSE-3 (480-158492-3)

Method(s) 410.4: The results reported for the following sample do not concur with results previously reported for this site: MW-P(I) (480-157980-9). Reanalysis was performed, and the result(s) confirmed.

Method(s) SM 5210B: The glucose-glutamic acid standard (LCS) recovered below the recovery limits specified in the method for analytical batch 480-488619 .

Method(s) SM 5210B: The RPD between the lowest and highest values used in averaging the final result exceeds 30%. MW-50 (480-158145-1)

Method(s) SM 5210B: Due to the matrix, the initial volume(s) used for the following sample deviated from the standard procedure: MW-P(I) (480-157980-9). The reporting limits (RLs) have been adjusted proportionately.

Method(s) 335.4, 9012B: The laboratory control sample (LCS) for preparation batch 480-492183 and analytical batch 480-492325 recovered outside control limits for the following analytes: Cyanide. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported. MWSE-1 (480-158492-1), MWSE-3 (480-158492-3) and MWSE-4

Job ID: 480-157980-1 (Continued)

Laboratory: Eurofins TestAmerica, Buffalo (Continued)

(480-158492-4)

Method(s) 9012B: Reanalysis of the following sample(s) was performed outside of the analytical holding time due to original result being outside of historical limits. The reanalysis did not confirm the original result. The reanalysis is within historical limits. Both sets of data are being reported. : MW-50 (480-158145-1).

Method(s) 9012B: The following sample(s) was analyzed outside of analytical holding time due to failure of quality control criteria in the original analysis. Both sets of data are reported: MWBA-1 (480-158409-2), MWBA-2 (480-158409-3) and MW-O(I) (480-158409-4).

Method(s) 9065: The method blank for preparation batch 480-490474 and analytical batch 480-490818 contained Phenolics, Total Recoverable above the method detection limit. This target analyte concentration was less than the practical quantitation limit (PQL); therefore, re-extraction and re-analysis of samples was not performed. DUP (480-157980-1), MW-16 (480-157980-2), MW-17 (480-157980-4), MW-18BR (480-157980-5), MW-L(I) (480-157980-6), MW-M(I) (480-157980-7), MW-M(S) (480-157980-8), MW-P(I) (480-157980-9) and MW-P(S) (480-157980-10)

Method(s) 9065: The method blank for preparation batch 480-491834 and analytical batch 480-492044 contained Phenolics, Total Recoverable above the method detection limit. This target analyte concentration was less than the practical quantitation limit (PQL); therefore, re-extraction and re-analysis of samples was not performed. MW-16(S) (480-157980-3)

Method(s) 9065: The method blank for preparation batch 480-490716 and analytical batch 480-490818 contained Phenolics, Total Recoverable above the method detection limit. This target analyte concentration was less than the practical quantitation limit (PQL); therefore, re-extraction and re-analysis of samples was not performed. MW-50 (480-158145-1)

Method(s) 9065: The results reported for the following samples do not concur with results previously reported for this site: MW-N(S) (480-158093-2) and MWBA-1 (480-158409-2). Reanalysis was performed, and the result(s) confirmed.

Method(s) 9065: The method blank for preparation batch 480-492372 and analytical batch 480-492515 contained Phenolics, Total Recoverable above the method detection limit. This target analyte concentration was less than the practical quantitation limit (PQL); therefore, re-extraction and re-analysis of samples was not performed. MW-N(S) (480-158093-2)

Method(s) 9065: The method blank for preparation batch 480-490714 and analytical batch 480-490818 contained Phenolics, Total Recoverable above the method detection limit. This target analyte concentration was less than the practical quantitation limit (PQL); therefore, re-extraction and re-analysis of samples was not performed. MW-N(I) (480-158093-1) and MW-Q(I) (480-158093-3)

Method(s) 9065: The method blank for preparation batch 480-492371 and analytical batch 480-492515 contained Phenolics, Total Recoverable above the method detection limit. This target analyte concentration was less than the practical quantitation limit (PQL); therefore, re-extraction and re-analysis of samples was not performed. MWSE-1 (480-158492-1), MWSE-2 (480-158492-2), MWSE-3 (480-158492-3) and MWSE-4 (480-158492-4)

Method(s) 9065: The method blank for preparation batch 480-492372 and analytical batch 480-492515 contained Phenolics, Total Recoverable above the method detection limit. This target analyte concentration was less than the practical quantitation limit (PQL); therefore, re-extraction and re-analysis of samples was not performed. MWBA-1 (480-158409-2)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-322696.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: DUP — Lab Sample ID: 480-157980-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.037		0.020		mg/L	1		6010C	Total/NA
Calcium	108		5.0		mg/L	1		6010C	Total/NA
Iron	1.4		0.10		mg/L	1		6010C	Total/NA
Lead	0.0033		0.0030		mg/L	1		6010C	Total/NA
Magnesium	37.6		5.0		mg/L	1		6010C	Total/NA
Manganese	0.12		0.015		mg/L	1		6010C	Total/NA
Sodium	19.0		5.0		mg/L	1		6010C	Total/NA
Boron, Dissolved	0.035		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	104		5.0		mg/L	1		6010C	Dissolved
Iron, Dissolved	0.48		0.10		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	36.1		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.11		0.015		mg/L	1		6010C	Dissolved
Sodium, Dissolved	19.5		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	291		20.0		mg/L	4		310.2	Total/NA
Chemical Oxygen Demand	8.9		5.0		mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.0082	B	0.0050		mg/L	1		9065	Total/NA
Hardness	420		5.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	650		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	48.0		2.5		mg/L	5		SM 4110B	Total/NA
Sulfate	103		10.0		mg/L	5		SM 4110B	Total/NA
pH, Field	7.26				SU	1		Field Sampling	Total/NA
Specific Conductance	909				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	-43.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	17.9				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	6.2				NTU	1		Field Sampling	Total/NA
Well Depth	55.52				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	32.38				ft	1		Field Sampling	Total/NA

Client Sample ID: MW-16 — Lab Sample ID: 480-157980-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.35		0.20		mg/L	1		6010C	Total/NA
Calcium	124		5.0		mg/L	1		6010C	Total/NA
Iron	0.48		0.10		mg/L	1		6010C	Total/NA
Magnesium	33.1		5.0		mg/L	1		6010C	Total/NA
Manganese	0.041		0.015		mg/L	1		6010C	Total/NA
Sodium	105		5.0		mg/L	1		6010C	Total/NA
Barium, Dissolved	0.34		0.20		mg/L	1		6010C	Dissolved
Calcium, Dissolved	118		5.0		mg/L	1		6010C	Dissolved
Iron, Dissolved	0.48		0.10		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	31.3		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.038		0.015		mg/L	1		6010C	Dissolved
Sodium, Dissolved	102		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	298		20.0		mg/L	4		310.2	Total/NA
Chemical Oxygen Demand	25.7		5.0		mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.0070	B	0.0050		mg/L	1		9065	Total/NA
Color	15.0		0.0100		Color Units	1		SM 2120B	Total/NA
Hardness	460		5.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	743		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	247		2.5		mg/L	5		SM 4110B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-16 (Continued)

Lab Sample ID: 480-157980-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	30.5		10.0		mg/L	5		SM 4110B	Total/NA
pH, Field	7.17				SU	1		Field Sampling	Total/NA
Specific Conductance	1349				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	3.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	11.2				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	2.4				NTU	1		Field Sampling	Total/NA
Well Depth	30.60				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	19.31				ft	1		Field Sampling	Total/NA

Client Sample ID: MW-16(S)

Lab Sample ID: 480-157980-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	0.39		0.20		mg/L	1		6010C	Total/NA
Calcium	92.0		5.0		mg/L	1		6010C	Total/NA
Iron	0.56		0.10		mg/L	1		6010C	Total/NA
Magnesium	10.7		5.0		mg/L	1		6010C	Total/NA
Manganese	0.050		0.015		mg/L	1		6010C	Total/NA
Potassium	6.7		5.0		mg/L	1		6010C	Total/NA
Calcium, Dissolved	88.2		5.0		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	10.1		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.021		0.015		mg/L	1		6010C	Dissolved
Potassium, Dissolved	6.4		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	248		15.0		mg/L	3		310.2	Total/NA
Total Kjeldahl Nitrogen	0.47		0.15		mg/L as N	1		351.2	Total/NA
Nitrate	0.095		0.050		mg/L as N	1		353.2	Total/NA
Chemical Oxygen Demand	9.2		5.0		mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.011	B	0.0050		mg/L	1		9065	Total/NA
Color	5.00		0.0100		Color Units	1		SM 2120B	Total/NA
Hardness	268		2.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	341		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	2.6		0.50		mg/L	1		SM 4110B	Total/NA
Sulfate	41.7		2.0		mg/L	1		SM 4110B	Total/NA
Total Organic Carbon	4.6		1.0		mg/L	1		SM 5310C	Total/NA
pH, Field	7.16				SU	1		Field Sampling	Total/NA
Specific Conductance	548				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	81				millivolts	1		Field Sampling	Total/NA
Temperature, Field	14.8				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	18.8				NTU	1		Field Sampling	Total/NA
Well Depth	14.45				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	6.28				ft	1		Field Sampling	Total/NA

Client Sample ID: MW-17

Lab Sample ID: 480-157980-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.029		0.020		mg/L	1		6010C	Total/NA
Calcium	121		5.0		mg/L	1		6010C	Total/NA
Iron	1.0		0.10		mg/L	1		6010C	Total/NA
Magnesium	39.2		5.0		mg/L	1		6010C	Total/NA
Manganese	0.084		0.015		mg/L	1		6010C	Total/NA
Sodium	33.1		5.0		mg/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-17 (Continued)

Lab Sample ID: 480-157980-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron, Dissolved	0.025		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	121		5.0		mg/L	1		6010C	Dissolved
Iron, Dissolved	0.52		0.10		mg/L	1		6010C	Dissolved
Lead, Dissolved	0.0031		0.0030		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	39.1		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.060		0.015		mg/L	1		6010C	Dissolved
Sodium, Dissolved	61.0		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	324		20.0		mg/L	4		310.2	Total/NA
Chemical Oxygen Demand	20.7		5.0		mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.011	B F1	0.0050		mg/L	1		9065	Total/NA
Hardness	470		5.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	585		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	105		2.5		mg/L	5		SM 4110B	Total/NA
Sulfate	55.3		10.0		mg/L	5		SM 4110B	Total/NA
pH, Field	7.18				SU	1		Field Sampling	Total/NA
Specific Conductance	1013				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	-20				millivolts	1		Field Sampling	Total/NA
Temperature, Field	12.9				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	2.7				NTU	1		Field Sampling	Total/NA
Well Depth	42.00				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	25.27				ft	1		Field Sampling	Total/NA

Client Sample ID: MW-18BR

Lab Sample ID: 480-157980-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	1.3		0.20		mg/L	1		6010C	Total/NA
Barium	0.30		0.20		mg/L	1		6010C	Total/NA
Calcium	116		5.0		mg/L	1		6010C	Total/NA
Iron	1.2		0.10		mg/L	1		6010C	Total/NA
Magnesium	37.7		5.0		mg/L	1		6010C	Total/NA
Manganese	0.11		0.015		mg/L	1		6010C	Total/NA
Sodium	33.6		5.0		mg/L	1		6010C	Total/NA
Barium, Dissolved	0.28		0.20		mg/L	1		6010C	Dissolved
Calcium, Dissolved	112		5.0		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	36.4		5.0		mg/L	1		6010C	Dissolved
Sodium, Dissolved	32.2		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	152		10.0		mg/L	2		310.2	Total/NA
Chemical Oxygen Demand	16.9		5.0		mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.0076	B	0.0050		mg/L	1		9065	Total/NA
Color	5.00		0.0100		Color Units	1		SM 2120B	Total/NA
Hardness	440		5.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	793		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	222		2.5		mg/L	5		SM 4110B	Total/NA
Sulfate	58.9		10.0		mg/L	5		SM 4110B	Total/NA
pH, Field	7.42				SU	1		Field Sampling	Total/NA
Specific Conductance	1092				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	7.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	14.9				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	42.1				NTU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-18BR (Continued)

Lab Sample ID: 480-157980-5

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Well Depth	27.80				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	18.96				ft	1		Field Sampling	Total/NA

Client Sample ID: MW-L(I)

Lab Sample ID: 480-157980-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	0.81		0.20		mg/L	1		6010C	Total/NA
Boron	0.024		0.020		mg/L	1		6010C	Total/NA
Calcium	86.8		5.0		mg/L	1		6010C	Total/NA
Iron	2.1		0.10		mg/L	1		6010C	Total/NA
Magnesium	28.1		5.0		mg/L	1		6010C	Total/NA
Manganese	0.092		0.015		mg/L	1		6010C	Total/NA
Sodium	8.6		5.0		mg/L	1		6010C	Total/NA
Boron, Dissolved	0.021		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	81.1		5.0		mg/L	1		6010C	Dissolved
Iron, Dissolved	0.23		0.10		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	26.2		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.074		0.015		mg/L	1		6010C	Dissolved
Sodium, Dissolved	9.0		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	220		15.0		mg/L	3		310.2	Total/NA
Phenolics, Total Recoverable	0.0096	B	0.0050		mg/L	1		9065	Total/NA
Color	5.00		0.0100		Color Units	1		SM 2120B	Total/NA
Hardness	320		2.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	454		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	14.2		1.0		mg/L	2		SM 4110B	Total/NA
Sulfate	112		4.0		mg/L	2		SM 4110B	Total/NA
pH, Field	7.78				SU	1		Field Sampling	Total/NA
Specific Conductance	639				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	54.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	17.6				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	32.1				NTU	1		Field Sampling	Total/NA
Well Depth	42.40				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	30.10				ft	1		Field Sampling	Total/NA

Client Sample ID: MW-M(I)

Lab Sample ID: 480-157980-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	1.5		0.20		mg/L	1		6010C	Total/NA
Boron	0.041		0.020		mg/L	1		6010C	Total/NA
Calcium	87.9		5.0		mg/L	1		6010C	Total/NA
Iron	2.2		0.10		mg/L	1		6010C	Total/NA
Magnesium	30.5		5.0		mg/L	1		6010C	Total/NA
Manganese	0.12		0.015		mg/L	1		6010C	Total/NA
Sodium	15.0		5.0		mg/L	1		6010C	Total/NA
Boron, Dissolved	0.021		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	122		5.0		mg/L	1		6010C	Dissolved
Iron, Dissolved	0.16		0.10		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	41.9		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.16		0.015		mg/L	1		6010C	Dissolved
Sodium, Dissolved	63.5		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	285		15.0		mg/L	3		310.2	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-M(I) (Continued)

Lab Sample ID: 480-157980-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrate	0.061		0.050		mg/L as N	1		353.2	Total/NA
Chemical Oxygen Demand	5.9		5.0		mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.0080	B	0.0050		mg/L	1		9065	Total/NA
Color	5.00		0.0100		Color Units	1		SM 2120B	Total/NA
Hardness	324		2.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	438		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	24.8		1.0		mg/L	2		SM 4110B	Total/NA
Sulfate	53.4		4.0		mg/L	2		SM 4110B	Total/NA
pH, Field	7.53				SU	1		Field Sampling	Total/NA
Specific Conductance	675				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	-22.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	14.9				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	29.8				NTU	1		Field Sampling	Total/NA
Well Depth	42.25				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	24.77				ft	1		Field Sampling	Total/NA

Client Sample ID: MW-M(S)

Lab Sample ID: 480-157980-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	0.33		0.20		mg/L	1		6010C	Total/NA
Boron	0.031		0.020		mg/L	1		6010C	Total/NA
Calcium	188		5.0		mg/L	1		6010C	Total/NA
Iron	2.2		0.10		mg/L	1		6010C	Total/NA
Magnesium	57.6		5.0		mg/L	1		6010C	Total/NA
Manganese	0.59		0.015		mg/L	1		6010C	Total/NA
Sodium	39.6		5.0		mg/L	1		6010C	Total/NA
Boron, Dissolved	0.035		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	83.1		5.0		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	28.9		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.093		0.015		mg/L	1		6010C	Dissolved
Sodium, Dissolved	15.8		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	477		25.0		mg/L	5		310.2	Total/NA
Total Kjeldahl Nitrogen	0.49		0.15		mg/L as N	1		351.2	Total/NA
Chemical Oxygen Demand	12.6		5.0		mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.0061	B	0.0050		mg/L	1		9065	Total/NA
Hardness	660		10.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	927		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	46.0		2.5		mg/L	5		SM 4110B	Total/NA
Sulfate	237		10.0		mg/L	5		SM 4110B	Total/NA
Total Organic Carbon	1.7		1.0		mg/L	1		SM 5310C	Total/NA
pH, Field	7.02				SU	1		Field Sampling	Total/NA
Specific Conductance	1319				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	-14.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	16.1				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	18.6				NTU	1		Field Sampling	Total/NA
Well Depth	24.29				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	12.12				ft	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MW-P(I) — Lab Sample ID: 480-157980-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.037		0.020		mg/L	1		6010C	Total/NA
Calcium	107		5.0		mg/L	1		6010C	Total/NA
Iron	1.3		0.10		mg/L	1		6010C	Total/NA
Magnesium	37.2		5.0		mg/L	1		6010C	Total/NA
Manganese	0.12		0.015		mg/L	1		6010C	Total/NA
Sodium	18.6		5.0		mg/L	1		6010C	Total/NA
Boron, Dissolved	0.035		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	107		5.0		mg/L	1		6010C	Dissolved
Iron, Dissolved	0.29		0.10		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	36.8		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.11		0.015		mg/L	1		6010C	Dissolved
Sodium, Dissolved	21.4		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	296		15.0		mg/L	3		310.2	Total/NA
Chemical Oxygen Demand	13.7		5.0		mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.0074	B F1	0.0050		mg/L	1		9065	Total/NA
Hardness	408		2.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	554		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	52.8		2.5		mg/L	5		SM 4110B	Total/NA
Sulfate	106		10.0		mg/L	5		SM 4110B	Total/NA
pH, Field	7.26				SU	1		Field Sampling	Total/NA
Specific Conductance	909				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	-43.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	17.9				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	6.2				NTU	1		Field Sampling	Total/NA
Well Depth	55.52				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	32.38				ft	1		Field Sampling	Total/NA

Client Sample ID: MW-P(S) — Lab Sample ID: 480-157980-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	0.30		0.20		mg/L	1		6010C	Total/NA
Barium	0.20		0.20		mg/L	1		6010C	Total/NA
Boron	0.021		0.020		mg/L	1		6010C	Total/NA
Calcium	114		5.0		mg/L	1		6010C	Total/NA
Iron	0.72		0.10		mg/L	1		6010C	Total/NA
Magnesium	40.7		5.0		mg/L	1		6010C	Total/NA
Manganese	0.066		0.015		mg/L	1		6010C	Total/NA
Sodium	72.9		5.0		mg/L	1		6010C	Total/NA
Boron, Dissolved	0.027		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	177		5.0		mg/L	1		6010C	Dissolved
Iron, Dissolved	0.61		0.10		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	53.5		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.57		0.015		mg/L	1		6010C	Dissolved
Sodium, Dissolved	33.9		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	382		20.0		mg/L	4		310.2	Total/NA
Nitrate	0.079		0.050		mg/L as N	1		353.2	Total/NA
Chemical Oxygen Demand	7.2		5.0		mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.0076	B	0.0050		mg/L	1		9065	Total/NA
Color	10.0		0.0100		Color Units	1		SM 2120B	Total/NA
Hardness	450		5.0		mg/L	1		SM 2340C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-P(S) (Continued) — Lab Sample ID: 480-157980-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	732		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	156		2.5		mg/L	5		SM 4110B	Total/NA
Sulfate	40.0		10.0		mg/L	5		SM 4110B	Total/NA
pH, Field	7.23				SU	1		Field Sampling	Total/NA
Specific Conductance	1186				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	-4.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	18.1				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	13.1				NTU	1		Field Sampling	Total/NA
Well Depth	29.00				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	15.05				ft	1		Field Sampling	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 480-157980-11

No Detections.

Client Sample ID: MW-N(I) — Lab Sample ID: 480-158093-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	7.8		0.20		mg/L	1		6010C	Total/NA
Boron	0.047		0.020		mg/L	1		6010C	Total/NA
Calcium	129		5.0		mg/L	1		6010C	Total/NA
Iron	10.1		0.10		mg/L	1		6010C	Total/NA
Lead	0.013		0.0030		mg/L	1		6010C	Total/NA
Magnesium	31.7		5.0		mg/L	1		6010C	Total/NA
Manganese	0.77		0.015		mg/L	1		6010C	Total/NA
Potassium	5.0		5.0		mg/L	1		6010C	Total/NA
Sodium	9.5		5.0		mg/L	1		6010C	Total/NA
Zinc	0.039		0.020		mg/L	1		6010C	Total/NA
Boron, Dissolved	0.035		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	117		5.0		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	28.0		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.59		0.015		mg/L	1		6010C	Dissolved
Sodium, Dissolved	9.1		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	350		20.0		mg/L	4		310.2	Total/NA
Total Kjeldahl Nitrogen	0.80		0.15		mg/L as N	1		351.2	Total/NA
Nitrate	0.060		0.050		mg/L as N	1		353.2	Total/NA
Chemical Oxygen Demand	29.0		5.0		mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.0075	B	0.0050		mg/L	1		9065	Total/NA
Hardness	430		5.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	479		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	22.7		2.5		mg/L	5		SM 4110B	Total/NA
Sulfate	81.6		10.0		mg/L	5		SM 4110B	Total/NA
pH, Field	7.17				SU	1		Field Sampling	Total/NA
Specific Conductance	778				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	54.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	15.4				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	>300				NTU	1		Field Sampling	Total/NA
Well Depth	47.70				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	39.82				ft	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MW-N(S) — Lab Sample ID: 480-158093-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.023		0.020		mg/L	1		6010C	Total/NA
Calcium	143		5.0		mg/L	1		6010C	Total/NA
Magnesium	24.4		5.0		mg/L	1		6010C	Total/NA
Manganese	0.025		0.015		mg/L	1		6010C	Total/NA
Boron, Dissolved	0.023		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	137		5.0		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	23.6		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	336		20.0		mg/L	4		310.2	Total/NA
Total Kjeldahl Nitrogen	0.20		0.15		mg/L as N	1		351.2	Total/NA
Nitrate	0.11		0.050		mg/L as N	1		353.2	Total/NA
Phenolics, Total Recoverable	0.0082	B	0.0050		mg/L	1		9065	Total/NA
Color	10.0		0.0100		Color Units	1		SM 2120B	Total/NA
Hardness	460		5.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	545		10.0		mg/L	1		SM 2540C	Total/NA
Sulfate	142		10.0		mg/L	5		SM 4110B	Total/NA
Total Organic Carbon	2.5		1.0		mg/L	1		SM 5310C	Total/NA
pH, Field	6.88				SU	1		Field Sampling	Total/NA
Specific Conductance	852				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	116.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	15.4				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	9.6				NTU	1		Field Sampling	Total/NA
Well Depth	27.50				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	15.02				ft	1		Field Sampling	Total/NA

Client Sample ID: MW-Q(I) — Lab Sample ID: 480-158093-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	0.35		0.20		mg/L	1		6010C	Total/NA
Boron	0.035		0.020		mg/L	1		6010C	Total/NA
Calcium	121		5.0		mg/L	1		6010C	Total/NA
Iron	1.6		0.10		mg/L	1		6010C	Total/NA
Magnesium	42.3		5.0		mg/L	1		6010C	Total/NA
Manganese	0.12		0.015		mg/L	1		6010C	Total/NA
Sodium	9.7		5.0		mg/L	1		6010C	Total/NA
Boron, Dissolved	0.034		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	118		5.0		mg/L	1		6010C	Dissolved
Iron, Dissolved	0.17		0.10		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	41.7		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.11		0.015		mg/L	1		6010C	Dissolved
Sodium, Dissolved	14.0		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	284		20.0		mg/L	4		310.2	Total/NA
Ammonia (as N)	0.061		0.050		mg/L as N	1		350.1	Total/NA
Total Kjeldahl Nitrogen	0.26	F1	0.15		mg/L as N	1		351.2	Total/NA
Nitrate	0.059		0.050		mg/L as N	1		353.2	Total/NA
Chemical Oxygen Demand	10.1		5.0		mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.0072	B	0.0050		mg/L	1		9065	Total/NA
Hardness	480		5.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	490		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	60.7		2.5		mg/L	5		SM 4110B	Total/NA
Sulfate	115		10.0		mg/L	5		SM 4110B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-Q(I) (Continued)

Lab Sample ID: 480-158093-3

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
pH, Field	7.35				SU	1		Field Sampling	Total/NA
Specific Conductance	907				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	-70				millivolts	1		Field Sampling	Total/NA
Temperature, Field	14.6				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	18.8				NTU	1		Field Sampling	Total/NA
Well Depth	62.80				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	42.16				ft	1		Field Sampling	Total/NA

Client Sample ID: MW-50

Lab Sample ID: 480-158145-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.21		0.20		mg/L	1		6010C	Total/NA
Calcium	69.7		5.0		mg/L	1		6010C	Total/NA
Iron	1.2		0.10		mg/L	1		6010C	Total/NA
Magnesium	15.2		5.0		mg/L	1		6010C	Total/NA
Manganese	0.18		0.015		mg/L	1		6010C	Total/NA
Calcium, Dissolved	55.8		5.0		mg/L	1		6010C	Dissolved
Iron, Dissolved	0.57		0.10		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	12.7		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.13		0.015		mg/L	1		6010C	Dissolved
Alkalinity, Total	210		15.0		mg/L	3		310.2	Total/NA
Ammonia (as N)	0.41		0.050		mg/L as N	1		350.1	Total/NA
Total Kjeldahl Nitrogen	1.4		0.15		mg/L as N	1		351.2	Total/NA
Nitrate	0.65		0.050		mg/L as N	1		353.2	Total/NA
Chemical Oxygen Demand	21.0		5.0		mg/L	1		410.4	Total/NA
Cyanide, Total	0.010		0.010		mg/L	1		9012B	Total/NA
Phenolics, Total Recoverable	0.013	B	0.0050		mg/L	1		9065	Total/NA
Hardness	244		2.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	251		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	11.8		0.50		mg/L	1		SM 4110B	Total/NA
Sulfate	35.6		2.0		mg/L	1		SM 4110B	Total/NA
Biochemical Oxygen Demand	3.6	b	2.0		mg/L	1		SM 5210B	Total/NA
Total Organic Carbon	1.4		1.0		mg/L	1		SM 5310C	Total/NA
pH, Field	7.57				SU	1		Field Sampling	Total/NA
Specific Conductance	474				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	-96				millivolts	1		Field Sampling	Total/NA
Temperature, Field	11.1				Degrees C	1		Field Sampling	Total/NA
Odor	Yes				NONE	1		Field Sampling	Total/NA
Turbidity	8.3				NTU	1		Field Sampling	Total/NA
Well Depth	27.50				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	25.90				ft	1		Field Sampling	Total/NA

Client Sample ID: FIELD BLANK

Lab Sample ID: 480-158409-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phenolics, Total Recoverable	0.0088	F1	0.0050		mg/L	1		9065	Total/NA

Client Sample ID: MWBA-1

Lab Sample ID: 480-158409-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	76.9		5.0		mg/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MWBA-1 (Continued)

Lab Sample ID: 480-158409-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Magnesium	18.1		5.0		mg/L	1		6010C	Total/NA
Calcium, Dissolved	79.3		5.0		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	18.1		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	210	^	15.0		mg/L	3		310.2	Total/NA
Phenolics, Total Recoverable	0.0085	B	0.0050		mg/L	1		9065	Total/NA
Color	5.00		0.0100		Color Units	1		SM 2120B	Total/NA
Hardness	272		2.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	338		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	5.0		1.0		mg/L	2		SM 4110B	Total/NA
Sulfate	71.9		4.0		mg/L	2		SM 4110B	Total/NA
pH, Field	6.96				SU	1		Field Sampling	Total/NA
Specific Conductance	506				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	133.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	10.0				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	1.9				NTU	1		Field Sampling	Total/NA
Well Depth	31.06				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	19.62				ft	1		Field Sampling	Total/NA

Client Sample ID: MWBA-2

Lab Sample ID: 480-158409-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.036		0.020		mg/L	1		6010C	Total/NA
Calcium	72.0		5.0		mg/L	1		6010C	Total/NA
Magnesium	21.1		5.0		mg/L	1		6010C	Total/NA
Sodium	6.6		5.0		mg/L	1		6010C	Total/NA
Boron, Dissolved	0.034		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	71.5		5.0		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	20.5		5.0		mg/L	1		6010C	Dissolved
Sodium, Dissolved	6.2		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	196	^	15.0		mg/L	3		310.2	Total/NA
Nitrate	0.062		0.050		mg/L as N	1		353.2	Total/NA
Phenolics, Total Recoverable	0.0092		0.0050		mg/L	1		9065	Total/NA
Hardness	260		2.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	349		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	3.2		1.0		mg/L	2		SM 4110B	Total/NA
Sulfate	77.5		4.0		mg/L	2		SM 4110B	Total/NA
pH, Field	7.56				SU	1		Field Sampling	Total/NA
Specific Conductance	522				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	150.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	11.7				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	1.7				NTU	1		Field Sampling	Total/NA
Well Depth	31.00				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	18.12				ft	1		Field Sampling	Total/NA

Client Sample ID: MW-O(I)

Lab Sample ID: 480-158409-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.28		0.20		mg/L	1		6010C	Total/NA
Calcium	72.0		5.0		mg/L	1		6010C	Total/NA
Iron	0.37		0.10		mg/L	1		6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-O(I) (Continued) — Lab Sample ID: 480-158409-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Magnesium	17.4		5.0		mg/L	1		6010C	Total/NA
Manganese	0.10		0.015		mg/L	1		6010C	Total/NA
Barium, Dissolved	0.26		0.20		mg/L	1		6010C	Dissolved
Calcium, Dissolved	73.9		5.0		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	20.2		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.080		0.015		mg/L	1		6010C	Dissolved
Sodium, Dissolved	5.5		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	181	^	15.0		mg/L	3		310.2	Total/NA
Phenolics, Total Recoverable	0.0084		0.0050		mg/L	1		9065	Total/NA
Hardness	252		2.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	296		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	11.6		1.0		mg/L	2		SM 4110B	Total/NA
Sulfate	51.2		4.0		mg/L	2		SM 4110B	Total/NA
pH, Field	7.03				SU	1		Field Sampling	Total/NA
Specific Conductance	485				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	55				millivolts	1		Field Sampling	Total/NA
Temperature, Field	15.1				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	19.8				NTU	1		Field Sampling	Total/NA
Well Depth	52.00				ft	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	43.96				ft	1		Field Sampling	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 480-158409-5

No Detections.

Client Sample ID: MWSE-1 — Lab Sample ID: 480-158492-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.030		0.020		mg/L	1		6010C	Total/NA
Calcium	105		5.0		mg/L	1		6010C	Total/NA
Magnesium	26.8		5.0		mg/L	1		6010C	Total/NA
Manganese	0.036		0.015		mg/L	1		6010C	Total/NA
Sodium	5.0		5.0		mg/L	1		6010C	Total/NA
Boron, Dissolved	0.029		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	108		5.0		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	28.1		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.034		0.015		mg/L	1		6010C	Dissolved
Alkalinity, Total	237		15.0		mg/L	3		310.2	Total/NA
Total Kjeldahl Nitrogen	0.60		0.15		mg/L as N	1		351.2	Total/NA
Nitrate	0.11		0.050		mg/L as N	1		353.2	Total/NA
Phenolics, Total Recoverable	0.0088	F1 B	0.0050		mg/L	1		9065	Total/NA
Hardness	368		2.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	430		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	7.9		2.5		mg/L	5		SM 4110B	Total/NA
Sulfate	125		10.0		mg/L	5		SM 4110B	Total/NA
pH, Field	7.34				SU	1		Field Sampling	Total/NA
Specific Conductance	25830				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	135.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	13.1				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	1.9				NTU	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MWSE-1 (Continued)

Lab Sample ID: 480-158492-1

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Depth to Water from Top of Casing	15.54				ft	1		Field Sampling	Total/NA

Client Sample ID: MWSE-2

Lab Sample ID: 480-158492-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.045		0.020		mg/L	1		6010C	Total/NA
Calcium	133		5.0		mg/L	1		6010C	Total/NA
Magnesium	28.7		5.0		mg/L	1		6010C	Total/NA
Manganese	0.056		0.015		mg/L	1		6010C	Total/NA
Sodium	10.6		5.0		mg/L	1		6010C	Total/NA
Boron, Dissolved	0.045		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	136		5.0		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	29.8		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.071		0.015		mg/L	1		6010C	Dissolved
Sodium, Dissolved	10.1		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	216		15.0		mg/L	3		310.2	Total/NA
Total Kjeldahl Nitrogen	1.3		0.15		mg/L as N	1		351.2	Total/NA
Nitrate	0.081		0.050		mg/L as N	1		353.2	Total/NA
Phenolics, Total Recoverable	0.0080	B	0.0050		mg/L	1		9065	Total/NA
Hardness	432		2.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	617		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	16.1		2.5		mg/L	5		SM 4110B	Total/NA
Sulfate	229		10.0		mg/L	5		SM 4110B	Total/NA
pH, Field	7.37				SU	1		Field Sampling	Total/NA
Specific Conductance	1408				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	99.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	12.4				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	1.8				NTU	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	15.76				ft	1		Field Sampling	Total/NA

Client Sample ID: MWSE-3

Lab Sample ID: 480-158492-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	0.74		0.20		mg/L	1		6010C	Total/NA
Calcium	12.9		5.0		mg/L	1		6010C	Total/NA
Iron	0.95		0.10		mg/L	1		6010C	Total/NA
Manganese	0.052		0.015		mg/L	1		6010C	Total/NA
Calcium, Dissolved	13.2		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	21.6		5.0		mg/L	1		310.2	Total/NA
Total Kjeldahl Nitrogen	1.1		0.15		mg/L as N	1		351.2	Total/NA
Nitrate	2.3		0.050		mg/L as N	1		353.2	Total/NA
Phenolics, Total Recoverable	0.0094	B	0.0050		mg/L	1		9065	Total/NA
Hardness	44.0		2.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	54.0		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	0.96		0.50		mg/L	1		SM 4110B	Total/NA
Sulfate	14.2		2.0		mg/L	1		SM 4110B	Total/NA
pH, Field	6.18				SU	1		Field Sampling	Total/NA
Specific Conductance	105				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	174.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	16.6				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MWSE-3 (Continued) — Lab Sample ID: 480-158492-3

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Turbidity	11.8				NTU	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	22.56				ft	1		Field Sampling	Total/NA

Client Sample ID: MWSE-4 — Lab Sample ID: 480-158492-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.066		0.020		mg/L	1		6010C	Total/NA
Calcium	79.8		5.0		mg/L	1		6010C	Total/NA
Iron	0.34		0.10		mg/L	1		6010C	Total/NA
Magnesium	14.0		5.0		mg/L	1		6010C	Total/NA
Manganese	0.22		0.015		mg/L	1		6010C	Total/NA
Sodium	14.7		5.0		mg/L	1		6010C	Total/NA
Boron, Dissolved	0.066		0.020		mg/L	1		6010C	Dissolved
Calcium, Dissolved	81.3		5.0		mg/L	1		6010C	Dissolved
Iron, Dissolved	0.16		0.10		mg/L	1		6010C	Dissolved
Magnesium, Dissolved	14.3		5.0		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.20		0.015		mg/L	1		6010C	Dissolved
Sodium, Dissolved	14.5		5.0		mg/L	1		6010C	Dissolved
Alkalinity, Total	146		10.0		mg/L	2		310.2	Total/NA
Chemical Oxygen Demand	6.9		5.0		mg/L	1		410.4	Total/NA
Phenolics, Total Recoverable	0.0080	B	0.0050		mg/L	1		9065	Total/NA
Color	5.00		0.0100		Color Units	1		SM 2120B	Total/NA
Hardness	252		2.0		mg/L	1		SM 2340C	Total/NA
Total Dissolved Solids	336		10.0		mg/L	1		SM 2540C	Total/NA
Chloride	20.0		1.0		mg/L	2		SM 4110B	Total/NA
Sulfate	120		4.0		mg/L	2		SM 4110B	Total/NA
Total Organic Carbon	1.4		1.0		mg/L	1		SM 5310C	Total/NA
pH, Field	6.84				SU	1		Field Sampling	Total/NA
Specific Conductance	570				umhos/cm	1		Field Sampling	Total/NA
Field EH/ORP	67.0				millivolts	1		Field Sampling	Total/NA
Temperature, Field	16.0				Degrees C	1		Field Sampling	Total/NA
Odor	No				NONE	1		Field Sampling	Total/NA
Turbidity	2.7				NTU	1		Field Sampling	Total/NA
Depth to Water from Top of Casing	12.72				ft	1		Field Sampling	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 480-158492-5

No Detections.

Client Sample ID: MWSE-1 — Lab Sample ID: 480-158878-1

No Detections.

Client Sample ID: MWSE-2 — Lab Sample ID: 480-158878-2

No Detections.

Client Sample ID: MWSE-3 — Lab Sample ID: 480-158878-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	15		1.9		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	15		1.9		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	21		1.9		ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.8		1.9		ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MWSE-3 (Continued) — Lab Sample ID: 480-158878-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	9.0		1.9		ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.8		1.9		ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.6		1.9		ng/L	1		537 (modified)	Total/NA

Client Sample ID: MWSE-4 — Lab Sample ID: 480-158878-4

No Detections.

Client Sample ID: BLIND DUP — Lab Sample ID: 480-158878-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	15		1.8		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	15		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	21		1.8		ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.1		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	9.0		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.7		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.5		1.8		ng/L	1		537 (modified)	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 480-158878-6

No Detections.

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: DUP
Date Collected: 08/21/19 12:35
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-1
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 14:20	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/22/19 14:20	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 14:20	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/22/19 14:20	1
1,1-Dichloroethane	ND		5.0		ug/L			08/22/19 14:20	1
1,1-Dichloroethene	ND		5.0		ug/L			08/22/19 14:20	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/22/19 14:20	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/22/19 14:20	1
1,2-Dibromoethane	ND		5.0		ug/L			08/22/19 14:20	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/22/19 14:20	1
1,2-Dichloroethane	ND		5.0		ug/L			08/22/19 14:20	1
1,2-Dichloropropane	ND		5.0		ug/L			08/22/19 14:20	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/22/19 14:20	1
1,4-Dioxane	ND		50		ug/L			08/22/19 14:20	1
2-Butanone (MEK)	ND		5.0		ug/L			08/22/19 14:20	1
2-Hexanone	ND		10		ug/L			08/22/19 14:20	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/22/19 14:20	1
Acetone	ND		5.0		ug/L			08/22/19 14:20	1
Acetonitrile	ND		100		ug/L			08/22/19 14:20	1
Benzene	ND		5.0		ug/L			08/22/19 14:20	1
Bromochloromethane	ND		5.0		ug/L			08/22/19 14:20	1
Bromodichloromethane	ND		5.0		ug/L			08/22/19 14:20	1
Bromoform	ND		5.0		ug/L			08/22/19 14:20	1
Bromomethane	ND		5.0		ug/L			08/22/19 14:20	1
Carbon disulfide	ND		5.0		ug/L			08/22/19 14:20	1
Carbon tetrachloride	ND		5.0		ug/L			08/22/19 14:20	1
Chlorobenzene	ND		5.0		ug/L			08/22/19 14:20	1
Chloroethane	ND		5.0		ug/L			08/22/19 14:20	1
Chloroform	ND		5.0		ug/L			08/22/19 14:20	1
Chloromethane	ND		5.0		ug/L			08/22/19 14:20	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 14:20	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 14:20	1
Dibromochloromethane	ND		5.0		ug/L			08/22/19 14:20	1
Dibromomethane	ND		5.0		ug/L			08/22/19 14:20	1
Ethylbenzene	ND		5.0		ug/L			08/22/19 14:20	1
Iodomethane	ND		5.0		ug/L			08/22/19 14:20	1
m,p-Xylene	ND		5.0		ug/L			08/22/19 14:20	1
Methylene Chloride	ND		5.0		ug/L			08/22/19 14:20	1
o-Xylene	ND		5.0		ug/L			08/22/19 14:20	1
Styrene	ND		5.0		ug/L			08/22/19 14:20	1
Tetrachloroethene	ND		5.0		ug/L			08/22/19 14:20	1
Tetrahydrofuran	ND		10		ug/L			08/22/19 14:20	1
Toluene	ND		5.0		ug/L			08/22/19 14:20	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 14:20	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 14:20	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/22/19 14:20	1
Trichloroethene	ND		5.0		ug/L			08/22/19 14:20	1
Trichlorofluoromethane	ND		5.0		ug/L			08/22/19 14:20	1
Vinyl acetate	ND		50		ug/L			08/22/19 14:20	1

Client Sample ID: DUP

Date Collected: 08/21/19 12:35
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-1

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/22/19 14:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*77 - 120*		*08/22/19 14:20*	*1*
4-Bromofluorobenzene (Surr)	*91*		*73 - 120*		*08/22/19 14:20*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*08/22/19 14:20*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		08/23/19 08:49	08/23/19 18:08	1
Antimony	ND		0.015		mg/L		08/23/19 08:49	08/23/19 18:08	1
Arsenic	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:08	1
Barium	ND		0.20		mg/L		08/23/19 08:49	08/23/19 18:08	1
Beryllium	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:08	1
Boron	**0.037**		0.020		mg/L		08/23/19 08:49	08/23/19 18:08	1
Cadmium	ND		0.0050		mg/L		08/23/19 08:49	08/23/19 18:08	1
Calcium	**108**		5.0		mg/L		08/23/19 08:49	08/23/19 18:08	1
Chromium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:08	1
Cobalt	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:08	1
Copper	ND		0.025		mg/L		08/23/19 08:49	08/23/19 18:08	1
Iron	**1.4**		0.10		mg/L		08/23/19 08:49	08/23/19 18:08	1
Lead	**0.0033**		0.0030		mg/L		08/23/19 08:49	08/23/19 18:08	1
Magnesium	**37.6**		5.0		mg/L		08/23/19 08:49	08/23/19 18:08	1
Manganese	**0.12**		0.015		mg/L		08/23/19 08:49	08/23/19 18:08	1
Nickel	ND		0.040		mg/L		08/23/19 08:49	08/23/19 18:08	1
Potassium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 18:08	1
Silver	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:08	1
Sodium	**19.0**		5.0		mg/L		08/23/19 08:49	08/23/19 18:08	1
Thallium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:08	1
Vanadium	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:08	1
Zinc	ND		0.020		mg/L		08/23/19 08:49	08/23/19 18:08	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:02	1
Antimony, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:02	1
Arsenic, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:02	1
Barium, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:02	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:02	1
Boron, Dissolved	**0.035**		0.020		mg/L		08/23/19 08:45	08/23/19 20:02	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/23/19 08:45	08/23/19 20:02	1
Calcium, Dissolved	**104**		5.0		mg/L		08/23/19 08:45	08/23/19 20:02	1
Chromium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:02	1
Cobalt, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:02	1
Copper, Dissolved	ND		0.025		mg/L		08/23/19 08:45	08/23/19 20:02	1
Iron, Dissolved	**0.48**		0.10		mg/L		08/23/19 08:45	08/23/19 20:02	1
Lead, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:02	1
Magnesium, Dissolved	**36.1**		5.0		mg/L		08/23/19 08:45	08/23/19 20:02	1
Manganese, Dissolved	**0.11**		0.015		mg/L		08/23/19 08:45	08/23/19 20:02	1
Nickel, Dissolved	ND		0.040		mg/L		08/23/19 08:45	08/23/19 20:02	1

Client Sample ID: DUP

Date Collected: 08/21/19 12:35
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-1

Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 20:02	1
Silver, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:02	1
Sodium, Dissolved	**19.5**		5.0		mg/L		08/23/19 08:45	08/23/19 20:02	1
Thallium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:02	1
Vanadium, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:02	1
Zinc, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:02	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/23/19 08:37	08/24/19 11:24	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/23/19 08:37	08/24/19 10:21	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/26/19 12:12	08/26/19 15:42	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/27/19 11:20	08/27/19 14:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		1.0		mg/L			08/27/19 13:26	5
Alkalinity, Total	**291**		20.0		mg/L			08/26/19 23:54	4
Ammonia (as N)	ND		0.050		mg/L as N			08/22/19 11:36	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		08/23/19 09:14	08/26/19 11:59	1
Nitrate	ND		0.050		mg/L as N			08/22/19 20:19	1
Chemical Oxygen Demand	**8.9**		5.0		mg/L			08/23/19 18:15	1
Chromium, hexavalent	ND		0.010		mg/L			08/22/19 08:30	1
Cyanide, Total	ND		0.010		mg/L		09/01/19 16:04	09/03/19 12:13	1
Phenolics, Total Recoverable	**0.0082**	**B**	0.0050		mg/L		09/05/19 23:15	09/08/19 10:54	1
Hardness	**420**		5.0		mg/L			08/28/19 11:20	1
Total Dissolved Solids	**650**		10.0		mg/L			08/23/19 08:29	1
Chloride	**48.0**		2.5		mg/L			08/27/19 13:26	5
Sulfate	**103**		10.0		mg/L			08/27/19 13:26	5
Biochemical Oxygen Demand	ND		2.0		mg/L			08/22/19 18:45	1
Total Organic Carbon	ND		1.0		mg/L			08/23/19 12:38	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			08/23/19 10:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.26**				SU			08/21/19 12:35	1
Specific Conductance	**909**				umhos/cm			08/21/19 12:35	1
Field EH/ORP	**-43.0**				millivolts			08/21/19 12:35	1
Temperature, Field	**17.9**				Degrees C			08/21/19 12:35	1
Odor	**No**				NONE			08/21/19 12:35	1
Turbidity	**6.2**				NTU			08/21/19 12:35	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: DUP
Date Collected: 08/21/19 12:35
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-1
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Depth	55.52				ft			08/21/19 12:35	1
Depth to Water from Top of Casing	32.38				ft			08/21/19 12:35	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-16
Date Collected: 08/21/19 11:18
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-2
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 14:47	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/22/19 14:47	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 14:47	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/22/19 14:47	1
1,1-Dichloroethane	ND		5.0		ug/L			08/22/19 14:47	1
1,1-Dichloroethene	ND		5.0		ug/L			08/22/19 14:47	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/22/19 14:47	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/22/19 14:47	1
1,2-Dibromoethane	ND		5.0		ug/L			08/22/19 14:47	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/22/19 14:47	1
1,2-Dichloroethane	ND		5.0		ug/L			08/22/19 14:47	1
1,2-Dichloropropane	ND		5.0		ug/L			08/22/19 14:47	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/22/19 14:47	1
1,4-Dioxane	ND		50		ug/L			08/22/19 14:47	1
2-Butanone (MEK)	ND		5.0		ug/L			08/22/19 14:47	1
2-Hexanone	ND		10		ug/L			08/22/19 14:47	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/22/19 14:47	1
Acetone	ND		5.0		ug/L			08/22/19 14:47	1
Acetonitrile	ND		100		ug/L			08/22/19 14:47	1
Benzene	ND		5.0		ug/L			08/22/19 14:47	1
Bromochloromethane	ND		5.0		ug/L			08/22/19 14:47	1
Bromodichloromethane	ND		5.0		ug/L			08/22/19 14:47	1
Bromoform	ND		5.0		ug/L			08/22/19 14:47	1
Bromomethane	ND		5.0		ug/L			08/22/19 14:47	1
Carbon disulfide	ND		5.0		ug/L			08/22/19 14:47	1
Carbon tetrachloride	ND		5.0		ug/L			08/22/19 14:47	1
Chlorobenzene	ND		5.0		ug/L			08/22/19 14:47	1
Chloroethane	ND		5.0		ug/L			08/22/19 14:47	1
Chloroform	ND		5.0		ug/L			08/22/19 14:47	1
Chloromethane	ND		5.0		ug/L			08/22/19 14:47	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 14:47	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 14:47	1
Dibromochloromethane	ND		5.0		ug/L			08/22/19 14:47	1
Dibromomethane	ND		5.0		ug/L			08/22/19 14:47	1
Ethylbenzene	ND		5.0		ug/L			08/22/19 14:47	1
Iodomethane	ND		5.0		ug/L			08/22/19 14:47	1
m,p-Xylene	ND		5.0		ug/L			08/22/19 14:47	1
Methylene Chloride	ND		5.0		ug/L			08/22/19 14:47	1
o-Xylene	ND		5.0		ug/L			08/22/19 14:47	1
Styrene	ND		5.0		ug/L			08/22/19 14:47	1
Tetrachloroethene	ND		5.0		ug/L			08/22/19 14:47	1
Tetrahydrofuran	ND		10		ug/L			08/22/19 14:47	1
Toluene	ND		5.0		ug/L			08/22/19 14:47	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 14:47	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 14:47	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/22/19 14:47	1
Trichloroethene	ND		5.0		ug/L			08/22/19 14:47	1
Trichlorofluoromethane	ND		5.0		ug/L			08/22/19 14:47	1
Vinyl acetate	ND		50		ug/L			08/22/19 14:47	1

Client Sample ID: MW-16
Date Collected: 08/21/19 11:18
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-2
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/22/19 14:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*77 - 120*		*08/22/19 14:47*	*1*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*08/22/19 14:47*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*08/22/19 14:47*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		08/23/19 08:49	08/23/19 18:12	1
Antimony	ND		0.015		mg/L		08/23/19 08:49	08/23/19 18:12	1
Arsenic	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:12	1
Barium	**0.35**		0.20		mg/L		08/23/19 08:49	08/23/19 18:12	1
Beryllium	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:12	1
Boron	ND		0.020		mg/L		08/23/19 08:49	08/23/19 18:12	1
Cadmium	ND		0.0050		mg/L		08/23/19 08:49	08/23/19 18:12	1
Calcium	**124**		5.0		mg/L		08/23/19 08:49	08/23/19 18:12	1
Chromium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:12	1
Cobalt	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:12	1
Copper	ND		0.025		mg/L		08/23/19 08:49	08/23/19 18:12	1
Iron	**0.48**		0.10		mg/L		08/23/19 08:49	08/23/19 18:12	1
Lead	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:12	1
Magnesium	**33.1**		5.0		mg/L		08/23/19 08:49	08/23/19 18:12	1
Manganese	**0.041**		0.015		mg/L		08/23/19 08:49	08/23/19 18:12	1
Nickel	ND		0.040		mg/L		08/23/19 08:49	08/23/19 18:12	1
Potassium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 18:12	1
Silver	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:12	1
Sodium	**105**		5.0		mg/L		08/23/19 08:49	08/23/19 18:12	1
Thallium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:12	1
Vanadium	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:12	1
Zinc	ND		0.020		mg/L		08/23/19 08:49	08/23/19 18:12	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:06	1
Antimony, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:06	1
Arsenic, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:06	1
Barium, Dissolved	**0.34**		0.20		mg/L		08/23/19 08:45	08/23/19 20:06	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:06	1
Boron, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:06	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/23/19 08:45	08/23/19 20:06	1
Calcium, Dissolved	**118**		5.0		mg/L		08/23/19 08:45	08/23/19 20:06	1
Chromium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:06	1
Cobalt, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:06	1
Copper, Dissolved	ND		0.025		mg/L		08/23/19 08:45	08/23/19 20:06	1
Iron, Dissolved	**0.48**		0.10		mg/L		08/23/19 08:45	08/23/19 20:06	1
Lead, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:06	1
Magnesium, Dissolved	**31.3**		5.0		mg/L		08/23/19 08:45	08/23/19 20:06	1
Manganese, Dissolved	**0.038**		0.015		mg/L		08/23/19 08:45	08/23/19 20:06	1
Nickel, Dissolved	ND		0.040		mg/L		08/23/19 08:45	08/23/19 20:06	1

Client Sample ID: MW-16
Date Collected: 08/21/19 11:18
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-2
Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 20:06	1
Silver, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:06	1
Sodium, Dissolved	**102**		5.0		mg/L		08/23/19 08:45	08/23/19 20:06	1
Thallium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:06	1
Vanadium, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:06	1
Zinc, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:06	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/23/19 08:37	08/24/19 11:26	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/23/19 08:37	08/24/19 10:24	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/26/19 12:12	08/26/19 15:43	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/27/19 11:20	08/27/19 14:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		1.0		mg/L			08/27/19 14:54	5
Alkalinity, Total	**298**		20.0		mg/L			08/27/19 00:07	4
Ammonia (as N)	ND		0.050		mg/L as N			08/22/19 11:36	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		08/23/19 09:14	08/26/19 11:59	1
Nitrate	ND		0.050		mg/L as N			08/22/19 20:20	1
Chemical Oxygen Demand	**25.7**		5.0		mg/L			08/25/19 14:19	1
Chromium, hexavalent	ND		0.010		mg/L			08/22/19 08:30	1
Cyanide, Total	ND		0.010		mg/L		09/01/19 16:04	09/03/19 11:12	1
Phenolics, Total Recoverable	**0.0070**	**B**	0.0050		mg/L		09/05/19 23:15	09/08/19 11:04	1
Hardness	**460**		5.0		mg/L			08/28/19 11:20	1
Total Dissolved Solids	**743**		10.0		mg/L			08/23/19 08:29	1
Chloride	**247**		2.5		mg/L			08/27/19 14:54	5
Sulfate	**30.5**		10.0		mg/L			08/27/19 14:54	5
Biochemical Oxygen Demand	ND		2.0		mg/L			08/22/19 18:45	1
Total Organic Carbon	ND		1.0		mg/L			08/23/19 12:53	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	**15.0**		0.0100		Color Units			08/23/19 10:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.17**				SU			08/21/19 11:18	1
Specific Conductance	**1349**				umhos/cm			08/21/19 11:18	1
Field EH/ORP	**3.0**				millivolts			08/21/19 11:18	1
Temperature, Field	**11.2**				Degrees C			08/21/19 11:18	1
Odor	**No**				NONE			08/21/19 11:18	1
Turbidity	**2.4**				NTU			08/21/19 11:18	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-16
Date Collected: 08/21/19 11:18
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-2
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Depth	30.60				ft			08/21/19 11:18	1
Depth to Water from Top of Casing	19.31				ft			08/21/19 11:18	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-16(S)
Date Collected: 08/21/19 11:10
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-3
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 15:13	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/22/19 15:13	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 15:13	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/22/19 15:13	1
1,1-Dichloroethane	ND		5.0		ug/L			08/22/19 15:13	1
1,1-Dichloroethene	ND		5.0		ug/L			08/22/19 15:13	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/22/19 15:13	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/22/19 15:13	1
1,2-Dibromoethane	ND		5.0		ug/L			08/22/19 15:13	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/22/19 15:13	1
1,2-Dichloroethane	ND		5.0		ug/L			08/22/19 15:13	1
1,2-Dichloropropane	ND		5.0		ug/L			08/22/19 15:13	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/22/19 15:13	1
1,4-Dioxane	ND		50		ug/L			08/22/19 15:13	1
2-Butanone (MEK)	ND		5.0		ug/L			08/22/19 15:13	1
2-Hexanone	ND		10		ug/L			08/22/19 15:13	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/22/19 15:13	1
Acetone	ND		5.0		ug/L			08/22/19 15:13	1
Acetonitrile	ND		100		ug/L			08/22/19 15:13	1
Benzene	ND		5.0		ug/L			08/22/19 15:13	1
Bromochloromethane	ND		5.0		ug/L			08/22/19 15:13	1
Bromodichloromethane	ND		5.0		ug/L			08/22/19 15:13	1
Bromoform	ND		5.0		ug/L			08/22/19 15:13	1
Bromomethane	ND		5.0		ug/L			08/22/19 15:13	1
Carbon disulfide	ND		5.0		ug/L			08/22/19 15:13	1
Carbon tetrachloride	ND		5.0		ug/L			08/22/19 15:13	1
Chlorobenzene	ND		5.0		ug/L			08/22/19 15:13	1
Chloroethane	ND		5.0		ug/L			08/22/19 15:13	1
Chloroform	ND		5.0		ug/L			08/22/19 15:13	1
Chloromethane	ND		5.0		ug/L			08/22/19 15:13	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 15:13	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 15:13	1
Dibromochloromethane	ND		5.0		ug/L			08/22/19 15:13	1
Dibromomethane	ND		5.0		ug/L			08/22/19 15:13	1
Ethylbenzene	ND		5.0		ug/L			08/22/19 15:13	1
Iodomethane	ND		5.0		ug/L			08/22/19 15:13	1
m,p-Xylene	ND		5.0		ug/L			08/22/19 15:13	1
Methylene Chloride	ND		5.0		ug/L			08/22/19 15:13	1
o-Xylene	ND		5.0		ug/L			08/22/19 15:13	1
Styrene	ND		5.0		ug/L			08/22/19 15:13	1
Tetrachloroethene	ND		5.0		ug/L			08/22/19 15:13	1
Tetrahydrofuran	ND		10		ug/L			08/22/19 15:13	1
Toluene	ND		5.0		ug/L			08/22/19 15:13	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 15:13	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 15:13	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/22/19 15:13	1
Trichloroethene	ND		5.0		ug/L			08/22/19 15:13	1
Trichlorofluoromethane	ND		5.0		ug/L			08/22/19 15:13	1
Vinyl acetate	ND		50		ug/L			08/22/19 15:13	1

Client Sample ID: MW-16(S)
Date Collected: 08/21/19 11:10
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-3
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/22/19 15:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*110*		*77 - 120*		*08/22/19 15:13*	*1*
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*		*08/22/19 15:13*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*08/22/19 15:13*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.39**		0.20		mg/L		08/23/19 08:49	08/23/19 18:16	1
Antimony	ND		0.015		mg/L		08/23/19 08:49	08/23/19 18:16	1
Arsenic	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:16	1
Barium	ND		0.20		mg/L		08/23/19 08:49	08/23/19 18:16	1
Beryllium	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:16	1
Boron	ND		0.020		mg/L		08/23/19 08:49	08/23/19 18:16	1
Cadmium	ND		0.0050		mg/L		08/23/19 08:49	08/23/19 18:16	1
Calcium	**92.0**		5.0		mg/L		08/23/19 08:49	08/23/19 18:16	1
Chromium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:16	1
Cobalt	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:16	1
Copper	ND		0.025		mg/L		08/23/19 08:49	08/23/19 18:16	1
Iron	**0.56**		0.10		mg/L		08/23/19 08:49	08/23/19 18:16	1
Lead	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:16	1
Magnesium	**10.7**		5.0		mg/L		08/23/19 08:49	08/23/19 18:16	1
Manganese	**0.050**		0.015		mg/L		08/23/19 08:49	08/23/19 18:16	1
Nickel	ND		0.040		mg/L		08/23/19 08:49	08/23/19 18:16	1
Potassium	**6.7**		5.0		mg/L		08/23/19 08:49	08/23/19 18:16	1
Silver	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:16	1
Sodium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 18:16	1
Thallium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:16	1
Vanadium	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:16	1
Zinc	ND		0.020		mg/L		08/23/19 08:49	08/23/19 18:16	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:09	1
Antimony, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:09	1
Arsenic, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:09	1
Barium, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:09	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:09	1
Boron, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:09	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/23/19 08:45	08/23/19 20:09	1
Calcium, Dissolved	**88.2**		5.0		mg/L		08/23/19 08:45	08/23/19 20:09	1
Chromium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:09	1
Cobalt, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:09	1
Copper, Dissolved	ND		0.025		mg/L		08/23/19 08:45	08/23/19 20:09	1
Iron, Dissolved	ND		0.10		mg/L		08/23/19 08:45	08/23/19 20:09	1
Lead, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:09	1
Magnesium, Dissolved	**10.1**		5.0		mg/L		08/23/19 08:45	08/23/19 20:09	1
Manganese, Dissolved	**0.021**		0.015		mg/L		08/23/19 08:45	08/23/19 20:09	1
Nickel, Dissolved	ND		0.040		mg/L		08/23/19 08:45	08/23/19 20:09	1

Client Sample ID: MW-16(S)
Date Collected: 08/21/19 11:10
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-3
Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	6.4		5.0		mg/L		08/23/19 08:45	08/23/19 20:09	1
Silver, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:09	1
Sodium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 20:09	1
Thallium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:09	1
Vanadium, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:09	1
Zinc, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:09	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/23/19 08:37	08/24/19 11:28	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/23/19 08:37	08/24/19 10:26	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/26/19 12:12	08/26/19 15:45	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/27/19 11:20	08/27/19 14:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.20		mg/L			08/27/19 15:08	1
Alkalinity, Total	248		15.0		mg/L			08/27/19 00:07	3
Ammonia (as N)	ND		0.050		mg/L as N			08/22/19 11:37	1
Total Kjeldahl Nitrogen	0.47		0.15		mg/L as N		08/29/19 09:01	09/01/19 11:48	1
Nitrate	0.095		0.050		mg/L as N			08/22/19 21:11	1
Chemical Oxygen Demand	9.2		5.0		mg/L			08/23/19 18:15	1
Chromium, hexavalent	ND		0.010		mg/L			08/22/19 08:30	1
Cyanide, Total	ND		0.010		mg/L		09/01/19 16:04	09/03/19 11:13	1
Phenolics, Total Recoverable	0.011	B	0.0050		mg/L		09/12/19 20:24	09/13/19 17:56	1
Hardness	268		2.0		mg/L			08/28/19 11:20	1
Total Dissolved Solids	341		10.0		mg/L			08/23/19 08:29	1
Chloride	2.6		0.50		mg/L			08/27/19 15:08	1
Sulfate	41.7		2.0		mg/L			08/27/19 15:08	1
Biochemical Oxygen Demand	ND		2.0		mg/L			08/22/19 02:22	1
Total Organic Carbon	4.6		1.0		mg/L			08/23/19 13:08	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	5.00		0.0100		Color Units			08/23/19 10:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	7.16				SU			08/21/19 11:10	1
Specific Conductance	548				umhos/cm			08/21/19 11:10	1
Field EH/ORP	81				millivolts			08/21/19 11:10	1
Temperature, Field	14.8				Degrees C			08/21/19 11:10	1
Odor	No				NONE			08/21/19 11:10	1
Turbidity	18.8				NTU			08/21/19 11:10	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-16(S)
Date Collected: 08/21/19 11:10
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-3
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Depth	14.45				ft			08/21/19 11:10	1
Depth to Water from Top of Casing	6.28				ft			08/21/19 11:10	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-17
Date Collected: 08/21/19 13:20
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-4
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 15:39	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/22/19 15:39	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 15:39	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/22/19 15:39	1
1,1-Dichloroethane	ND		5.0		ug/L			08/22/19 15:39	1
1,1-Dichloroethene	ND		5.0		ug/L			08/22/19 15:39	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/22/19 15:39	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/22/19 15:39	1
1,2-Dibromoethane	ND		5.0		ug/L			08/22/19 15:39	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/22/19 15:39	1
1,2-Dichloroethane	ND		5.0		ug/L			08/22/19 15:39	1
1,2-Dichloropropane	ND		5.0		ug/L			08/22/19 15:39	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/22/19 15:39	1
1,4-Dioxane	ND		50		ug/L			08/22/19 15:39	1
2-Butanone (MEK)	ND		5.0		ug/L			08/22/19 15:39	1
2-Hexanone	ND		10		ug/L			08/22/19 15:39	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/22/19 15:39	1
Acetone	ND		5.0		ug/L			08/22/19 15:39	1
Acetonitrile	ND		100		ug/L			08/22/19 15:39	1
Benzene	ND		5.0		ug/L			08/22/19 15:39	1
Bromochloromethane	ND		5.0		ug/L			08/22/19 15:39	1
Bromodichloromethane	ND		5.0		ug/L			08/22/19 15:39	1
Bromoform	ND		5.0		ug/L			08/22/19 15:39	1
Bromomethane	ND		5.0		ug/L			08/22/19 15:39	1
Carbon disulfide	ND		5.0		ug/L			08/22/19 15:39	1
Carbon tetrachloride	ND		5.0		ug/L			08/22/19 15:39	1
Chlorobenzene	ND		5.0		ug/L			08/22/19 15:39	1
Chloroethane	ND		5.0		ug/L			08/22/19 15:39	1
Chloroform	ND		5.0		ug/L			08/22/19 15:39	1
Chloromethane	ND	F1	5.0		ug/L			08/22/19 15:39	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 15:39	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 15:39	1
Dibromochloromethane	ND		5.0		ug/L			08/22/19 15:39	1
Dibromomethane	ND		5.0		ug/L			08/22/19 15:39	1
Ethylbenzene	ND		5.0		ug/L			08/22/19 15:39	1
Iodomethane	ND		5.0		ug/L			08/22/19 15:39	1
m,p-Xylene	ND		5.0		ug/L			08/22/19 15:39	1
Methylene Chloride	ND		5.0		ug/L			08/22/19 15:39	1
o-Xylene	ND		5.0		ug/L			08/22/19 15:39	1
Styrene	ND		5.0		ug/L			08/22/19 15:39	1
Tetrachloroethene	ND		5.0		ug/L			08/22/19 15:39	1
Tetrahydrofuran	ND		10		ug/L			08/22/19 15:39	1
Toluene	ND		5.0		ug/L			08/22/19 15:39	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 15:39	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 15:39	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/22/19 15:39	1
Trichloroethene	ND		5.0		ug/L			08/22/19 15:39	1
Trichlorofluoromethane	ND		5.0		ug/L			08/22/19 15:39	1
Vinyl acetate	ND		50		ug/L			08/22/19 15:39	1

Client Sample ID: MW-17
Date Collected: 08/21/19 13:20
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-4
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/22/19 15:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*77 - 120*		*08/22/19 15:39*	*1*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*08/22/19 15:39*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*08/22/19 15:39*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		08/23/19 08:49	08/23/19 18:31	1
Antimony	ND		0.015		mg/L		08/23/19 08:49	08/23/19 18:31	1
Arsenic	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:31	1
Barium	ND		0.20		mg/L		08/23/19 08:49	08/23/19 18:31	1
Beryllium	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:31	1
Boron	**0.029**		0.020		mg/L		08/23/19 08:49	08/23/19 18:31	1
Cadmium	ND		0.0050		mg/L		08/23/19 08:49	08/23/19 18:31	1
Calcium	**121**		5.0		mg/L		08/23/19 08:49	08/23/19 18:31	1
Chromium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:31	1
Cobalt	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:31	1
Copper	ND		0.025		mg/L		08/23/19 08:49	08/23/19 18:31	1
Iron	**1.0**		0.10		mg/L		08/23/19 08:49	08/23/19 18:31	1
Lead	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:31	1
Magnesium	**39.2**		5.0		mg/L		08/23/19 08:49	08/23/19 18:31	1
Manganese	**0.084**		0.015		mg/L		08/23/19 08:49	08/23/19 18:31	1
Nickel	ND		0.040		mg/L		08/23/19 08:49	08/23/19 18:31	1
Potassium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 18:31	1
Silver	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:31	1
Sodium	**33.1**		5.0		mg/L		08/23/19 08:49	08/23/19 18:31	1
Thallium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:31	1
Vanadium	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:31	1
Zinc	ND		0.020		mg/L		08/23/19 08:49	08/23/19 18:31	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:13	1
Antimony, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:13	1
Arsenic, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:13	1
Barium, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:13	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:13	1
Boron, Dissolved	**0.025**		0.020		mg/L		08/23/19 08:45	08/23/19 20:13	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/23/19 08:45	08/23/19 20:13	1
Calcium, Dissolved	**121**		5.0		mg/L		08/23/19 08:45	08/23/19 20:13	1
Chromium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:13	1
Cobalt, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:13	1
Copper, Dissolved	ND		0.025		mg/L		08/23/19 08:45	08/23/19 20:13	1
Iron, Dissolved	**0.52**		0.10		mg/L		08/23/19 08:45	08/23/19 20:13	1
Lead, Dissolved	**0.0031**		0.0030		mg/L		08/23/19 08:45	08/23/19 20:13	1
Magnesium, Dissolved	**39.1**		5.0		mg/L		08/23/19 08:45	08/23/19 20:13	1
Manganese, Dissolved	**0.060**		0.015		mg/L		08/23/19 08:45	08/23/19 20:13	1
Nickel, Dissolved	ND		0.040		mg/L		08/23/19 08:45	08/23/19 20:13	1

Client Sample ID: MW-17

Date Collected: 08/21/19 13:20
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-4

Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 20:13	1
Silver, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:13	1
Sodium, Dissolved	**61.0**		5.0		mg/L		08/23/19 08:45	08/23/19 20:13	1
Thallium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:13	1
Vanadium, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:13	1
Zinc, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:13	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/23/19 08:37	08/24/19 11:30	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/23/19 08:37	08/24/19 10:28	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/26/19 12:12	08/26/19 16:00	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/27/19 11:20	08/27/19 14:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		1.0		mg/L			08/27/19 19:35	5
Alkalinity, Total	**324**		20.0		mg/L			08/26/19 23:54	4
Ammonia (as N)	ND	F1	0.050		mg/L as N			08/22/19 11:38	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		08/24/19 08:41	08/26/19 10:32	1
Nitrate	ND		0.050		mg/L as N			08/22/19 21:12	1
Chemical Oxygen Demand	**20.7**		5.0		mg/L			08/25/19 15:12	1
Chromium, hexavalent	ND		0.010		mg/L			08/22/19 08:30	1
Cyanide, Total	ND	F1	0.010		mg/L		09/01/19 16:04	09/03/19 11:15	1
Phenolics, Total Recoverable	**0.011**	**B F1**	0.0050		mg/L		09/05/19 23:15	09/08/19 10:54	1
Hardness	**470**		5.0		mg/L			08/28/19 11:20	1
Total Dissolved Solids	**585**		10.0		mg/L			08/23/19 08:29	1
Chloride	**105**		2.5		mg/L			08/27/19 19:35	5
Sulfate	**55.3**		10.0		mg/L			08/27/19 19:35	5
Biochemical Oxygen Demand	ND		2.0		mg/L			08/22/19 18:45	1
Total Organic Carbon	ND		1.0		mg/L			08/23/19 15:38	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND	F1	0.0100		Color Units			08/23/19 10:10	1
Color	ND	H	0.0100		Color Units			09/17/19 11:30	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.18**				SU			08/21/19 13:20	1
Specific Conductance	**1013**				umhos/cm			08/21/19 13:20	1
Field EH/ORP	**-20**				millivolts			08/21/19 13:20	1
Temperature, Field	**12.9**				Degrees C			08/21/19 13:20	1
Odor	**No**				NONE			08/21/19 13:20	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-17
Date Collected: 08/21/19 13:20
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-4
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	2.7				NTU			08/21/19 13:20	1
Well Depth	42.00				ft			08/21/19 13:20	1
Depth to Water from Top of Casing	25.27				ft			08/21/19 13:20	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-18BR
Date Collected: 08/21/19 13:05
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-5
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 16:06	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/22/19 16:06	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 16:06	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/22/19 16:06	1
1,1-Dichloroethane	ND		5.0		ug/L			08/22/19 16:06	1
1,1-Dichloroethene	ND		5.0		ug/L			08/22/19 16:06	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/22/19 16:06	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/22/19 16:06	1
1,2-Dibromoethane	ND		5.0		ug/L			08/22/19 16:06	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/22/19 16:06	1
1,2-Dichloroethane	ND		5.0		ug/L			08/22/19 16:06	1
1,2-Dichloropropane	ND		5.0		ug/L			08/22/19 16:06	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/22/19 16:06	1
1,4-Dioxane	ND		50		ug/L			08/22/19 16:06	1
2-Butanone (MEK)	ND		5.0		ug/L			08/22/19 16:06	1
2-Hexanone	ND		10		ug/L			08/22/19 16:06	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/22/19 16:06	1
Acetone	ND		5.0		ug/L			08/22/19 16:06	1
Acetonitrile	ND		100		ug/L			08/22/19 16:06	1
Benzene	ND		5.0		ug/L			08/22/19 16:06	1
Bromochloromethane	ND		5.0		ug/L			08/22/19 16:06	1
Bromodichloromethane	ND		5.0		ug/L			08/22/19 16:06	1
Bromoform	ND		5.0		ug/L			08/22/19 16:06	1
Bromomethane	ND		5.0		ug/L			08/22/19 16:06	1
Carbon disulfide	ND		5.0		ug/L			08/22/19 16:06	1
Carbon tetrachloride	ND		5.0		ug/L			08/22/19 16:06	1
Chlorobenzene	ND		5.0		ug/L			08/22/19 16:06	1
Chloroethane	ND		5.0		ug/L			08/22/19 16:06	1
Chloroform	ND		5.0		ug/L			08/22/19 16:06	1
Chloromethane	ND		5.0		ug/L			08/22/19 16:06	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 16:06	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 16:06	1
Dibromochloromethane	ND		5.0		ug/L			08/22/19 16:06	1
Dibromomethane	ND		5.0		ug/L			08/22/19 16:06	1
Ethylbenzene	ND		5.0		ug/L			08/22/19 16:06	1
Iodomethane	ND		5.0		ug/L			08/22/19 16:06	1
m,p-Xylene	ND		5.0		ug/L			08/22/19 16:06	1
Methylene Chloride	ND		5.0		ug/L			08/22/19 16:06	1
o-Xylene	ND		5.0		ug/L			08/22/19 16:06	1
Styrene	ND		5.0		ug/L			08/22/19 16:06	1
Tetrachloroethene	ND		5.0		ug/L			08/22/19 16:06	1
Tetrahydrofuran	ND		10		ug/L			08/22/19 16:06	1
Toluene	ND		5.0		ug/L			08/22/19 16:06	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 16:06	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 16:06	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/22/19 16:06	1
Trichloroethene	ND		5.0		ug/L			08/22/19 16:06	1
Trichlorofluoromethane	ND		5.0		ug/L			08/22/19 16:06	1
Vinyl acetate	ND		50		ug/L			08/22/19 16:06	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-18BR

Date Collected: 08/21/19 13:05
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-5

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/22/19 16:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*117*		*77 - 120*		*08/22/19 16:06*	*1*
4-Bromofluorobenzene (Surr)	*99*		*73 - 120*		*08/22/19 16:06*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*08/22/19 16:06*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.3**		0.20		mg/L		08/23/19 08:49	08/23/19 18:49	1
Antimony	ND		0.015		mg/L		08/23/19 08:49	08/23/19 18:49	1
Arsenic	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:49	1
Barium	**0.30**		0.20		mg/L		08/23/19 08:49	08/23/19 18:49	1
Beryllium	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:49	1
Boron	ND		0.020		mg/L		08/23/19 08:49	08/23/19 18:49	1
Cadmium	ND		0.0050		mg/L		08/23/19 08:49	08/23/19 18:49	1
Calcium	**116**		5.0		mg/L		08/23/19 08:49	08/23/19 18:49	1
Chromium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:49	1
Cobalt	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:49	1
Copper	ND		0.025		mg/L		08/23/19 08:49	08/23/19 18:49	1
Iron	**1.2**		0.10		mg/L		08/23/19 08:49	08/23/19 18:49	1
Lead	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:49	1
Magnesium	**37.7**		5.0		mg/L		08/23/19 08:49	08/23/19 18:49	1
Manganese	**0.11**		0.015		mg/L		08/23/19 08:49	08/23/19 18:49	1
Nickel	ND		0.040		mg/L		08/23/19 08:49	08/23/19 18:49	1
Potassium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 18:49	1
Silver	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:49	1
Sodium	**33.6**		5.0		mg/L		08/23/19 08:49	08/23/19 18:49	1
Thallium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:49	1
Vanadium	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:49	1
Zinc	ND		0.020		mg/L		08/23/19 08:49	08/23/19 18:49	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:32	1
Antimony, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:32	1
Arsenic, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:32	1
Barium, Dissolved	**0.28**		0.20		mg/L		08/23/19 08:45	08/23/19 20:32	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:32	1
Boron, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:32	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/23/19 08:45	08/23/19 20:32	1
Calcium, Dissolved	**112**		5.0		mg/L		08/23/19 08:45	08/23/19 20:32	1
Chromium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:32	1
Cobalt, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:32	1
Copper, Dissolved	ND		0.025		mg/L		08/23/19 08:45	08/23/19 20:32	1
Iron, Dissolved	ND		0.10		mg/L		08/23/19 08:45	08/23/19 20:32	1
Lead, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:32	1
Magnesium, Dissolved	**36.4**		5.0		mg/L		08/23/19 08:45	08/23/19 20:32	1
Manganese, Dissolved	ND		0.015		mg/L		08/23/19 08:45	08/23/19 20:32	1
Nickel, Dissolved	ND		0.040		mg/L		08/23/19 08:45	08/23/19 20:32	1

Client Sample ID: MW-18BR
Date Collected: 08/21/19 13:05
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-5
Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 20:32	1
Silver, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:32	1
Sodium, Dissolved	**32.2**		5.0		mg/L		08/23/19 08:45	08/23/19 20:32	1
Thallium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:32	1
Vanadium, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:32	1
Zinc, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:32	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/23/19 08:37	08/24/19 11:49	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/23/19 08:37	08/24/19 10:47	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/26/19 12:12	08/26/19 15:46	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/27/19 11:20	08/27/19 14:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		1.0		mg/L			08/27/19 15:27	5
Alkalinity, Total	**152**		10.0		mg/L			08/26/19 23:57	2
Ammonia (as N)	ND		0.050		mg/L as N			08/22/19 11:41	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		08/24/19 08:41	08/26/19 10:32	1
Nitrate	ND		0.050		mg/L as N			08/22/19 20:30	1
Chemical Oxygen Demand	**16.9**		5.0		mg/L			08/23/19 18:15	1
Chromium, hexavalent	ND		0.010		mg/L			08/22/19 08:30	1
Cyanide, Total	ND		0.010		mg/L		09/01/19 16:04	09/03/19 11:52	1
Phenolics, Total Recoverable	**0.0076**	**B**	0.0050		mg/L		09/05/19 23:15	09/08/19 10:57	1
Hardness	**440**		5.0		mg/L			08/29/19 13:45	1
Total Dissolved Solids	**793**		10.0		mg/L			08/23/19 08:29	1
Chloride	**222**		2.5		mg/L			08/27/19 15:27	5
Sulfate	**58.9**		10.0		mg/L			08/27/19 15:27	5
Biochemical Oxygen Demand	ND		2.0		mg/L			08/22/19 18:45	1
Total Organic Carbon	ND		1.0		mg/L			08/23/19 13:23	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	**5.00**		0.0100		Color Units			08/23/19 10:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.42**				SU			08/21/19 13:05	1
Specific Conductance	**1092**				umhos/cm			08/21/19 13:05	1
Field EH/ORP	**7.0**				millivolts			08/21/19 13:05	1
Temperature, Field	**14.9**				Degrees C			08/21/19 13:05	1
Odor	**No**				NONE			08/21/19 13:05	1
Turbidity	**42.1**				NTU			08/21/19 13:05	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-18BR
Date Collected: 08/21/19 13:05
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-5
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Depth	27.80				ft			08/21/19 13:05	1
Depth to Water from Top of Casing	18.96				ft			08/21/19 13:05	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-L(I)
Date Collected: 08/21/19 11:50
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-6
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 16:33	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/22/19 16:33	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 16:33	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/22/19 16:33	1
1,1-Dichloroethane	ND		5.0		ug/L			08/22/19 16:33	1
1,1-Dichloroethene	ND		5.0		ug/L			08/22/19 16:33	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/22/19 16:33	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/22/19 16:33	1
1,2-Dibromoethane	ND		5.0		ug/L			08/22/19 16:33	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/22/19 16:33	1
1,2-Dichloroethane	ND		5.0		ug/L			08/22/19 16:33	1
1,2-Dichloropropane	ND		5.0		ug/L			08/22/19 16:33	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/22/19 16:33	1
1,4-Dioxane	ND		50		ug/L			08/22/19 16:33	1
2-Butanone (MEK)	ND		5.0		ug/L			08/22/19 16:33	1
2-Hexanone	ND		10		ug/L			08/22/19 16:33	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/22/19 16:33	1
Acetone	ND		5.0		ug/L			08/22/19 16:33	1
Acetonitrile	ND		100		ug/L			08/22/19 16:33	1
Benzene	ND		5.0		ug/L			08/22/19 16:33	1
Bromochloromethane	ND		5.0		ug/L			08/22/19 16:33	1
Bromodichloromethane	ND		5.0		ug/L			08/22/19 16:33	1
Bromoform	ND		5.0		ug/L			08/22/19 16:33	1
Bromomethane	ND		5.0		ug/L			08/22/19 16:33	1
Carbon disulfide	ND		5.0		ug/L			08/22/19 16:33	1
Carbon tetrachloride	ND		5.0		ug/L			08/22/19 16:33	1
Chlorobenzene	ND		5.0		ug/L			08/22/19 16:33	1
Chloroethane	ND		5.0		ug/L			08/22/19 16:33	1
Chloroform	ND		5.0		ug/L			08/22/19 16:33	1
Chloromethane	ND		5.0		ug/L			08/22/19 16:33	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 16:33	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 16:33	1
Dibromochloromethane	ND		5.0		ug/L			08/22/19 16:33	1
Dibromomethane	ND		5.0		ug/L			08/22/19 16:33	1
Ethylbenzene	ND		5.0		ug/L			08/22/19 16:33	1
Iodomethane	ND		5.0		ug/L			08/22/19 16:33	1
m,p-Xylene	ND		5.0		ug/L			08/22/19 16:33	1
Methylene Chloride	ND		5.0		ug/L			08/22/19 16:33	1
o-Xylene	ND		5.0		ug/L			08/22/19 16:33	1
Styrene	ND		5.0		ug/L			08/22/19 16:33	1
Tetrachloroethene	ND		5.0		ug/L			08/22/19 16:33	1
Tetrahydrofuran	ND		10		ug/L			08/22/19 16:33	1
Toluene	ND		5.0		ug/L			08/22/19 16:33	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 16:33	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 16:33	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/22/19 16:33	1
Trichloroethene	ND		5.0		ug/L			08/22/19 16:33	1
Trichlorofluoromethane	ND		5.0		ug/L			08/22/19 16:33	1
Vinyl acetate	ND		50		ug/L			08/22/19 16:33	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-L(I)
Date Collected: 08/21/19 11:50
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-6
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/22/19 16:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*77 - 120*		*08/22/19 16:33*	*1*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*08/22/19 16:33*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*08/22/19 16:33*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.81**		0.20		mg/L		08/23/19 08:49	08/23/19 18:53	1
Antimony	ND		0.015		mg/L		08/23/19 08:49	08/23/19 18:53	1
Arsenic	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:53	1
Barium	ND		0.20		mg/L		08/23/19 08:49	08/23/19 18:53	1
Beryllium	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:53	1
Boron	**0.024**		0.020		mg/L		08/23/19 08:49	08/23/19 18:53	1
Cadmium	ND		0.0050		mg/L		08/23/19 08:49	08/23/19 18:53	1
Calcium	**86.8**		5.0		mg/L		08/23/19 08:49	08/23/19 18:53	1
Chromium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:53	1
Cobalt	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:53	1
Copper	ND		0.025		mg/L		08/23/19 08:49	08/23/19 18:53	1
Iron	**2.1**		0.10		mg/L		08/23/19 08:49	08/23/19 18:53	1
Lead	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:53	1
Magnesium	**28.1**		5.0		mg/L		08/23/19 08:49	08/23/19 18:53	1
Manganese	**0.092**		0.015		mg/L		08/23/19 08:49	08/23/19 18:53	1
Nickel	ND		0.040		mg/L		08/23/19 08:49	08/23/19 18:53	1
Potassium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 18:53	1
Silver	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:53	1
Sodium	**8.6**		5.0		mg/L		08/23/19 08:49	08/23/19 18:53	1
Thallium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:53	1
Vanadium	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:53	1
Zinc	ND		0.020		mg/L		08/23/19 08:49	08/23/19 18:53	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:47	1
Antimony, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:47	1
Arsenic, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:47	1
Barium, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:47	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:47	1
Boron, Dissolved	**0.021**		0.020		mg/L		08/23/19 08:45	08/23/19 20:47	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/23/19 08:45	08/23/19 20:47	1
Calcium, Dissolved	**81.1**		5.0		mg/L		08/23/19 08:45	08/23/19 20:47	1
Chromium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:47	1
Cobalt, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:47	1
Copper, Dissolved	ND		0.025		mg/L		08/23/19 08:45	08/23/19 20:47	1
Iron, Dissolved	**0.23**		0.10		mg/L		08/23/19 08:45	08/23/19 20:47	1
Lead, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:47	1
Magnesium, Dissolved	**26.2**		5.0		mg/L		08/23/19 08:45	08/23/19 20:47	1
Manganese, Dissolved	**0.074**		0.015		mg/L		08/23/19 08:45	08/23/19 20:47	1
Nickel, Dissolved	ND		0.040		mg/L		08/23/19 08:45	08/23/19 20:47	1

Client Sample ID: MW-L(I)
Date Collected: 08/21/19 11:50
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-6
Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 20:47	1
Silver, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:47	1
Sodium, Dissolved	**9.0**		5.0		mg/L		08/23/19 08:45	08/23/19 20:47	1
Thallium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:47	1
Vanadium, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:47	1
Zinc, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:47	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/23/19 08:37	08/24/19 11:51	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/23/19 08:37	08/24/19 10:49	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/26/19 12:12	08/26/19 15:47	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/28/19 11:32	08/28/19 14:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.40		mg/L			08/27/19 15:41	2
Alkalinity, Total	**220**		15.0		mg/L			08/26/19 23:57	3
Ammonia (as N)	ND	F1	0.050		mg/L as N			08/22/19 11:43	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		08/24/19 08:41	08/26/19 10:32	1
Nitrate	ND		0.050		mg/L as N			08/22/19 20:31	1
Chemical Oxygen Demand	ND		5.0		mg/L			08/23/19 18:15	1
Chromium, hexavalent	ND		0.010		mg/L			08/22/19 08:30	1
Cyanide, Total	ND		0.010		mg/L		09/01/19 16:04	09/03/19 11:54	1
Phenolics, Total Recoverable	**0.0096**	**B**	0.0050		mg/L		09/05/19 23:15	09/08/19 10:57	1
Hardness	**320**		2.0		mg/L			08/29/19 13:45	1
Total Dissolved Solids	**454**		10.0		mg/L			08/23/19 08:29	1
Chloride	**14.2**		1.0		mg/L			08/27/19 15:41	2
Sulfate	**112**		4.0		mg/L			08/27/19 15:41	2
Biochemical Oxygen Demand	ND		2.0		mg/L			08/22/19 18:45	1
Total Organic Carbon	ND		1.0		mg/L			08/23/19 13:37	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	**5.00**		0.0100		Color Units			08/23/19 10:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.78**				SU			08/21/19 11:50	1
Specific Conductance	**639**				umhos/cm			08/21/19 11:50	1
Field EH/ORP	**54.0**				millivolts			08/21/19 11:50	1
Temperature, Field	**17.6**				Degrees C			08/21/19 11:50	1
Odor	**No**				NONE			08/21/19 11:50	1
Turbidity	**32.1**				NTU			08/21/19 11:50	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-L(I)
Date Collected: 08/21/19 11:50
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-6
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Depth	42.40				ft			08/21/19 11:50	1
Depth to Water from Top of Casing	30.10				ft			08/21/19 11:50	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-M(I)
Date Collected: 08/21/19 13:55
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-7
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 16:59	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/22/19 16:59	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 16:59	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/22/19 16:59	1
1,1-Dichloroethane	ND		5.0		ug/L			08/22/19 16:59	1
1,1-Dichloroethene	ND		5.0		ug/L			08/22/19 16:59	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/22/19 16:59	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/22/19 16:59	1
1,2-Dibromoethane	ND		5.0		ug/L			08/22/19 16:59	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/22/19 16:59	1
1,2-Dichloroethane	ND		5.0		ug/L			08/22/19 16:59	1
1,2-Dichloropropane	ND		5.0		ug/L			08/22/19 16:59	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/22/19 16:59	1
1,4-Dioxane	ND		50		ug/L			08/22/19 16:59	1
2-Butanone (MEK)	ND		5.0		ug/L			08/22/19 16:59	1
2-Hexanone	ND		10		ug/L			08/22/19 16:59	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/22/19 16:59	1
Acetone	ND		5.0		ug/L			08/22/19 16:59	1
Acetonitrile	ND		100		ug/L			08/22/19 16:59	1
Benzene	ND		5.0		ug/L			08/22/19 16:59	1
Bromochloromethane	ND		5.0		ug/L			08/22/19 16:59	1
Bromodichloromethane	ND		5.0		ug/L			08/22/19 16:59	1
Bromoform	ND		5.0		ug/L			08/22/19 16:59	1
Bromomethane	ND		5.0		ug/L			08/22/19 16:59	1
Carbon disulfide	ND		5.0		ug/L			08/22/19 16:59	1
Carbon tetrachloride	ND		5.0		ug/L			08/22/19 16:59	1
Chlorobenzene	ND		5.0		ug/L			08/22/19 16:59	1
Chloroethane	ND		5.0		ug/L			08/22/19 16:59	1
Chloroform	ND		5.0		ug/L			08/22/19 16:59	1
Chloromethane	ND		5.0		ug/L			08/22/19 16:59	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 16:59	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 16:59	1
Dibromochloromethane	ND		5.0		ug/L			08/22/19 16:59	1
Dibromomethane	ND		5.0		ug/L			08/22/19 16:59	1
Ethylbenzene	ND		5.0		ug/L			08/22/19 16:59	1
Iodomethane	ND		5.0		ug/L			08/22/19 16:59	1
m,p-Xylene	ND		5.0		ug/L			08/22/19 16:59	1
Methylene Chloride	ND		5.0		ug/L			08/22/19 16:59	1
o-Xylene	ND		5.0		ug/L			08/22/19 16:59	1
Styrene	ND		5.0		ug/L			08/22/19 16:59	1
Tetrachloroethene	ND		5.0		ug/L			08/22/19 16:59	1
Tetrahydrofuran	ND		10		ug/L			08/22/19 16:59	1
Toluene	ND		5.0		ug/L			08/22/19 16:59	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 16:59	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 16:59	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/22/19 16:59	1
Trichloroethene	ND		5.0		ug/L			08/22/19 16:59	1
Trichlorofluoromethane	ND		5.0		ug/L			08/22/19 16:59	1
Vinyl acetate	ND		50		ug/L			08/22/19 16:59	1

Client Sample ID: MW-M(I)
Date Collected: 08/21/19 13:55
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-7
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/22/19 16:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*77 - 120*		*08/22/19 16:59*	*1*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*08/22/19 16:59*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*08/22/19 16:59*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**1.5**		0.20		mg/L		08/23/19 08:49	08/23/19 18:57	1
Antimony	ND		0.015		mg/L		08/23/19 08:49	08/23/19 18:57	1
Arsenic	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:57	1
Barium	ND		0.20		mg/L		08/23/19 08:49	08/23/19 18:57	1
Beryllium	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:57	1
Boron	**0.041**		0.020		mg/L		08/23/19 08:49	08/23/19 18:57	1
Cadmium	ND		0.0050		mg/L		08/23/19 08:49	08/23/19 18:57	1
Calcium	**87.9**		5.0		mg/L		08/23/19 08:49	08/23/19 18:57	1
Chromium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:57	1
Cobalt	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:57	1
Copper	ND		0.025		mg/L		08/23/19 08:49	08/23/19 18:57	1
Iron	**2.2**		0.10		mg/L		08/23/19 08:49	08/23/19 18:57	1
Lead	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:57	1
Magnesium	**30.5**		5.0		mg/L		08/23/19 08:49	08/23/19 18:57	1
Manganese	**0.12**		0.015		mg/L		08/23/19 08:49	08/23/19 18:57	1
Nickel	ND		0.040		mg/L		08/23/19 08:49	08/23/19 18:57	1
Potassium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 18:57	1
Silver	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:57	1
Sodium	**15.0**		5.0		mg/L		08/23/19 08:49	08/23/19 18:57	1
Thallium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:57	1
Vanadium	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:57	1
Zinc	ND		0.020		mg/L		08/23/19 08:49	08/23/19 18:57	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:51	1
Antimony, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:51	1
Arsenic, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:51	1
Barium, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:51	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:51	1
Boron, Dissolved	**0.021**		0.020		mg/L		08/23/19 08:45	08/23/19 20:51	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/23/19 08:45	08/23/19 20:51	1
Calcium, Dissolved	**122**		5.0		mg/L		08/23/19 08:45	08/23/19 20:51	1
Chromium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:51	1
Cobalt, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:51	1
Copper, Dissolved	ND		0.025		mg/L		08/23/19 08:45	08/23/19 20:51	1
Iron, Dissolved	**0.16**		0.10		mg/L		08/23/19 08:45	08/23/19 20:51	1
Lead, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:51	1
Magnesium, Dissolved	**41.9**		5.0		mg/L		08/23/19 08:45	08/23/19 20:51	1
Manganese, Dissolved	**0.16**		0.015		mg/L		08/23/19 08:45	08/23/19 20:51	1
Nickel, Dissolved	ND		0.040		mg/L		08/23/19 08:45	08/23/19 20:51	1

Client Sample ID: MW-M(I)
Date Collected: 08/21/19 13:55
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-7
Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 20:51	1
Silver, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:51	1
Sodium, Dissolved	**63.5**		5.0		mg/L		08/23/19 08:45	08/23/19 20:51	1
Thallium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:51	1
Vanadium, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:51	1
Zinc, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:51	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/23/19 08:37	08/24/19 11:53	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/23/19 08:37	08/24/19 10:51	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/26/19 12:12	08/26/19 15:51	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/28/19 11:32	08/28/19 14:11	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.40		mg/L			08/27/19 15:56	2
Alkalinity, Total	**285**		15.0		mg/L			08/26/19 23:57	3
Ammonia (as N)	ND		0.050		mg/L as N			08/22/19 11:45	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		08/24/19 08:41	08/26/19 10:32	1
Nitrate	**0.061**		0.050		mg/L as N			08/22/19 21:16	1
Chemical Oxygen Demand	**5.9**		5.0		mg/L			08/23/19 18:15	1
Chromium, hexavalent	ND		0.010		mg/L			08/22/19 08:30	1
Cyanide, Total	ND		0.010		mg/L		09/01/19 16:04	09/03/19 11:55	1
Phenolics, Total Recoverable	**0.0080**	**B**	0.0050		mg/L		09/05/19 23:15	09/08/19 10:57	1
Hardness	**324**		2.0		mg/L			08/29/19 13:45	1
Total Dissolved Solids	**438**		10.0		mg/L			08/23/19 08:29	1
Chloride	**24.8**		1.0		mg/L			08/27/19 15:56	2
Sulfate	**53.4**		4.0		mg/L			08/27/19 15:56	2
Biochemical Oxygen Demand	ND		2.0		mg/L			08/22/19 18:45	1
Total Organic Carbon	ND		1.0		mg/L			08/23/19 13:52	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	**5.00**		0.0100		Color Units			08/23/19 10:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.53**				SU			08/21/19 13:55	1
Specific Conductance	**675**				umhos/cm			08/21/19 13:55	1
Field EH/ORP	**-22.0**				millivolts			08/21/19 13:55	1
Temperature, Field	**14.9**				Degrees C			08/21/19 13:55	1
Odor	**No**				NONE			08/21/19 13:55	1
Turbidity	**29.8**				NTU			08/21/19 13:55	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-M(I)
Date Collected: 08/21/19 13:55
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-7
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Depth	42.25				ft			08/21/19 13:55	1
Depth to Water from Top of Casing	24.77				ft			08/21/19 13:55	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-M(S)
Date Collected: 08/21/19 14:10
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-8
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 17:26	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/22/19 17:26	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 17:26	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/22/19 17:26	1
1,1-Dichloroethane	ND		5.0		ug/L			08/22/19 17:26	1
1,1-Dichloroethene	ND		5.0		ug/L			08/22/19 17:26	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/22/19 17:26	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/22/19 17:26	1
1,2-Dibromoethane	ND		5.0		ug/L			08/22/19 17:26	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/22/19 17:26	1
1,2-Dichloroethane	ND		5.0		ug/L			08/22/19 17:26	1
1,2-Dichloropropane	ND		5.0		ug/L			08/22/19 17:26	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/22/19 17:26	1
1,4-Dioxane	ND		50		ug/L			08/22/19 17:26	1
2-Butanone (MEK)	ND		5.0		ug/L			08/22/19 17:26	1
2-Hexanone	ND		10		ug/L			08/22/19 17:26	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/22/19 17:26	1
Acetone	ND		5.0		ug/L			08/22/19 17:26	1
Acetonitrile	ND		100		ug/L			08/22/19 17:26	1
Benzene	ND		5.0		ug/L			08/22/19 17:26	1
Bromochloromethane	ND		5.0		ug/L			08/22/19 17:26	1
Bromodichloromethane	ND		5.0		ug/L			08/22/19 17:26	1
Bromoform	ND		5.0		ug/L			08/22/19 17:26	1
Bromomethane	ND		5.0		ug/L			08/22/19 17:26	1
Carbon disulfide	ND		5.0		ug/L			08/22/19 17:26	1
Carbon tetrachloride	ND		5.0		ug/L			08/22/19 17:26	1
Chlorobenzene	ND		5.0		ug/L			08/22/19 17:26	1
Chloroethane	ND		5.0		ug/L			08/22/19 17:26	1
Chloroform	ND		5.0		ug/L			08/22/19 17:26	1
Chloromethane	ND		5.0		ug/L			08/22/19 17:26	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 17:26	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 17:26	1
Dibromochloromethane	ND		5.0		ug/L			08/22/19 17:26	1
Dibromomethane	ND		5.0		ug/L			08/22/19 17:26	1
Ethylbenzene	ND		5.0		ug/L			08/22/19 17:26	1
Iodomethane	ND		5.0		ug/L			08/22/19 17:26	1
m,p-Xylene	ND		5.0		ug/L			08/22/19 17:26	1
Methylene Chloride	ND		5.0		ug/L			08/22/19 17:26	1
o-Xylene	ND		5.0		ug/L			08/22/19 17:26	1
Styrene	ND		5.0		ug/L			08/22/19 17:26	1
Tetrachloroethene	ND		5.0		ug/L			08/22/19 17:26	1
Tetrahydrofuran	ND		10		ug/L			08/22/19 17:26	1
Toluene	ND		5.0		ug/L			08/22/19 17:26	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 17:26	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 17:26	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/22/19 17:26	1
Trichloroethene	ND		5.0		ug/L			08/22/19 17:26	1
Trichlorofluoromethane	ND		5.0		ug/L			08/22/19 17:26	1
Vinyl acetate	ND		50		ug/L			08/22/19 17:26	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-M(S)

Date Collected: 08/21/19 14:10
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-8

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/22/19 17:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*77 - 120*		*08/22/19 17:26*	*1*
4-Bromofluorobenzene (Surr)	*104*		*73 - 120*		*08/22/19 17:26*	*1*
Toluene-d8 (Surr)	*108*		*80 - 120*		*08/22/19 17:26*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.33**		0.20		mg/L		08/23/19 08:49	08/23/19 19:01	1
Antimony	ND		0.015		mg/L		08/23/19 08:49	08/23/19 19:01	1
Arsenic	ND		0.010		mg/L		08/23/19 08:49	08/23/19 19:01	1
Barium	ND		0.20		mg/L		08/23/19 08:49	08/23/19 19:01	1
Beryllium	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 19:01	1
Boron	**0.031**		0.020		mg/L		08/23/19 08:49	08/23/19 19:01	1
Cadmium	ND		0.0050		mg/L		08/23/19 08:49	08/23/19 19:01	1
Calcium	**188**		5.0		mg/L		08/23/19 08:49	08/23/19 19:01	1
Chromium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 19:01	1
Cobalt	ND		0.050		mg/L		08/23/19 08:49	08/23/19 19:01	1
Copper	ND		0.025		mg/L		08/23/19 08:49	08/23/19 19:01	1
Iron	**2.2**		0.10		mg/L		08/23/19 08:49	08/23/19 19:01	1
Lead	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 19:01	1
Magnesium	**57.6**		5.0		mg/L		08/23/19 08:49	08/23/19 19:01	1
Manganese	**0.59**		0.015		mg/L		08/23/19 08:49	08/23/19 19:01	1
Nickel	ND		0.040		mg/L		08/23/19 08:49	08/23/19 19:01	1
Potassium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 19:01	1
Silver	ND		0.010		mg/L		08/23/19 08:49	08/23/19 19:01	1
Sodium	**39.6**		5.0		mg/L		08/23/19 08:49	08/23/19 19:01	1
Thallium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 19:01	1
Vanadium	ND		0.050		mg/L		08/23/19 08:49	08/23/19 19:01	1
Zinc	ND		0.020		mg/L		08/23/19 08:49	08/23/19 19:01	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:55	1
Antimony, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:55	1
Arsenic, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:55	1
Barium, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:55	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:55	1
Boron, Dissolved	**0.035**		0.020		mg/L		08/23/19 08:45	08/23/19 20:55	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/23/19 08:45	08/23/19 20:55	1
Calcium, Dissolved	**83.1**		5.0		mg/L		08/23/19 08:45	08/23/19 20:55	1
Chromium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:55	1
Cobalt, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:55	1
Copper, Dissolved	ND		0.025		mg/L		08/23/19 08:45	08/23/19 20:55	1
Iron, Dissolved	ND		0.10		mg/L		08/23/19 08:45	08/23/19 20:55	1
Lead, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:55	1
Magnesium, Dissolved	**28.9**		5.0		mg/L		08/23/19 08:45	08/23/19 20:55	1
Manganese, Dissolved	**0.093**		0.015		mg/L		08/23/19 08:45	08/23/19 20:55	1
Nickel, Dissolved	ND		0.040		mg/L		08/23/19 08:45	08/23/19 20:55	1

Client Sample ID: MW-M(S)
Date Collected: 08/21/19 14:10
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-8
Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 20:55	1
Silver, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:55	1
Sodium, Dissolved	**15.8**		5.0		mg/L		08/23/19 08:45	08/23/19 20:55	1
Thallium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:55	1
Vanadium, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:55	1
Zinc, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:55	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/23/19 08:37	08/24/19 11:56	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/23/19 08:37	08/24/19 10:54	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/26/19 12:12	08/26/19 15:53	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/28/19 11:32	08/28/19 14:12	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		1.0		mg/L			08/27/19 16:11	5
Alkalinity, Total	**477**		25.0		mg/L			08/26/19 23:58	5
Ammonia (as N)	ND		0.050		mg/L as N			08/22/19 11:46	1
Total Kjeldahl Nitrogen	**0.49**		0.15		mg/L as N		08/29/19 09:01	09/01/19 11:48	1
Nitrate	ND		0.050		mg/L as N			08/22/19 20:33	1
Chemical Oxygen Demand	**12.6**		5.0		mg/L			08/23/19 18:15	1
Chromium, hexavalent	ND		0.010		mg/L			08/22/19 08:30	1
Cyanide, Total	ND		0.010		mg/L		09/01/19 16:04	09/03/19 11:57	1
Phenolics, Total Recoverable	**0.0061**	**B**	0.0050		mg/L		09/05/19 23:15	09/08/19 11:04	1
Hardness	**660**		10.0		mg/L			08/29/19 13:45	1
Total Dissolved Solids	**927**		10.0		mg/L			08/23/19 08:29	1
Chloride	**46.0**		2.5		mg/L			08/27/19 16:11	5
Sulfate	**237**		10.0		mg/L			08/27/19 16:11	5
Biochemical Oxygen Demand	ND		2.0		mg/L			08/22/19 18:45	1
Total Organic Carbon	**1.7**		1.0		mg/L			08/23/19 14:07	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			08/23/19 10:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.02**				SU			08/21/19 14:10	1
Specific Conductance	**1319**				umhos/cm			08/21/19 14:10	1
Field EH/ORP	**-14.0**				millivolts			08/21/19 14:10	1
Temperature, Field	**16.1**				Degrees C			08/21/19 14:10	1
Odor	**No**				NONE			08/21/19 14:10	1
Turbidity	**18.6**				NTU			08/21/19 14:10	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-M(S)
Date Collected: 08/21/19 14:10
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-8
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Depth	24.29				ft			08/21/19 14:10	1
Depth to Water from Top of Casing	12.12				ft			08/21/19 14:10	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-P(I)
Date Collected: 08/21/19 12:35
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-9
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 17:52	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/22/19 17:52	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 17:52	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/22/19 17:52	1
1,1-Dichloroethane	ND		5.0		ug/L			08/22/19 17:52	1
1,1-Dichloroethene	ND		5.0		ug/L			08/22/19 17:52	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/22/19 17:52	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/22/19 17:52	1
1,2-Dibromoethane	ND		5.0		ug/L			08/22/19 17:52	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/22/19 17:52	1
1,2-Dichloroethane	ND		5.0		ug/L			08/22/19 17:52	1
1,2-Dichloropropane	ND		5.0		ug/L			08/22/19 17:52	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/22/19 17:52	1
1,4-Dioxane	ND		50		ug/L			08/22/19 17:52	1
2-Butanone (MEK)	ND		5.0		ug/L			08/22/19 17:52	1
2-Hexanone	ND		10		ug/L			08/22/19 17:52	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/22/19 17:52	1
Acetone	ND		5.0		ug/L			08/22/19 17:52	1
Acetonitrile	ND		100		ug/L			08/22/19 17:52	1
Benzene	ND		5.0		ug/L			08/22/19 17:52	1
Bromochloromethane	ND		5.0		ug/L			08/22/19 17:52	1
Bromodichloromethane	ND		5.0		ug/L			08/22/19 17:52	1
Bromoform	ND		5.0		ug/L			08/22/19 17:52	1
Bromomethane	ND		5.0		ug/L			08/22/19 17:52	1
Carbon disulfide	ND		5.0		ug/L			08/22/19 17:52	1
Carbon tetrachloride	ND		5.0		ug/L			08/22/19 17:52	1
Chlorobenzene	ND		5.0		ug/L			08/22/19 17:52	1
Chloroethane	ND		5.0		ug/L			08/22/19 17:52	1
Chloroform	ND		5.0		ug/L			08/22/19 17:52	1
Chloromethane	ND		5.0		ug/L			08/22/19 17:52	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 17:52	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 17:52	1
Dibromochloromethane	ND		5.0		ug/L			08/22/19 17:52	1
Dibromomethane	ND		5.0		ug/L			08/22/19 17:52	1
Ethylbenzene	ND		5.0		ug/L			08/22/19 17:52	1
Iodomethane	ND		5.0		ug/L			08/22/19 17:52	1
m,p-Xylene	ND		5.0		ug/L			08/22/19 17:52	1
Methylene Chloride	ND		5.0		ug/L			08/22/19 17:52	1
o-Xylene	ND		5.0		ug/L			08/22/19 17:52	1
Styrene	ND		5.0		ug/L			08/22/19 17:52	1
Tetrachloroethene	ND		5.0		ug/L			08/22/19 17:52	1
Tetrahydrofuran	ND		10		ug/L			08/22/19 17:52	1
Toluene	ND		5.0		ug/L			08/22/19 17:52	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 17:52	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 17:52	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/22/19 17:52	1
Trichloroethene	ND		5.0		ug/L			08/22/19 17:52	1
Trichlorofluoromethane	ND		5.0		ug/L			08/22/19 17:52	1
Vinyl acetate	ND		50		ug/L			08/22/19 17:52	1

Client Sample ID: MW-P(I)

Date Collected: 08/21/19 12:35
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-9

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/22/19 17:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*		*08/22/19 17:52*	*1*
4-Bromofluorobenzene (Surr)	*92*		*73 - 120*		*08/22/19 17:52*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*08/22/19 17:52*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		08/23/19 08:49	08/23/19 19:16	1
Antimony	ND		0.015		mg/L		08/23/19 08:49	08/23/19 19:16	1
Arsenic	ND		0.010		mg/L		08/23/19 08:49	08/23/19 19:16	1
Barium	ND		0.20		mg/L		08/23/19 08:49	08/23/19 19:16	1
Beryllium	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 19:16	1
Boron	**0.037**		0.020		mg/L		08/23/19 08:49	08/23/19 19:16	1
Cadmium	ND		0.0050		mg/L		08/23/19 08:49	08/23/19 19:16	1
Calcium	**107**		5.0		mg/L		08/23/19 08:49	08/23/19 19:16	1
Chromium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 19:16	1
Cobalt	ND		0.050		mg/L		08/23/19 08:49	08/23/19 19:16	1
Copper	ND		0.025		mg/L		08/23/19 08:49	08/23/19 19:16	1
Iron	**1.3**		0.10		mg/L		08/23/19 08:49	08/23/19 19:16	1
Lead	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 19:16	1
Magnesium	**37.2**		5.0		mg/L		08/23/19 08:49	08/23/19 19:16	1
Manganese	**0.12**		0.015		mg/L		08/23/19 08:49	08/23/19 19:16	1
Nickel	ND		0.040		mg/L		08/23/19 08:49	08/23/19 19:16	1
Potassium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 19:16	1
Silver	ND		0.010		mg/L		08/23/19 08:49	08/23/19 19:16	1
Sodium	**18.6**		5.0		mg/L		08/23/19 08:49	08/23/19 19:16	1
Thallium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 19:16	1
Vanadium	ND		0.050		mg/L		08/23/19 08:49	08/23/19 19:16	1
Zinc	ND		0.020		mg/L		08/23/19 08:49	08/23/19 19:16	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:58	1
Antimony, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:58	1
Arsenic, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:58	1
Barium, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 20:58	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:58	1
Boron, Dissolved	**0.035**		0.020		mg/L		08/23/19 08:45	08/23/19 20:58	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/23/19 08:45	08/23/19 20:58	1
Calcium, Dissolved	**107**		5.0		mg/L		08/23/19 08:45	08/23/19 20:58	1
Chromium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:58	1
Cobalt, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:58	1
Copper, Dissolved	ND		0.025		mg/L		08/23/19 08:45	08/23/19 20:58	1
Iron, Dissolved	**0.29**		0.10		mg/L		08/23/19 08:45	08/23/19 20:58	1
Lead, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 20:58	1
Magnesium, Dissolved	**36.8**		5.0		mg/L		08/23/19 08:45	08/23/19 20:58	1
Manganese, Dissolved	**0.11**		0.015		mg/L		08/23/19 08:45	08/23/19 20:58	1
Nickel, Dissolved	ND		0.040		mg/L		08/23/19 08:45	08/23/19 20:58	1

Client Sample ID: MW-P(I)

Date Collected: 08/21/19 12:35
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-9

Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 20:58	1
Silver, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:58	1
Sodium, Dissolved	**21.4**		5.0		mg/L		08/23/19 08:45	08/23/19 20:58	1
Thallium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 20:58	1
Vanadium, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 20:58	1
Zinc, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 20:58	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/23/19 08:37	08/24/19 11:58	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/23/19 08:37	08/24/19 10:56	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/26/19 12:12	08/26/19 15:54	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/28/19 11:32	08/28/19 14:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		1.0		mg/L			08/27/19 16:25	5
Alkalinity, Total	**296**		15.0		mg/L			08/26/19 23:58	3
Ammonia (as N)	ND		0.050		mg/L as N			08/22/19 11:47	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		08/24/19 08:41	08/26/19 10:32	1
Nitrate	ND		0.050		mg/L as N			08/22/19 20:35	1
Chemical Oxygen Demand	**13.7**		5.0		mg/L			08/25/19 14:23	1
Chromium, hexavalent	ND		0.010		mg/L			08/22/19 08:30	1
Cyanide, Total	ND	F1	0.010		mg/L		09/01/19 16:04	09/03/19 11:58	1
Phenolics, Total Recoverable	**0.0074**	**B F1**	0.0050		mg/L		09/05/19 23:15	09/08/19 11:04	1
Hardness	**408**		2.0		mg/L			08/29/19 13:45	1
Total Dissolved Solids	**554**		10.0		mg/L			08/23/19 08:29	1
Chloride	**52.8**		2.5		mg/L			08/28/19 15:17	5
Sulfate	**106**		10.0		mg/L			08/27/19 16:25	5
Biochemical Oxygen Demand	ND		3.0		mg/L			08/22/19 18:45	1
Total Organic Carbon	ND		1.0		mg/L			08/23/19 14:21	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			08/23/19 10:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.26**				SU			08/21/19 12:35	1
Specific Conductance	**909**				umhos/cm			08/21/19 12:35	1
Field EH/ORP	**-43.0**				millivolts			08/21/19 12:35	1
Temperature, Field	**17.9**				Degrees C			08/21/19 12:35	1
Odor	**No**				NONE			08/21/19 12:35	1
Turbidity	**6.2**				NTU			08/21/19 12:35	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-P(I)
Date Collected: 08/21/19 12:35
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-9
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Depth	55.52				ft			08/21/19 12:35	1
Depth to Water from Top of Casing	32.38				ft			08/21/19 12:35	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-P(S)

Date Collected: 08/21/19 12:20
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-10

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 18:19	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/22/19 18:19	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 18:19	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/22/19 18:19	1
1,1-Dichloroethane	ND		5.0		ug/L			08/22/19 18:19	1
1,1-Dichloroethene	ND		5.0		ug/L			08/22/19 18:19	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/22/19 18:19	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/22/19 18:19	1
1,2-Dibromoethane	ND		5.0		ug/L			08/22/19 18:19	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/22/19 18:19	1
1,2-Dichloroethane	ND		5.0		ug/L			08/22/19 18:19	1
1,2-Dichloropropane	ND		5.0		ug/L			08/22/19 18:19	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/22/19 18:19	1
1,4-Dioxane	ND		50		ug/L			08/22/19 18:19	1
2-Butanone (MEK)	ND		5.0		ug/L			08/22/19 18:19	1
2-Hexanone	ND		10		ug/L			08/22/19 18:19	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/22/19 18:19	1
Acetone	ND		5.0		ug/L			08/22/19 18:19	1
Acetonitrile	ND		100		ug/L			08/22/19 18:19	1
Benzene	ND		5.0		ug/L			08/22/19 18:19	1
Bromochloromethane	ND		5.0		ug/L			08/22/19 18:19	1
Bromodichloromethane	ND		5.0		ug/L			08/22/19 18:19	1
Bromoform	ND		5.0		ug/L			08/22/19 18:19	1
Bromomethane	ND		5.0		ug/L			08/22/19 18:19	1
Carbon disulfide	ND		5.0		ug/L			08/22/19 18:19	1
Carbon tetrachloride	ND		5.0		ug/L			08/22/19 18:19	1
Chlorobenzene	ND		5.0		ug/L			08/22/19 18:19	1
Chloroethane	ND		5.0		ug/L			08/22/19 18:19	1
Chloroform	ND		5.0		ug/L			08/22/19 18:19	1
Chloromethane	ND		5.0		ug/L			08/22/19 18:19	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 18:19	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 18:19	1
Dibromochloromethane	ND		5.0		ug/L			08/22/19 18:19	1
Dibromomethane	ND		5.0		ug/L			08/22/19 18:19	1
Ethylbenzene	ND		5.0		ug/L			08/22/19 18:19	1
Iodomethane	ND		5.0		ug/L			08/22/19 18:19	1
m,p-Xylene	ND		5.0		ug/L			08/22/19 18:19	1
Methylene Chloride	ND		5.0		ug/L			08/22/19 18:19	1
o-Xylene	ND		5.0		ug/L			08/22/19 18:19	1
Styrene	ND		5.0		ug/L			08/22/19 18:19	1
Tetrachloroethene	ND		5.0		ug/L			08/22/19 18:19	1
Tetrahydrofuran	ND		10		ug/L			08/22/19 18:19	1
Toluene	ND		5.0		ug/L			08/22/19 18:19	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 18:19	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 18:19	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/22/19 18:19	1
Trichloroethene	ND		5.0		ug/L			08/22/19 18:19	1
Trichlorofluoromethane	ND		5.0		ug/L			08/22/19 18:19	1
Vinyl acetate	ND		50		ug/L			08/22/19 18:19	1

Client Sample ID: MW-P(S)

Date Collected: 08/21/19 12:20
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-10

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/22/19 18:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*77 - 120*		*08/22/19 18:19*	*1*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*08/22/19 18:19*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*08/22/19 18:19*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.30**		0.20		mg/L		08/23/19 08:49	08/23/19 19:20	1
Antimony	ND		0.015		mg/L		08/23/19 08:49	08/23/19 19:20	1
Arsenic	ND		0.010		mg/L		08/23/19 08:49	08/23/19 19:20	1
Barium	**0.20**		0.20		mg/L		08/23/19 08:49	08/23/19 19:20	1
Beryllium	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 19:20	1
Boron	**0.021**		0.020		mg/L		08/23/19 08:49	08/23/19 19:20	1
Cadmium	ND		0.0050		mg/L		08/23/19 08:49	08/23/19 19:20	1
Calcium	**114**		5.0		mg/L		08/23/19 08:49	08/23/19 19:20	1
Chromium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 19:20	1
Cobalt	ND		0.050		mg/L		08/23/19 08:49	08/23/19 19:20	1
Copper	ND		0.025		mg/L		08/23/19 08:49	08/23/19 19:20	1
Iron	**0.72**		0.10		mg/L		08/23/19 08:49	08/23/19 19:20	1
Lead	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 19:20	1
Magnesium	**40.7**		5.0		mg/L		08/23/19 08:49	08/23/19 19:20	1
Manganese	**0.066**		0.015		mg/L		08/23/19 08:49	08/23/19 19:20	1
Nickel	ND		0.040		mg/L		08/23/19 08:49	08/23/19 19:20	1
Potassium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 19:20	1
Silver	ND		0.010		mg/L		08/23/19 08:49	08/23/19 19:20	1
Sodium	**72.9**		5.0		mg/L		08/23/19 08:49	08/23/19 19:20	1
Thallium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 19:20	1
Vanadium	ND		0.050		mg/L		08/23/19 08:49	08/23/19 19:20	1
Zinc	ND		0.020		mg/L		08/23/19 08:49	08/23/19 19:20	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 21:02	1
Antimony, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 21:02	1
Arsenic, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 21:02	1
Barium, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 21:02	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 21:02	1
Boron, Dissolved	**0.027**		0.020		mg/L		08/23/19 08:45	08/23/19 21:02	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/23/19 08:45	08/23/19 21:02	1
Calcium, Dissolved	**177**		5.0		mg/L		08/23/19 08:45	08/23/19 21:02	1
Chromium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 21:02	1
Cobalt, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 21:02	1
Copper, Dissolved	ND		0.025		mg/L		08/23/19 08:45	08/23/19 21:02	1
Iron, Dissolved	**0.61**		0.10		mg/L		08/23/19 08:45	08/23/19 21:02	1
Lead, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 21:02	1
Magnesium, Dissolved	**53.5**		5.0		mg/L		08/23/19 08:45	08/23/19 21:02	1
Manganese, Dissolved	**0.57**		0.015		mg/L		08/23/19 08:45	08/23/19 21:02	1
Nickel, Dissolved	ND		0.040		mg/L		08/23/19 08:45	08/23/19 21:02	1

Client Sample ID: MW-P(S)

Date Collected: 08/21/19 12:20
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-10

Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 21:02	1
Silver, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 21:02	1
Sodium, Dissolved	**33.9**		5.0		mg/L		08/23/19 08:45	08/23/19 21:02	1
Thallium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 21:02	1
Vanadium, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 21:02	1
Zinc, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 21:02	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/23/19 08:37	08/24/19 12:00	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/23/19 08:37	08/24/19 10:58	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/26/19 12:12	08/26/19 15:55	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/28/19 11:32	08/28/19 14:15	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		1.0		mg/L			08/27/19 16:40	5
Alkalinity, Total	**382**		20.0		mg/L			08/26/19 23:58	4
Ammonia (as N)	ND		0.050		mg/L as N			08/22/19 11:48	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		08/24/19 08:41	08/26/19 10:38	1
Nitrate	**0.079**		0.050		mg/L as N			08/22/19 21:17	1
Chemical Oxygen Demand	**7.2**		5.0		mg/L			08/27/19 11:23	1
Chromium, hexavalent	ND		0.010		mg/L			08/22/19 08:30	1
Cyanide, Total	ND		0.010		mg/L		09/01/19 16:04	09/03/19 12:01	1
Phenolics, Total Recoverable	**0.0076**	**B**	0.0050		mg/L		09/05/19 23:15	09/08/19 11:04	1
Hardness	**450**		5.0		mg/L			08/29/19 13:45	1
Total Dissolved Solids	**732**		10.0		mg/L			08/23/19 08:29	1
Chloride	**156**		2.5		mg/L			08/27/19 16:40	5
Sulfate	**40.0**		10.0		mg/L			08/27/19 16:40	5
Biochemical Oxygen Demand	ND		2.0		mg/L			08/22/19 18:45	1
Total Organic Carbon	ND		1.0		mg/L			08/23/19 16:23	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	**10.0**		0.0100		Color Units			08/23/19 10:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.23**				SU			08/21/19 12:20	1
Specific Conductance	**1186**				umhos/cm			08/21/19 12:20	1
Field EH/ORP	**-4.0**				millivolts			08/21/19 12:20	1
Temperature, Field	**18.1**				Degrees C			08/21/19 12:20	1
Odor	**No**				NONE			08/21/19 12:20	1
Turbidity	**13.1**				NTU			08/21/19 12:20	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-P(S)
Date Collected: 08/21/19 12:20
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-10
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Depth	29.00				ft			08/21/19 12:20	1
Depth to Water from Top of Casing	15.05				ft			08/21/19 12:20	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-157980-11

Date Collected: 08/21/19 00:00

Matrix: Water

Date Received: 08/21/19 17:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 18:46	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/22/19 18:46	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 18:46	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/22/19 18:46	1
1,1-Dichloroethane	ND		5.0		ug/L			08/22/19 18:46	1
1,1-Dichloroethene	ND		5.0		ug/L			08/22/19 18:46	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/22/19 18:46	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/22/19 18:46	1
1,2-Dibromoethane	ND		5.0		ug/L			08/22/19 18:46	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/22/19 18:46	1
1,2-Dichloroethane	ND		5.0		ug/L			08/22/19 18:46	1
1,2-Dichloropropane	ND		5.0		ug/L			08/22/19 18:46	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/22/19 18:46	1
1,4-Dioxane	ND		50		ug/L			08/22/19 18:46	1
2-Butanone (MEK)	ND		5.0		ug/L			08/22/19 18:46	1
2-Hexanone	ND		10		ug/L			08/22/19 18:46	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/22/19 18:46	1
Acetone	ND		5.0		ug/L			08/22/19 18:46	1
Acetonitrile	ND		100		ug/L			08/22/19 18:46	1
Benzene	ND		5.0		ug/L			08/22/19 18:46	1
Bromochloromethane	ND		5.0		ug/L			08/22/19 18:46	1
Bromodichloromethane	ND		5.0		ug/L			08/22/19 18:46	1
Bromoform	ND		5.0		ug/L			08/22/19 18:46	1
Bromomethane	ND		5.0		ug/L			08/22/19 18:46	1
Carbon disulfide	ND		5.0		ug/L			08/22/19 18:46	1
Carbon tetrachloride	ND		5.0		ug/L			08/22/19 18:46	1
Chlorobenzene	ND		5.0		ug/L			08/22/19 18:46	1
Chloroethane	ND		5.0		ug/L			08/22/19 18:46	1
Chloroform	ND		5.0		ug/L			08/22/19 18:46	1
Chloromethane	ND		5.0		ug/L			08/22/19 18:46	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 18:46	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 18:46	1
Dibromochloromethane	ND		5.0		ug/L			08/22/19 18:46	1
Dibromomethane	ND		5.0		ug/L			08/22/19 18:46	1
Ethylbenzene	ND		5.0		ug/L			08/22/19 18:46	1
Iodomethane	ND		5.0		ug/L			08/22/19 18:46	1
m,p-Xylene	ND		5.0		ug/L			08/22/19 18:46	1
Methylene Chloride	ND		5.0		ug/L			08/22/19 18:46	1
o-Xylene	ND		5.0		ug/L			08/22/19 18:46	1
Styrene	ND		5.0		ug/L			08/22/19 18:46	1
Tetrachloroethene	ND		5.0		ug/L			08/22/19 18:46	1
Tetrahydrofuran	ND		10		ug/L			08/22/19 18:46	1
Toluene	ND		5.0		ug/L			08/22/19 18:46	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 18:46	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 18:46	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/22/19 18:46	1
Trichloroethene	ND		5.0		ug/L			08/22/19 18:46	1
Trichlorofluoromethane	ND		5.0		ug/L			08/22/19 18:46	1
Vinyl acetate	ND		50		ug/L			08/22/19 18:46	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: TRIP BLANK
Date Collected: 08/21/19 00:00
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-11
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/22/19 18:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*77 - 120*		*08/22/19 18:46*	*1*
4-Bromofluorobenzene (Surr)	*94*		*73 - 120*		*08/22/19 18:46*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*08/22/19 18:46*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-N(I)
Date Collected: 08/23/19 11:12
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-1
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/24/19 20:54	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/24/19 20:54	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/24/19 20:54	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/24/19 20:54	1
1,1-Dichloroethane	ND		5.0		ug/L			08/24/19 20:54	1
1,1-Dichloroethene	ND		5.0		ug/L			08/24/19 20:54	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/24/19 20:54	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/24/19 20:54	1
1,2-Dibromoethane	ND		5.0		ug/L			08/24/19 20:54	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/24/19 20:54	1
1,2-Dichloroethane	ND		5.0		ug/L			08/24/19 20:54	1
1,2-Dichloropropane	ND		5.0		ug/L			08/24/19 20:54	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/24/19 20:54	1
1,4-Dioxane	ND		50		ug/L			08/24/19 20:54	1
2-Butanone (MEK)	ND		5.0		ug/L			08/24/19 20:54	1
2-Hexanone	ND		10		ug/L			08/24/19 20:54	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/24/19 20:54	1
Acetone	ND		5.0		ug/L			08/24/19 20:54	1
Acetonitrile	ND		100		ug/L			08/24/19 20:54	1
Benzene	ND		5.0		ug/L			08/24/19 20:54	1
Bromochloromethane	ND		5.0		ug/L			08/24/19 20:54	1
Bromodichloromethane	ND		5.0		ug/L			08/24/19 20:54	1
Bromoform	ND		5.0		ug/L			08/24/19 20:54	1
Bromomethane	ND		5.0		ug/L			08/24/19 20:54	1
Carbon disulfide	ND		5.0		ug/L			08/24/19 20:54	1
Carbon tetrachloride	ND		5.0		ug/L			08/24/19 20:54	1
Chlorobenzene	ND		5.0		ug/L			08/24/19 20:54	1
Chloroethane	ND		5.0		ug/L			08/24/19 20:54	1
Chloroform	ND		5.0		ug/L			08/24/19 20:54	1
Chloromethane	ND		5.0		ug/L			08/24/19 20:54	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/24/19 20:54	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/24/19 20:54	1
Dibromochloromethane	ND		5.0		ug/L			08/24/19 20:54	1
Dibromomethane	ND		5.0		ug/L			08/24/19 20:54	1
Ethylbenzene	ND		5.0		ug/L			08/24/19 20:54	1
Iodomethane	ND		5.0		ug/L			08/24/19 20:54	1
m,p-Xylene	ND		5.0		ug/L			08/24/19 20:54	1
Methylene Chloride	ND		5.0		ug/L			08/24/19 20:54	1
o-Xylene	ND		5.0		ug/L			08/24/19 20:54	1
Styrene	ND		5.0		ug/L			08/24/19 20:54	1
Tetrachloroethene	ND		5.0		ug/L			08/24/19 20:54	1
Tetrahydrofuran	ND		10		ug/L			08/24/19 20:54	1
Toluene	ND		5.0		ug/L			08/24/19 20:54	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/24/19 20:54	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/24/19 20:54	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/24/19 20:54	1
Trichloroethene	ND		5.0		ug/L			08/24/19 20:54	1
Trichlorofluoromethane	ND		5.0		ug/L			08/24/19 20:54	1
Vinyl acetate	ND		50		ug/L			08/24/19 20:54	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-N(I)
Date Collected: 08/23/19 11:12
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-1
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/24/19 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*85*		*77 - 120*		*08/24/19 20:54*	*1*
4-Bromofluorobenzene (Surr)	*111*		*73 - 120*		*08/24/19 20:54*	*1*
Toluene-d8 (Surr)	*89*		*80 - 120*		*08/24/19 20:54*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**7.8**		0.20		mg/L		08/27/19 08:48	08/27/19 16:47	1
Antimony	ND		0.015		mg/L		08/27/19 08:48	08/27/19 16:47	1
Arsenic	ND		0.010		mg/L		08/27/19 08:48	08/27/19 16:47	1
Barium	ND		0.20		mg/L		08/27/19 08:48	08/27/19 16:47	1
Beryllium	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 16:47	1
Boron	**0.047**		0.020		mg/L		08/27/19 08:48	08/27/19 16:47	1
Cadmium	ND		0.0050		mg/L		08/27/19 08:48	08/27/19 16:47	1
Calcium	**129**		5.0		mg/L		08/27/19 08:48	08/27/19 16:47	1
Chromium	ND		0.010		mg/L		08/27/19 08:48	08/27/19 16:47	1
Cobalt	ND		0.050		mg/L		08/27/19 08:48	08/27/19 16:47	1
Copper	ND		0.025		mg/L		08/27/19 08:48	08/27/19 16:47	1
Iron	**10.1**		0.10		mg/L		08/27/19 08:48	08/27/19 16:47	1
Lead	**0.013**		0.0030		mg/L		08/27/19 08:48	08/27/19 16:47	1
Magnesium	**31.7**		5.0		mg/L		08/27/19 08:48	08/27/19 16:47	1
Manganese	**0.77**		0.015		mg/L		08/27/19 08:48	08/27/19 16:47	1
Nickel	ND		0.040		mg/L		08/27/19 08:48	08/27/19 16:47	1
Potassium	**5.0**		5.0		mg/L		08/27/19 08:48	08/27/19 16:47	1
Silver	ND		0.010		mg/L		08/27/19 08:48	08/27/19 16:47	1
Sodium	**9.5**		5.0		mg/L		08/27/19 08:48	08/27/19 16:47	1
Thallium	ND		0.010		mg/L		08/27/19 08:48	08/27/19 16:47	1
Vanadium	ND		0.050		mg/L		08/27/19 08:48	08/27/19 16:47	1
Zinc	**0.039**		0.020		mg/L		08/27/19 08:48	08/27/19 16:47	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/27/19 08:48	08/27/19 19:12	1
Antimony, Dissolved	ND		0.020		mg/L		08/27/19 08:48	08/27/19 19:12	1
Arsenic, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 19:12	1
Barium, Dissolved	ND		0.20		mg/L		08/27/19 08:48	08/27/19 19:12	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 19:12	1
Boron, Dissolved	**0.035**		0.020		mg/L		08/27/19 08:48	08/27/19 19:12	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/27/19 08:48	08/27/19 19:12	1
Calcium, Dissolved	**117**		5.0		mg/L		08/27/19 08:48	08/27/19 19:12	1
Chromium, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 19:12	1
Cobalt, Dissolved	ND		0.050		mg/L		08/27/19 08:48	08/27/19 19:12	1
Copper, Dissolved	ND		0.025		mg/L		08/27/19 08:48	08/27/19 19:12	1
Iron, Dissolved	ND		0.10		mg/L		08/27/19 08:48	08/27/19 19:12	1
Lead, Dissolved	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 19:12	1
Magnesium, Dissolved	**28.0**		5.0		mg/L		08/27/19 08:48	08/27/19 19:12	1
Manganese, Dissolved	**0.59**		0.015		mg/L		08/27/19 08:48	08/27/19 19:12	1
Nickel, Dissolved	ND		0.040		mg/L		08/27/19 08:48	08/27/19 19:12	1

Client Sample ID: MW-N(I)

Date Collected: 08/23/19 11:12
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-1

Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		08/27/19 08:48	08/27/19 19:12	1
Silver, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 19:12	1
Sodium, Dissolved	**9.1**		5.0		mg/L		08/27/19 08:48	08/27/19 19:12	1
Thallium, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 19:12	1
Vanadium, Dissolved	ND		0.050		mg/L		08/27/19 08:48	08/27/19 19:12	1
Zinc, Dissolved	ND		0.020		mg/L		08/27/19 08:48	08/27/19 19:12	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/27/19 08:35	08/27/19 19:06	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/27/19 08:34	08/27/19 20:34	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/27/19 11:20	08/27/19 14:25	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/29/19 11:53	08/29/19 15:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		1.0		mg/L			08/28/19 05:33	5
Alkalinity, Total	**350**		20.0		mg/L			08/27/19 00:22	4
Ammonia (as N)	ND		0.050		mg/L as N			08/26/19 09:24	1
Total Kjeldahl Nitrogen	**0.80**		0.15		mg/L as N		09/04/19 08:05	09/04/19 13:38	1
Nitrate	**0.060**		0.050		mg/L as N			08/24/19 12:32	1
Chemical Oxygen Demand	**29.0**		5.0		mg/L			08/29/19 12:10	1
Chromium, hexavalent	ND		0.010		mg/L			08/24/19 08:15	1
Cyanide, Total	ND		0.010		mg/L		09/04/19 20:50	09/05/19 13:35	1
Phenolics, Total Recoverable	**0.0075**	**B**	0.0050		mg/L		09/07/19 00:56	09/08/19 11:20	1
Hardness	**430**		5.0		mg/L			09/09/19 09:45	1
Total Dissolved Solids	**479**		10.0		mg/L			08/26/19 14:39	1
Chloride	**22.7**		2.5		mg/L			08/28/19 05:33	5
Sulfate	**81.6**		10.0		mg/L			08/28/19 05:33	5
Biochemical Oxygen Demand	ND	*	2.0		mg/L			08/23/19 17:14	1
Total Organic Carbon	ND		1.0		mg/L			08/27/19 22:36	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			08/24/19 10:16	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.17**				SU			08/23/19 11:12	1
Specific Conductance	**778**				umhos/cm			08/23/19 11:12	1
Field EH/ORP	**54.0**				millivolts			08/23/19 11:12	1
Temperature, Field	**15.4**				Degrees C			08/23/19 11:12	1
Odor	**No**				NONE			08/23/19 11:12	1
Turbidity	**>300**				NTU			08/23/19 11:12	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-N(I)
Date Collected: 08/23/19 11:12
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-1
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Depth	47.70				ft			08/23/19 11:12	1
Depth to Water from Top of Casing	39.82				ft			08/23/19 11:12	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-N(S)
Date Collected: 08/23/19 11:00
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-2
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/24/19 21:17	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/24/19 21:17	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/24/19 21:17	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/24/19 21:17	1
1,1-Dichloroethane	ND		5.0		ug/L			08/24/19 21:17	1
1,1-Dichloroethene	ND		5.0		ug/L			08/24/19 21:17	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/24/19 21:17	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/24/19 21:17	1
1,2-Dibromoethane	ND		5.0		ug/L			08/24/19 21:17	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/24/19 21:17	1
1,2-Dichloroethane	ND		5.0		ug/L			08/24/19 21:17	1
1,2-Dichloropropane	ND		5.0		ug/L			08/24/19 21:17	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/24/19 21:17	1
1,4-Dioxane	ND		50		ug/L			08/24/19 21:17	1
2-Butanone (MEK)	ND		5.0		ug/L			08/24/19 21:17	1
2-Hexanone	ND		10		ug/L			08/24/19 21:17	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/24/19 21:17	1
Acetone	ND		5.0		ug/L			08/24/19 21:17	1
Acetonitrile	ND		100		ug/L			08/24/19 21:17	1
Benzene	ND		5.0		ug/L			08/24/19 21:17	1
Bromochloromethane	ND		5.0		ug/L			08/24/19 21:17	1
Bromodichloromethane	ND		5.0		ug/L			08/24/19 21:17	1
Bromoform	ND		5.0		ug/L			08/24/19 21:17	1
Bromomethane	ND		5.0		ug/L			08/24/19 21:17	1
Carbon disulfide	ND		5.0		ug/L			08/24/19 21:17	1
Carbon tetrachloride	ND		5.0		ug/L			08/24/19 21:17	1
Chlorobenzene	ND		5.0		ug/L			08/24/19 21:17	1
Chloroethane	ND		5.0		ug/L			08/24/19 21:17	1
Chloroform	ND		5.0		ug/L			08/24/19 21:17	1
Chloromethane	ND		5.0		ug/L			08/24/19 21:17	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/24/19 21:17	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/24/19 21:17	1
Dibromochloromethane	ND		5.0		ug/L			08/24/19 21:17	1
Dibromomethane	ND		5.0		ug/L			08/24/19 21:17	1
Ethylbenzene	ND		5.0		ug/L			08/24/19 21:17	1
Iodomethane	ND		5.0		ug/L			08/24/19 21:17	1
m,p-Xylene	ND		5.0		ug/L			08/24/19 21:17	1
Methylene Chloride	ND		5.0		ug/L			08/24/19 21:17	1
o-Xylene	ND		5.0		ug/L			08/24/19 21:17	1
Styrene	ND		5.0		ug/L			08/24/19 21:17	1
Tetrachloroethene	ND		5.0		ug/L			08/24/19 21:17	1
Tetrahydrofuran	ND		10		ug/L			08/24/19 21:17	1
Toluene	ND		5.0		ug/L			08/24/19 21:17	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/24/19 21:17	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/24/19 21:17	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/24/19 21:17	1
Trichloroethene	ND		5.0		ug/L			08/24/19 21:17	1
Trichlorofluoromethane	ND		5.0		ug/L			08/24/19 21:17	1
Vinyl acetate	ND		50		ug/L			08/24/19 21:17	1

Client Sample ID: MW-N(S)
Date Collected: 08/23/19 11:00
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-2
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/24/19 21:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*85*		*77 - 120*		*08/24/19 21:17*	*1*
4-Bromofluorobenzene (Surr)	*110*		*73 - 120*		*08/24/19 21:17*	*1*
Toluene-d8 (Surr)	*89*		*80 - 120*		*08/24/19 21:17*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		08/27/19 08:48	08/27/19 16:51	1
Antimony	ND		0.015		mg/L		08/27/19 08:48	08/27/19 16:51	1
Arsenic	ND		0.010		mg/L		08/27/19 08:48	08/27/19 16:51	1
Barium	ND		0.20		mg/L		08/27/19 08:48	08/27/19 16:51	1
Beryllium	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 16:51	1
Boron	**0.023**		0.020		mg/L		08/27/19 08:48	08/27/19 16:51	1
Cadmium	ND		0.0050		mg/L		08/27/19 08:48	08/27/19 16:51	1
Calcium	**143**		5.0		mg/L		08/27/19 08:48	08/27/19 16:51	1
Chromium	ND		0.010		mg/L		08/27/19 08:48	08/27/19 16:51	1
Cobalt	ND		0.050		mg/L		08/27/19 08:48	08/27/19 16:51	1
Copper	ND		0.025		mg/L		08/27/19 08:48	08/27/19 16:51	1
Iron	ND		0.10		mg/L		08/27/19 08:48	08/27/19 16:51	1
Lead	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 16:51	1
Magnesium	**24.4**		5.0		mg/L		08/27/19 08:48	08/27/19 16:51	1
Manganese	**0.025**		0.015		mg/L		08/27/19 08:48	08/27/19 16:51	1
Nickel	ND		0.040		mg/L		08/27/19 08:48	08/27/19 16:51	1
Potassium	ND		5.0		mg/L		08/27/19 08:48	08/27/19 16:51	1
Silver	ND		0.010		mg/L		08/27/19 08:48	08/27/19 16:51	1
Sodium	ND		5.0		mg/L		08/27/19 08:48	08/27/19 16:51	1
Thallium	ND		0.010		mg/L		08/27/19 08:48	08/27/19 16:51	1
Vanadium	ND		0.050		mg/L		08/27/19 08:48	08/27/19 16:51	1
Zinc	ND		0.020		mg/L		08/27/19 08:48	08/27/19 16:51	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/27/19 08:48	08/27/19 19:16	1
Antimony, Dissolved	ND		0.020		mg/L		08/27/19 08:48	08/27/19 19:16	1
Arsenic, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 19:16	1
Barium, Dissolved	ND		0.20		mg/L		08/27/19 08:48	08/27/19 19:16	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 19:16	1
Boron, Dissolved	**0.023**		0.020		mg/L		08/27/19 08:48	08/27/19 19:16	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/27/19 08:48	08/27/19 19:16	1
Calcium, Dissolved	**137**		5.0		mg/L		08/27/19 08:48	08/27/19 19:16	1
Chromium, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 19:16	1
Cobalt, Dissolved	ND		0.050		mg/L		08/27/19 08:48	08/27/19 19:16	1
Copper, Dissolved	ND		0.025		mg/L		08/27/19 08:48	08/27/19 19:16	1
Iron, Dissolved	ND		0.10		mg/L		08/27/19 08:48	08/27/19 19:16	1
Lead, Dissolved	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 19:16	1
Magnesium, Dissolved	**23.6**		5.0		mg/L		08/27/19 08:48	08/27/19 19:16	1
Manganese, Dissolved	ND		0.015		mg/L		08/27/19 08:48	08/27/19 19:16	1
Nickel, Dissolved	ND		0.040		mg/L		08/27/19 08:48	08/27/19 19:16	1

Client Sample ID: MW-N(S)
Date Collected: 08/23/19 11:00
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-2
Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		08/27/19 08:48	08/27/19 19:16	1
Silver, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 19:16	1
Sodium, Dissolved	ND		5.0		mg/L		08/27/19 08:48	08/27/19 19:16	1
Thallium, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 19:16	1
Vanadium, Dissolved	ND		0.050		mg/L		08/27/19 08:48	08/27/19 19:16	1
Zinc, Dissolved	ND		0.020		mg/L		08/27/19 08:48	08/27/19 19:16	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/27/19 08:35	08/27/19 19:08	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/27/19 08:34	08/27/19 20:36	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/27/19 11:20	08/27/19 14:26	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/29/19 11:53	08/29/19 15:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		1.0		mg/L			08/28/19 05:47	5
Alkalinity, Total	**336**		20.0		mg/L			08/27/19 00:27	4
Ammonia (as N)	ND		0.050		mg/L as N			08/26/19 09:25	1
Total Kjeldahl Nitrogen	**0.20**		0.15		mg/L as N		09/04/19 08:05	09/04/19 13:38	1
Nitrate	**0.11**		0.050		mg/L as N			08/24/19 12:34	1
Chemical Oxygen Demand	ND		5.0		mg/L			08/29/19 12:10	1
Chromium, hexavalent	ND		0.010		mg/L			08/24/19 08:15	1
Cyanide, Total	ND		0.010		mg/L		09/04/19 20:50	09/05/19 13:39	1
Phenolics, Total Recoverable	**0.0082**	**B**	0.0050		mg/L		09/16/19 23:12	09/17/19 10:36	1
Hardness	**460**		5.0		mg/L			09/09/19 09:45	1
Total Dissolved Solids	**545**		10.0		mg/L			08/26/19 14:39	1
Chloride	ND		2.5		mg/L			08/28/19 05:47	5
Sulfate	**142**		10.0		mg/L			08/28/19 05:47	5
Biochemical Oxygen Demand	ND	*	2.0		mg/L			08/23/19 17:14	1
Total Organic Carbon	**2.5**		1.0		mg/L			08/27/19 22:50	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	**10.0**		0.0100		Color Units			08/24/19 10:16	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**6.88**				SU			08/23/19 11:00	1
Specific Conductance	**852**				umhos/cm			08/23/19 11:00	1
Field EH/ORP	**116.0**				millivolts			08/23/19 11:00	1
Temperature, Field	**15.4**				Degrees C			08/23/19 11:00	1
Odor	**No**				NONE			08/23/19 11:00	1
Turbidity	**9.6**				NTU			08/23/19 11:00	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-N(S)
Date Collected: 08/23/19 11:00
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-2
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Depth	27.50				ft			08/23/19 11:00	1
Depth to Water from Top of Casing	15.02				ft			08/23/19 11:00	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-Q(I)
Date Collected: 08/23/19 11:30
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-3
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/24/19 21:40	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/24/19 21:40	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/24/19 21:40	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/24/19 21:40	1
1,1-Dichloroethane	ND		5.0		ug/L			08/24/19 21:40	1
1,1-Dichloroethene	ND		5.0		ug/L			08/24/19 21:40	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/24/19 21:40	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/24/19 21:40	1
1,2-Dibromoethane	ND		5.0		ug/L			08/24/19 21:40	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/24/19 21:40	1
1,2-Dichloroethane	ND		5.0		ug/L			08/24/19 21:40	1
1,2-Dichloropropane	ND		5.0		ug/L			08/24/19 21:40	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/24/19 21:40	1
1,4-Dioxane	ND		50		ug/L			08/24/19 21:40	1
2-Butanone (MEK)	ND		5.0		ug/L			08/24/19 21:40	1
2-Hexanone	ND		10		ug/L			08/24/19 21:40	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/24/19 21:40	1
Acetone	ND		5.0		ug/L			08/24/19 21:40	1
Acetonitrile	ND		100		ug/L			08/24/19 21:40	1
Benzene	ND		5.0		ug/L			08/24/19 21:40	1
Bromochloromethane	ND		5.0		ug/L			08/24/19 21:40	1
Bromodichloromethane	ND		5.0		ug/L			08/24/19 21:40	1
Bromoform	ND		5.0		ug/L			08/24/19 21:40	1
Bromomethane	ND		5.0		ug/L			08/24/19 21:40	1
Carbon disulfide	ND		5.0		ug/L			08/24/19 21:40	1
Carbon tetrachloride	ND		5.0		ug/L			08/24/19 21:40	1
Chlorobenzene	ND		5.0		ug/L			08/24/19 21:40	1
Chloroethane	ND		5.0		ug/L			08/24/19 21:40	1
Chloroform	ND		5.0		ug/L			08/24/19 21:40	1
Chloromethane	ND		5.0		ug/L			08/24/19 21:40	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/24/19 21:40	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/24/19 21:40	1
Dibromochloromethane	ND		5.0		ug/L			08/24/19 21:40	1
Dibromomethane	ND		5.0		ug/L			08/24/19 21:40	1
Ethylbenzene	ND		5.0		ug/L			08/24/19 21:40	1
Iodomethane	ND		5.0		ug/L			08/24/19 21:40	1
m,p-Xylene	ND		5.0		ug/L			08/24/19 21:40	1
Methylene Chloride	ND		5.0		ug/L			08/24/19 21:40	1
o-Xylene	ND		5.0		ug/L			08/24/19 21:40	1
Styrene	ND		5.0		ug/L			08/24/19 21:40	1
Tetrachloroethene	ND		5.0		ug/L			08/24/19 21:40	1
Tetrahydrofuran	ND		10		ug/L			08/24/19 21:40	1
Toluene	ND		5.0		ug/L			08/24/19 21:40	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/24/19 21:40	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/24/19 21:40	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/24/19 21:40	1
Trichloroethene	ND		5.0		ug/L			08/24/19 21:40	1
Trichlorofluoromethane	ND		5.0		ug/L			08/24/19 21:40	1
Vinyl acetate	ND		50		ug/L			08/24/19 21:40	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-Q(I)

Date Collected: 08/23/19 11:30
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-3

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/24/19 21:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*77 - 120*		*08/24/19 21:40*	*1*
4-Bromofluorobenzene (Surr)	*108*		*73 - 120*		*08/24/19 21:40*	*1*
Toluene-d8 (Surr)	*88*		*80 - 120*		*08/24/19 21:40*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.35**		0.20		mg/L		09/04/19 09:46	09/04/19 21:10	1
Antimony	ND		0.015		mg/L		08/27/19 08:48	08/27/19 16:55	1
Arsenic	ND		0.010		mg/L		08/27/19 08:48	08/27/19 16:55	1
Barium	ND		0.20		mg/L		08/27/19 08:48	08/27/19 16:55	1
Beryllium	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 16:55	1
Boron	**0.035**		0.020		mg/L		08/27/19 08:48	08/27/19 16:55	1
Cadmium	ND		0.0050		mg/L		08/27/19 08:48	08/27/19 16:55	1
Calcium	**121**		5.0		mg/L		08/27/19 08:48	08/27/19 16:55	1
Chromium	ND		0.010		mg/L		08/27/19 08:48	08/27/19 16:55	1
Cobalt	ND		0.050		mg/L		08/27/19 08:48	08/27/19 16:55	1
Copper	ND		0.025		mg/L		08/27/19 08:48	08/27/19 16:55	1
Iron	**1.6**		0.10		mg/L		08/27/19 08:48	08/27/19 16:55	1
Lead	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 16:55	1
Magnesium	**42.3**		5.0		mg/L		08/27/19 08:48	08/27/19 16:55	1
Manganese	**0.12**		0.015		mg/L		08/27/19 08:48	08/27/19 16:55	1
Nickel	ND		0.040		mg/L		08/27/19 08:48	08/27/19 16:55	1
Potassium	ND		5.0		mg/L		08/27/19 08:48	08/27/19 16:55	1
Silver	ND		0.010		mg/L		08/27/19 08:48	08/27/19 16:55	1
Sodium	**9.7**		5.0		mg/L		08/27/19 08:48	08/27/19 16:55	1
Thallium	ND		0.010		mg/L		08/27/19 08:48	08/27/19 16:55	1
Vanadium	ND		0.050		mg/L		08/27/19 08:48	08/27/19 16:55	1
Zinc	ND		0.020		mg/L		08/27/19 08:48	08/27/19 16:55	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/27/19 08:48	08/27/19 19:20	1
Antimony, Dissolved	ND		0.020		mg/L		08/27/19 08:48	08/27/19 19:20	1
Arsenic, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 19:20	1
Barium, Dissolved	ND		0.20		mg/L		08/27/19 08:48	08/27/19 19:20	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 19:20	1
Boron, Dissolved	**0.034**		0.020		mg/L		08/27/19 08:48	08/27/19 19:20	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/27/19 08:48	08/27/19 19:20	1
Calcium, Dissolved	**118**		5.0		mg/L		08/27/19 08:48	08/27/19 19:20	1
Chromium, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 19:20	1
Cobalt, Dissolved	ND		0.050		mg/L		08/27/19 08:48	08/27/19 19:20	1
Copper, Dissolved	ND		0.025		mg/L		08/27/19 08:48	08/27/19 19:20	1
Iron, Dissolved	**0.17**		0.10		mg/L		08/27/19 08:48	08/27/19 19:20	1
Lead, Dissolved	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 19:20	1
Magnesium, Dissolved	**41.7**		5.0		mg/L		08/27/19 08:48	08/27/19 19:20	1
Manganese, Dissolved	**0.11**		0.015		mg/L		08/27/19 08:48	08/27/19 19:20	1
Nickel, Dissolved	ND		0.040		mg/L		08/27/19 08:48	08/27/19 19:20	1

Client Sample ID: MW-Q(I)
Date Collected: 08/23/19 11:30
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-3
Matrix: Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		08/27/19 08:48	08/27/19 19:20	1
Silver, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 19:20	1
Sodium, Dissolved	**14.0**		5.0		mg/L		08/27/19 08:48	08/27/19 19:20	1
Thallium, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 19:20	1
Vanadium, Dissolved	ND		0.050		mg/L		08/27/19 08:48	08/27/19 19:20	1
Zinc, Dissolved	ND		0.020		mg/L		08/27/19 08:48	08/27/19 19:20	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/27/19 08:35	08/27/19 19:11	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/27/19 08:34	08/27/19 20:39	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/27/19 11:20	08/27/19 14:30	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/29/19 11:53	08/29/19 15:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		1.0		mg/L			08/28/19 06:02	5
Alkalinity, Total	**284**		20.0		mg/L			08/27/19 00:25	4
Ammonia (as N)	**0.061**		0.050		mg/L as N			08/26/19 09:25	1
Total Kjeldahl Nitrogen	**0.26**	**F1**	0.15		mg/L as N		09/04/19 08:05	09/04/19 13:38	1
Nitrate	**0.059**		0.050		mg/L as N			08/24/19 12:35	1
Chemical Oxygen Demand	**10.1**		5.0		mg/L			08/29/19 12:10	1
Chromium, hexavalent	ND		0.010		mg/L			08/24/19 08:15	1
Cyanide, Total	ND		0.010		mg/L		09/04/19 20:50	09/05/19 13:40	1
Phenolics, Total Recoverable	**0.0072**	**B**	0.0050		mg/L		09/07/19 00:56	09/08/19 11:20	1
Hardness	**480**		5.0		mg/L			09/09/19 09:45	1
Total Dissolved Solids	**490**		10.0		mg/L			08/26/19 14:39	1
Chloride	**60.7**		2.5		mg/L			08/28/19 06:02	5
Sulfate	**115**		10.0		mg/L			08/28/19 06:02	5
Biochemical Oxygen Demand	ND	*	2.0		mg/L			08/23/19 17:14	1
Total Organic Carbon	ND		1.0		mg/L			08/28/19 00:06	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			08/24/19 10:16	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.35**				SU			08/23/19 11:30	1
Specific Conductance	**907**				umhos/cm			08/23/19 11:30	1
Field EH/ORP	**-70**				millivolts			08/23/19 11:30	1
Temperature, Field	**14.6**				Degrees C			08/23/19 11:30	1
Odor	**No**				NONE			08/23/19 11:30	1
Turbidity	**18.8**				NTU			08/23/19 11:30	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-Q(I)
Date Collected: 08/23/19 11:30
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-3
Matrix: Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Well Depth	62.80				ft			08/23/19 11:30	1
Depth to Water from Top of Casing	42.16				ft			08/23/19 11:30	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-50
Date Collected: 08/26/19 13:45
Date Received: 08/26/19 16:30

Lab Sample ID: 480-158145-1
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/28/19 16:37	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/28/19 16:37	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/28/19 16:37	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/28/19 16:37	1
1,1-Dichloroethane	ND		5.0		ug/L			08/28/19 16:37	1
1,1-Dichloroethene	ND		5.0		ug/L			08/28/19 16:37	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/28/19 16:37	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/28/19 16:37	1
1,2-Dibromoethane	ND		5.0		ug/L			08/28/19 16:37	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/28/19 16:37	1
1,2-Dichloroethane	ND		5.0		ug/L			08/28/19 16:37	1
1,2-Dichloropropane	ND		5.0		ug/L			08/28/19 16:37	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/28/19 16:37	1
1,4-Dioxane	ND		50		ug/L			08/28/19 16:37	1
2-Butanone (MEK)	ND		5.0		ug/L			08/28/19 16:37	1
2-Hexanone	ND		10		ug/L			08/28/19 16:37	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/28/19 16:37	1
Acetone	ND		5.0		ug/L			08/28/19 16:37	1
Acetonitrile	ND		100		ug/L			08/28/19 16:37	1
Benzene	ND		5.0		ug/L			08/28/19 16:37	1
Bromochloromethane	ND		5.0		ug/L			08/28/19 16:37	1
Bromodichloromethane	ND		5.0		ug/L			08/28/19 16:37	1
Bromoform	ND		5.0		ug/L			08/28/19 16:37	1
Bromomethane	ND		5.0		ug/L			08/28/19 16:37	1
Carbon disulfide	ND		5.0		ug/L			08/28/19 16:37	1
Carbon tetrachloride	ND		5.0		ug/L			08/28/19 16:37	1
Chlorobenzene	ND		5.0		ug/L			08/28/19 16:37	1
Chloroethane	ND		5.0		ug/L			08/28/19 16:37	1
Chloroform	ND		5.0		ug/L			08/28/19 16:37	1
Chloromethane	ND		5.0		ug/L			08/28/19 16:37	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/28/19 16:37	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/28/19 16:37	1
Dibromochloromethane	ND		5.0		ug/L			08/28/19 16:37	1
Dibromomethane	ND		5.0		ug/L			08/28/19 16:37	1
Ethylbenzene	ND		5.0		ug/L			08/28/19 16:37	1
Iodomethane	ND		5.0		ug/L			08/28/19 16:37	1
m,p-Xylene	ND		5.0		ug/L			08/28/19 16:37	1
Methylene Chloride	ND		5.0		ug/L			08/28/19 16:37	1
o-Xylene	ND		5.0		ug/L			08/28/19 16:37	1
Styrene	ND		5.0		ug/L			08/28/19 16:37	1
Tetrachloroethene	ND		5.0		ug/L			08/28/19 16:37	1
Tetrahydrofuran	ND		10		ug/L			08/28/19 16:37	1
Toluene	ND		5.0		ug/L			08/28/19 16:37	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/28/19 16:37	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/28/19 16:37	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/28/19 16:37	1
Trichloroethene	ND		5.0		ug/L			08/28/19 16:37	1
Trichlorofluoromethane	ND		5.0		ug/L			08/28/19 16:37	1
Vinyl acetate	ND		50		ug/L			08/28/19 16:37	1

Client Sample ID: MW-50

Date Collected: 08/26/19 13:45
Date Received: 08/26/19 16:30

Lab Sample ID: 480-158145-1

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			08/28/19 16:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*77 - 120*		*08/28/19 16:37*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*08/28/19 16:37*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*08/28/19 16:37*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		08/28/19 08:05	08/29/19 00:44	1
Antimony	ND		0.015		mg/L		08/28/19 08:05	08/29/19 00:44	1
Arsenic	ND		0.010		mg/L		08/28/19 08:05	08/29/19 00:44	1
Barium	**0.21**		0.20		mg/L		08/28/19 08:05	08/29/19 00:44	1
Beryllium	ND		0.0030		mg/L		08/28/19 08:05	08/29/19 00:44	1
Boron	ND		0.020		mg/L		08/28/19 08:05	08/29/19 00:44	1
Cadmium	ND		0.0050		mg/L		08/28/19 08:05	08/29/19 00:44	1
Calcium	**69.7**		5.0		mg/L		08/28/19 08:05	08/29/19 00:44	1
Chromium	ND		0.010		mg/L		09/10/19 06:30	09/10/19 19:14	1
Cobalt	ND		0.050		mg/L		08/28/19 08:05	08/29/19 00:44	1
Copper	ND	*	0.025		mg/L		08/28/19 08:05	08/29/19 00:44	1
Iron	**1.2**		0.10		mg/L		08/28/19 08:05	08/29/19 00:44	1
Lead	ND		0.0030		mg/L		08/28/19 08:05	08/29/19 00:44	1
Magnesium	**15.2**		5.0		mg/L		08/28/19 08:05	08/29/19 00:44	1
Manganese	**0.18**		0.015		mg/L		08/28/19 08:05	08/29/19 00:44	1
Nickel	ND		0.040		mg/L		08/28/19 08:05	08/29/19 00:44	1
Potassium	ND		5.0		mg/L		08/28/19 08:05	08/29/19 00:44	1
Silver	ND		0.010		mg/L		08/28/19 08:05	08/29/19 00:44	1
Sodium	ND		5.0		mg/L		08/28/19 08:05	08/29/19 00:44	1
Thallium	ND		0.010		mg/L		08/28/19 08:05	08/29/19 00:44	1
Vanadium	ND		0.050		mg/L		08/28/19 08:05	08/29/19 00:44	1
Zinc	ND	*	0.020		mg/L		08/28/19 08:05	08/29/19 00:44	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/28/19 09:36	08/29/19 01:53	1
Antimony, Dissolved	ND		0.020		mg/L		08/28/19 09:36	08/29/19 01:53	1
Arsenic, Dissolved	ND		0.010		mg/L		08/28/19 09:36	08/29/19 01:53	1
Barium, Dissolved	ND		0.20		mg/L		08/28/19 09:36	08/29/19 01:53	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/28/19 09:36	08/29/19 01:53	1
Boron, Dissolved	ND		0.020		mg/L		08/28/19 09:36	08/29/19 01:53	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/28/19 09:36	08/29/19 01:53	1
Calcium, Dissolved	**55.8**		5.0		mg/L		08/28/19 09:36	08/29/19 01:53	1
Chromium, Dissolved	ND		0.010		mg/L		08/28/19 09:36	08/29/19 01:53	1
Cobalt, Dissolved	ND		0.050		mg/L		08/28/19 09:36	08/29/19 01:53	1
Copper, Dissolved	ND		0.025		mg/L		08/28/19 09:36	08/29/19 01:53	1
Iron, Dissolved	**0.57**		0.10		mg/L		08/28/19 09:36	08/29/19 16:33	1
Lead, Dissolved	ND		0.0030		mg/L		08/28/19 09:36	08/29/19 01:53	1
Magnesium, Dissolved	**12.7**		5.0		mg/L		08/28/19 09:36	08/29/19 01:53	1
Manganese, Dissolved	**0.13**		0.015		mg/L		08/28/19 09:36	08/29/19 01:53	1
Nickel, Dissolved	ND		0.040		mg/L		08/28/19 09:36	08/29/19 01:53	1

Client Sample ID: MW-50

Date Collected: 08/26/19 13:45
Date Received: 08/26/19 16:30

Lab Sample ID: 480-158145-1

Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		08/28/19 09:36	08/29/19 01:53	1
Silver, Dissolved	ND		0.010		mg/L		08/28/19 09:36	08/29/19 16:33	1
Sodium, Dissolved	ND		5.0		mg/L		08/28/19 09:36	08/29/19 01:53	1
Thallium, Dissolved	ND		0.010		mg/L		08/28/19 09:36	08/29/19 01:53	1
Vanadium, Dissolved	ND		0.050		mg/L		08/28/19 09:36	08/29/19 01:53	1
Zinc, Dissolved	ND		0.020		mg/L		08/28/19 09:36	08/29/19 01:53	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/28/19 07:59	08/28/19 17:15	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/28/19 09:38	08/28/19 15:49	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		09/03/19 11:54	09/03/19 15:45	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/29/19 11:53	08/29/19 15:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.20		mg/L			08/28/19 14:48	1
Alkalinity, Total	**210**		15.0		mg/L			08/28/19 21:18	3
Ammonia (as N)	**0.41**		0.050		mg/L as N			08/28/19 09:07	1
Total Kjeldahl Nitrogen	**1.4**		0.15		mg/L as N		09/05/19 13:33	09/08/19 16:47	1
Nitrate	**0.65**		0.050		mg/L as N			08/28/19 00:41	1
Chemical Oxygen Demand	**21.0**		5.0		mg/L			08/29/19 15:50	1
Chromium, hexavalent	ND		0.010		mg/L			08/27/19 11:11	1
Cyanide, Total	**0.010**		0.010		mg/L		09/08/19 14:57	09/09/19 12:19	1
Cyanide, Total	ND	H	0.010		mg/L		09/15/19 15:25	09/16/19 13:40	1
Phenolics, Total Recoverable	**0.013**	**B**	0.0050		mg/L		09/07/19 01:20	09/08/19 12:27	1
Hardness	**244**		2.0		mg/L			09/09/19 09:45	1
Total Dissolved Solids	**251**		10.0		mg/L			08/28/19 09:29	1
Chloride	**11.8**		0.50		mg/L			08/28/19 14:48	1
Sulfate	**35.6**		2.0		mg/L			08/28/19 14:48	1
Biochemical Oxygen Demand	**3.6**	**b**	2.0		mg/L			08/28/19 02:28	1
Total Organic Carbon	**1.4**		1.0		mg/L			08/28/19 18:59	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			08/27/19 14:20	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.57**				SU			08/26/19 13:45	1
Specific Conductance	**474**				umhos/cm			08/26/19 13:45	1
Field EH/ORP	**-96**				millivolts			08/26/19 13:45	1
Temperature, Field	**11.1**				Degrees C			08/26/19 13:45	1
Odor	**Yes**				NONE			08/26/19 13:45	1

Client Sample ID: MW-50
Date Collected: 08/26/19 13:45
Date Received: 08/26/19 16:30

Lab Sample ID: 480-158145-1
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	8.3				NTU			08/26/19 13:45	1
Well Depth	27.50				ft			08/26/19 13:45	1
Depth to Water from Top of Casing	25.90				ft			08/26/19 13:45	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: FIELD BLANK
Date Collected: 08/30/19 11:00
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/11/19 01:29	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/11/19 01:29	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/11/19 01:29	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/11/19 01:29	1
1,1-Dichloroethane	ND		5.0		ug/L			09/11/19 01:29	1
1,1-Dichloroethene	ND		5.0		ug/L			09/11/19 01:29	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/11/19 01:29	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/11/19 01:29	1
1,2-Dibromoethane	ND		5.0		ug/L			09/11/19 01:29	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/11/19 01:29	1
1,2-Dichloroethane	ND		5.0		ug/L			09/11/19 01:29	1
1,2-Dichloropropane	ND		5.0		ug/L			09/11/19 01:29	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/11/19 01:29	1
1,4-Dioxane	ND		50		ug/L			09/11/19 01:29	1
2-Butanone (MEK)	ND		5.0		ug/L			09/11/19 01:29	1
2-Hexanone	ND		10		ug/L			09/11/19 01:29	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/11/19 01:29	1
Acetone	ND		5.0		ug/L			09/11/19 01:29	1
Acetonitrile	ND		100		ug/L			09/11/19 01:29	1
Benzene	ND		5.0		ug/L			09/11/19 01:29	1
Bromochloromethane	ND		5.0		ug/L			09/11/19 01:29	1
Bromodichloromethane	ND		5.0		ug/L			09/11/19 01:29	1
Bromoform	ND		5.0		ug/L			09/11/19 01:29	1
Bromomethane	ND		5.0		ug/L			09/11/19 01:29	1
Carbon disulfide	ND		5.0		ug/L			09/11/19 01:29	1
Carbon tetrachloride	ND		5.0		ug/L			09/11/19 01:29	1
Chlorobenzene	ND		5.0		ug/L			09/11/19 01:29	1
Chloroethane	ND		5.0		ug/L			09/11/19 01:29	1
Chloroform	ND		5.0		ug/L			09/11/19 01:29	1
Chloromethane	ND		5.0		ug/L			09/11/19 01:29	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/11/19 01:29	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/11/19 01:29	1
Dibromochloromethane	ND		5.0		ug/L			09/11/19 01:29	1
Dibromomethane	ND		5.0		ug/L			09/11/19 01:29	1
Ethylbenzene	ND		5.0		ug/L			09/11/19 01:29	1
Iodomethane	ND		5.0		ug/L			09/11/19 01:29	1
m,p-Xylene	ND		5.0		ug/L			09/11/19 01:29	1
Methylene Chloride	ND		5.0		ug/L			09/11/19 01:29	1
o-Xylene	ND		5.0		ug/L			09/11/19 01:29	1
Styrene	ND		5.0		ug/L			09/11/19 01:29	1
Tetrachloroethene	ND		5.0		ug/L			09/11/19 01:29	1
Tetrahydrofuran	ND		10		ug/L			09/11/19 01:29	1
Toluene	ND		5.0		ug/L			09/11/19 01:29	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/11/19 01:29	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/11/19 01:29	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/11/19 01:29	1
Trichloroethene	ND		5.0		ug/L			09/11/19 01:29	1
Trichlorofluoromethane	ND		5.0		ug/L			09/11/19 01:29	1
Vinyl acetate	ND		50		ug/L			09/11/19 01:29	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: FIELD BLANK

Lab Sample ID: 480-158409-1

Date Collected: 08/30/19 11:00

Matrix: Water

Date Received: 08/30/19 16:15

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			09/11/19 01:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*09/11/19 01:29*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*09/11/19 01:29*	*1*
Toluene-d8 (Surr)	*91*		*80 - 120*		*09/11/19 01:29*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		09/05/19 06:30	09/10/19 16:12	1
Antimony	ND		0.015		mg/L		09/05/19 06:30	09/10/19 16:12	1
Arsenic	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:12	1
Barium	ND		0.20		mg/L		09/05/19 06:30	09/10/19 16:12	1
Beryllium	ND		0.0030		mg/L		09/05/19 06:30	09/10/19 16:12	1
Boron	ND		0.020		mg/L		09/05/19 06:30	09/10/19 16:12	1
Cadmium	ND		0.0050		mg/L		09/05/19 06:30	09/10/19 16:12	1
Calcium	ND		5.0		mg/L		09/05/19 06:30	09/10/19 16:12	1
Chromium	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:12	1
Cobalt	ND		0.050		mg/L		09/05/19 06:30	09/10/19 16:12	1
Copper	ND		0.025		mg/L		09/05/19 06:30	09/10/19 16:12	1
Iron	ND		0.10		mg/L		09/05/19 06:30	09/10/19 16:12	1
Lead	ND		0.0030		mg/L		09/05/19 06:30	09/10/19 16:12	1
Magnesium	ND		5.0		mg/L		09/05/19 06:30	09/10/19 16:12	1
Manganese	ND		0.015		mg/L		09/05/19 06:30	09/10/19 16:12	1
Nickel	ND		0.040		mg/L		09/05/19 06:30	09/10/19 16:12	1
Potassium	ND		5.0		mg/L		09/05/19 06:30	09/10/19 16:12	1
Silver	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:12	1
Sodium	ND		5.0		mg/L		09/05/19 06:30	09/10/19 16:12	1
Thallium	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:12	1
Vanadium	ND		0.050		mg/L		09/05/19 06:30	09/10/19 16:12	1
Zinc	ND		0.020		mg/L		09/05/19 06:30	09/10/19 16:12	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		09/04/19 08:41	09/05/19 00:10	1
Antimony, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/05/19 00:10	1
Arsenic, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:10	1
Barium, Dissolved	ND		0.20		mg/L		09/04/19 08:41	09/05/19 00:10	1
Beryllium, Dissolved	ND		0.0030		mg/L		09/04/19 08:41	09/05/19 00:10	1
Boron, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/05/19 00:10	1
Cadmium, Dissolved	ND		0.0050		mg/L		09/04/19 08:41	09/05/19 00:10	1
Calcium, Dissolved	ND		5.0		mg/L		09/04/19 08:41	09/05/19 00:10	1
Chromium, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:10	1
Cobalt, Dissolved	ND		0.050		mg/L		09/04/19 08:41	09/05/19 00:10	1
Copper, Dissolved	ND		0.025		mg/L		09/04/19 08:41	09/05/19 00:10	1
Iron, Dissolved	ND		0.10		mg/L		09/04/19 08:41	09/05/19 00:10	1
Lead, Dissolved	ND		0.0030		mg/L		09/04/19 08:41	09/05/19 00:10	1
Magnesium, Dissolved	ND		5.0		mg/L		09/04/19 08:41	09/05/19 00:10	1
Manganese, Dissolved	ND		0.015		mg/L		09/04/19 08:41	09/05/19 00:10	1
Nickel, Dissolved	ND		0.040		mg/L		09/04/19 08:41	09/05/19 00:10	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: FIELD BLANK

Lab Sample ID: 480-158409-1

Date Collected: 08/30/19 11:00

Matrix: Water

Date Received: 08/30/19 16:15

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		09/04/19 08:41	09/05/19 00:10	1
Silver, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:10	1
Sodium, Dissolved	ND		5.0		mg/L		09/04/19 08:41	09/05/19 00:10	1
Thallium, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:10	1
Vanadium, Dissolved	ND		0.050		mg/L		09/04/19 08:41	09/05/19 00:10	1
Zinc, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/05/19 00:10	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		09/05/19 06:00	09/05/19 18:20	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		09/04/19 08:33	09/05/19 15:53	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		09/10/19 11:40	09/10/19 16:04	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		09/18/19 11:00	09/18/19 14:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.20		mg/L			09/09/19 13:47	1
Alkalinity, Total	ND		5.0		mg/L			09/09/19 16:37	1
Ammonia (as N)	ND	F1	0.050		mg/L as N			09/06/19 08:34	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		09/13/19 10:03	09/15/19 11:59	1
Total Kjeldahl Nitrogen	ND	H	0.15		mg/L as N		09/27/19 08:32	09/29/19 12:00	1
Nitrate	ND		0.050		mg/L as N			08/31/19 09:27	1
Chemical Oxygen Demand	ND		5.0		mg/L			09/06/19 14:05	1
Chromium, hexavalent	ND		0.010		mg/L			08/31/19 09:14	1
Cyanide, Total	ND		0.010		mg/L		09/09/19 19:35	09/11/19 13:57	1
Phenolics, Total Recoverable	**0.0088**	**F1**	0.0050		mg/L		09/13/19 23:44	09/15/19 14:51	1
Hardness	ND		2.0		mg/L			09/15/19 11:45	1
Total Dissolved Solids	ND		10.0		mg/L			09/05/19 10:44	1
Chloride	ND		0.50		mg/L			09/09/19 13:47	1
Sulfate	ND		2.0		mg/L			09/09/19 13:47	1
Biochemical Oxygen Demand	ND		2.0		mg/L			08/31/19 06:51	1
Total Organic Carbon	ND		1.0		mg/L			09/06/19 03:05	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			09/01/19 08:10	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWBA-1
Date Collected: 08/30/19 14:22
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-2
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/11/19 01:53	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/11/19 01:53	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/11/19 01:53	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/11/19 01:53	1
1,1-Dichloroethane	ND		5.0		ug/L			09/11/19 01:53	1
1,1-Dichloroethene	ND		5.0		ug/L			09/11/19 01:53	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/11/19 01:53	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/11/19 01:53	1
1,2-Dibromoethane	ND		5.0		ug/L			09/11/19 01:53	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/11/19 01:53	1
1,2-Dichloroethane	ND		5.0		ug/L			09/11/19 01:53	1
1,2-Dichloropropane	ND		5.0		ug/L			09/11/19 01:53	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/11/19 01:53	1
1,4-Dioxane	ND		50		ug/L			09/11/19 01:53	1
2-Butanone (MEK)	ND		5.0		ug/L			09/11/19 01:53	1
2-Hexanone	ND		10		ug/L			09/11/19 01:53	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/11/19 01:53	1
Acetone	ND		5.0		ug/L			09/11/19 01:53	1
Acetonitrile	ND		100		ug/L			09/11/19 01:53	1
Benzene	ND		5.0		ug/L			09/11/19 01:53	1
Bromochloromethane	ND		5.0		ug/L			09/11/19 01:53	1
Bromodichloromethane	ND		5.0		ug/L			09/11/19 01:53	1
Bromoform	ND		5.0		ug/L			09/11/19 01:53	1
Bromomethane	ND		5.0		ug/L			09/11/19 01:53	1
Carbon disulfide	ND		5.0		ug/L			09/11/19 01:53	1
Carbon tetrachloride	ND		5.0		ug/L			09/11/19 01:53	1
Chlorobenzene	ND		5.0		ug/L			09/11/19 01:53	1
Chloroethane	ND		5.0		ug/L			09/11/19 01:53	1
Chloroform	ND		5.0		ug/L			09/11/19 01:53	1
Chloromethane	ND		5.0		ug/L			09/11/19 01:53	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/11/19 01:53	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/11/19 01:53	1
Dibromochloromethane	ND		5.0		ug/L			09/11/19 01:53	1
Dibromomethane	ND		5.0		ug/L			09/11/19 01:53	1
Ethylbenzene	ND		5.0		ug/L			09/11/19 01:53	1
Iodomethane	ND		5.0		ug/L			09/11/19 01:53	1
m,p-Xylene	ND		5.0		ug/L			09/11/19 01:53	1
Methylene Chloride	ND		5.0		ug/L			09/11/19 01:53	1
o-Xylene	ND		5.0		ug/L			09/11/19 01:53	1
Styrene	ND		5.0		ug/L			09/11/19 01:53	1
Tetrachloroethene	ND		5.0		ug/L			09/11/19 01:53	1
Tetrahydrofuran	ND		10		ug/L			09/11/19 01:53	1
Toluene	ND		5.0		ug/L			09/11/19 01:53	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/11/19 01:53	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/11/19 01:53	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/11/19 01:53	1
Trichloroethene	ND		5.0		ug/L			09/11/19 01:53	1
Trichlorofluoromethane	ND		5.0		ug/L			09/11/19 01:53	1
Vinyl acetate	ND		50		ug/L			09/11/19 01:53	1

Client Sample ID: MWBA-1
Date Collected: 08/30/19 14:22
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-2
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			09/11/19 01:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*09/11/19 01:53*	*1*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*		*09/11/19 01:53*	*1*
Toluene-d8 (Surr)	*91*		*80 - 120*		*09/11/19 01:53*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		09/05/19 06:30	09/10/19 16:16	1
Antimony	ND		0.015		mg/L		09/05/19 06:30	09/10/19 16:16	1
Arsenic	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:16	1
Barium	ND		0.20		mg/L		09/05/19 06:30	09/10/19 16:16	1
Beryllium	ND		0.0030		mg/L		09/05/19 06:30	09/10/19 16:16	1
Boron	ND		0.020		mg/L		09/05/19 06:30	09/10/19 16:16	1
Cadmium	ND		0.0050		mg/L		09/05/19 06:30	09/10/19 16:16	1
Calcium	**76.9**		5.0		mg/L		09/05/19 06:30	09/10/19 16:16	1
Chromium	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:16	1
Cobalt	ND		0.050		mg/L		09/05/19 06:30	09/10/19 16:16	1
Copper	ND		0.025		mg/L		09/05/19 06:30	09/10/19 16:16	1
Iron	ND		0.10		mg/L		09/05/19 06:30	09/10/19 16:16	1
Lead	ND		0.0030		mg/L		09/05/19 06:30	09/10/19 16:16	1
Magnesium	**18.1**		5.0		mg/L		09/05/19 06:30	09/10/19 16:16	1
Manganese	ND		0.015		mg/L		09/05/19 06:30	09/10/19 16:16	1
Nickel	ND		0.040		mg/L		09/05/19 06:30	09/10/19 16:16	1
Potassium	ND		5.0		mg/L		09/05/19 06:30	09/10/19 16:16	1
Silver	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:16	1
Sodium	ND		5.0		mg/L		09/05/19 06:30	09/10/19 16:16	1
Thallium	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:16	1
Vanadium	ND		0.050		mg/L		09/05/19 06:30	09/10/19 16:16	1
Zinc	ND		0.020		mg/L		09/05/19 06:30	09/10/19 16:16	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		09/04/19 08:41	09/05/19 00:14	1
Antimony, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/05/19 00:14	1
Arsenic, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:14	1
Barium, Dissolved	ND		0.20		mg/L		09/04/19 08:41	09/05/19 00:14	1
Beryllium, Dissolved	ND		0.0030		mg/L		09/04/19 08:41	09/05/19 00:14	1
Boron, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/05/19 00:14	1
Cadmium, Dissolved	ND		0.0050		mg/L		09/04/19 08:41	09/05/19 00:14	1
Calcium, Dissolved	**79.3**		5.0		mg/L		09/04/19 08:41	09/05/19 00:14	1
Chromium, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:14	1
Cobalt, Dissolved	ND		0.050		mg/L		09/04/19 08:41	09/05/19 00:14	1
Copper, Dissolved	ND		0.025		mg/L		09/04/19 08:41	09/05/19 00:14	1
Iron, Dissolved	ND		0.10		mg/L		09/04/19 08:41	09/05/19 00:14	1
Lead, Dissolved	ND		0.0030		mg/L		09/04/19 08:41	09/05/19 00:14	1
Magnesium, Dissolved	**18.1**		5.0		mg/L		09/04/19 08:41	09/05/19 00:14	1
Manganese, Dissolved	ND		0.015		mg/L		09/04/19 08:41	09/05/19 00:14	1
Nickel, Dissolved	ND		0.040		mg/L		09/04/19 08:41	09/05/19 00:14	1

Client Sample ID: MWBA-1

Date Collected: 08/30/19 14:22
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-2

Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		09/04/19 08:41	09/05/19 00:14	1
Silver, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:14	1
Sodium, Dissolved	ND		5.0		mg/L		09/04/19 08:41	09/05/19 00:14	1
Thallium, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:14	1
Vanadium, Dissolved	ND		0.050		mg/L		09/04/19 08:41	09/05/19 00:14	1
Zinc, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/05/19 00:14	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		09/05/19 06:00	09/05/19 18:22	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		09/04/19 08:33	09/05/19 15:55	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		09/10/19 11:40	09/10/19 16:05	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		09/18/19 11:00	09/18/19 14:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.40		mg/L			09/09/19 14:02	2
Alkalinity, Total	**210**	**^**	15.0		mg/L			09/09/19 17:09	3
Ammonia (as N)	ND		0.050		mg/L as N			09/06/19 08:36	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		09/19/19 09:22	09/22/19 10:27	1
Nitrate	ND		0.050		mg/L as N			08/31/19 09:28	1
Chemical Oxygen Demand	ND		5.0		mg/L			09/06/19 14:05	1
Chromium, hexavalent	ND		0.010		mg/L			08/31/19 09:14	1
Cyanide, Total	ND	F1	0.010		mg/L		09/09/19 19:35	09/11/19 14:02	1
Cyanide, Total	ND	H	0.010		mg/L		09/18/19 18:35	09/19/19 08:54	1
Phenolics, Total Recoverable	**0.0085**	**B**	0.0050		mg/L		09/16/19 23:12	09/17/19 10:36	1
Hardness	**272**		2.0		mg/L			09/15/19 11:45	1
Total Dissolved Solids	**338**		10.0		mg/L			09/05/19 10:44	1
Chloride	**5.0**		1.0		mg/L			09/09/19 14:02	2
Sulfate	**71.9**		4.0		mg/L			09/09/19 14:02	2
Biochemical Oxygen Demand	ND		2.0		mg/L			08/31/19 06:51	1
Total Organic Carbon	ND		1.0		mg/L			09/06/19 03:20	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	**5.00**		0.0100		Color Units			09/01/19 08:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**6.96**				SU			08/30/19 14:22	1
Specific Conductance	**506**				umhos/cm			08/30/19 14:22	1
Field EH/ORP	**133.0**				millivolts			08/30/19 14:22	1
Temperature, Field	**10.0**				Degrees C			08/30/19 14:22	1
Odor	**No**				NONE			08/30/19 14:22	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWBA-1
Date Collected: 08/30/19 14:22
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-2
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	1.9				NTU			08/30/19 14:22	1
Well Depth	31.06				ft			08/30/19 14:22	1
Depth to Water from Top of Casing	19.62				ft			08/30/19 14:22	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWBA-2

Date Collected: 08/30/19 13:45
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-3

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/11/19 02:17	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/11/19 02:17	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/11/19 02:17	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/11/19 02:17	1
1,1-Dichloroethane	ND		5.0		ug/L			09/11/19 02:17	1
1,1-Dichloroethene	ND		5.0		ug/L			09/11/19 02:17	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/11/19 02:17	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/11/19 02:17	1
1,2-Dibromoethane	ND		5.0		ug/L			09/11/19 02:17	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/11/19 02:17	1
1,2-Dichloroethane	ND		5.0		ug/L			09/11/19 02:17	1
1,2-Dichloropropane	ND		5.0		ug/L			09/11/19 02:17	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/11/19 02:17	1
1,4-Dioxane	ND		50		ug/L			09/11/19 02:17	1
2-Butanone (MEK)	ND		5.0		ug/L			09/11/19 02:17	1
2-Hexanone	ND		10		ug/L			09/11/19 02:17	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/11/19 02:17	1
Acetone	ND		5.0		ug/L			09/11/19 02:17	1
Acetonitrile	ND		100		ug/L			09/11/19 02:17	1
Benzene	ND		5.0		ug/L			09/11/19 02:17	1
Bromochloromethane	ND		5.0		ug/L			09/11/19 02:17	1
Bromodichloromethane	ND		5.0		ug/L			09/11/19 02:17	1
Bromoform	ND		5.0		ug/L			09/11/19 02:17	1
Bromomethane	ND		5.0		ug/L			09/11/19 02:17	1
Carbon disulfide	ND		5.0		ug/L			09/11/19 02:17	1
Carbon tetrachloride	ND		5.0		ug/L			09/11/19 02:17	1
Chlorobenzene	ND		5.0		ug/L			09/11/19 02:17	1
Chloroethane	ND		5.0		ug/L			09/11/19 02:17	1
Chloroform	ND		5.0		ug/L			09/11/19 02:17	1
Chloromethane	ND		5.0		ug/L			09/11/19 02:17	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/11/19 02:17	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/11/19 02:17	1
Dibromochloromethane	ND		5.0		ug/L			09/11/19 02:17	1
Dibromomethane	ND		5.0		ug/L			09/11/19 02:17	1
Ethylbenzene	ND		5.0		ug/L			09/11/19 02:17	1
Iodomethane	ND		5.0		ug/L			09/11/19 02:17	1
m,p-Xylene	ND		5.0		ug/L			09/11/19 02:17	1
Methylene Chloride	ND		5.0		ug/L			09/11/19 02:17	1
o-Xylene	ND		5.0		ug/L			09/11/19 02:17	1
Styrene	ND		5.0		ug/L			09/11/19 02:17	1
Tetrachloroethene	ND		5.0		ug/L			09/11/19 02:17	1
Tetrahydrofuran	ND		10		ug/L			09/11/19 02:17	1
Toluene	ND		5.0		ug/L			09/11/19 02:17	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/11/19 02:17	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/11/19 02:17	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/11/19 02:17	1
Trichloroethene	ND		5.0		ug/L			09/11/19 02:17	1
Trichlorofluoromethane	ND		5.0		ug/L			09/11/19 02:17	1
Vinyl acetate	ND		50		ug/L			09/11/19 02:17	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWBA-2

Date Collected: 08/30/19 13:45
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-3

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			09/11/19 02:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*77 - 120*		*09/11/19 02:17*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*09/11/19 02:17*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*09/11/19 02:17*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		09/05/19 06:30	09/10/19 16:20	1
Antimony	ND		0.015		mg/L		09/05/19 06:30	09/10/19 16:20	1
Arsenic	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:20	1
Barium	ND		0.20		mg/L		09/05/19 06:30	09/10/19 16:20	1
Beryllium	ND		0.0030		mg/L		09/05/19 06:30	09/10/19 16:20	1
Boron	**0.036**		0.020		mg/L		09/05/19 06:30	09/10/19 16:20	1
Cadmium	ND		0.0050		mg/L		09/05/19 06:30	09/10/19 16:20	1
Calcium	**72.0**		5.0		mg/L		09/05/19 06:30	09/10/19 16:20	1
Chromium	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:20	1
Cobalt	ND		0.050		mg/L		09/05/19 06:30	09/10/19 16:20	1
Copper	ND		0.025		mg/L		09/05/19 06:30	09/10/19 16:20	1
Iron	ND		0.10		mg/L		09/05/19 06:30	09/10/19 16:20	1
Lead	ND		0.0030		mg/L		09/05/19 06:30	09/10/19 16:20	1
Magnesium	**21.1**		5.0		mg/L		09/05/19 06:30	09/10/19 16:20	1
Manganese	ND		0.015		mg/L		09/05/19 06:30	09/10/19 16:20	1
Nickel	ND		0.040		mg/L		09/05/19 06:30	09/10/19 16:20	1
Potassium	ND		5.0		mg/L		09/05/19 06:30	09/10/19 16:20	1
Silver	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:20	1
Sodium	**6.6**		5.0		mg/L		09/05/19 06:30	09/10/19 16:20	1
Thallium	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:20	1
Vanadium	ND		0.050		mg/L		09/05/19 06:30	09/10/19 16:20	1
Zinc	ND		0.020		mg/L		09/05/19 06:30	09/10/19 16:20	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		09/04/19 08:41	09/05/19 00:18	1
Antimony, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/05/19 00:18	1
Arsenic, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:18	1
Barium, Dissolved	ND		0.20		mg/L		09/04/19 08:41	09/05/19 00:18	1
Beryllium, Dissolved	ND		0.0030		mg/L		09/04/19 08:41	09/05/19 00:18	1
Boron, Dissolved	**0.034**		0.020		mg/L		09/04/19 08:41	09/05/19 00:18	1
Cadmium, Dissolved	ND		0.0050		mg/L		09/04/19 08:41	09/05/19 00:18	1
Calcium, Dissolved	**71.5**		5.0		mg/L		09/04/19 08:41	09/05/19 00:18	1
Chromium, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:18	1
Cobalt, Dissolved	ND		0.050		mg/L		09/04/19 08:41	09/05/19 00:18	1
Copper, Dissolved	ND		0.025		mg/L		09/04/19 08:41	09/05/19 00:18	1
Iron, Dissolved	ND		0.10		mg/L		09/04/19 08:41	09/05/19 00:18	1
Lead, Dissolved	ND		0.0030		mg/L		09/04/19 08:41	09/05/19 00:18	1
Magnesium, Dissolved	**20.5**		5.0		mg/L		09/04/19 08:41	09/05/19 00:18	1
Manganese, Dissolved	ND		0.015		mg/L		09/04/19 08:41	09/05/19 00:18	1
Nickel, Dissolved	ND		0.040		mg/L		09/04/19 08:41	09/05/19 00:18	1

Client Sample ID: MWBA-2
Date Collected: 08/30/19 13:45
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-3
Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		09/04/19 08:41	09/05/19 00:18	1
Silver, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:18	1
Sodium, Dissolved	**6.2**		5.0		mg/L		09/04/19 08:41	09/05/19 00:18	1
Thallium, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:18	1
Vanadium, Dissolved	ND		0.050		mg/L		09/04/19 08:41	09/05/19 00:18	1
Zinc, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/05/19 00:18	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		09/05/19 06:00	09/05/19 18:25	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		09/04/19 08:33	09/05/19 15:57	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		09/10/19 11:40	09/10/19 16:07	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		09/18/19 11:00	09/18/19 14:30	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.40		mg/L			09/09/19 14:17	2
Alkalinity, Total	**196**	**^**	15.0		mg/L			09/09/19 17:09	3
Ammonia (as N)	ND		0.050		mg/L as N			09/06/19 08:37	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		09/17/19 07:30	09/17/19 16:31	1
Nitrate	**0.062**		0.050		mg/L as N			08/31/19 09:46	1
Chemical Oxygen Demand	ND		5.0		mg/L			09/06/19 14:05	1
Chromium, hexavalent	ND		0.010		mg/L			08/31/19 09:14	1
Cyanide, Total	ND	*	0.010		mg/L		09/12/19 14:04	09/12/19 17:20	1
Cyanide, Total	ND	H	0.010		mg/L		09/18/19 18:35	09/19/19 08:55	1
Phenolics, Total Recoverable	**0.0092**		0.0050		mg/L		09/13/19 23:44	09/15/19 14:51	1
Hardness	**260**		2.0		mg/L			09/15/19 11:45	1
Total Dissolved Solids	**349**		10.0		mg/L			09/05/19 10:44	1
Chloride	**3.2**		1.0		mg/L			09/09/19 14:17	2
Sulfate	**77.5**		4.0		mg/L			09/09/19 14:17	2
Biochemical Oxygen Demand	ND		2.0		mg/L			08/31/19 06:51	1
Total Organic Carbon	ND		1.0		mg/L			09/06/19 03:35	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			09/01/19 08:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.56**				SU			08/30/19 13:45	1
Specific Conductance	**522**				umhos/cm			08/30/19 13:45	1
Field EH/ORP	**150.0**				millivolts			08/30/19 13:45	1
Temperature, Field	**11.7**				Degrees C			08/30/19 13:45	1
Odor	**No**				NONE			08/30/19 13:45	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWBA-2
Date Collected: 08/30/19 13:45
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-3
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	1.7				NTU			08/30/19 13:45	1
Well Depth	31.00				ft			08/30/19 13:45	1
Depth to Water from Top of Casing	18.12				ft			08/30/19 13:45	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-O(I)
Date Collected: 08/30/19 11:39
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-4
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/11/19 02:42	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/11/19 02:42	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/11/19 02:42	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/11/19 02:42	1
1,1-Dichloroethane	ND		5.0		ug/L			09/11/19 02:42	1
1,1-Dichloroethene	ND		5.0		ug/L			09/11/19 02:42	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/11/19 02:42	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/11/19 02:42	1
1,2-Dibromoethane	ND		5.0		ug/L			09/11/19 02:42	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/11/19 02:42	1
1,2-Dichloroethane	ND		5.0		ug/L			09/11/19 02:42	1
1,2-Dichloropropane	ND		5.0		ug/L			09/11/19 02:42	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/11/19 02:42	1
1,4-Dioxane	ND		50		ug/L			09/11/19 02:42	1
2-Butanone (MEK)	ND		5.0		ug/L			09/11/19 02:42	1
2-Hexanone	ND		10		ug/L			09/11/19 02:42	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/11/19 02:42	1
Acetone	ND		5.0		ug/L			09/11/19 02:42	1
Acetonitrile	ND		100		ug/L			09/11/19 02:42	1
Benzene	ND		5.0		ug/L			09/11/19 02:42	1
Bromochloromethane	ND		5.0		ug/L			09/11/19 02:42	1
Bromodichloromethane	ND		5.0		ug/L			09/11/19 02:42	1
Bromoform	ND		5.0		ug/L			09/11/19 02:42	1
Bromomethane	ND		5.0		ug/L			09/11/19 02:42	1
Carbon disulfide	ND		5.0		ug/L			09/11/19 02:42	1
Carbon tetrachloride	ND		5.0		ug/L			09/11/19 02:42	1
Chlorobenzene	ND		5.0		ug/L			09/11/19 02:42	1
Chloroethane	ND		5.0		ug/L			09/11/19 02:42	1
Chloroform	ND		5.0		ug/L			09/11/19 02:42	1
Chloromethane	ND		5.0		ug/L			09/11/19 02:42	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/11/19 02:42	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/11/19 02:42	1
Dibromochloromethane	ND		5.0		ug/L			09/11/19 02:42	1
Dibromomethane	ND		5.0		ug/L			09/11/19 02:42	1
Ethylbenzene	ND		5.0		ug/L			09/11/19 02:42	1
Iodomethane	ND		5.0		ug/L			09/11/19 02:42	1
m,p-Xylene	ND		5.0		ug/L			09/11/19 02:42	1
Methylene Chloride	ND		5.0		ug/L			09/11/19 02:42	1
o-Xylene	ND		5.0		ug/L			09/11/19 02:42	1
Styrene	ND		5.0		ug/L			09/11/19 02:42	1
Tetrachloroethene	ND		5.0		ug/L			09/11/19 02:42	1
Tetrahydrofuran	ND		10		ug/L			09/11/19 02:42	1
Toluene	ND		5.0		ug/L			09/11/19 02:42	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/11/19 02:42	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/11/19 02:42	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/11/19 02:42	1
Trichloroethene	ND		5.0		ug/L			09/11/19 02:42	1
Trichlorofluoromethane	ND		5.0		ug/L			09/11/19 02:42	1
Vinyl acetate	ND		50		ug/L			09/11/19 02:42	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-O(I)
Date Collected: 08/30/19 11:39
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-4
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			09/11/19 02:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*09/11/19 02:42*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*09/11/19 02:42*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*09/11/19 02:42*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		09/05/19 06:30	09/10/19 16:24	1
Antimony	ND		0.015		mg/L		09/05/19 06:30	09/10/19 16:24	1
Arsenic	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:24	1
Barium	**0.28**		0.20		mg/L		09/05/19 06:30	09/10/19 16:24	1
Beryllium	ND		0.0030		mg/L		09/05/19 06:30	09/10/19 16:24	1
Boron	ND		0.020		mg/L		09/05/19 06:30	09/10/19 16:24	1
Cadmium	ND		0.0050		mg/L		09/05/19 06:30	09/10/19 16:24	1
Calcium	**72.0**		5.0		mg/L		09/05/19 06:30	09/10/19 16:24	1
Chromium	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:24	1
Cobalt	ND		0.050		mg/L		09/05/19 06:30	09/10/19 16:24	1
Copper	ND		0.025		mg/L		09/05/19 06:30	09/10/19 16:24	1
Iron	**0.37**		0.10		mg/L		09/05/19 06:30	09/10/19 16:24	1
Lead	ND		0.0030		mg/L		09/05/19 06:30	09/10/19 16:24	1
Magnesium	**17.4**		5.0		mg/L		09/05/19 06:30	09/10/19 16:24	1
Manganese	**0.10**		0.015		mg/L		09/05/19 06:30	09/10/19 16:24	1
Nickel	ND		0.040		mg/L		09/05/19 06:30	09/10/19 16:24	1
Potassium	ND		5.0		mg/L		09/05/19 06:30	09/10/19 16:24	1
Silver	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:24	1
Sodium	ND		5.0		mg/L		09/05/19 06:30	09/10/19 16:24	1
Thallium	ND		0.010		mg/L		09/05/19 06:30	09/10/19 16:24	1
Vanadium	ND		0.050		mg/L		09/05/19 06:30	09/10/19 16:24	1
Zinc	ND		0.020		mg/L		09/05/19 06:30	09/10/19 16:24	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		09/04/19 08:41	09/05/19 00:21	1
Antimony, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/05/19 00:21	1
Arsenic, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:21	1
Barium, Dissolved	**0.26**		0.20		mg/L		09/04/19 08:41	09/05/19 00:21	1
Beryllium, Dissolved	ND		0.0030		mg/L		09/04/19 08:41	09/05/19 00:21	1
Boron, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/05/19 00:21	1
Cadmium, Dissolved	ND		0.0050		mg/L		09/04/19 08:41	09/05/19 00:21	1
Calcium, Dissolved	**73.9**		5.0		mg/L		09/04/19 08:41	09/05/19 00:21	1
Chromium, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:21	1
Cobalt, Dissolved	ND		0.050		mg/L		09/04/19 08:41	09/05/19 00:21	1
Copper, Dissolved	ND		0.025		mg/L		09/04/19 08:41	09/05/19 00:21	1
Iron, Dissolved	ND		0.10		mg/L		09/04/19 08:41	09/05/19 00:21	1
Lead, Dissolved	ND		0.0030		mg/L		09/04/19 08:41	09/05/19 00:21	1
Magnesium, Dissolved	**20.2**		5.0		mg/L		09/04/19 08:41	09/05/19 00:21	1
Manganese, Dissolved	**0.080**		0.015		mg/L		09/04/19 08:41	09/05/19 00:21	1
Nickel, Dissolved	ND		0.040		mg/L		09/04/19 08:41	09/05/19 00:21	1

Client Sample ID: MW-O(I)

Date Collected: 08/30/19 11:39
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-4

Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		09/04/19 08:41	09/05/19 00:21	1
Silver, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:21	1
Sodium, Dissolved	**5.5**		5.0		mg/L		09/04/19 08:41	09/05/19 00:21	1
Thallium, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/05/19 00:21	1
Vanadium, Dissolved	ND		0.050		mg/L		09/04/19 08:41	09/05/19 00:21	1
Zinc, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/05/19 00:21	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		09/05/19 06:00	09/05/19 18:27	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		09/04/19 08:33	09/05/19 16:07	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		09/10/19 11:40	09/10/19 16:08	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		09/18/19 11:00	09/18/19 14:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.40		mg/L			09/09/19 14:31	2
Alkalinity, Total	**181**	**^**	15.0		mg/L			09/09/19 17:09	3
Ammonia (as N)	ND		0.050		mg/L as N			09/06/19 08:38	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		09/17/19 07:30	09/17/19 16:31	1
Nitrate	ND		0.050		mg/L as N			08/31/19 09:30	1
Chemical Oxygen Demand	ND		5.0		mg/L			09/06/19 14:05	1
Chromium, hexavalent	ND		0.010		mg/L			08/31/19 09:14	1
Cyanide, Total	ND	*	0.010		mg/L		09/12/19 14:04	09/12/19 17:21	1
Cyanide, Total	ND	H	0.010		mg/L		09/18/19 18:35	09/19/19 08:56	1
Phenolics, Total Recoverable	**0.0084**		0.0050		mg/L		09/13/19 23:44	09/15/19 14:51	1
Hardness	**252**		2.0		mg/L			09/18/19 11:45	1
Total Dissolved Solids	**296**		10.0		mg/L			09/05/19 10:44	1
Chloride	**11.6**		1.0		mg/L			09/09/19 14:31	2
Sulfate	**51.2**		4.0		mg/L			09/09/19 14:31	2
Biochemical Oxygen Demand	ND		2.0		mg/L			08/31/19 06:51	1
Total Organic Carbon	ND		1.0		mg/L			09/06/19 04:49	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			09/01/19 08:10	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.03**				SU			08/30/19 11:39	1
Specific Conductance	**485**				umhos/cm			08/30/19 11:39	1
Field EH/ORP	**55**				millivolts			08/30/19 11:39	1
Temperature, Field	**15.1**				Degrees C			08/30/19 11:39	1
Odor	**No**				NONE			08/30/19 11:39	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MW-O(I)
Date Collected: 08/30/19 11:39
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-4
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Turbidity	19.8				NTU			08/30/19 11:39	1
Well Depth	52.00				ft			08/30/19 11:39	1
Depth to Water from Top of Casing	43.96				ft			08/30/19 11:39	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: TRIP BLANK
Date Collected: 08/30/19 09:00
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-5
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/11/19 03:06	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/11/19 03:06	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/11/19 03:06	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/11/19 03:06	1
1,1-Dichloroethane	ND		5.0		ug/L			09/11/19 03:06	1
1,1-Dichloroethene	ND		5.0		ug/L			09/11/19 03:06	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/11/19 03:06	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/11/19 03:06	1
1,2-Dibromoethane	ND		5.0		ug/L			09/11/19 03:06	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/11/19 03:06	1
1,2-Dichloroethane	ND		5.0		ug/L			09/11/19 03:06	1
1,2-Dichloropropane	ND		5.0		ug/L			09/11/19 03:06	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/11/19 03:06	1
1,4-Dioxane	ND		50		ug/L			09/11/19 03:06	1
2-Butanone (MEK)	ND		5.0		ug/L			09/11/19 03:06	1
2-Hexanone	ND		10		ug/L			09/11/19 03:06	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/11/19 03:06	1
Acetone	ND		5.0		ug/L			09/11/19 03:06	1
Acetonitrile	ND		100		ug/L			09/11/19 03:06	1
Benzene	ND		5.0		ug/L			09/11/19 03:06	1
Bromochloromethane	ND		5.0		ug/L			09/11/19 03:06	1
Bromodichloromethane	ND		5.0		ug/L			09/11/19 03:06	1
Bromoform	ND		5.0		ug/L			09/11/19 03:06	1
Bromomethane	ND		5.0		ug/L			09/11/19 03:06	1
Carbon disulfide	ND		5.0		ug/L			09/11/19 03:06	1
Carbon tetrachloride	ND		5.0		ug/L			09/11/19 03:06	1
Chlorobenzene	ND		5.0		ug/L			09/11/19 03:06	1
Chloroethane	ND		5.0		ug/L			09/11/19 03:06	1
Chloroform	ND		5.0		ug/L			09/11/19 03:06	1
Chloromethane	ND		5.0		ug/L			09/11/19 03:06	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/11/19 03:06	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/11/19 03:06	1
Dibromochloromethane	ND		5.0		ug/L			09/11/19 03:06	1
Dibromomethane	ND		5.0		ug/L			09/11/19 03:06	1
Ethylbenzene	ND		5.0		ug/L			09/11/19 03:06	1
Iodomethane	ND		5.0		ug/L			09/11/19 03:06	1
m,p-Xylene	ND		5.0		ug/L			09/11/19 03:06	1
Methylene Chloride	ND		5.0		ug/L			09/11/19 03:06	1
o-Xylene	ND		5.0		ug/L			09/11/19 03:06	1
Styrene	ND		5.0		ug/L			09/11/19 03:06	1
Tetrachloroethene	ND		5.0		ug/L			09/11/19 03:06	1
Tetrahydrofuran	ND		10		ug/L			09/11/19 03:06	1
Toluene	ND		5.0		ug/L			09/11/19 03:06	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/11/19 03:06	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/11/19 03:06	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/11/19 03:06	1
Trichloroethene	ND		5.0		ug/L			09/11/19 03:06	1
Trichlorofluoromethane	ND		5.0		ug/L			09/11/19 03:06	1
Vinyl acetate	ND		50		ug/L			09/11/19 03:06	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: TRIP BLANK
Date Collected: 08/30/19 09:00
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-5
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			09/11/19 03:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*09/11/19 03:06*	*1*
4-Bromofluorobenzene (Surr)	*98*		*73 - 120*		*09/11/19 03:06*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*09/11/19 03:06*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWSE-1
Date Collected: 09/03/19 13:10
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-1
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 22:26	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/12/19 22:26	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 22:26	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/12/19 22:26	1
1,1-Dichloroethane	ND		5.0		ug/L			09/12/19 22:26	1
1,1-Dichloroethene	ND		5.0		ug/L			09/12/19 22:26	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/12/19 22:26	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/12/19 22:26	1
1,2-Dibromoethane	ND		5.0		ug/L			09/12/19 22:26	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/12/19 22:26	1
1,2-Dichloroethane	ND		5.0		ug/L			09/12/19 22:26	1
1,2-Dichloropropane	ND		5.0		ug/L			09/12/19 22:26	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/12/19 22:26	1
1,4-Dioxane	ND		50		ug/L			09/12/19 22:26	1
2-Butanone (MEK)	ND		5.0		ug/L			09/12/19 22:26	1
2-Hexanone	ND		10		ug/L			09/12/19 22:26	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/12/19 22:26	1
Acetone	ND		5.0		ug/L			09/12/19 22:26	1
Acetonitrile	ND		100		ug/L			09/12/19 22:26	1
Benzene	ND		5.0		ug/L			09/12/19 22:26	1
Bromochloromethane	ND		5.0		ug/L			09/12/19 22:26	1
Bromodichloromethane	ND		5.0		ug/L			09/12/19 22:26	1
Bromoform	ND		5.0		ug/L			09/12/19 22:26	1
Bromomethane	ND		5.0		ug/L			09/12/19 22:26	1
Carbon disulfide	ND		5.0		ug/L			09/12/19 22:26	1
Carbon tetrachloride	ND		5.0		ug/L			09/12/19 22:26	1
Chlorobenzene	ND		5.0		ug/L			09/12/19 22:26	1
Chloroethane	ND		5.0		ug/L			09/12/19 22:26	1
Chloroform	ND		5.0		ug/L			09/12/19 22:26	1
Chloromethane	ND		5.0		ug/L			09/12/19 22:26	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 22:26	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 22:26	1
Dibromochloromethane	ND		5.0		ug/L			09/12/19 22:26	1
Dibromomethane	ND		5.0		ug/L			09/12/19 22:26	1
Ethylbenzene	ND		5.0		ug/L			09/12/19 22:26	1
Iodomethane	ND		5.0		ug/L			09/12/19 22:26	1
m,p-Xylene	ND		5.0		ug/L			09/12/19 22:26	1
Methylene Chloride	ND		5.0		ug/L			09/12/19 22:26	1
o-Xylene	ND		5.0		ug/L			09/12/19 22:26	1
Styrene	ND		5.0		ug/L			09/12/19 22:26	1
Tetrachloroethene	ND		5.0		ug/L			09/12/19 22:26	1
Tetrahydrofuran	ND		10		ug/L			09/12/19 22:26	1
Toluene	ND		5.0		ug/L			09/12/19 22:26	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 22:26	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 22:26	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/12/19 22:26	1
Trichloroethene	ND		5.0		ug/L			09/12/19 22:26	1
Trichlorofluoromethane	ND		5.0		ug/L			09/12/19 22:26	1
Vinyl acetate	ND		50		ug/L			09/12/19 22:26	1

Client Sample ID: MWSE-1
Date Collected: 09/03/19 13:10
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-1
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			09/12/19 22:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*77 - 120*		*09/12/19 22:26*	*1*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*09/12/19 22:26*	*1*
Toluene-d8 (Surr)	*97*		*80 - 120*		*09/12/19 22:26*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		09/05/19 05:35	09/05/19 16:50	1
Antimony	ND		0.015		mg/L		09/05/19 05:35	09/05/19 16:50	1
Arsenic	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:50	1
Barium	ND		0.20		mg/L		09/05/19 05:35	09/05/19 16:50	1
Beryllium	ND		0.0030		mg/L		09/05/19 05:35	09/05/19 16:50	1
Boron	**0.030**		0.020		mg/L		09/05/19 05:35	09/05/19 16:50	1
Cadmium	ND		0.0050		mg/L		09/05/19 05:35	09/05/19 16:50	1
Calcium	**105**		5.0		mg/L		09/05/19 05:35	09/05/19 16:50	1
Chromium	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:50	1
Cobalt	ND		0.050		mg/L		09/05/19 05:35	09/05/19 16:50	1
Copper	ND		0.025		mg/L		09/05/19 05:35	09/05/19 16:50	1
Iron	ND		0.10		mg/L		09/05/19 05:35	09/05/19 16:50	1
Lead	ND		0.0030		mg/L		09/05/19 05:35	09/05/19 16:50	1
Magnesium	**26.8**		5.0		mg/L		09/05/19 05:35	09/05/19 16:50	1
Manganese	**0.036**		0.015		mg/L		09/05/19 05:35	09/05/19 16:50	1
Nickel	ND		0.040		mg/L		09/05/19 05:35	09/05/19 16:50	1
Potassium	ND		5.0		mg/L		09/05/19 05:35	09/05/19 16:50	1
Silver	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:50	1
Sodium	**5.0**		5.0		mg/L		09/05/19 05:35	09/05/19 16:50	1
Thallium	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:50	1
Vanadium	ND		0.050		mg/L		09/05/19 05:35	09/05/19 16:50	1
Zinc	ND		0.020		mg/L		09/05/19 05:35	09/05/19 16:50	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		09/06/19 10:59	09/11/19 03:26	1
Antimony, Dissolved	ND		0.020		mg/L		09/06/19 10:59	09/11/19 03:26	1
Arsenic, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:26	1
Barium, Dissolved	ND		0.20		mg/L		09/06/19 10:59	09/11/19 03:26	1
Beryllium, Dissolved	ND		0.0030		mg/L		09/06/19 10:59	09/11/19 03:26	1
Boron, Dissolved	**0.029**		0.020		mg/L		09/06/19 10:59	09/11/19 03:26	1
Cadmium, Dissolved	ND		0.0050		mg/L		09/06/19 10:59	09/11/19 03:26	1
Calcium, Dissolved	**108**		5.0		mg/L		09/06/19 10:59	09/11/19 03:26	1
Chromium, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:26	1
Cobalt, Dissolved	ND		0.050		mg/L		09/06/19 10:59	09/11/19 03:26	1
Copper, Dissolved	ND		0.025		mg/L		09/06/19 10:59	09/11/19 03:26	1
Iron, Dissolved	ND		0.10		mg/L		09/06/19 10:59	09/11/19 03:26	1
Lead, Dissolved	ND		0.0030		mg/L		09/06/19 10:59	09/11/19 03:26	1
Magnesium, Dissolved	**28.1**		5.0		mg/L		09/06/19 10:59	09/11/19 03:26	1
Manganese, Dissolved	**0.034**		0.015		mg/L		09/06/19 10:59	09/11/19 03:26	1
Nickel, Dissolved	ND		0.040		mg/L		09/06/19 10:59	09/11/19 03:26	1

Client Sample ID: MWSE-1
Lab Sample ID: 480-158492-1

Date Collected: 09/03/19 13:10
Matrix: Ground Water
Date Received: 09/03/19 16:50

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		09/06/19 10:59	09/11/19 03:26	1
Silver, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:26	1
Sodium, Dissolved	ND		5.0		mg/L		09/06/19 10:59	09/11/19 03:26	1
Thallium, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:26	1
Vanadium, Dissolved	ND		0.050		mg/L		09/06/19 10:59	09/11/19 03:26	1
Zinc, Dissolved	ND		0.020		mg/L		09/06/19 10:59	09/11/19 03:26	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		09/06/19 06:30	09/06/19 14:00	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		09/06/19 10:50	09/09/19 13:50	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		09/10/19 11:40	09/10/19 17:15	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		09/18/19 11:00	09/18/19 14:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		1.0		mg/L			09/09/19 14:46	5
Alkalinity, Total	**237**		15.0		mg/L			09/09/19 17:22	3
Ammonia (as N)	ND	F1	0.050		mg/L as N			09/06/19 12:35	1
Total Kjeldahl Nitrogen	**0.60**		0.15		mg/L as N		09/13/19 10:03	09/15/19 12:17	1
Nitrate	**0.11**		0.050		mg/L as N			09/04/19 21:06	1
Chemical Oxygen Demand	ND		5.0		mg/L			09/12/19 12:35	1
Chromium, hexavalent	ND		0.010		mg/L			09/04/19 09:45	1
Cyanide, Total	ND	*	0.010		mg/L		09/15/19 15:19	09/16/19 12:50	1
Phenolics, Total Recoverable	**0.0088**	**F1 B**	0.0050		mg/L		09/16/19 23:07	09/17/19 10:24	1
Hardness	**368**		2.0		mg/L			09/18/19 11:45	1
Total Dissolved Solids	**430**		10.0		mg/L			09/05/19 10:32	1
Chloride	**7.9**		2.5		mg/L			09/09/19 14:46	5
Sulfate	**125**		10.0		mg/L			09/09/19 14:46	5
Biochemical Oxygen Demand	ND		2.0		mg/L			09/05/19 05:45	1
Total Organic Carbon	ND		1.0		mg/L			09/07/19 23:08	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			09/05/19 11:30	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.34**				SU			09/03/19 13:10	1
Specific Conductance	**25830**				umhos/cm			09/03/19 13:10	1
Field EH/ORP	**135.0**				millivolts			09/03/19 13:10	1
Temperature, Field	**13.1**				Degrees C			09/03/19 13:10	1
Odor	**No**				NONE			09/03/19 13:10	1
Turbidity	**1.9**				NTU			09/03/19 13:10	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWSE-1
Date Collected: 09/03/19 13:10
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-1
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Depth to Water from Top of Casing	15.54				ft			09/03/19 13:10	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWSE-2
Date Collected: 09/03/19 11:50
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-2
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 22:49	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/12/19 22:49	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 22:49	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/12/19 22:49	1
1,1-Dichloroethane	ND		5.0		ug/L			09/12/19 22:49	1
1,1-Dichloroethene	ND		5.0		ug/L			09/12/19 22:49	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/12/19 22:49	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/12/19 22:49	1
1,2-Dibromoethane	ND		5.0		ug/L			09/12/19 22:49	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/12/19 22:49	1
1,2-Dichloroethane	ND		5.0		ug/L			09/12/19 22:49	1
1,2-Dichloropropane	ND		5.0		ug/L			09/12/19 22:49	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/12/19 22:49	1
1,4-Dioxane	ND		50		ug/L			09/12/19 22:49	1
2-Butanone (MEK)	ND		5.0		ug/L			09/12/19 22:49	1
2-Hexanone	ND		10		ug/L			09/12/19 22:49	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/12/19 22:49	1
Acetone	ND		5.0		ug/L			09/12/19 22:49	1
Acetonitrile	ND		100		ug/L			09/12/19 22:49	1
Benzene	ND		5.0		ug/L			09/12/19 22:49	1
Bromochloromethane	ND		5.0		ug/L			09/12/19 22:49	1
Bromodichloromethane	ND		5.0		ug/L			09/12/19 22:49	1
Bromoform	ND		5.0		ug/L			09/12/19 22:49	1
Bromomethane	ND		5.0		ug/L			09/12/19 22:49	1
Carbon disulfide	ND		5.0		ug/L			09/12/19 22:49	1
Carbon tetrachloride	ND		5.0		ug/L			09/12/19 22:49	1
Chlorobenzene	ND		5.0		ug/L			09/12/19 22:49	1
Chloroethane	ND		5.0		ug/L			09/12/19 22:49	1
Chloroform	ND		5.0		ug/L			09/12/19 22:49	1
Chloromethane	ND		5.0		ug/L			09/12/19 22:49	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 22:49	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 22:49	1
Dibromochloromethane	ND		5.0		ug/L			09/12/19 22:49	1
Dibromomethane	ND		5.0		ug/L			09/12/19 22:49	1
Ethylbenzene	ND		5.0		ug/L			09/12/19 22:49	1
Iodomethane	ND		5.0		ug/L			09/12/19 22:49	1
m,p-Xylene	ND		5.0		ug/L			09/12/19 22:49	1
Methylene Chloride	ND		5.0		ug/L			09/12/19 22:49	1
o-Xylene	ND		5.0		ug/L			09/12/19 22:49	1
Styrene	ND		5.0		ug/L			09/12/19 22:49	1
Tetrachloroethene	ND		5.0		ug/L			09/12/19 22:49	1
Tetrahydrofuran	ND		10		ug/L			09/12/19 22:49	1
Toluene	ND		5.0		ug/L			09/12/19 22:49	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 22:49	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 22:49	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/12/19 22:49	1
Trichloroethene	ND		5.0		ug/L			09/12/19 22:49	1
Trichlorofluoromethane	ND		5.0		ug/L			09/12/19 22:49	1
Vinyl acetate	ND		50		ug/L			09/12/19 22:49	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWSE-2

Date Collected: 09/03/19 11:50
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-2

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			09/12/19 22:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*		*09/12/19 22:49*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*09/12/19 22:49*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*09/12/19 22:49*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		09/05/19 05:35	09/05/19 16:54	1
Antimony	ND		0.015		mg/L		09/05/19 05:35	09/05/19 16:54	1
Arsenic	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:54	1
Barium	ND		0.20		mg/L		09/05/19 05:35	09/05/19 16:54	1
Beryllium	ND		0.0030		mg/L		09/05/19 05:35	09/05/19 16:54	1
Boron	**0.045**		0.020		mg/L		09/05/19 05:35	09/05/19 16:54	1
Cadmium	ND		0.0050		mg/L		09/05/19 05:35	09/05/19 16:54	1
Calcium	**133**		5.0		mg/L		09/05/19 05:35	09/05/19 16:54	1
Chromium	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:54	1
Cobalt	ND		0.050		mg/L		09/05/19 05:35	09/05/19 16:54	1
Copper	ND		0.025		mg/L		09/05/19 05:35	09/05/19 16:54	1
Iron	ND		0.10		mg/L		09/05/19 05:35	09/05/19 16:54	1
Lead	ND		0.0030		mg/L		09/05/19 05:35	09/05/19 16:54	1
Magnesium	**28.7**		5.0		mg/L		09/05/19 05:35	09/05/19 16:54	1
Manganese	**0.056**		0.015		mg/L		09/05/19 05:35	09/05/19 16:54	1
Nickel	ND		0.040		mg/L		09/05/19 05:35	09/05/19 16:54	1
Potassium	ND		5.0		mg/L		09/05/19 05:35	09/05/19 16:54	1
Silver	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:54	1
Sodium	**10.6**		5.0		mg/L		09/05/19 05:35	09/05/19 16:54	1
Thallium	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:54	1
Vanadium	ND		0.050		mg/L		09/05/19 05:35	09/05/19 16:54	1
Zinc	ND		0.020		mg/L		09/05/19 05:35	09/05/19 16:54	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		09/06/19 10:59	09/11/19 03:30	1
Antimony, Dissolved	ND		0.020		mg/L		09/06/19 10:59	09/11/19 03:30	1
Arsenic, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:30	1
Barium, Dissolved	ND		0.20		mg/L		09/06/19 10:59	09/11/19 03:30	1
Beryllium, Dissolved	ND		0.0030		mg/L		09/06/19 10:59	09/11/19 03:30	1
Boron, Dissolved	**0.045**		0.020		mg/L		09/06/19 10:59	09/11/19 03:30	1
Cadmium, Dissolved	ND		0.0050		mg/L		09/06/19 10:59	09/11/19 03:30	1
Calcium, Dissolved	**136**		5.0		mg/L		09/06/19 10:59	09/11/19 03:30	1
Chromium, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:30	1
Cobalt, Dissolved	ND		0.050		mg/L		09/06/19 10:59	09/11/19 03:30	1
Copper, Dissolved	ND		0.025		mg/L		09/06/19 10:59	09/11/19 03:30	1
Iron, Dissolved	ND		0.10		mg/L		09/06/19 10:59	09/11/19 03:30	1
Lead, Dissolved	ND		0.0030		mg/L		09/06/19 10:59	09/11/19 03:30	1
Magnesium, Dissolved	**29.8**		5.0		mg/L		09/06/19 10:59	09/11/19 03:30	1
Manganese, Dissolved	**0.071**		0.015		mg/L		09/06/19 10:59	09/11/19 03:30	1
Nickel, Dissolved	ND		0.040		mg/L		09/06/19 10:59	09/11/19 03:30	1

Client Sample ID: MWSE-2
Date Collected: 09/03/19 11:50
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-2
Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		09/06/19 10:59	09/11/19 03:30	1
Silver, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:30	1
Sodium, Dissolved	**10.1**		5.0		mg/L		09/06/19 10:59	09/11/19 03:30	1
Thallium, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:30	1
Vanadium, Dissolved	ND		0.050		mg/L		09/06/19 10:59	09/11/19 03:30	1
Zinc, Dissolved	ND		0.020		mg/L		09/06/19 10:59	09/11/19 03:30	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		09/06/19 06:30	09/06/19 14:09	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		09/06/19 10:50	09/09/19 13:52	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		09/10/19 11:40	09/10/19 17:16	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		09/18/19 11:00	09/18/19 14:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		1.0		mg/L			09/09/19 22:06	5
Alkalinity, Total	**216**		15.0		mg/L			09/09/19 17:22	3
Ammonia (as N)	ND		0.050		mg/L as N			09/06/19 12:36	1
Total Kjeldahl Nitrogen	**1.3**		0.15		mg/L as N		09/13/19 10:03	09/15/19 12:17	1
Nitrate	**0.081**		0.050		mg/L as N			09/04/19 21:07	1
Chemical Oxygen Demand	ND		5.0		mg/L			09/12/19 12:35	1
Chromium, hexavalent	ND		0.010		mg/L			09/04/19 09:45	1
Cyanide, Total	ND	F1	0.010		mg/L		09/17/19 11:02	09/17/19 15:34	1
Phenolics, Total Recoverable	**0.0080**	**B**	0.0050		mg/L		09/16/19 23:07	09/17/19 10:24	1
Hardness	**432**		2.0		mg/L			09/18/19 11:45	1
Total Dissolved Solids	**617**		10.0		mg/L			09/05/19 10:32	1
Chloride	**16.1**		2.5		mg/L			09/09/19 22:06	5
Sulfate	**229**		10.0		mg/L			09/09/19 22:06	5
Biochemical Oxygen Demand	ND		2.0		mg/L			09/05/19 05:45	1
Total Organic Carbon	ND		1.0		mg/L			09/07/19 23:53	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			09/05/19 11:30	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**7.37**				SU			09/03/19 11:50	1
Specific Conductance	**1408**				umhos/cm			09/03/19 11:50	1
Field EH/ORP	**99.0**				millivolts			09/03/19 11:50	1
Temperature, Field	**12.4**				Degrees C			09/03/19 11:50	1
Odor	**No**				NONE			09/03/19 11:50	1
Turbidity	**1.8**				NTU			09/03/19 11:50	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWSE-2
Date Collected: 09/03/19 11:50
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-2
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Depth to Water from Top of Casing	15.76				ft			09/03/19 11:50	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWSE-3
Date Collected: 09/03/19 14:25
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-3
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 23:14	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/12/19 23:14	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 23:14	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/12/19 23:14	1
1,1-Dichloroethane	ND		5.0		ug/L			09/12/19 23:14	1
1,1-Dichloroethene	ND		5.0		ug/L			09/12/19 23:14	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/12/19 23:14	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/12/19 23:14	1
1,2-Dibromoethane	ND		5.0		ug/L			09/12/19 23:14	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/12/19 23:14	1
1,2-Dichloroethane	ND		5.0		ug/L			09/12/19 23:14	1
1,2-Dichloropropane	ND		5.0		ug/L			09/12/19 23:14	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/12/19 23:14	1
1,4-Dioxane	ND		50		ug/L			09/12/19 23:14	1
2-Butanone (MEK)	ND		5.0		ug/L			09/12/19 23:14	1
2-Hexanone	ND		10		ug/L			09/12/19 23:14	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/12/19 23:14	1
Acetone	ND		5.0		ug/L			09/12/19 23:14	1
Acetonitrile	ND		100		ug/L			09/12/19 23:14	1
Benzene	ND		5.0		ug/L			09/12/19 23:14	1
Bromochloromethane	ND		5.0		ug/L			09/12/19 23:14	1
Bromodichloromethane	ND		5.0		ug/L			09/12/19 23:14	1
Bromoform	ND		5.0		ug/L			09/12/19 23:14	1
Bromomethane	ND		5.0		ug/L			09/12/19 23:14	1
Carbon disulfide	ND		5.0		ug/L			09/12/19 23:14	1
Carbon tetrachloride	ND		5.0		ug/L			09/12/19 23:14	1
Chlorobenzene	ND		5.0		ug/L			09/12/19 23:14	1
Chloroethane	ND		5.0		ug/L			09/12/19 23:14	1
Chloroform	ND		5.0		ug/L			09/12/19 23:14	1
Chloromethane	ND		5.0		ug/L			09/12/19 23:14	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 23:14	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 23:14	1
Dibromochloromethane	ND		5.0		ug/L			09/12/19 23:14	1
Dibromomethane	ND		5.0		ug/L			09/12/19 23:14	1
Ethylbenzene	ND		5.0		ug/L			09/12/19 23:14	1
Iodomethane	ND		5.0		ug/L			09/12/19 23:14	1
m,p-Xylene	ND		5.0		ug/L			09/12/19 23:14	1
Methylene Chloride	ND		5.0		ug/L			09/12/19 23:14	1
o-Xylene	ND		5.0		ug/L			09/12/19 23:14	1
Styrene	ND		5.0		ug/L			09/12/19 23:14	1
Tetrachloroethene	ND		5.0		ug/L			09/12/19 23:14	1
Tetrahydrofuran	ND		10		ug/L			09/12/19 23:14	1
Toluene	ND		5.0		ug/L			09/12/19 23:14	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 23:14	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 23:14	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/12/19 23:14	1
Trichloroethene	ND		5.0		ug/L			09/12/19 23:14	1
Trichlorofluoromethane	ND		5.0		ug/L			09/12/19 23:14	1
Vinyl acetate	ND		50		ug/L			09/12/19 23:14	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWSE-3

Date Collected: 09/03/19 14:25
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-3

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			09/12/19 23:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*108*		*77 - 120*		*09/12/19 23:14*	*1*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*09/12/19 23:14*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*09/12/19 23:14*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	**0.74**		0.20		mg/L		09/05/19 05:35	09/05/19 16:57	1
Antimony	ND		0.015		mg/L		09/05/19 05:35	09/05/19 16:57	1
Arsenic	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:57	1
Barium	ND		0.20		mg/L		09/05/19 05:35	09/05/19 16:57	1
Beryllium	ND		0.0030		mg/L		09/05/19 05:35	09/05/19 16:57	1
Boron	ND		0.020		mg/L		09/05/19 05:35	09/05/19 16:57	1
Cadmium	ND		0.0050		mg/L		09/05/19 05:35	09/05/19 16:57	1
Calcium	**12.9**		5.0		mg/L		09/05/19 05:35	09/05/19 16:57	1
Chromium	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:57	1
Cobalt	ND		0.050		mg/L		09/05/19 05:35	09/05/19 16:57	1
Copper	ND		0.025		mg/L		09/05/19 05:35	09/05/19 16:57	1
Iron	**0.95**		0.10		mg/L		09/05/19 05:35	09/05/19 16:57	1
Lead	ND		0.0030		mg/L		09/05/19 05:35	09/05/19 16:57	1
Magnesium	ND		5.0		mg/L		09/05/19 05:35	09/05/19 16:57	1
Manganese	**0.052**		0.015		mg/L		09/05/19 05:35	09/05/19 16:57	1
Nickel	ND		0.040		mg/L		09/05/19 05:35	09/05/19 16:57	1
Potassium	ND		5.0		mg/L		09/05/19 05:35	09/05/19 16:57	1
Silver	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:57	1
Sodium	ND		5.0		mg/L		09/05/19 05:35	09/05/19 16:57	1
Thallium	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:57	1
Vanadium	ND		0.050		mg/L		09/05/19 05:35	09/05/19 16:57	1
Zinc	ND		0.020		mg/L		09/05/19 05:35	09/05/19 16:57	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		09/06/19 10:59	09/11/19 03:34	1
Antimony, Dissolved	ND		0.020		mg/L		09/06/19 10:59	09/11/19 03:34	1
Arsenic, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:34	1
Barium, Dissolved	ND		0.20		mg/L		09/06/19 10:59	09/11/19 03:34	1
Beryllium, Dissolved	ND		0.0030		mg/L		09/06/19 10:59	09/11/19 03:34	1
Boron, Dissolved	ND		0.020		mg/L		09/06/19 10:59	09/11/19 03:34	1
Cadmium, Dissolved	ND		0.0050		mg/L		09/06/19 10:59	09/11/19 03:34	1
Calcium, Dissolved	**13.2**		5.0		mg/L		09/06/19 10:59	09/11/19 03:34	1
Chromium, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:34	1
Cobalt, Dissolved	ND		0.050		mg/L		09/06/19 10:59	09/11/19 03:34	1
Copper, Dissolved	ND		0.025		mg/L		09/06/19 10:59	09/11/19 03:34	1
Iron, Dissolved	ND		0.10		mg/L		09/06/19 10:59	09/11/19 03:34	1
Lead, Dissolved	ND		0.0030		mg/L		09/06/19 10:59	09/11/19 03:34	1
Magnesium, Dissolved	ND		5.0		mg/L		09/06/19 10:59	09/11/19 03:34	1
Manganese, Dissolved	ND		0.015		mg/L		09/06/19 10:59	09/11/19 03:34	1
Nickel, Dissolved	ND		0.040		mg/L		09/06/19 10:59	09/11/19 03:34	1

Client Sample ID: MWSE-3
Date Collected: 09/03/19 14:25
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-3
Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		09/06/19 10:59	09/11/19 03:34	1
Silver, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:34	1
Sodium, Dissolved	ND		5.0		mg/L		09/06/19 10:59	09/11/19 03:34	1
Thallium, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:34	1
Vanadium, Dissolved	ND		0.050		mg/L		09/06/19 10:59	09/11/19 03:34	1
Zinc, Dissolved	ND		0.020		mg/L		09/06/19 10:59	09/11/19 03:34	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		09/06/19 06:30	09/06/19 14:11	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		09/06/19 10:50	09/09/19 13:54	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		09/10/19 11:40	09/10/19 17:17	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		09/18/19 11:00	09/18/19 14:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.20		mg/L			09/09/19 16:16	1
Alkalinity, Total	**21.6**		5.0		mg/L			09/09/19 16:37	1
Ammonia (as N)	ND		0.050		mg/L as N			09/06/19 12:37	1
Total Kjeldahl Nitrogen	**1.1**		0.15		mg/L as N		09/13/19 10:03	09/15/19 12:17	1
Nitrate	**2.3**		0.050		mg/L as N			09/04/19 21:08	1
Chemical Oxygen Demand	ND		5.0		mg/L			09/12/19 12:35	1
Chromium, hexavalent	ND		0.010		mg/L			09/04/19 09:45	1
Cyanide, Total	ND	*	0.010		mg/L		09/15/19 15:19	09/16/19 12:54	1
Phenolics, Total Recoverable	**0.0094**	**B**	0.0050		mg/L		09/16/19 23:07	09/17/19 10:24	1
Hardness	**44.0**		2.0		mg/L			09/18/19 11:45	1
Total Dissolved Solids	**54.0**		10.0		mg/L			09/05/19 10:32	1
Chloride	**0.96**		0.50		mg/L			09/09/19 16:16	1
Sulfate	**14.2**		2.0		mg/L			09/09/19 16:16	1
Biochemical Oxygen Demand	ND		2.0		mg/L			09/05/19 05:45	1
Total Organic Carbon	ND		1.0		mg/L			09/08/19 01:09	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			09/05/19 11:30	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**6.18**				SU			09/03/19 14:25	1
Specific Conductance	**105**				umhos/cm			09/03/19 14:25	1
Field EH/ORP	**174.0**				millivolts			09/03/19 14:25	1
Temperature, Field	**16.6**				Degrees C			09/03/19 14:25	1
Odor	**No**				NONE			09/03/19 14:25	1
Turbidity	**11.8**				NTU			09/03/19 14:25	1

Client Sample ID: MWSE-3
Date Collected: 09/03/19 14:25
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-3
Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Depth to Water from Top of Casing	22.56				ft			09/03/19 14:25	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWSE-4
Date Collected: 09/03/19 12:25
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-4
Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 23:37	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/12/19 23:37	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 23:37	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/12/19 23:37	1
1,1-Dichloroethane	ND		5.0		ug/L			09/12/19 23:37	1
1,1-Dichloroethene	ND		5.0		ug/L			09/12/19 23:37	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/12/19 23:37	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/12/19 23:37	1
1,2-Dibromoethane	ND		5.0		ug/L			09/12/19 23:37	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/12/19 23:37	1
1,2-Dichloroethane	ND		5.0		ug/L			09/12/19 23:37	1
1,2-Dichloropropane	ND		5.0		ug/L			09/12/19 23:37	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/12/19 23:37	1
1,4-Dioxane	ND		50		ug/L			09/12/19 23:37	1
2-Butanone (MEK)	ND		5.0		ug/L			09/12/19 23:37	1
2-Hexanone	ND		10		ug/L			09/12/19 23:37	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/12/19 23:37	1
Acetone	ND		5.0		ug/L			09/12/19 23:37	1
Acetonitrile	ND		100		ug/L			09/12/19 23:37	1
Benzene	ND		5.0		ug/L			09/12/19 23:37	1
Bromochloromethane	ND		5.0		ug/L			09/12/19 23:37	1
Bromodichloromethane	ND		5.0		ug/L			09/12/19 23:37	1
Bromoform	ND		5.0		ug/L			09/12/19 23:37	1
Bromomethane	ND		5.0		ug/L			09/12/19 23:37	1
Carbon disulfide	ND		5.0		ug/L			09/12/19 23:37	1
Carbon tetrachloride	ND		5.0		ug/L			09/12/19 23:37	1
Chlorobenzene	ND		5.0		ug/L			09/12/19 23:37	1
Chloroethane	ND		5.0		ug/L			09/12/19 23:37	1
Chloroform	ND		5.0		ug/L			09/12/19 23:37	1
Chloromethane	ND		5.0		ug/L			09/12/19 23:37	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 23:37	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 23:37	1
Dibromochloromethane	ND		5.0		ug/L			09/12/19 23:37	1
Dibromomethane	ND		5.0		ug/L			09/12/19 23:37	1
Ethylbenzene	ND		5.0		ug/L			09/12/19 23:37	1
Iodomethane	ND		5.0		ug/L			09/12/19 23:37	1
m,p-Xylene	ND		5.0		ug/L			09/12/19 23:37	1
Methylene Chloride	ND		5.0		ug/L			09/12/19 23:37	1
o-Xylene	ND		5.0		ug/L			09/12/19 23:37	1
Styrene	ND		5.0		ug/L			09/12/19 23:37	1
Tetrachloroethene	ND		5.0		ug/L			09/12/19 23:37	1
Tetrahydrofuran	ND		10		ug/L			09/12/19 23:37	1
Toluene	ND		5.0		ug/L			09/12/19 23:37	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 23:37	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 23:37	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/12/19 23:37	1
Trichloroethene	ND		5.0		ug/L			09/12/19 23:37	1
Trichlorofluoromethane	ND		5.0		ug/L			09/12/19 23:37	1
Vinyl acetate	ND		50		ug/L			09/12/19 23:37	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWSE-4

Date Collected: 09/03/19 12:25
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-4

Matrix: Ground Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			09/12/19 23:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*77 - 120*		*09/12/19 23:37*	*1*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*09/12/19 23:37*	*1*
Toluene-d8 (Surr)	*93*		*80 - 120*		*09/12/19 23:37*	*1*

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		09/05/19 05:35	09/05/19 17:01	1
Antimony	ND		0.015		mg/L		09/05/19 05:35	09/05/19 17:01	1
Arsenic	ND		0.010		mg/L		09/05/19 05:35	09/05/19 17:01	1
Barium	ND		0.20		mg/L		09/05/19 05:35	09/05/19 17:01	1
Beryllium	ND		0.0030		mg/L		09/05/19 05:35	09/05/19 17:01	1
Boron	**0.066**		0.020		mg/L		09/05/19 05:35	09/05/19 17:01	1
Cadmium	ND		0.0050		mg/L		09/05/19 05:35	09/05/19 17:01	1
Calcium	**79.8**		5.0		mg/L		09/05/19 05:35	09/05/19 17:01	1
Chromium	ND		0.010		mg/L		09/05/19 05:35	09/05/19 17:01	1
Cobalt	ND		0.050		mg/L		09/05/19 05:35	09/05/19 17:01	1
Copper	ND		0.025		mg/L		09/05/19 05:35	09/05/19 17:01	1
Iron	**0.34**		0.10		mg/L		09/05/19 05:35	09/05/19 17:01	1
Lead	ND		0.0030		mg/L		09/05/19 05:35	09/05/19 17:01	1
Magnesium	**14.0**		5.0		mg/L		09/05/19 05:35	09/05/19 17:01	1
Manganese	**0.22**		0.015		mg/L		09/05/19 05:35	09/05/19 17:01	1
Nickel	ND		0.040		mg/L		09/05/19 05:35	09/05/19 17:01	1
Potassium	ND		5.0		mg/L		09/05/19 05:35	09/05/19 17:01	1
Silver	ND		0.010		mg/L		09/05/19 05:35	09/05/19 17:01	1
Sodium	**14.7**		5.0		mg/L		09/05/19 05:35	09/05/19 17:01	1
Thallium	ND		0.010		mg/L		09/05/19 05:35	09/05/19 17:01	1
Vanadium	ND		0.050		mg/L		09/05/19 05:35	09/05/19 17:01	1
Zinc	ND		0.020		mg/L		09/05/19 05:35	09/05/19 17:01	1

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		09/06/19 10:59	09/11/19 03:38	1
Antimony, Dissolved	ND		0.020		mg/L		09/06/19 10:59	09/11/19 03:38	1
Arsenic, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:38	1
Barium, Dissolved	ND		0.20		mg/L		09/06/19 10:59	09/11/19 03:38	1
Beryllium, Dissolved	ND		0.0030		mg/L		09/06/19 10:59	09/11/19 03:38	1
Boron, Dissolved	**0.066**		0.020		mg/L		09/06/19 10:59	09/11/19 03:38	1
Cadmium, Dissolved	ND		0.0050		mg/L		09/06/19 10:59	09/11/19 03:38	1
Calcium, Dissolved	**81.3**		5.0		mg/L		09/06/19 10:59	09/11/19 03:38	1
Chromium, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:38	1
Cobalt, Dissolved	ND		0.050		mg/L		09/06/19 10:59	09/11/19 03:38	1
Copper, Dissolved	ND		0.025		mg/L		09/06/19 10:59	09/11/19 03:38	1
Iron, Dissolved	**0.16**		0.10		mg/L		09/06/19 10:59	09/11/19 03:38	1
Lead, Dissolved	ND		0.0030		mg/L		09/06/19 10:59	09/11/19 03:38	1
Magnesium, Dissolved	**14.3**		5.0		mg/L		09/06/19 10:59	09/11/19 03:38	1
Manganese, Dissolved	**0.20**		0.015		mg/L		09/06/19 10:59	09/11/19 03:38	1
Nickel, Dissolved	ND		0.040		mg/L		09/06/19 10:59	09/11/19 03:38	1

Client Sample ID: MWSE-4
Date Collected: 09/03/19 12:25
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-4
Matrix: Ground Water

Method: 6010C - Metals (ICP) - Dissolved (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Potassium, Dissolved	ND		5.0		mg/L		09/06/19 10:59	09/11/19 03:38	1
Silver, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:38	1
Sodium, Dissolved	**14.5**		5.0		mg/L		09/06/19 10:59	09/11/19 03:38	1
Thallium, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 03:38	1
Vanadium, Dissolved	ND		0.050		mg/L		09/06/19 10:59	09/11/19 03:38	1
Zinc, Dissolved	ND		0.020		mg/L		09/06/19 10:59	09/11/19 03:38	1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		09/06/19 06:30	09/06/19 14:13	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		09/06/19 10:50	09/09/19 14:04	1

Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		09/10/19 11:40	09/10/19 17:18	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		09/18/19 11:00	09/18/19 14:40	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.40		mg/L			09/09/19 16:31	2
Alkalinity, Total	**146**		10.0		mg/L			09/09/19 17:20	2
Ammonia (as N)	ND		0.050		mg/L as N			09/06/19 12:38	1
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		09/13/19 10:03	09/15/19 12:17	1
Nitrate	ND		0.050		mg/L as N			09/04/19 13:58	1
Chemical Oxygen Demand	**6.9**		5.0		mg/L			09/12/19 12:35	1
Chromium, hexavalent	ND		0.010		mg/L			09/04/19 09:45	1
Cyanide, Total	ND	*	0.010		mg/L		09/15/19 15:19	09/16/19 12:56	1
Phenolics, Total Recoverable	**0.0080**	**B**	0.0050		mg/L		09/16/19 23:07	09/17/19 10:24	1
Hardness	**252**		2.0		mg/L			09/18/19 11:45	1
Total Dissolved Solids	**336**		10.0		mg/L			09/05/19 10:32	1
Chloride	**20.0**		1.0		mg/L			09/09/19 16:31	2
Sulfate	**120**		4.0		mg/L			09/09/19 16:31	2
Biochemical Oxygen Demand	ND		2.0		mg/L			09/05/19 05:45	1
Total Organic Carbon	**1.4**		1.0		mg/L			09/08/19 01:24	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	**5.00**		0.0100		Color Units			09/05/19 11:30	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
pH, Field	**6.84**				SU			09/03/19 12:25	1
Specific Conductance	**570**				umhos/cm			09/03/19 12:25	1
Field EH/ORP	**67.0**				millivolts			09/03/19 12:25	1
Temperature, Field	**16.0**				Degrees C			09/03/19 12:25	1
Odor	**No**				NONE			09/03/19 12:25	1
Turbidity	**2.7**				NTU			09/03/19 12:25	1

Client Sample Results

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWSE-4

Date Collected: 09/03/19 12:25
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-4

Matrix: Ground Water

Method: Field Sampling - Field Sampling (Continued)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Depth to Water from Top of Casing	12.72				ft			09/03/19 12:25	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: TRIP BLANK

Date Collected: 09/03/19 08:00
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-5

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 17:33	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/12/19 17:33	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 17:33	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/12/19 17:33	1
1,1-Dichloroethane	ND		5.0		ug/L			09/12/19 17:33	1
1,1-Dichloroethene	ND		5.0		ug/L			09/12/19 17:33	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/12/19 17:33	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/12/19 17:33	1
1,2-Dibromoethane	ND		5.0		ug/L			09/12/19 17:33	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/12/19 17:33	1
1,2-Dichloroethane	ND		5.0		ug/L			09/12/19 17:33	1
1,2-Dichloropropane	ND		5.0		ug/L			09/12/19 17:33	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/12/19 17:33	1
1,4-Dioxane	ND	*	50		ug/L			09/12/19 17:33	1
2-Butanone (MEK)	ND		5.0		ug/L			09/12/19 17:33	1
2-Hexanone	ND		10		ug/L			09/12/19 17:33	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/12/19 17:33	1
Acetone	ND		5.0		ug/L			09/12/19 17:33	1
Acetonitrile	ND		100		ug/L			09/12/19 17:33	1
Benzene	ND		5.0		ug/L			09/12/19 17:33	1
Bromochloromethane	ND		5.0		ug/L			09/12/19 17:33	1
Bromodichloromethane	ND		5.0		ug/L			09/12/19 17:33	1
Bromoform	ND		5.0		ug/L			09/12/19 17:33	1
Bromomethane	ND		5.0		ug/L			09/12/19 17:33	1
Carbon disulfide	ND		5.0		ug/L			09/12/19 17:33	1
Carbon tetrachloride	ND		5.0		ug/L			09/12/19 17:33	1
Chlorobenzene	ND		5.0		ug/L			09/12/19 17:33	1
Chloroethane	ND		5.0		ug/L			09/12/19 17:33	1
Chloroform	ND		5.0		ug/L			09/12/19 17:33	1
Chloromethane	ND		5.0		ug/L			09/12/19 17:33	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 17:33	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 17:33	1
Dibromochloromethane	ND		5.0		ug/L			09/12/19 17:33	1
Dibromomethane	ND		5.0		ug/L			09/12/19 17:33	1
Ethylbenzene	ND		5.0		ug/L			09/12/19 17:33	1
Iodomethane	ND		5.0		ug/L			09/12/19 17:33	1
m,p-Xylene	ND		5.0		ug/L			09/12/19 17:33	1
Methylene Chloride	ND		5.0		ug/L			09/12/19 17:33	1
o-Xylene	ND		5.0		ug/L			09/12/19 17:33	1
Styrene	ND		5.0		ug/L			09/12/19 17:33	1
Tetrachloroethene	ND		5.0		ug/L			09/12/19 17:33	1
Tetrahydrofuran	ND		10		ug/L			09/12/19 17:33	1
Toluene	ND		5.0		ug/L			09/12/19 17:33	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 17:33	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 17:33	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/12/19 17:33	1
Trichloroethene	ND		5.0		ug/L			09/12/19 17:33	1
Trichlorofluoromethane	ND		5.0		ug/L			09/12/19 17:33	1
Vinyl acetate	ND		50		ug/L			09/12/19 17:33	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: TRIP BLANK
Date Collected: 09/03/19 08:00
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-5
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			09/12/19 17:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*77 - 120*		*09/12/19 17:33*	*1*
4-Bromofluorobenzene (Surr)	*96*		*73 - 120*		*09/12/19 17:33*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*09/12/19 17:33*	*1*

Client Sample ID: MWSE-1

Date Collected: 09/09/19 12:35
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-1

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluoropentanoic acid (PFPeA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorohexanoic acid (PFHxA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorooctanoic acid (PFOA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorononanoic acid (PFNA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorodecanoic acid (PFDA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorododecanoic acid (PFDoA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:30	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19		ng/L		09/12/19 07:48	09/13/19 21:30	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19		ng/L		09/12/19 07:48	09/13/19 21:30	1
6:2 FTS	ND		19		ng/L		09/12/19 07:48	09/13/19 21:30	1
8:2 FTS	ND		19		ng/L		09/12/19 07:48	09/13/19 21:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*98*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C5-PFPeA DNU	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C2 PFHxA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C4 PFHpA	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C4 PFOA	*104*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C5 PFNA	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C2 PFDA	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C2 PFUnA	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C2 PFDoA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C2 PFTeDA	*106*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
18O2 PFHxS	*115*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C4 PFOS	*105*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
13C8 FOSA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
d3-NMeFOSAA	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
d5-NEtFOSAA	*96*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
M2-6:2 FTS	*115*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*
M2-8:2 FTS	*129*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:30*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWSE-2
Date Collected: 09/09/19 11:20
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-2
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluoropentanoic acid (PFPeA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorohexanoic acid (PFHxA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorooctanoic acid (PFOA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorononanoic acid (PFNA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorodecanoic acid (PFDA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorododecanoic acid (PFDoA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:39	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19		ng/L		09/12/19 07:48	09/13/19 21:39	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19		ng/L		09/12/19 07:48	09/13/19 21:39	1
6:2 FTS	ND		19		ng/L		09/12/19 07:48	09/13/19 21:39	1
8:2 FTS	ND		19		ng/L		09/12/19 07:48	09/13/19 21:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*102*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C5-PFPeA DNU	*106*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C2 PFHxA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C4 PFHpA	*104*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C4 PFOA	*106*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C5 PFNA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C2 PFDA	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C2 PFUnA	*109*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C2 PFDoA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C2 PFTeDA	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
18O2 PFHxS	*114*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C4 PFOS	*102*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
13C8 FOSA	*102*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
d3-NMeFOSAA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
d5-NEtFOSAA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
M2-6:2 FTS	*114*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*
M2-8:2 FTS	*116*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:39*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWSE-3
Date Collected: 09/09/19 13:41
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-3
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**15**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluoropentanoic acid (PFPeA)	**15**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorohexanoic acid (PFHxA)	**21**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluoroheptanoic acid (PFHpA)	**5.8**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorooctanoic acid (PFOA)	**9.0**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorononanoic acid (PFNA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorodecanoic acid (PFDA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorododecanoic acid (PFDoA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorobutanesulfonic acid (PFBS)	**4.8**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorooctanesulfonic acid (PFOS)	**2.6**		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9		ng/L		09/12/19 07:48	09/13/19 21:49	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19		ng/L		09/12/19 07:48	09/13/19 21:49	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19		ng/L		09/12/19 07:48	09/13/19 21:49	1
6:2 FTS	ND		19		ng/L		09/12/19 07:48	09/13/19 21:49	1
8:2 FTS	ND		19		ng/L		09/12/19 07:48	09/13/19 21:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*89*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C5-PFPeA DNU	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C2 PFHxA	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C4 PFHpA	*110*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C4 PFOA	*107*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C5 PFNA	*106*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C2 PFDA	*106*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C2 PFUnA	*109*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C2 PFDoA	*105*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C2 PFTeDA	*98*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
18O2 PFHxS	*115*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C4 PFOS	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
13C8 FOSA	*104*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
d3-NMeFOSAA	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
d5-NEtFOSAA	*102*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
M2-6:2 FTS	*128*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*
M2-8:2 FTS	*123*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:49*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: MWSE-4
Date Collected: 09/09/19 11:46
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-4
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluoropentanoic acid (PFPeA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorohexanoic acid (PFHxA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorooctanoic acid (PFOA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorononanoic acid (PFNA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorododecanoic acid (PFDoA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 21:59	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18		ng/L		09/12/19 07:48	09/13/19 21:59	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18		ng/L		09/12/19 07:48	09/13/19 21:59	1
6:2 FTS	ND		18		ng/L		09/12/19 07:48	09/13/19 21:59	1
8:2 FTS	ND		18		ng/L		09/12/19 07:48	09/13/19 21:59	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C5-PFPeA DNU	*104*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C2 PFHxA	*99*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C4 PFHpA	*107*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C4 PFOA	*106*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C5 PFNA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C2 PFDA	*98*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C2 PFUnA	*108*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C2 PFDoA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C2 PFTeDA	*96*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
18O2 PFHxS	*116*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C4 PFOS	*107*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
13C8 FOSA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
d3-NMeFOSAA	*96*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
d5-NEtFOSAA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
M2-6:2 FTS	*118*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*
M2-8:2 FTS	*118*		*25 - 150*	*09/12/19 07:48*	*09/13/19 21:59*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: BLIND DUP

Date Collected: 09/09/19 11:46
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-5

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**15**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluoropentanoic acid (PFPeA)	**15**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorohexanoic acid (PFHxA)	**21**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluoroheptanoic acid (PFHpA)	**6.1**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorooctanoic acid (PFOA)	**9.0**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorononanoic acid (PFNA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorododecanoic acid (PFDoA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorobutanesulfonic acid (PFBS)	**4.7**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorooctanesulfonic acid (PFOS)	**2.5**		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8		ng/L		09/12/19 07:48	09/13/19 22:08	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18		ng/L		09/12/19 07:48	09/13/19 22:08	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18		ng/L		09/12/19 07:48	09/13/19 22:08	1
6:2 FTS	ND		18		ng/L		09/12/19 07:48	09/13/19 22:08	1
8:2 FTS	ND		18		ng/L		09/12/19 07:48	09/13/19 22:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*84*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C5-PFPeA DNU	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C2 PFHxA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C4 PFHpA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C4 PFOA	*102*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C5 PFNA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C2 PFDA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C2 PFUnA	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C2 PFDoA	*97*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C2 PFTeDA	*91*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
18O2 PFHxS	*110*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C4 PFOS	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
13C8 FOSA	*99*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
d3-NMeFOSAA	*92*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
d5-NEtFOSAA	*95*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
M2-6:2 FTS	*119*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*
M2-8:2 FTS	*116*		*25 - 150*	*09/12/19 07:48*	*09/13/19 22:08*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: TRIP BLANK
Date Collected: 09/09/19 09:00
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-6
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/20/19 00:45	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/20/19 00:45	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/20/19 00:45	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/20/19 00:45	1
1,1-Dichloroethane	ND		5.0		ug/L			09/20/19 00:45	1
1,1-Dichloroethene	ND		5.0		ug/L			09/20/19 00:45	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/20/19 00:45	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/20/19 00:45	1
1,2-Dibromoethane	ND		5.0		ug/L			09/20/19 00:45	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/20/19 00:45	1
1,2-Dichloroethane	ND		5.0		ug/L			09/20/19 00:45	1
1,2-Dichloropropane	ND		5.0		ug/L			09/20/19 00:45	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/20/19 00:45	1
1,4-Dioxane	ND		50		ug/L			09/20/19 00:45	1
2-Butanone (MEK)	ND		5.0		ug/L			09/20/19 00:45	1
2-Hexanone	ND		10		ug/L			09/20/19 00:45	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/20/19 00:45	1
Acetone	ND		5.0		ug/L			09/20/19 00:45	1
Acetonitrile	ND		100		ug/L			09/20/19 00:45	1
Benzene	ND		5.0		ug/L			09/20/19 00:45	1
Bromochloromethane	ND		5.0		ug/L			09/20/19 00:45	1
Bromodichloromethane	ND		5.0		ug/L			09/20/19 00:45	1
Bromoform	ND		5.0		ug/L			09/20/19 00:45	1
Bromomethane	ND		5.0		ug/L			09/20/19 00:45	1
Carbon disulfide	ND		5.0		ug/L			09/20/19 00:45	1
Carbon tetrachloride	ND		5.0		ug/L			09/20/19 00:45	1
Chlorobenzene	ND		5.0		ug/L			09/20/19 00:45	1
Chloroethane	ND		5.0		ug/L			09/20/19 00:45	1
Chloroform	ND		5.0		ug/L			09/20/19 00:45	1
Chloromethane	ND		5.0		ug/L			09/20/19 00:45	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/20/19 00:45	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/20/19 00:45	1
Dibromochloromethane	ND		5.0		ug/L			09/20/19 00:45	1
Dibromomethane	ND		5.0		ug/L			09/20/19 00:45	1
Ethylbenzene	ND		5.0		ug/L			09/20/19 00:45	1
Iodomethane	ND		5.0		ug/L			09/20/19 00:45	1
m,p-Xylene	ND		5.0		ug/L			09/20/19 00:45	1
Methylene Chloride	ND		5.0		ug/L			09/20/19 00:45	1
o-Xylene	ND		5.0		ug/L			09/20/19 00:45	1
Styrene	ND		5.0		ug/L			09/20/19 00:45	1
Tetrachloroethene	ND		5.0		ug/L			09/20/19 00:45	1
Tetrahydrofuran	ND		10		ug/L			09/20/19 00:45	1
Toluene	ND		5.0		ug/L			09/20/19 00:45	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/20/19 00:45	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/20/19 00:45	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/20/19 00:45	1
Trichloroethene	ND		5.0		ug/L			09/20/19 00:45	1
Trichlorofluoromethane	ND		5.0		ug/L			09/20/19 00:45	1
Vinyl acetate	ND		50		ug/L			09/20/19 00:45	1

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Client Sample ID: TRIP BLANK
Date Collected: 09/09/19 09:00
Date Received: 09/09/19 15:40

Lab Sample ID: 480-158878-6
Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		5.0		ug/L			09/20/19 00:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*77 - 120*		*09/20/19 00:45*	*1*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*		*09/20/19 00:45*	*1*
Toluene-d8 (Surr)	*105*		*80 - 120*		*09/20/19 00:45*	*1*

Surrogate Summary

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	DCA (77-120)	BFB (73-120)	TOL (80-120)
480-157980-1	DUP	108	91	96
480-157980-2	MW-16	110	95	99
480-157980-3	MW-16(S)	110	92	96
480-157980-4	MW-17	103	95	97
480-157980-4 MS	MW-17	105	95	100
480-157980-4 MSD	MW-17	105	93	98
480-157980-5	MW-18BR	117	99	103
480-157980-6	MW-L(I)	109	94	97
480-157980-7	MW-M(I)	108	96	95
480-157980-8	MW-M(S)	113	104	108
480-157980-9	MW-P(I)	105	92	95
480-157980-10	MW-P(S)	107	95	95
480-158093-1	MW-N(I)	85	111	89
480-158093-2	MW-N(S)	85	110	89
480-158145-1	MW-50	103	102	97
480-158409-2	MWBA-1	97	95	91
480-158409-3	MWBA-2	97	98	95
480-158409-4	MW-O(I)	100	98	93
480-158492-1	MWSE-1	109	100	97
480-158492-2	MWSE-2	105	102	94
480-158492-3	MWSE-3	108	101	93
480-158492-4	MWSE-4	103	100	93

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	DCA (77-120)	BFB (73-120)	TOL (80-120)
480-157980-11	TRIP BLANK	107	94	94
480-158093-3	MW-Q(I)	88	108	88
480-158409-1	FIELD BLANK	97	98	91
480-158409-5	TRIP BLANK	100	98	95
480-158492-5	TRIP BLANK	98	96	99
480-158878-6	TRIP BLANK	109	103	105
LCS 480-488279/5	Lab Control Sample	103	97	97
LCS 480-488663/5	Lab Control Sample	86	110	91
LCS 480-489143/5	Lab Control Sample	101	103	95
LCS 480-491215/6	Lab Control Sample	92	97	92
LCS 480-491707/11	Lab Control Sample	92	95	96
LCS 480-491769/5	Lab Control Sample	107	106	101
LCS 480-492966/5	Lab Control Sample	106	101	103
MB 480-488279/7	Method Blank	109	100	99
MB 480-488663/7	Method Blank	84	111	89
MB 480-489143/7	Method Blank	100	102	95

Surrogate Summary

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Matrix: Water
Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		DCA	BFB	TOL
Lab Sample ID	Client Sample ID	(77-120)	(73-120)	(80-120)
MB 480-491215/8	Method Blank	93	93	89
MB 480-491707/9	Method Blank	96	90	94
MB 480-491769/7	Method Blank	107	101	94
MB 480-492966/7	Method Blank	105	102	104

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
TOL = Toluene-d8 (Surr)

Isotope Dilution Summary

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
480-158878-1	MWSE-1	98	101	100	103	104	103	97	103
480-158878-2	MWSE-2	102	106	100	104	106	100	103	109
480-158878-3	MWSE-3	89	103	103	110	107	106	106	109
480-158878-4	MWSE-4	95	104	99	107	106	100	98	108
480-158878-5	BLIND DUP	84	97	101	101	102	100	100	97
LCS 320-322696/2-A	Lab Control Sample	105	106	102	108	109	100	107	104
LCSD 320-322696/3-A	Lab Control Sample Dup	102	105	102	108	107	104	98	97
MB 320-322696/1-A	Method Blank	101	104	101	105	103	103	101	100

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	-NMeFOS/ (25-150)	-NEtFOS/ (25-150)	M262FTS (25-150)
480-158878-1	MWSE-1	100	106	115	105	101	97	96	115
480-158878-2	MWSE-2	100	97	114	102	102	100	101	114
480-158878-3	MWSE-3	105	98	115	103	104	97	102	128
480-158878-4	MWSE-4	101	96	116	107	101	96	100	118
480-158878-5	BLIND DUP	97	91	110	101	99	92	95	119
LCS 320-322696/2-A	Lab Control Sample	105	103	116	108	103	98	97	104
LCSD 320-322696/3-A	Lab Control Sample Dup	97	98	115	103	100	97	95	105
MB 320-322696/1-A	Method Blank	98	93	111	102	99	92	100	107

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	M282FTS (25-150)
480-158878-1	MWSE-1	129
480-158878-2	MWSE-2	116
480-158878-3	MWSE-3	123
480-158878-4	MWSE-4	118
480-158878-5	BLIND DUP	116
LCS 320-322696/2-A	Lab Control Sample	112
LCSD 320-322696/3-A	Lab Control Sample Dup	114
MB 320-322696/1-A	Method Blank	113

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5-PFPeA DNU
PFHxA = 13C2 PFHxA
PFHpA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-488279/7
Matrix: Water
Analysis Batch: 488279

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 11:06	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/22/19 11:06	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/22/19 11:06	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/22/19 11:06	1
1,1-Dichloroethane	ND		5.0		ug/L			08/22/19 11:06	1
1,1-Dichloroethene	ND		5.0		ug/L			08/22/19 11:06	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/22/19 11:06	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/22/19 11:06	1
1,2-Dibromoethane	ND		5.0		ug/L			08/22/19 11:06	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/22/19 11:06	1
1,2-Dichloroethane	ND		5.0		ug/L			08/22/19 11:06	1
1,2-Dichloropropane	ND		5.0		ug/L			08/22/19 11:06	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/22/19 11:06	1
1,4-Dioxane	ND		50		ug/L			08/22/19 11:06	1
2-Butanone (MEK)	ND		5.0		ug/L			08/22/19 11:06	1
2-Hexanone	ND		10		ug/L			08/22/19 11:06	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/22/19 11:06	1
Acetone	ND		5.0		ug/L			08/22/19 11:06	1
Acetonitrile	ND		100		ug/L			08/22/19 11:06	1
Benzene	ND		5.0		ug/L			08/22/19 11:06	1
Bromochloromethane	ND		5.0		ug/L			08/22/19 11:06	1
Bromodichloromethane	ND		5.0		ug/L			08/22/19 11:06	1
Bromoform	ND		5.0		ug/L			08/22/19 11:06	1
Bromomethane	ND		5.0		ug/L			08/22/19 11:06	1
Carbon disulfide	ND		5.0		ug/L			08/22/19 11:06	1
Carbon tetrachloride	ND		5.0		ug/L			08/22/19 11:06	1
Chlorobenzene	ND		5.0		ug/L			08/22/19 11:06	1
Chloroethane	ND		5.0		ug/L			08/22/19 11:06	1
Chloroform	ND		5.0		ug/L			08/22/19 11:06	1
Chloromethane	ND		5.0		ug/L			08/22/19 11:06	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 11:06	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 11:06	1
Dibromochloromethane	ND		5.0		ug/L			08/22/19 11:06	1
Dibromomethane	ND		5.0		ug/L			08/22/19 11:06	1
Ethylbenzene	ND		5.0		ug/L			08/22/19 11:06	1
Iodomethane	ND		5.0		ug/L			08/22/19 11:06	1
m,p-Xylene	ND		5.0		ug/L			08/22/19 11:06	1
Methylene Chloride	ND		5.0		ug/L			08/22/19 11:06	1
o-Xylene	ND		5.0		ug/L			08/22/19 11:06	1
Styrene	ND		5.0		ug/L			08/22/19 11:06	1
Tetrachloroethene	ND		5.0		ug/L			08/22/19 11:06	1
Tetrahydrofuran	ND		10		ug/L			08/22/19 11:06	1
Toluene	ND		5.0		ug/L			08/22/19 11:06	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/22/19 11:06	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/22/19 11:06	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/22/19 11:06	1
Trichloroethene	ND		5.0		ug/L			08/22/19 11:06	1
Trichlorofluoromethane	ND		5.0		ug/L			08/22/19 11:06	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-488279/7
Matrix: Water
Analysis Batch: 488279

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl acetate	ND		50		ug/L			08/22/19 11:06	1
Vinyl chloride	ND		5.0		ug/L			08/22/19 11:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*77 - 120*		*08/22/19 11:06*	*1*
4-Bromofluorobenzene (Surr)	*100*		*73 - 120*		*08/22/19 11:06*	*1*
Toluene-d8 (Surr)	*99*		*80 - 120*		*08/22/19 11:06*	*1*

Lab Sample ID: LCS 480-488279/5
Matrix: Water
Analysis Batch: 488279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	25.1		ug/L		101	80 - 120
1,1,1-Trichloroethane	25.0	28.6		ug/L		114	73 - 126
1,1,2,2-Tetrachloroethane	25.0	26.0		ug/L		104	76 - 120
1,1,2-Trichloroethane	25.0	24.9		ug/L		100	76 - 122
1,1-Dichloroethane	25.0	26.7		ug/L		107	77 - 120
1,1-Dichloroethene	25.0	27.8		ug/L		111	66 - 127
1,2,3-Trichloropropane	25.0	25.0		ug/L		100	68 - 122
1,2-Dibromo-3-Chloropropane	25.0	25.4		ug/L		102	56 - 134
1,2-Dibromoethane	25.0	26.4		ug/L		105	77 - 120
1,2-Dichlorobenzene	25.0	26.0		ug/L		104	80 - 124
1,2-Dichloroethane	25.0	26.6		ug/L		106	75 - 120
1,2-Dichloropropane	25.0	27.5		ug/L		110	76 - 120
1,4-Dichlorobenzene	25.0	25.4		ug/L		101	80 - 120
1,4-Dioxane	500	615		ug/L		123	50 - 150
2-Butanone (MEK)	125	144		ug/L		115	57 - 140
2-Hexanone	125	139		ug/L		111	65 - 127
4-Methyl-2-pentanone (MIBK)	125	137		ug/L		110	71 - 125
Acetone	125	133		ug/L		107	56 - 142
Benzene	25.0	26.7		ug/L		107	71 - 124
Bromochloromethane	25.0	26.6		ug/L		106	72 - 130
Bromodichloromethane	25.0	27.7		ug/L		111	80 - 122
Bromoform	25.0	26.7		ug/L		107	61 - 132
Bromomethane	25.0	25.6		ug/L		102	55 - 144
Carbon disulfide	25.0	29.0		ug/L		116	59 - 134
Carbon tetrachloride	25.0	28.0		ug/L		112	72 - 134
Chlorobenzene	25.0	25.4		ug/L		102	80 - 120
Chloroethane	25.0	25.9		ug/L		104	69 - 136
Chloroform	25.0	25.4		ug/L		101	73 - 127
Chloromethane	25.0	28.7		ug/L		115	68 - 124
cis-1,2-Dichloroethene	25.0	26.3		ug/L		105	74 - 124
cis-1,3-Dichloropropene	25.0	27.9		ug/L		112	74 - 124
Dibromochloromethane	25.0	26.2		ug/L		105	75 - 125
Dibromomethane	25.0	26.8		ug/L		107	76 - 127
Ethylbenzene	25.0	25.9		ug/L		103	77 - 123
Iodomethane	25.0	27.6		ug/L		110	78 - 123

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-488279/5
Matrix: Water
Analysis Batch: 488279

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
m,p-Xylene	25.0	27.3		ug/L		109	76 - 122
Methylene Chloride	25.0	25.3		ug/L		101	75 - 124
o-Xylene	25.0	26.1		ug/L		104	76 - 122
Styrene	25.0	26.9		ug/L		108	80 - 120
Tetrachloroethene	25.0	26.4		ug/L		106	74 - 122
Tetrahydrofuran	50.0	56.4		ug/L		113	62 - 132
Toluene	25.0	26.5		ug/L		106	80 - 122
trans-1,2-Dichloroethene	25.0	27.3		ug/L		109	73 - 127
trans-1,3-Dichloropropene	25.0	26.7		ug/L		107	80 - 120
trans-1,4-Dichloro-2-butene	25.0	26.1		ug/L		104	41 - 131
Trichloroethene	25.0	26.7		ug/L		107	74 - 123
Trichlorofluoromethane	25.0	26.1		ug/L		105	62 - 150
Vinyl acetate	50.0	55.7		ug/L		111	50 - 144
Vinyl chloride	25.0	27.4		ug/L		109	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*77 - 120*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*
Toluene-d8 (Surr)	*97*		*80 - 120*

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488279

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	ND		25.0	25.1		ug/L		100	80 - 120
1,1,1-Trichloroethane	ND		25.0	29.1		ug/L		116	73 - 126
1,1,2,2-Tetrachloroethane	ND		25.0	25.1		ug/L		100	76 - 120
1,1,2-Trichloroethane	ND		25.0	26.6		ug/L		106	76 - 122
1,1-Dichloroethane	ND		25.0	27.8		ug/L		111	77 - 120
1,1-Dichloroethene	ND		25.0	29.0		ug/L		116	66 - 127
1,2,3-Trichloropropane	ND		25.0	24.3		ug/L		97	68 - 122
1,2-Dibromo-3-Chloropropane	ND		25.0	23.5		ug/L		94	56 - 134
1,2-Dibromoethane	ND		25.0	26.6		ug/L		107	77 - 120
1,2-Dichlorobenzene	ND		25.0	24.3		ug/L		97	80 - 124
1,2-Dichloroethane	ND		25.0	27.6		ug/L		110	75 - 120
1,2-Dichloropropane	ND		25.0	27.9		ug/L		111	76 - 120
1,4-Dichlorobenzene	ND		25.0	24.3		ug/L		97	78 - 124
1,4-Dioxane	ND		500	666		ug/L		133	50 - 150
2-Butanone (MEK)	ND		125	145		ug/L		116	57 - 140
2-Hexanone	ND		125	142		ug/L		113	65 - 127
4-Methyl-2-pentanone (MIBK)	ND		125	141		ug/L		113	71 - 125
Acetone	ND		125	128		ug/L		102	56 - 142
Benzene	ND		25.0	27.5		ug/L		110	71 - 124
Bromochloromethane	ND		25.0	27.4		ug/L		110	72 - 130
Bromodichloromethane	ND		25.0	28.1		ug/L		112	80 - 122
Bromoform	ND		25.0	24.3		ug/L		97	61 - 132
Bromomethane	ND		25.0	27.1		ug/L		108	55 - 144

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488279

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon disulfide	ND		25.0	28.9		ug/L		116	59 - 134
Carbon tetrachloride	ND		25.0	27.8		ug/L		111	72 - 134
Chlorobenzene	ND		25.0	26.2		ug/L		105	80 - 120
Chloroethane	ND		25.0	27.5		ug/L		110	69 - 136
Chloroform	ND		25.0	25.9		ug/L		104	73 - 127
Chloromethane	ND	F1	25.0	30.5		ug/L		122	68 - 124
cis-1,2-Dichloroethene	ND		25.0	27.6		ug/L		110	74 - 124
cis-1,3-Dichloropropene	ND		25.0	26.9		ug/L		108	74 - 124
Dibromochloromethane	ND		25.0	25.1		ug/L		100	75 - 125
Dibromomethane	ND		25.0	27.6		ug/L		110	76 - 127
Ethylbenzene	ND		25.0	26.0		ug/L		104	77 - 123
Iodomethane	ND		25.0	28.3		ug/L		113	78 - 123
m,p-Xylene	ND		25.0	26.5		ug/L		106	76 - 122
Methylene Chloride	ND		25.0	26.0		ug/L		104	75 - 124
o-Xylene	ND		25.0	26.6		ug/L		106	76 - 122
Styrene	ND		25.0	27.3		ug/L		109	80 - 120
Tetrachloroethene	ND		25.0	26.6		ug/L		106	74 - 122
Tetrahydrofuran	ND		50.0	57.6		ug/L		115	62 - 132
Toluene	ND		25.0	27.1		ug/L		108	80 - 122
trans-1,2-Dichloroethene	ND		25.0	28.6		ug/L		114	73 - 127
trans-1,3-Dichloropropene	ND		25.0	25.9		ug/L		104	80 - 120
trans-1,4-Dichloro-2-butene	ND		25.0	20.0		ug/L		80	41 - 131
Trichloroethene	ND		25.0	26.8		ug/L		107	74 - 123
Trichlorofluoromethane	ND		25.0	26.6		ug/L		106	62 - 150
Vinyl acetate	ND		50.0	54.1		ug/L		108	50 - 144
Vinyl chloride	ND		25.0	29.1		ug/L		116	65 - 133

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488279

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	ND		25.0	26.0		ug/L		104	80 - 120	4	20
1,1,1-Trichloroethane	ND		25.0	30.4		ug/L		122	73 - 126	4	15
1,1,2,2-Tetrachloroethane	ND		25.0	26.6		ug/L		106	76 - 120	6	15
1,1,2-Trichloroethane	ND		25.0	26.3		ug/L		105	76 - 122	1	15
1,1-Dichloroethane	ND		25.0	28.4		ug/L		114	77 - 120	2	20
1,1-Dichloroethene	ND		25.0	29.5		ug/L		118	66 - 127	1	16
1,2,3-Trichloropropane	ND		25.0	25.1		ug/L		100	68 - 122	3	14
1,2-Dibromo-3-Chloropropane	ND		25.0	26.2		ug/L		105	56 - 134	11	15
1,2-Dibromoethane	ND		25.0	27.5		ug/L		110	77 - 120	3	15
1,2-Dichlorobenzene	ND		25.0	25.9		ug/L		104	80 - 124	6	20
1,2-Dichloroethane	ND		25.0	28.0		ug/L		112	75 - 120	1	20

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488279

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichloropropane	ND		25.0	27.8		ug/L		111	76 - 120	0	20
1,4-Dichlorobenzene	ND		25.0	25.8		ug/L		103	78 - 124	6	20
1,4-Dioxane	ND		500	676		ug/L		135	50 - 150	1	20
2-Butanone (MEK)	ND		125	144		ug/L		115	57 - 140	1	20
2-Hexanone	ND		125	141		ug/L		113	65 - 127	1	15
4-Methyl-2-pentanone (MIBK)	ND		125	144		ug/L		115	71 - 125	2	35
Acetone	ND		125	129		ug/L		103	56 - 142	1	15
Benzene	ND		25.0	28.0		ug/L		112	71 - 124	2	13
Bromochloromethane	ND		25.0	27.8		ug/L		111	72 - 130	1	15
Bromodichloromethane	ND		25.0	28.3		ug/L		113	80 - 122	1	15
Bromoform	ND		25.0	24.4		ug/L		98	61 - 132	0	15
Bromomethane	ND		25.0	29.0		ug/L		116	55 - 144	7	15
Carbon disulfide	ND		25.0	30.7		ug/L		123	59 - 134	6	15
Carbon tetrachloride	ND		25.0	29.5		ug/L		118	72 - 134	6	15
Chlorobenzene	ND		25.0	26.1		ug/L		105	80 - 120	0	25
Chloroethane	ND		25.0	30.8		ug/L		123	69 - 136	11	15
Chloroform	ND		25.0	26.3		ug/L		105	73 - 127	2	20
Chloromethane	ND	F1	25.0	32.6	F1	ug/L		131	68 - 124	7	15
cis-1,2-Dichloroethene	ND		25.0	28.3		ug/L		113	74 - 124	2	15
cis-1,3-Dichloropropene	ND		25.0	27.8		ug/L		111	74 - 124	3	15
Dibromochloromethane	ND		25.0	25.1		ug/L		100	75 - 125	0	15
Dibromomethane	ND		25.0	28.0		ug/L		112	76 - 127	2	15
Ethylbenzene	ND		25.0	26.3		ug/L		105	77 - 123	1	15
Iodomethane	ND		25.0	29.5		ug/L		118	78 - 123	4	20
m,p-Xylene	ND		25.0	27.3		ug/L		109	76 - 122	3	16
Methylene Chloride	ND		25.0	26.4		ug/L		105	75 - 124	1	15
o-Xylene	ND		25.0	27.0		ug/L		108	76 - 122	2	16
Styrene	ND		25.0	27.7		ug/L		111	80 - 120	1	20
Tetrachloroethene	ND		25.0	27.6		ug/L		110	74 - 122	4	20
Tetrahydrofuran	ND		50.0	60.0		ug/L		120	62 - 132	4	25
Toluene	ND		25.0	26.5		ug/L		106	80 - 122	2	15
trans-1,2-Dichloroethene	ND		25.0	28.4		ug/L		114	73 - 127	1	20
trans-1,3-Dichloropropene	ND		25.0	26.2		ug/L		105	80 - 120	1	15
trans-1,4-Dichloro-2-butene	ND		25.0	20.9		ug/L		84	41 - 131	4	20
Trichloroethene	ND		25.0	27.4		ug/L		109	74 - 123	2	16
Trichlorofluoromethane	ND		25.0	29.6		ug/L		118	62 - 150	11	20
Vinyl acetate	ND		50.0	53.9		ug/L		108	50 - 144	0	23
Vinyl chloride	ND		25.0	32.3		ug/L		129	65 - 133	10	15

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*
4-Bromofluorobenzene (Surr)	*93*		*73 - 120*
Toluene-d8 (Surr)	*98*		*80 - 120*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-488663/7
Matrix: Water
Analysis Batch: 488663

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/24/19 13:49	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/24/19 13:49	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/24/19 13:49	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/24/19 13:49	1
1,1-Dichloroethane	ND		5.0		ug/L			08/24/19 13:49	1
1,1-Dichloroethene	ND		5.0		ug/L			08/24/19 13:49	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/24/19 13:49	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/24/19 13:49	1
1,2-Dibromoethane	ND		5.0		ug/L			08/24/19 13:49	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/24/19 13:49	1
1,2-Dichloroethane	ND		5.0		ug/L			08/24/19 13:49	1
1,2-Dichloropropane	ND		5.0		ug/L			08/24/19 13:49	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/24/19 13:49	1
1,4-Dioxane	ND		50		ug/L			08/24/19 13:49	1
2-Butanone (MEK)	ND		5.0		ug/L			08/24/19 13:49	1
2-Hexanone	ND		10		ug/L			08/24/19 13:49	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/24/19 13:49	1
Acetone	ND		5.0		ug/L			08/24/19 13:49	1
Acetonitrile	ND		100		ug/L			08/24/19 13:49	1
Benzene	ND		5.0		ug/L			08/24/19 13:49	1
Bromochloromethane	ND		5.0		ug/L			08/24/19 13:49	1
Bromodichloromethane	ND		5.0		ug/L			08/24/19 13:49	1
Bromoform	ND		5.0		ug/L			08/24/19 13:49	1
Bromomethane	ND		5.0		ug/L			08/24/19 13:49	1
Carbon disulfide	ND		5.0		ug/L			08/24/19 13:49	1
Carbon tetrachloride	ND		5.0		ug/L			08/24/19 13:49	1
Chlorobenzene	ND		5.0		ug/L			08/24/19 13:49	1
Chloroethane	ND		5.0		ug/L			08/24/19 13:49	1
Chloroform	ND		5.0		ug/L			08/24/19 13:49	1
Chloromethane	ND		5.0		ug/L			08/24/19 13:49	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/24/19 13:49	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/24/19 13:49	1
Dibromochloromethane	ND		5.0		ug/L			08/24/19 13:49	1
Dibromomethane	ND		5.0		ug/L			08/24/19 13:49	1
Ethylbenzene	ND		5.0		ug/L			08/24/19 13:49	1
Iodomethane	ND		5.0		ug/L			08/24/19 13:49	1
m,p-Xylene	ND		5.0		ug/L			08/24/19 13:49	1
Methylene Chloride	ND		5.0		ug/L			08/24/19 13:49	1
o-Xylene	ND		5.0		ug/L			08/24/19 13:49	1
Styrene	ND		5.0		ug/L			08/24/19 13:49	1
Tetrachloroethene	ND		5.0		ug/L			08/24/19 13:49	1
Tetrahydrofuran	ND		10		ug/L			08/24/19 13:49	1
Toluene	ND		5.0		ug/L			08/24/19 13:49	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/24/19 13:49	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/24/19 13:49	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/24/19 13:49	1
Trichloroethene	ND		5.0		ug/L			08/24/19 13:49	1
Trichlorofluoromethane	ND		5.0		ug/L			08/24/19 13:49	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-488663/7
Matrix: Water
Analysis Batch: 488663

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl acetate	ND		50		ug/L			08/24/19 13:49	1
Vinyl chloride	ND		5.0		ug/L			08/24/19 13:49	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*84*		*77 - 120*		*08/24/19 13:49*	*1*
4-Bromofluorobenzene (Surr)	*111*		*73 - 120*		*08/24/19 13:49*	*1*
Toluene-d8 (Surr)	*89*		*80 - 120*		*08/24/19 13:49*	*1*

Lab Sample ID: LCS 480-488663/5
Matrix: Water
Analysis Batch: 488663

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	23.7		ug/L		95	80 - 120
1,1,1-Trichloroethane	25.0	23.8		ug/L		95	73 - 126
1,1,2,2-Tetrachloroethane	25.0	23.6		ug/L		94	76 - 120
1,1,2-Trichloroethane	25.0	24.1		ug/L		96	76 - 122
1,1-Dichloroethane	25.0	23.4		ug/L		93	77 - 120
1,1-Dichloroethene	25.0	22.9		ug/L		91	66 - 127
1,2,3-Trichloropropane	25.0	23.3		ug/L		93	68 - 122
1,2-Dibromo-3-Chloropropane	25.0	20.4		ug/L		82	56 - 134
1,2-Dibromoethane	25.0	25.3		ug/L		101	77 - 120
1,2-Dichlorobenzene	25.0	23.1		ug/L		92	80 - 124
1,2-Dichloroethane	25.0	23.5		ug/L		94	75 - 120
1,2-Dichloropropane	25.0	24.9		ug/L		100	76 - 120
1,4-Dichlorobenzene	25.0	22.6		ug/L		91	80 - 120
1,4-Dioxane	500	553		ug/L		111	50 - 150
2-Butanone (MEK)	125	144		ug/L		115	57 - 140
2-Hexanone	125	129		ug/L		103	65 - 127
4-Methyl-2-pentanone (MIBK)	125	131		ug/L		105	71 - 125
Acetone	125	148		ug/L		118	56 - 142
Benzene	25.0	23.9		ug/L		96	71 - 124
Bromochloromethane	25.0	25.2		ug/L		101	72 - 130
Bromodichloromethane	25.0	24.9		ug/L		100	80 - 122
Bromoform	25.0	26.4		ug/L		106	61 - 132
Bromomethane	25.0	20.9		ug/L		83	55 - 144
Carbon disulfide	25.0	23.3		ug/L		93	59 - 134
Carbon tetrachloride	25.0	23.7		ug/L		95	72 - 134
Chlorobenzene	25.0	23.8		ug/L		95	80 - 120
Chloroethane	25.0	21.1		ug/L		85	69 - 136
Chloroform	25.0	22.5		ug/L		90	73 - 127
Chloromethane	25.0	21.5		ug/L		86	68 - 124
cis-1,2-Dichloroethene	25.0	24.5		ug/L		98	74 - 124
cis-1,3-Dichloropropene	25.0	25.4		ug/L		101	74 - 124
Dibromochloromethane	25.0	25.8		ug/L		103	75 - 125
Dibromomethane	25.0	24.5		ug/L		98	76 - 127
Ethylbenzene	25.0	23.8		ug/L		95	77 - 123
Iodomethane	25.0	23.4		ug/L		94	78 - 123

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-488663/5
Matrix: Water
Analysis Batch: 488663

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
m,p-Xylene	25.0	24.8		ug/L		99	76 - 122
Methylene Chloride	25.0	23.3		ug/L		93	75 - 124
o-Xylene	25.0	24.3		ug/L		97	76 - 122
Styrene	25.0	25.3		ug/L		101	80 - 120
Tetrachloroethene	25.0	23.8		ug/L		95	74 - 122
Tetrahydrofuran	50.0	56.3		ug/L		113	62 - 132
Toluene	25.0	23.6		ug/L		94	80 - 122
trans-1,2-Dichloroethene	25.0	23.3		ug/L		93	73 - 127
trans-1,3-Dichloropropene	25.0	25.7		ug/L		103	80 - 120
trans-1,4-Dichloro-2-butene	25.0	17.8		ug/L		71	41 - 131
Trichloroethene	25.0	23.2		ug/L		93	74 - 123
Trichlorofluoromethane	25.0	20.3		ug/L		81	62 - 150
Vinyl acetate	50.0	54.8		ug/L		110	50 - 144
Vinyl chloride	25.0	21.2		ug/L		85	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*86*		*77 - 120*
4-Bromofluorobenzene (Surr)	*110*		*73 - 120*
Toluene-d8 (Surr)	*91*		*80 - 120*

Lab Sample ID: MB 480-489143/7
Matrix: Water
Analysis Batch: 489143

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			08/28/19 10:46	1
1,1,1-Trichloroethane	ND		5.0		ug/L			08/28/19 10:46	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			08/28/19 10:46	1
1,1,2-Trichloroethane	ND		5.0		ug/L			08/28/19 10:46	1
1,1-Dichloroethane	ND		5.0		ug/L			08/28/19 10:46	1
1,1-Dichloroethene	ND		5.0		ug/L			08/28/19 10:46	1
1,2,3-Trichloropropane	ND		5.0		ug/L			08/28/19 10:46	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			08/28/19 10:46	1
1,2-Dibromoethane	ND		5.0		ug/L			08/28/19 10:46	1
1,2-Dichlorobenzene	ND		5.0		ug/L			08/28/19 10:46	1
1,2-Dichloroethane	ND		5.0		ug/L			08/28/19 10:46	1
1,2-Dichloropropane	ND		5.0		ug/L			08/28/19 10:46	1
1,4-Dichlorobenzene	ND		5.0		ug/L			08/28/19 10:46	1
1,4-Dioxane	ND		50		ug/L			08/28/19 10:46	1
2-Butanone (MEK)	ND		5.0		ug/L			08/28/19 10:46	1
2-Hexanone	ND		10		ug/L			08/28/19 10:46	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			08/28/19 10:46	1
Acetone	ND		5.0		ug/L			08/28/19 10:46	1
Acetonitrile	ND		100		ug/L			08/28/19 10:46	1
Benzene	ND		5.0		ug/L			08/28/19 10:46	1
Bromochloromethane	ND		5.0		ug/L			08/28/19 10:46	1
Bromodichloromethane	ND		5.0		ug/L			08/28/19 10:46	1
Bromoform	ND		5.0		ug/L			08/28/19 10:46	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-489143/7
Matrix: Water
Analysis Batch: 489143

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		5.0		ug/L			08/28/19 10:46	1
Carbon disulfide	ND		5.0		ug/L			08/28/19 10:46	1
Carbon tetrachloride	ND		5.0		ug/L			08/28/19 10:46	1
Chlorobenzene	ND		5.0		ug/L			08/28/19 10:46	1
Chloroethane	ND		5.0		ug/L			08/28/19 10:46	1
Chloroform	ND		5.0		ug/L			08/28/19 10:46	1
Chloromethane	ND		5.0		ug/L			08/28/19 10:46	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			08/28/19 10:46	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			08/28/19 10:46	1
Dibromochloromethane	ND		5.0		ug/L			08/28/19 10:46	1
Dibromomethane	ND		5.0		ug/L			08/28/19 10:46	1
Ethylbenzene	ND		5.0		ug/L			08/28/19 10:46	1
Iodomethane	ND		5.0		ug/L			08/28/19 10:46	1
m,p-Xylene	ND		5.0		ug/L			08/28/19 10:46	1
Methylene Chloride	ND		5.0		ug/L			08/28/19 10:46	1
o-Xylene	ND		5.0		ug/L			08/28/19 10:46	1
Styrene	ND		5.0		ug/L			08/28/19 10:46	1
Tetrachloroethene	ND		5.0		ug/L			08/28/19 10:46	1
Tetrahydrofuran	ND		10		ug/L			08/28/19 10:46	1
Toluene	ND		5.0		ug/L			08/28/19 10:46	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			08/28/19 10:46	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			08/28/19 10:46	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			08/28/19 10:46	1
Trichloroethene	ND		5.0		ug/L			08/28/19 10:46	1
Trichlorofluoromethane	ND		5.0		ug/L			08/28/19 10:46	1
Vinyl acetate	ND		50		ug/L			08/28/19 10:46	1
Vinyl chloride	ND		5.0		ug/L			08/28/19 10:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*77 - 120*		*08/28/19 10:46*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*08/28/19 10:46*	*1*
Toluene-d8 (Surr)	*95*		*80 - 120*		*08/28/19 10:46*	*1*

Lab Sample ID: LCS 480-489143/5
Matrix: Water
Analysis Batch: 489143

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	23.7		ug/L		95	80 - 120
1,1,1-Trichloroethane	25.0	26.0		ug/L		104	73 - 126
1,1,2,2-Tetrachloroethane	25.0	22.9		ug/L		92	76 - 120
1,1,2-Trichloroethane	25.0	23.0		ug/L		92	76 - 122
1,1-Dichloroethane	25.0	24.5		ug/L		98	77 - 120
1,1-Dichloroethene	25.0	27.3		ug/L		109	66 - 127
1,2,3-Trichloropropane	25.0	23.7		ug/L		95	68 - 122
1,2-Dibromo-3-Chloropropane	25.0	22.4		ug/L		90	56 - 134
1,2-Dibromoethane	25.0	23.5		ug/L		94	77 - 120
1,2-Dichlorobenzene	25.0	25.0		ug/L		100	80 - 124

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-489143/5
Matrix: Water
Analysis Batch: 489143

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	25.0	23.9		ug/L		96	75 - 120
1,2-Dichloropropane	25.0	24.2		ug/L		97	76 - 120
1,4-Dichlorobenzene	25.0	24.5		ug/L		98	80 - 120
1,4-Dioxane	500	408		ug/L		82	50 - 150
2-Butanone (MEK)	125	115		ug/L		92	57 - 140
2-Hexanone	125	109		ug/L		87	65 - 127
4-Methyl-2-pentanone (MIBK)	125	106		ug/L		85	71 - 125
Acetone	125	121		ug/L		97	56 - 142
Benzene	25.0	24.5		ug/L		98	71 - 124
Bromochloromethane	25.0	25.5		ug/L		102	72 - 130
Bromodichloromethane	25.0	24.7		ug/L		99	80 - 122
Bromoform	25.0	26.0		ug/L		104	61 - 132
Bromomethane	25.0	28.5		ug/L		114	55 - 144
Carbon disulfide	25.0	24.8		ug/L		99	59 - 134
Carbon tetrachloride	25.0	26.0		ug/L		104	72 - 134
Chlorobenzene	25.0	22.9		ug/L		92	80 - 120
Chloroethane	25.0	30.7		ug/L		123	69 - 136
Chloroform	25.0	24.1		ug/L		96	73 - 127
Chloromethane	25.0	26.4		ug/L		106	68 - 124
cis-1,2-Dichloroethene	25.0	24.4		ug/L		98	74 - 124
cis-1,3-Dichloropropene	25.0	24.3		ug/L		97	74 - 124
Dibromochloromethane	25.0	24.5		ug/L		98	75 - 125
Dibromomethane	25.0	24.6		ug/L		98	76 - 127
Ethylbenzene	25.0	22.9		ug/L		92	77 - 123
Iodomethane	25.0	26.1		ug/L		104	78 - 123
m,p-Xylene	25.0	23.1		ug/L		92	76 - 122
Methylene Chloride	25.0	24.5		ug/L		98	75 - 124
o-Xylene	25.0	23.3		ug/L		93	76 - 122
Styrene	25.0	23.2		ug/L		93	80 - 120
Tetrachloroethene	25.0	24.8		ug/L		99	74 - 122
Tetrahydrofuran	50.0	42.5		ug/L		85	62 - 132
Toluene	25.0	22.8		ug/L		91	80 - 122
trans-1,2-Dichloroethene	25.0	25.3		ug/L		101	73 - 127
trans-1,3-Dichloropropene	25.0	22.8		ug/L		91	80 - 120
trans-1,4-Dichloro-2-butene	25.0	20.1		ug/L		80	41 - 131
Trichloroethene	25.0	25.4		ug/L		102	74 - 123
Trichlorofluoromethane	25.0	31.0		ug/L		124	62 - 150
Vinyl acetate	50.0	43.4	J	ug/L		87	50 - 144
Vinyl chloride	25.0	28.8		ug/L		115	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*77 - 120*
4-Bromofluorobenzene (Surr)	*103*		*73 - 120*
Toluene-d8 (Surr)	*95*		*80 - 120*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-491215/8
Matrix: Water
Analysis Batch: 491215

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/10/19 23:27	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/10/19 23:27	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/10/19 23:27	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/10/19 23:27	1
1,1-Dichloroethane	ND		5.0		ug/L			09/10/19 23:27	1
1,1-Dichloroethene	ND		5.0		ug/L			09/10/19 23:27	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/10/19 23:27	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/10/19 23:27	1
1,2-Dibromoethane	ND		5.0		ug/L			09/10/19 23:27	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/10/19 23:27	1
1,2-Dichloroethane	ND		5.0		ug/L			09/10/19 23:27	1
1,2-Dichloropropane	ND		5.0		ug/L			09/10/19 23:27	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/10/19 23:27	1
1,4-Dioxane	ND		50		ug/L			09/10/19 23:27	1
2-Butanone (MEK)	ND		5.0		ug/L			09/10/19 23:27	1
2-Hexanone	ND		10		ug/L			09/10/19 23:27	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/10/19 23:27	1
Acetone	ND		5.0		ug/L			09/10/19 23:27	1
Acetonitrile	ND		100		ug/L			09/10/19 23:27	1
Benzene	ND		5.0		ug/L			09/10/19 23:27	1
Bromochloromethane	ND		5.0		ug/L			09/10/19 23:27	1
Bromodichloromethane	ND		5.0		ug/L			09/10/19 23:27	1
Bromoform	ND		5.0		ug/L			09/10/19 23:27	1
Bromomethane	ND		5.0		ug/L			09/10/19 23:27	1
Carbon disulfide	ND		5.0		ug/L			09/10/19 23:27	1
Carbon tetrachloride	ND		5.0		ug/L			09/10/19 23:27	1
Chlorobenzene	ND		5.0		ug/L			09/10/19 23:27	1
Chloroethane	ND		5.0		ug/L			09/10/19 23:27	1
Chloroform	ND		5.0		ug/L			09/10/19 23:27	1
Chloromethane	ND		5.0		ug/L			09/10/19 23:27	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/10/19 23:27	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/10/19 23:27	1
Dibromochloromethane	ND		5.0		ug/L			09/10/19 23:27	1
Dibromomethane	ND		5.0		ug/L			09/10/19 23:27	1
Ethylbenzene	ND		5.0		ug/L			09/10/19 23:27	1
Iodomethane	ND		5.0		ug/L			09/10/19 23:27	1
m,p-Xylene	ND		5.0		ug/L			09/10/19 23:27	1
Methylene Chloride	ND		5.0		ug/L			09/10/19 23:27	1
o-Xylene	ND		5.0		ug/L			09/10/19 23:27	1
Styrene	ND		5.0		ug/L			09/10/19 23:27	1
Tetrachloroethene	ND		5.0		ug/L			09/10/19 23:27	1
Tetrahydrofuran	ND		10		ug/L			09/10/19 23:27	1
Toluene	ND		5.0		ug/L			09/10/19 23:27	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/10/19 23:27	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/10/19 23:27	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/10/19 23:27	1
Trichloroethene	ND		5.0		ug/L			09/10/19 23:27	1
Trichlorofluoromethane	ND		5.0		ug/L			09/10/19 23:27	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-491215/8
Matrix: Water
Analysis Batch: 491215

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl acetate	ND		50		ug/L			09/10/19 23:27	1
Vinyl chloride	ND		5.0		ug/L			09/10/19 23:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*77 - 120*		*09/10/19 23:27*	*1*
4-Bromofluorobenzene (Surr)	*93*		*73 - 120*		*09/10/19 23:27*	*1*
Toluene-d8 (Surr)	*89*		*80 - 120*		*09/10/19 23:27*	*1*

Lab Sample ID: LCS 480-491215/6
Matrix: Water
Analysis Batch: 491215

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	23.9		ug/L		96	80 - 120
1,1,1-Trichloroethane	25.0	24.3		ug/L		97	73 - 126
1,1,2,2-Tetrachloroethane	25.0	22.4		ug/L		90	76 - 120
1,1,2-Trichloroethane	25.0	22.0		ug/L		88	76 - 122
1,1-Dichloroethane	25.0	24.2		ug/L		97	77 - 120
1,1-Dichloroethene	25.0	24.8		ug/L		99	66 - 127
1,2,3-Trichloropropane	25.0	22.9		ug/L		92	68 - 122
1,2-Dibromo-3-Chloropropane	25.0	23.8		ug/L		95	56 - 134
1,2-Dibromoethane	25.0	22.2		ug/L		89	77 - 120
1,2-Dichlorobenzene	25.0	23.3		ug/L		93	80 - 124
1,2-Dichloroethane	25.0	22.4		ug/L		90	75 - 120
1,2-Dichloropropane	25.0	23.7		ug/L		95	76 - 120
1,4-Dichlorobenzene	25.0	22.6		ug/L		90	80 - 120
1,4-Dioxane	500	749		ug/L		150	50 - 150
2-Butanone (MEK)	125	134		ug/L		107	57 - 140
2-Hexanone	125	121		ug/L		97	65 - 127
4-Methyl-2-pentanone (MIBK)	125	121		ug/L		97	71 - 125
Acetone	125	169		ug/L		135	56 - 142
Benzene	25.0	23.3		ug/L		93	71 - 124
Bromochloromethane	25.0	25.2		ug/L		101	72 - 130
Bromodichloromethane	25.0	22.8		ug/L		91	80 - 122
Bromoform	25.0	23.5		ug/L		94	61 - 132
Bromomethane	25.0	25.4		ug/L		101	55 - 144
Carbon disulfide	25.0	24.3		ug/L		97	59 - 134
Carbon tetrachloride	25.0	25.4		ug/L		102	72 - 134
Chlorobenzene	25.0	22.4		ug/L		89	80 - 120
Chloroethane	25.0	25.1		ug/L		100	69 - 136
Chloroform	25.0	21.9		ug/L		88	73 - 127
Chloromethane	25.0	25.6		ug/L		102	68 - 124
cis-1,2-Dichloroethene	25.0	24.0		ug/L		96	74 - 124
cis-1,3-Dichloropropene	25.0	21.9		ug/L		88	74 - 124
Dibromochloromethane	25.0	22.4		ug/L		90	75 - 125
Dibromomethane	25.0	23.5		ug/L		94	76 - 127
Ethylbenzene	25.0	22.0		ug/L		88	77 - 123
Iodomethane	25.0	24.6		ug/L		99	78 - 123

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-491215/6
Matrix: Water
Analysis Batch: 491215

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
m,p-Xylene	25.0	22.8		ug/L		91	76 - 122
Methylene Chloride	25.0	24.9		ug/L		100	75 - 124
o-Xylene	25.0	22.8		ug/L		91	76 - 122
Styrene	25.0	23.2		ug/L		93	80 - 120
Tetrachloroethene	25.0	24.1		ug/L		96	74 - 122
Tetrahydrofuran	50.0	52.5		ug/L		105	62 - 132
Toluene	25.0	21.7		ug/L		87	80 - 122
trans-1,2-Dichloroethene	25.0	24.5		ug/L		98	73 - 127
trans-1,3-Dichloropropene	25.0	20.9		ug/L		83	80 - 120
trans-1,4-Dichloro-2-butene	25.0	18.9		ug/L		75	41 - 131
Trichloroethene	25.0	23.8		ug/L		95	74 - 123
Trichlorofluoromethane	25.0	24.7		ug/L		99	62 - 150
Vinyl acetate	50.0	52.4		ug/L		105	50 - 144
Vinyl chloride	25.0	26.1		ug/L		105	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*77 - 120*
4-Bromofluorobenzene (Surr)	*97*		*73 - 120*
Toluene-d8 (Surr)	*92*		*80 - 120*

Lab Sample ID: MB 480-491707/9
Matrix: Water
Analysis Batch: 491707

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 14:53	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/12/19 14:53	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 14:53	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/12/19 14:53	1
1,1-Dichloroethane	ND		5.0		ug/L			09/12/19 14:53	1
1,1-Dichloroethene	ND		5.0		ug/L			09/12/19 14:53	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/12/19 14:53	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/12/19 14:53	1
1,2-Dibromoethane	ND		5.0		ug/L			09/12/19 14:53	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/12/19 14:53	1
1,2-Dichloroethane	ND		5.0		ug/L			09/12/19 14:53	1
1,2-Dichloropropane	ND		5.0		ug/L			09/12/19 14:53	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/12/19 14:53	1
1,4-Dioxane	ND		50		ug/L			09/12/19 14:53	1
2-Butanone (MEK)	ND		5.0		ug/L			09/12/19 14:53	1
2-Hexanone	ND		10		ug/L			09/12/19 14:53	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/12/19 14:53	1
Acetone	ND		5.0		ug/L			09/12/19 14:53	1
Acetonitrile	ND		100		ug/L			09/12/19 14:53	1
Benzene	ND		5.0		ug/L			09/12/19 14:53	1
Bromochloromethane	ND		5.0		ug/L			09/12/19 14:53	1
Bromodichloromethane	ND		5.0		ug/L			09/12/19 14:53	1
Bromoform	ND		5.0		ug/L			09/12/19 14:53	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-491707/9
Matrix: Water
Analysis Batch: 491707

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		5.0		ug/L			09/12/19 14:53	1
Carbon disulfide	ND		5.0		ug/L			09/12/19 14:53	1
Carbon tetrachloride	ND		5.0		ug/L			09/12/19 14:53	1
Chlorobenzene	ND		5.0		ug/L			09/12/19 14:53	1
Chloroethane	ND		5.0		ug/L			09/12/19 14:53	1
Chloroform	ND		5.0		ug/L			09/12/19 14:53	1
Chloromethane	ND		5.0		ug/L			09/12/19 14:53	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 14:53	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 14:53	1
Dibromochloromethane	ND		5.0		ug/L			09/12/19 14:53	1
Dibromomethane	ND		5.0		ug/L			09/12/19 14:53	1
Ethylbenzene	ND		5.0		ug/L			09/12/19 14:53	1
Iodomethane	ND		5.0		ug/L			09/12/19 14:53	1
m,p-Xylene	ND		5.0		ug/L			09/12/19 14:53	1
Methylene Chloride	ND		5.0		ug/L			09/12/19 14:53	1
o-Xylene	ND		5.0		ug/L			09/12/19 14:53	1
Styrene	ND		5.0		ug/L			09/12/19 14:53	1
Tetrachloroethene	ND		5.0		ug/L			09/12/19 14:53	1
Tetrahydrofuran	ND		10		ug/L			09/12/19 14:53	1
Toluene	ND		5.0		ug/L			09/12/19 14:53	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 14:53	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 14:53	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/12/19 14:53	1
Trichloroethene	ND		5.0		ug/L			09/12/19 14:53	1
Trichlorofluoromethane	ND		5.0		ug/L			09/12/19 14:53	1
Vinyl acetate	ND		50		ug/L			09/12/19 14:53	1
Vinyl chloride	ND		5.0		ug/L			09/12/19 14:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*77 - 120*		*09/12/19 14:53*	*1*
4-Bromofluorobenzene (Surr)	*90*		*73 - 120*		*09/12/19 14:53*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*09/12/19 14:53*	*1*

Lab Sample ID: LCS 480-491707/11
Matrix: Water
Analysis Batch: 491707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	21.9		ug/L		87	80 - 120
1,1,1-Trichloroethane	25.0	23.2		ug/L		93	73 - 126
1,1,2,2-Tetrachloroethane	25.0	21.9		ug/L		88	76 - 120
1,1,2-Trichloroethane	25.0	21.6		ug/L		86	76 - 122
1,1-Dichloroethane	25.0	22.8		ug/L		91	77 - 120
1,1-Dichloroethene	25.0	23.3		ug/L		93	66 - 127
1,2,3-Trichloropropane	25.0	22.2		ug/L		89	68 - 122
1,2-Dibromo-3-Chloropropane	25.0	22.4		ug/L		89	56 - 134
1,2-Dibromoethane	25.0	22.2		ug/L		89	77 - 120
1,2-Dichlorobenzene	25.0	22.0		ug/L		88	80 - 124

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-491707/11
Matrix: Water
Analysis Batch: 491707

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	25.0	20.7		ug/L		83	75 - 120
1,2-Dichloropropane	25.0	23.4		ug/L		94	76 - 120
1,4-Dichlorobenzene	25.0	21.6		ug/L		86	80 - 120
1,4-Dioxane	500	891	*	ug/L		178	50 - 150
2-Butanone (MEK)	125	139		ug/L		112	57 - 140
2-Hexanone	125	131		ug/L		104	65 - 127
4-Methyl-2-pentanone (MIBK)	125	118		ug/L		94	71 - 125
Acetone	125	168		ug/L		134	56 - 142
Benzene	25.0	22.9		ug/L		92	71 - 124
Bromochloromethane	25.0	23.5		ug/L		94	72 - 130
Bromodichloromethane	25.0	22.2		ug/L		89	80 - 122
Bromoform	25.0	22.0		ug/L		88	61 - 132
Bromomethane	25.0	22.1		ug/L		88	55 - 144
Carbon disulfide	25.0	22.6		ug/L		91	59 - 134
Carbon tetrachloride	25.0	24.4		ug/L		98	72 - 134
Chlorobenzene	25.0	22.5		ug/L		90	80 - 120
Chloroethane	25.0	23.2		ug/L		93	69 - 136
Chloroform	25.0	20.7		ug/L		83	73 - 127
Chloromethane	25.0	25.4		ug/L		102	68 - 124
cis-1,2-Dichloroethene	25.0	23.0		ug/L		92	74 - 124
cis-1,3-Dichloropropene	25.0	23.1		ug/L		92	74 - 124
Dibromochloromethane	25.0	22.3		ug/L		89	75 - 125
Dibromomethane	25.0	22.6		ug/L		90	76 - 127
Ethylbenzene	25.0	21.8		ug/L		87	77 - 123
Iodomethane	25.0	23.1		ug/L		92	78 - 123
m,p-Xylene	25.0	22.8		ug/L		91	76 - 122
Methylene Chloride	25.0	22.9		ug/L		92	75 - 124
o-Xylene	25.0	22.0		ug/L		88	76 - 122
Styrene	25.0	23.3		ug/L		93	80 - 120
Tetrachloroethene	25.0	23.1		ug/L		92	74 - 122
Tetrahydrofuran	50.0	52.2		ug/L		104	62 - 132
Toluene	25.0	21.3		ug/L		85	80 - 122
trans-1,2-Dichloroethene	25.0	23.5		ug/L		94	73 - 127
trans-1,3-Dichloropropene	25.0	21.3		ug/L		85	80 - 120
trans-1,4-Dichloro-2-butene	25.0	19.5		ug/L		78	41 - 131
Trichloroethene	25.0	23.6		ug/L		94	74 - 123
Trichlorofluoromethane	25.0	23.9		ug/L		96	62 - 150
Vinyl acetate	50.0	54.3		ug/L		109	50 - 144
Vinyl chloride	25.0	25.1		ug/L		100	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*92*		*77 - 120*
4-Bromofluorobenzene (Surr)	*95*		*73 - 120*
Toluene-d8 (Surr)	*96*		*80 - 120*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-491769/7
Matrix: Water
Analysis Batch: 491769

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 21:38	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/12/19 21:38	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/12/19 21:38	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/12/19 21:38	1
1,1-Dichloroethane	ND		5.0		ug/L			09/12/19 21:38	1
1,1-Dichloroethene	ND		5.0		ug/L			09/12/19 21:38	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/12/19 21:38	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/12/19 21:38	1
1,2-Dibromoethane	ND		5.0		ug/L			09/12/19 21:38	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/12/19 21:38	1
1,2-Dichloroethane	ND		5.0		ug/L			09/12/19 21:38	1
1,2-Dichloropropane	ND		5.0		ug/L			09/12/19 21:38	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/12/19 21:38	1
1,4-Dioxane	ND		50		ug/L			09/12/19 21:38	1
2-Butanone (MEK)	ND		5.0		ug/L			09/12/19 21:38	1
2-Hexanone	ND		10		ug/L			09/12/19 21:38	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/12/19 21:38	1
Acetone	ND		5.0		ug/L			09/12/19 21:38	1
Acetonitrile	ND		100		ug/L			09/12/19 21:38	1
Benzene	ND		5.0		ug/L			09/12/19 21:38	1
Bromochloromethane	ND		5.0		ug/L			09/12/19 21:38	1
Bromodichloromethane	ND		5.0		ug/L			09/12/19 21:38	1
Bromoform	ND		5.0		ug/L			09/12/19 21:38	1
Bromomethane	ND		5.0		ug/L			09/12/19 21:38	1
Carbon disulfide	ND		5.0		ug/L			09/12/19 21:38	1
Carbon tetrachloride	ND		5.0		ug/L			09/12/19 21:38	1
Chlorobenzene	ND		5.0		ug/L			09/12/19 21:38	1
Chloroethane	ND		5.0		ug/L			09/12/19 21:38	1
Chloroform	ND		5.0		ug/L			09/12/19 21:38	1
Chloromethane	ND		5.0		ug/L			09/12/19 21:38	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 21:38	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 21:38	1
Dibromochloromethane	ND		5.0		ug/L			09/12/19 21:38	1
Dibromomethane	ND		5.0		ug/L			09/12/19 21:38	1
Ethylbenzene	ND		5.0		ug/L			09/12/19 21:38	1
Iodomethane	ND		5.0		ug/L			09/12/19 21:38	1
m,p-Xylene	ND		5.0		ug/L			09/12/19 21:38	1
Methylene Chloride	ND		5.0		ug/L			09/12/19 21:38	1
o-Xylene	ND		5.0		ug/L			09/12/19 21:38	1
Styrene	ND		5.0		ug/L			09/12/19 21:38	1
Tetrachloroethene	ND		5.0		ug/L			09/12/19 21:38	1
Tetrahydrofuran	ND		10		ug/L			09/12/19 21:38	1
Toluene	ND		5.0		ug/L			09/12/19 21:38	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/12/19 21:38	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/12/19 21:38	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/12/19 21:38	1
Trichloroethene	ND		5.0		ug/L			09/12/19 21:38	1
Trichlorofluoromethane	ND		5.0		ug/L			09/12/19 21:38	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-491769/7
Matrix: Water
Analysis Batch: 491769

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl acetate	ND		50		ug/L			09/12/19 21:38	1
Vinyl chloride	ND		5.0		ug/L			09/12/19 21:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*107*		*77 - 120*		*09/12/19 21:38*	*1*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*		*09/12/19 21:38*	*1*
Toluene-d8 (Surr)	*94*		*80 - 120*		*09/12/19 21:38*	*1*

Lab Sample ID: LCS 480-491769/5
Matrix: Water
Analysis Batch: 491769

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	23.8		ug/L		95	80 - 120
1,1,1-Trichloroethane	25.0	25.0		ug/L		100	73 - 126
1,1,2,2-Tetrachloroethane	25.0	22.2		ug/L		89	76 - 120
1,1,2-Trichloroethane	25.0	22.6		ug/L		90	76 - 122
1,1-Dichloroethane	25.0	22.9		ug/L		92	77 - 120
1,1-Dichloroethene	25.0	26.3		ug/L		105	66 - 127
1,2,3-Trichloropropane	25.0	23.1		ug/L		92	68 - 122
1,2-Dibromo-3-Chloropropane	25.0	19.9		ug/L		80	56 - 134
1,2-Dibromoethane	25.0	23.6		ug/L		94	77 - 120
1,2-Dichlorobenzene	25.0	23.8		ug/L		95	80 - 124
1,2-Dichloroethane	25.0	24.1		ug/L		96	75 - 120
1,2-Dichloropropane	25.0	22.6		ug/L		91	76 - 120
1,4-Dichlorobenzene	25.0	23.4		ug/L		94	80 - 120
1,4-Dioxane	500	406		ug/L		81	50 - 150
2-Butanone (MEK)	125	98.9		ug/L		79	57 - 140
2-Hexanone	125	99.6		ug/L		80	65 - 127
4-Methyl-2-pentanone (MIBK)	125	97.8		ug/L		78	71 - 125
Acetone	125	112		ug/L		90	56 - 142
Benzene	25.0	23.7		ug/L		95	71 - 124
Bromochloromethane	25.0	25.4		ug/L		102	72 - 130
Bromodichloromethane	25.0	23.7		ug/L		95	80 - 122
Bromoform	25.0	24.2		ug/L		97	61 - 132
Bromomethane	25.0	29.4		ug/L		118	55 - 144
Carbon disulfide	25.0	22.5		ug/L		90	59 - 134
Carbon tetrachloride	25.0	25.0		ug/L		100	72 - 134
Chlorobenzene	25.0	22.9		ug/L		92	80 - 120
Chloroethane	25.0	32.0		ug/L		128	69 - 136
Chloroform	25.0	24.3		ug/L		97	73 - 127
Chloromethane	25.0	22.6		ug/L		90	68 - 124
cis-1,2-Dichloroethene	25.0	23.6		ug/L		94	74 - 124
cis-1,3-Dichloropropene	25.0	22.8		ug/L		91	74 - 124
Dibromochloromethane	25.0	23.8		ug/L		95	75 - 125
Dibromomethane	25.0	24.3		ug/L		97	76 - 127
Ethylbenzene	25.0	23.0		ug/L		92	77 - 123
Iodomethane	25.0	25.1		ug/L		100	78 - 123

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-491769/5
Matrix: Water
Analysis Batch: 491769

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
m,p-Xylene	25.0	22.6		ug/L		91	76 - 122
Methylene Chloride	25.0	23.6		ug/L		94	75 - 124
o-Xylene	25.0	23.2		ug/L		93	76 - 122
Styrene	25.0	22.9		ug/L		92	80 - 120
Tetrachloroethene	25.0	24.8		ug/L		99	74 - 122
Tetrahydrofuran	50.0	37.1		ug/L		74	62 - 132
Toluene	25.0	22.4		ug/L		90	80 - 122
trans-1,2-Dichloroethene	25.0	24.2		ug/L		97	73 - 127
trans-1,3-Dichloropropene	25.0	22.0		ug/L		88	80 - 120
trans-1,4-Dichloro-2-butene	25.0	17.8		ug/L		71	41 - 131
Trichloroethene	25.0	24.9		ug/L		100	74 - 123
Trichlorofluoromethane	25.0	31.5		ug/L		126	62 - 150
Vinyl acetate	50.0	44.3	J	ug/L		89	50 - 144
Vinyl chloride	25.0	25.4		ug/L		102	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*107*		*77 - 120*
4-Bromofluorobenzene (Surr)	*106*		*73 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*

Lab Sample ID: MB 480-492966/7
Matrix: Water
Analysis Batch: 492966

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		5.0		ug/L			09/19/19 22:04	1
1,1,1-Trichloroethane	ND		5.0		ug/L			09/19/19 22:04	1
1,1,2,2-Tetrachloroethane	ND		5.0		ug/L			09/19/19 22:04	1
1,1,2-Trichloroethane	ND		5.0		ug/L			09/19/19 22:04	1
1,1-Dichloroethane	ND		5.0		ug/L			09/19/19 22:04	1
1,1-Dichloroethene	ND		5.0		ug/L			09/19/19 22:04	1
1,2,3-Trichloropropane	ND		5.0		ug/L			09/19/19 22:04	1
1,2-Dibromo-3-Chloropropane	ND		10		ug/L			09/19/19 22:04	1
1,2-Dibromoethane	ND		5.0		ug/L			09/19/19 22:04	1
1,2-Dichlorobenzene	ND		5.0		ug/L			09/19/19 22:04	1
1,2-Dichloroethane	ND		5.0		ug/L			09/19/19 22:04	1
1,2-Dichloropropane	ND		5.0		ug/L			09/19/19 22:04	1
1,4-Dichlorobenzene	ND		5.0		ug/L			09/19/19 22:04	1
1,4-Dioxane	ND		50		ug/L			09/19/19 22:04	1
2-Butanone (MEK)	ND		5.0		ug/L			09/19/19 22:04	1
2-Hexanone	ND		10		ug/L			09/19/19 22:04	1
4-Methyl-2-pentanone (MIBK)	ND		10		ug/L			09/19/19 22:04	1
Acetone	ND		5.0		ug/L			09/19/19 22:04	1
Acetonitrile	ND		100		ug/L			09/19/19 22:04	1
Benzene	ND		5.0		ug/L			09/19/19 22:04	1
Bromochloromethane	ND		5.0		ug/L			09/19/19 22:04	1
Bromodichloromethane	ND		5.0		ug/L			09/19/19 22:04	1
Bromoform	ND		5.0		ug/L			09/19/19 22:04	1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 480-492966/7
Matrix: Water
Analysis Batch: 492966

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane	ND		5.0		ug/L			09/19/19 22:04	1
Carbon disulfide	ND		5.0		ug/L			09/19/19 22:04	1
Carbon tetrachloride	ND		5.0		ug/L			09/19/19 22:04	1
Chlorobenzene	ND		5.0		ug/L			09/19/19 22:04	1
Chloroethane	ND		5.0		ug/L			09/19/19 22:04	1
Chloroform	ND		5.0		ug/L			09/19/19 22:04	1
Chloromethane	ND		5.0		ug/L			09/19/19 22:04	1
cis-1,2-Dichloroethene	ND		5.0		ug/L			09/19/19 22:04	1
cis-1,3-Dichloropropene	ND		5.0		ug/L			09/19/19 22:04	1
Dibromochloromethane	ND		5.0		ug/L			09/19/19 22:04	1
Dibromomethane	ND		5.0		ug/L			09/19/19 22:04	1
Ethylbenzene	ND		5.0		ug/L			09/19/19 22:04	1
Iodomethane	ND		5.0		ug/L			09/19/19 22:04	1
m,p-Xylene	ND		5.0		ug/L			09/19/19 22:04	1
Methylene Chloride	ND		5.0		ug/L			09/19/19 22:04	1
o-Xylene	ND		5.0		ug/L			09/19/19 22:04	1
Styrene	ND		5.0		ug/L			09/19/19 22:04	1
Tetrachloroethene	ND		5.0		ug/L			09/19/19 22:04	1
Tetrahydrofuran	ND		10		ug/L			09/19/19 22:04	1
Toluene	ND		5.0		ug/L			09/19/19 22:04	1
trans-1,2-Dichloroethene	ND		5.0		ug/L			09/19/19 22:04	1
trans-1,3-Dichloropropene	ND		5.0		ug/L			09/19/19 22:04	1
trans-1,4-Dichloro-2-butene	ND		10		ug/L			09/19/19 22:04	1
Trichloroethene	ND		5.0		ug/L			09/19/19 22:04	1
Trichlorofluoromethane	ND		5.0		ug/L			09/19/19 22:04	1
Vinyl acetate	ND		50		ug/L			09/19/19 22:04	1
Vinyl chloride	ND		5.0		ug/L			09/19/19 22:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*105*		*77 - 120*		*09/19/19 22:04*	*1*
4-Bromofluorobenzene (Surr)	*102*		*73 - 120*		*09/19/19 22:04*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*09/19/19 22:04*	*1*

Lab Sample ID: LCS 480-492966/5
Matrix: Water
Analysis Batch: 492966

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	25.0	27.2		ug/L		109	80 - 120
1,1,1-Trichloroethane	25.0	27.1		ug/L		108	73 - 126
1,1,2,2-Tetrachloroethane	25.0	24.2		ug/L		97	76 - 120
1,1,2-Trichloroethane	25.0	25.0		ug/L		100	76 - 122
1,1-Dichloroethane	25.0	27.4		ug/L		110	77 - 120
1,1-Dichloroethene	25.0	26.2		ug/L		105	66 - 127
1,2,3-Trichloropropane	25.0	24.9		ug/L		100	68 - 122
1,2-Dibromo-3-Chloropropane	25.0	19.6		ug/L		78	56 - 134
1,2-Dibromoethane	25.0	25.2		ug/L		101	77 - 120
1,2-Dichlorobenzene	25.0	25.2		ug/L		101	80 - 124

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-492966/5
Matrix: Water
Analysis Batch: 492966

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichloroethane	25.0	26.6		ug/L		107	75 - 120
1,2-Dichloropropane	25.0	27.3		ug/L		109	76 - 120
1,4-Dichlorobenzene	25.0	25.3		ug/L		101	80 - 120
1,4-Dioxane	500	486		ug/L		97	50 - 150
2-Butanone (MEK)	125	152		ug/L		122	57 - 140
2-Hexanone	125	126		ug/L		101	65 - 127
4-Methyl-2-pentanone (MIBK)	125	128		ug/L		103	71 - 125
Acetone	125	142		ug/L		114	56 - 142
Benzene	25.0	26.5		ug/L		106	71 - 124
Bromochloromethane	25.0	27.7		ug/L		111	72 - 130
Bromodichloromethane	25.0	26.2		ug/L		105	80 - 122
Bromoform	25.0	24.7		ug/L		99	61 - 132
Bromomethane	25.0	23.7		ug/L		95	55 - 144
Carbon disulfide	25.0	27.0		ug/L		108	59 - 134
Carbon tetrachloride	25.0	28.0		ug/L		112	72 - 134
Chlorobenzene	25.0	25.9		ug/L		104	80 - 120
Chloroethane	25.0	25.4		ug/L		102	69 - 136
Chloroform	25.0	25.6		ug/L		102	73 - 127
Chloromethane	25.0	24.8		ug/L		99	68 - 124
cis-1,2-Dichloroethene	25.0	26.2		ug/L		105	74 - 124
cis-1,3-Dichloropropene	25.0	25.0		ug/L		100	74 - 124
Dibromochloromethane	25.0	26.3		ug/L		105	75 - 125
Dibromomethane	25.0	27.1		ug/L		109	76 - 127
Ethylbenzene	25.0	26.0		ug/L		104	77 - 123
Iodomethane	25.0	27.9		ug/L		112	78 - 123
m,p-Xylene	25.0	25.5		ug/L		102	76 - 122
Methylene Chloride	25.0	26.5		ug/L		106	75 - 124
o-Xylene	25.0	25.8		ug/L		103	76 - 122
Styrene	25.0	25.6		ug/L		102	80 - 120
Tetrachloroethene	25.0	27.0		ug/L		108	74 - 122
Tetrahydrofuran	50.0	55.5		ug/L		111	62 - 132
Toluene	25.0	26.4		ug/L		106	80 - 122
trans-1,2-Dichloroethene	25.0	26.7		ug/L		107	73 - 127
trans-1,3-Dichloropropene	25.0	26.3		ug/L		105	80 - 120
trans-1,4-Dichloro-2-butene	25.0	15.7		ug/L		63	41 - 131
Trichloroethene	25.0	27.3		ug/L		109	74 - 123
Trichlorofluoromethane	25.0	27.0		ug/L		108	62 - 150
Vinyl acetate	50.0	53.5		ug/L		107	50 - 144
Vinyl chloride	25.0	25.8		ug/L		103	65 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*106*		*77 - 120*
4-Bromofluorobenzene (Surr)	*101*		*73 - 120*
Toluene-d8 (Surr)	*103*		*80 - 120*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-322696/1-A
Matrix: Water
Analysis Batch: 323243

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 322696

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluoropentanoic acid (PFPeA)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluorohexanoic acid (PFHxA)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluorooctanoic acid (PFOA)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluorononanoic acid (PFNA)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluorodecanoic acid (PFDA)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluorododecanoic acid (PFDoA)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0		ng/L		09/12/19 07:48	09/13/19 20:42	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20		ng/L		09/12/19 07:48	09/13/19 20:42	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20		ng/L		09/12/19 07:48	09/13/19 20:42	1
6:2 FTS	ND		20		ng/L		09/12/19 07:48	09/13/19 20:42	1
8:2 FTS	ND		20		ng/L		09/12/19 07:48	09/13/19 20:42	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
13C5-PFPeA DNU	*104*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
13C2 PFHxA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
13C4 PFHpA	*105*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
13C4 PFOA	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
13C5 PFNA	*103*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
13C2 PFDA	*101*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
13C2 PFUnA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
13C2 PFDoA	*98*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
13C2 PFTeDA	*93*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
18O2 PFHxS	*111*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
13C4 PFOS	*102*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
13C8 FOSA	*99*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
d3-NMeFOSAA	*92*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
d5-NEtFOSAA	*100*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
M2-6:2 FTS	*107*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*
M2-8:2 FTS	*113*		*25 - 150*	*09/12/19 07:48*	*09/13/19 20:42*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-322696/2-A
Matrix: Water
Analysis Batch: 323243

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 322696

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	41.6		ng/L		104	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	39.2		ng/L		98	66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	41.6		ng/L		104	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	40.6		ng/L		102	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	35.6		ng/L		89	64 - 124
Perfluorononanoic acid (PFNA)	40.0	42.2		ng/L		106	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	36.6		ng/L		92	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	38.6		ng/L		97	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	38.2		ng/L		96	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	38.8		ng/L		97	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	38.2		ng/L		96	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	34.3		ng/L		97	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.6		ng/L		90	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	38.6		ng/L		101	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	36.9		ng/L		99	67 - 127
Perfluorodecanesulfonic acid (PFDS)	38.6	37.0		ng/L		96	68 - 128
Perfluorooctanesulfonamide (FOSA)	40.0	38.2		ng/L		95	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	44.5		ng/L		111	67 - 127
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	40.6		ng/L		102	65 - 125
6:2 FTS	37.9	43.7		ng/L		115	66 - 126
8:2 FTS	38.3	40.1		ng/L		105	67 - 127

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*105*		*25 - 150*
13C5-PFPeA DNU	*106*		*25 - 150*
13C2 PFHxA	*102*		*25 - 150*
13C4 PFHpA	*108*		*25 - 150*
13C4 PFOA	*109*		*25 - 150*
13C5 PFNA	*100*		*25 - 150*
13C2 PFDA	*107*		*25 - 150*
13C2 PFUnA	*104*		*25 - 150*
13C2 PFDoA	*105*		*25 - 150*
13C2 PFTeDA	*103*		*25 - 150*
18O2 PFHxS	*116*		*25 - 150*
13C4 PFOS	*108*		*25 - 150*
13C8 FOSA	*103*		*25 - 150*
d3-NMeFOSAA	*98*		*25 - 150*
d5-NEtFOSAA	*97*		*25 - 150*
M2-6:2 FTS	*104*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-322696/2-A
Matrix: Water
Analysis Batch: 323243

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 322696

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
M2-8:2 FTS	*112*		*25 - 150*

Lab Sample ID: LCSD 320-322696/3-A
Matrix: Water
Analysis Batch: 323243

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 322696

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	41.4		ng/L		103	70 - 130	0	30
Perfluoropentanoic acid (PFPeA)			40.0	40.1		ng/L		100	66 - 126	2	30
Perfluorohexanoic acid (PFHxA)			40.0	42.9		ng/L		107	66 - 126	3	30
Perfluoroheptanoic acid (PFHpA)			40.0	39.5		ng/L		99	66 - 126	3	30
Perfluorooctanoic acid (PFOA)			40.0	37.9		ng/L		95	64 - 124	6	30
Perfluorononanoic acid (PFNA)			40.0	41.8		ng/L		104	68 - 128	1	30
Perfluorodecanoic acid (PFDA)			40.0	44.4		ng/L		111	69 - 129	19	30
Perfluoroundecanoic acid (PFUnA)			40.0	38.2		ng/L		96	60 - 120	1	30
Perfluorododecanoic acid (PFDoA)			40.0	43.6		ng/L		109	71 - 131	13	30
Perfluorotridecanoic acid (PFTriA)			40.0	36.5		ng/L		91	72 - 132	6	30
Perfluorotetradecanoic acid (PFTeA)			40.0	40.4		ng/L		101	68 - 128	5	30
Perfluorobutanesulfonic acid (PFBS)			35.4	35.1		ng/L		99	73 - 133	2	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	34.9		ng/L		96	63 - 123	7	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	41.2		ng/L		108	68 - 128	6	30
Perfluorooctanesulfonic acid (PFOS)			37.1	38.2		ng/L		103	67 - 127	4	30
Perfluorodecanesulfonic acid (PFDS)			38.6	38.5		ng/L		100	68 - 128	4	30
Perfluorooctanesulfonamide (FOSA)			40.0	39.1		ng/L		98	70 - 130	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	43.4		ng/L		108	67 - 127	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	41.1		ng/L		103	65 - 125	1	30
6:2 FTS			37.9	44.3		ng/L		117	66 - 126	1	30
8:2 FTS			38.3	39.9		ng/L		104	67 - 127	0	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C4 PFBA	*102*		*25 - 150*
13C5-PFPeA DNU	*105*		*25 - 150*
13C2 PFHxA	*102*		*25 - 150*
13C4 PFHpA	*108*		*25 - 150*
13C4 PFOA	*107*		*25 - 150*
13C5 PFNA	*104*		*25 - 150*
13C2 PFDA	*98*		*25 - 150*
13C2 PFUnA	*97*		*25 - 150*
13C2 PFDoA	*97*		*25 - 150*
13C2 PFTeDA	*98*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-322696/3-A
Matrix: Water
Analysis Batch: 323243

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 322696

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
18O2 PFHxS	*115*		*25 - 150*
13C4 PFOS	*103*		*25 - 150*
13C8 FOSA	*100*		*25 - 150*
d3-NMeFOSAA	*97*		*25 - 150*
d5-NEtFOSAA	*95*		*25 - 150*
M2-6:2 FTS	*105*		*25 - 150*
M2-8:2 FTS	*114*		*25 - 150*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-488397/1-A
Matrix: Water
Analysis Batch: 488652

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488397

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		08/23/19 08:49	08/23/19 18:00	1
Antimony	ND		0.015		mg/L		08/23/19 08:49	08/23/19 18:00	1
Arsenic	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:00	1
Barium	ND		0.20		mg/L		08/23/19 08:49	08/23/19 18:00	1
Beryllium	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:00	1
Boron	ND		0.020		mg/L		08/23/19 08:49	08/23/19 18:00	1
Cadmium	ND		0.0050		mg/L		08/23/19 08:49	08/23/19 18:00	1
Calcium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 18:00	1
Chromium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:00	1
Cobalt	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:00	1
Copper	ND		0.025		mg/L		08/23/19 08:49	08/23/19 18:00	1
Iron	ND		0.10		mg/L		08/23/19 08:49	08/23/19 18:00	1
Lead	ND		0.0030		mg/L		08/23/19 08:49	08/23/19 18:00	1
Magnesium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 18:00	1
Manganese	ND		0.015		mg/L		08/23/19 08:49	08/23/19 18:00	1
Nickel	ND		0.040		mg/L		08/23/19 08:49	08/23/19 18:00	1
Potassium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 18:00	1
Silver	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:00	1
Sodium	ND		5.0		mg/L		08/23/19 08:49	08/23/19 18:00	1
Thallium	ND		0.010		mg/L		08/23/19 08:49	08/23/19 18:00	1
Vanadium	ND		0.050		mg/L		08/23/19 08:49	08/23/19 18:00	1
Zinc	ND		0.020		mg/L		08/23/19 08:49	08/23/19 18:00	1

Lab Sample ID: LCS 480-488397/2-A
Matrix: Water
Analysis Batch: 488652

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488397

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10.0	9.31		mg/L		93	80 - 120
Antimony	0.200	0.210		mg/L		105	80 - 120
Arsenic	0.200	0.192		mg/L		96	80 - 120
Barium	0.200	0.199	J	mg/L		100	80 - 120
Beryllium	0.200	0.192		mg/L		96	80 - 120
Boron	0.200	0.194		mg/L		97	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-488397/2-A
Matrix: Water
Analysis Batch: 488652

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488397

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.200	0.191		mg/L		96	80 - 120
Calcium	10.0	9.50		mg/L		95	80 - 120
Chromium	0.200	0.195		mg/L		97	80 - 120
Cobalt	0.200	0.183		mg/L		91	80 - 120
Copper	0.200	0.185		mg/L		93	80 - 120
Iron	10.0	9.57		mg/L		96	80 - 120
Lead	0.200	0.184		mg/L		92	80 - 120
Magnesium	10.0	9.68		mg/L		97	80 - 120
Manganese	0.200	0.192		mg/L		96	80 - 120
Nickel	0.200	0.191		mg/L		95	80 - 120
Potassium	10.0	8.93		mg/L		89	80 - 120
Silver	0.0500	0.0516		mg/L		103	80 - 120
Sodium	10.0	8.99		mg/L		90	80 - 120
Thallium	0.200	0.187		mg/L		93	80 - 120
Vanadium	0.200	0.188		mg/L		94	80 - 120
Zinc	0.200	0.199		mg/L		99	80 - 120

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488652

Client Sample ID: MW-17
Prep Type: Total/NA
Prep Batch: 488397

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	ND		10.0	9.71		mg/L		97	75 - 125
Antimony	ND		0.200	0.214		mg/L		107	75 - 125
Arsenic	ND		0.200	0.195		mg/L		98	75 - 125
Barium	ND		0.200	0.292		mg/L		103	75 - 125
Beryllium	ND		0.200	0.196		mg/L		98	75 - 125
Boron	0.029		0.200	0.229		mg/L		100	75 - 125
Cadmium	ND		0.200	0.196		mg/L		98	75 - 125
Calcium	121		10.0	128.6	4	mg/L		73	75 - 125
Chromium	ND		0.200	0.196		mg/L		98	75 - 125
Cobalt	ND		0.200	0.199		mg/L		93	75 - 125
Copper	ND		0.200	0.192		mg/L		96	75 - 125
Iron	1.0		10.0	10.58		mg/L		95	75 - 125
Lead	ND		0.200	0.192		mg/L		96	75 - 125
Magnesium	39.2		10.0	48.67		mg/L		95	75 - 125
Manganese	0.084		0.200	0.272		mg/L		94	75 - 125
Nickel	ND		0.200	0.193		mg/L		96	75 - 125
Potassium	ND		10.0	10.94		mg/L		95	75 - 125
Silver	ND		0.0500	0.0537		mg/L		107	75 - 125
Sodium	33.1		10.0	41.69		mg/L		86	75 - 125
Thallium	ND		0.200	0.195		mg/L		98	75 - 125
Vanadium	ND		0.200	0.191		mg/L		96	75 - 125
Zinc	ND		0.200	0.200		mg/L		99	75 - 125

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488652

Client Sample ID: MW-17
Prep Type: Total/NA
Prep Batch: 488397

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	ND		10.0	9.63		mg/L		96	75 - 125	1	20
Antimony	ND		0.200	0.212		mg/L		106	75 - 125	1	20
Arsenic	ND		0.200	0.196		mg/L		98	75 - 125	1	20
Barium	ND		0.200	0.288		mg/L		100	75 - 125	2	20
Beryllium	ND		0.200	0.192		mg/L		96	75 - 125	2	20
Boron	0.029		0.200	0.224		mg/L		98	75 - 125	2	20
Cadmium	ND		0.200	0.193		mg/L		96	75 - 125	2	20
Calcium	121		10.0	126.3	4	mg/L		50	75 - 125	2	20
Chromium	ND		0.200	0.195		mg/L		97	75 - 125	1	20
Cobalt	ND		0.200	0.196		mg/L		91	75 - 125	2	20
Copper	ND		0.200	0.187		mg/L		94	75 - 125	2	20
Iron	1.0		10.0	10.40		mg/L		94	75 - 125	2	20
Lead	ND		0.200	0.189		mg/L		95	75 - 125	2	20
Magnesium	39.2		10.0	47.83		mg/L		86	75 - 125	2	20
Manganese	0.084		0.200	0.267		mg/L		91	75 - 125	2	20
Nickel	ND		0.200	0.189		mg/L		95	75 - 125	2	20
Potassium	ND		10.0	10.69		mg/L		93	75 - 125	2	20
Silver	ND		0.0500	0.0525		mg/L		105	75 - 125	2	20
Sodium	33.1		10.0	40.71		mg/L		76	75 - 125	2	20
Thallium	ND		0.200	0.191		mg/L		96	75 - 125	2	20
Vanadium	ND		0.200	0.187		mg/L		94	75 - 125	2	20
Zinc	ND		0.200	0.197		mg/L		98	75 - 125	1	20

Lab Sample ID: MB 480-488943/1-A
Matrix: Water
Analysis Batch: 489194

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488943

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		08/27/19 08:48	08/27/19 15:46	1
Antimony	ND		0.015		mg/L		08/27/19 08:48	08/27/19 15:46	1
Arsenic	ND		0.010		mg/L		08/27/19 08:48	08/27/19 15:46	1
Barium	ND		0.20		mg/L		08/27/19 08:48	08/27/19 15:46	1
Beryllium	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 15:46	1
Boron	ND		0.020		mg/L		08/27/19 08:48	08/27/19 15:46	1
Cadmium	ND		0.0050		mg/L		08/27/19 08:48	08/27/19 15:46	1
Calcium	ND		5.0		mg/L		08/27/19 08:48	08/27/19 15:46	1
Chromium	ND		0.010		mg/L		08/27/19 08:48	08/27/19 15:46	1
Cobalt	ND		0.050		mg/L		08/27/19 08:48	08/27/19 15:46	1
Copper	ND		0.025		mg/L		08/27/19 08:48	08/27/19 15:46	1
Iron	ND		0.10		mg/L		08/27/19 08:48	08/27/19 15:46	1
Lead	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 15:46	1
Magnesium	ND		5.0		mg/L		08/27/19 08:48	08/27/19 15:46	1
Manganese	ND		0.015		mg/L		08/27/19 08:48	08/27/19 15:46	1
Nickel	ND		0.040		mg/L		08/27/19 08:48	08/27/19 15:46	1
Potassium	ND		5.0		mg/L		08/27/19 08:48	08/27/19 15:46	1
Silver	ND		0.010		mg/L		08/27/19 08:48	08/27/19 15:46	1
Sodium	ND		5.0		mg/L		08/27/19 08:48	08/27/19 15:46	1
Thallium	ND		0.010		mg/L		08/27/19 08:48	08/27/19 15:46	1
Vanadium	ND		0.050		mg/L		08/27/19 08:48	08/27/19 15:46	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 480-488943/1-A
Matrix: Water
Analysis Batch: 489194

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488943

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	ND		0.020		mg/L		08/27/19 08:48	08/27/19 15:46	1

Lab Sample ID: LCS 480-488943/2-A
Matrix: Water
Analysis Batch: 489194

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488943

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10.0	9.45		mg/L		95	80 - 120
Antimony	0.200	0.214		mg/L		107	80 - 120
Arsenic	0.200	0.200		mg/L		100	80 - 120
Barium	0.200	0.206		mg/L		103	80 - 120
Beryllium	0.200	0.201		mg/L		101	80 - 120
Boron	0.200	0.199		mg/L		100	80 - 120
Cadmium	0.200	0.196		mg/L		98	80 - 120
Calcium	10.0	9.54		mg/L		95	80 - 120
Chromium	0.200	0.197		mg/L		99	80 - 120
Cobalt	0.200	0.184		mg/L		92	80 - 120
Copper	0.200	0.197		mg/L		99	80 - 120
Iron	10.0	10.04		mg/L		100	80 - 120
Lead	0.200	0.188		mg/L		94	80 - 120
Magnesium	10.0	9.78		mg/L		98	80 - 120
Manganese	0.200	0.201		mg/L		101	80 - 120
Nickel	0.200	0.195		mg/L		98	80 - 120
Potassium	10.0	9.58		mg/L		96	80 - 120
Silver	0.0500	0.0527		mg/L		105	80 - 120
Sodium	10.0	9.40		mg/L		94	80 - 120
Thallium	0.200	0.192		mg/L		96	80 - 120
Vanadium	0.200	0.203		mg/L		102	80 - 120
Zinc	0.200	0.204		mg/L		102	80 - 120

Lab Sample ID: MB 480-489078/1-A
Matrix: Water
Analysis Batch: 489442

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489078

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		08/28/19 08:05	08/28/19 22:56	1
Antimony	ND		0.015		mg/L		08/28/19 08:05	08/28/19 22:56	1
Arsenic	ND		0.010		mg/L		08/28/19 08:05	08/28/19 22:56	1
Barium	ND		0.20		mg/L		08/28/19 08:05	08/28/19 22:56	1
Beryllium	ND		0.0030		mg/L		08/28/19 08:05	08/28/19 22:56	1
Boron	ND		0.020		mg/L		08/28/19 08:05	08/28/19 22:56	1
Cadmium	ND		0.0050		mg/L		08/28/19 08:05	08/28/19 22:56	1
Calcium	ND		5.0		mg/L		08/28/19 08:05	08/28/19 22:56	1
Chromium	ND		0.010		mg/L		08/28/19 08:05	08/28/19 22:56	1
Cobalt	ND		0.050		mg/L		08/28/19 08:05	08/28/19 22:56	1
Copper	ND		0.025		mg/L		08/28/19 08:05	08/28/19 22:56	1
Iron	ND		0.10		mg/L		08/28/19 08:05	08/28/19 22:56	1
Lead	ND		0.0030		mg/L		08/28/19 08:05	08/28/19 22:56	1
Magnesium	ND		5.0		mg/L		08/28/19 08:05	08/28/19 22:56	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 480-489078/1-A
Matrix: Water
Analysis Batch: 489442

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489078

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	ND		0.015		mg/L		08/28/19 08:05	08/28/19 22:56	1
Nickel	ND		0.040		mg/L		08/28/19 08:05	08/28/19 22:56	1
Potassium	ND		5.0		mg/L		08/28/19 08:05	08/28/19 22:56	1
Sodium	ND		5.0		mg/L		08/28/19 08:05	08/28/19 22:56	1
Thallium	ND		0.010		mg/L		08/28/19 08:05	08/28/19 22:56	1
Vanadium	ND		0.050		mg/L		08/28/19 08:05	08/28/19 22:56	1
Zinc	ND		0.020		mg/L		08/28/19 08:05	08/28/19 22:56	1

Lab Sample ID: MB 480-489078/1-A
Matrix: Water
Analysis Batch: 489665

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489078

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.010		mg/L		08/28/19 08:05	08/29/19 15:33	1

Lab Sample ID: LCS 480-489078/2-A
Matrix: Water
Analysis Batch: 489442

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489078

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10.0	9.21		mg/L		92	80 - 120
Antimony	0.200	0.206		mg/L		103	80 - 120
Arsenic	0.200	0.193		mg/L		97	80 - 120
Barium	0.200	0.197	J	mg/L		99	80 - 120
Beryllium	0.200	0.197		mg/L		98	80 - 120
Boron	0.200	0.190		mg/L		95	80 - 120
Cadmium	0.200	0.190		mg/L		95	80 - 120
Calcium	10.0	9.55		mg/L		96	80 - 120
Chromium	0.200	0.193		mg/L		97	80 - 120
Cobalt	0.200	0.182		mg/L		91	80 - 120
Copper	0.200	0.187		mg/L		93	80 - 120
Iron	10.0	9.75		mg/L		97	80 - 120
Lead	0.200	0.183		mg/L		91	80 - 120
Magnesium	10.0	9.57		mg/L		96	80 - 120
Manganese	0.200	0.193		mg/L		97	80 - 120
Nickel	0.200	0.191		mg/L		95	80 - 120
Potassium	10.0	9.26		mg/L		93	80 - 120
Sodium	10.0	9.03		mg/L		90	80 - 120
Thallium	0.200	0.187		mg/L		94	80 - 120
Vanadium	0.200	0.191		mg/L		96	80 - 120
Zinc	0.200	0.198		mg/L		99	80 - 120

Lab Sample ID: LCS 480-489078/2-A
Matrix: Water
Analysis Batch: 489665

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489078

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	0.0500	0.0487		mg/L		97	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 480-489078/24-A
Matrix: Water
Analysis Batch: 489442

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 489078

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum			10.0	9.43		mg/L		94	80 - 120	2	20
Antimony			0.200	0.209		mg/L		104	80 - 120	2	20
Arsenic			0.200	0.189		mg/L		94	80 - 120	2	20
Barium			0.200	0.201		mg/L		100	80 - 120	2	20
Beryllium			0.200	0.198		mg/L		99	80 - 120	1	20
Boron			0.200	0.191		mg/L		96	80 - 120	0	20
Cadmium			0.200	0.193		mg/L		97	80 - 120	1	20
Calcium			10.0	9.69		mg/L		97	80 - 120	1	20
Chromium			0.200	0.197		mg/L		99	80 - 120	2	20
Cobalt			0.200	0.184		mg/L		92	80 - 120	2	20
Copper			0.200	0.460	*	mg/L		230	80 - 120	85	20
Iron			10.0	9.88		mg/L		99	80 - 120	1	20
Lead			0.200	0.195		mg/L		97	80 - 120	6	20
Magnesium			10.0	9.72		mg/L		97	80 - 120	2	20
Manganese			0.200	0.196		mg/L		98	80 - 120	1	20
Nickel			0.200	0.193		mg/L		97	80 - 120	1	20
Potassium			10.0	9.34		mg/L		93	80 - 120	1	20
Sodium			10.0	9.23		mg/L		92	80 - 120	2	20
Thallium			0.200	0.186		mg/L		93	80 - 120	1	20
Vanadium			0.200	0.196		mg/L		98	80 - 120	2	20
Zinc			0.200	0.360	*	mg/L		180	80 - 120	58	20

Lab Sample ID: LCSD 480-489078/24-A
Matrix: Water
Analysis Batch: 489665

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 489078

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver			0.0500	0.0488		mg/L		98	80 - 120	0	20

Lab Sample ID: MB 480-489925/1-A
Matrix: Water
Analysis Batch: 491316

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489925

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		09/05/19 06:30	09/10/19 14:34	1
Antimony	ND		0.015		mg/L		09/05/19 06:30	09/10/19 14:34	1
Arsenic	ND		0.010		mg/L		09/05/19 06:30	09/10/19 14:34	1
Barium	ND		0.20		mg/L		09/05/19 06:30	09/10/19 14:34	1
Beryllium	ND		0.0030		mg/L		09/05/19 06:30	09/10/19 14:34	1
Boron	ND		0.020		mg/L		09/05/19 06:30	09/10/19 14:34	1
Cadmium	ND		0.0050		mg/L		09/05/19 06:30	09/10/19 14:34	1
Calcium	ND		5.0		mg/L		09/05/19 06:30	09/10/19 14:34	1
Chromium	ND		0.010		mg/L		09/05/19 06:30	09/10/19 14:34	1
Cobalt	ND		0.050		mg/L		09/05/19 06:30	09/10/19 14:34	1
Copper	ND		0.025		mg/L		09/05/19 06:30	09/10/19 14:34	1
Iron	ND		0.10		mg/L		09/05/19 06:30	09/10/19 14:34	1
Lead	ND		0.0030		mg/L		09/05/19 06:30	09/10/19 14:34	1
Magnesium	ND		5.0		mg/L		09/05/19 06:30	09/10/19 14:34	1
Manganese	ND		0.015		mg/L		09/05/19 06:30	09/10/19 14:34	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 480-489925/1-A
Matrix: Water
Analysis Batch: 491316

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489925

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		0.040		mg/L		09/05/19 06:30	09/10/19 14:34	1
Potassium	ND		5.0		mg/L		09/05/19 06:30	09/10/19 14:34	1
Silver	ND		0.010		mg/L		09/05/19 06:30	09/10/19 14:34	1
Sodium	ND		5.0		mg/L		09/05/19 06:30	09/10/19 14:34	1
Thallium	ND		0.010		mg/L		09/05/19 06:30	09/10/19 14:34	1
Vanadium	ND		0.050		mg/L		09/05/19 06:30	09/10/19 14:34	1
Zinc	ND		0.020		mg/L		09/05/19 06:30	09/10/19 14:34	1

Lab Sample ID: LCS 480-489925/2-A
Matrix: Water
Analysis Batch: 491316

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489925

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10.0	10.00		mg/L		100	80 - 120
Antimony	0.200	0.223		mg/L		112	80 - 120
Arsenic	0.200	0.205		mg/L		102	80 - 120
Barium	0.200	0.217		mg/L		108	80 - 120
Beryllium	0.200	0.203		mg/L		101	80 - 120
Boron	0.200	0.210		mg/L		105	80 - 120
Cadmium	0.200	0.204		mg/L		102	80 - 120
Calcium	10.0	9.88		mg/L		99	80 - 120
Chromium	0.200	0.205		mg/L		103	80 - 120
Cobalt	0.200	0.192		mg/L		96	80 - 120
Copper	0.200	0.199		mg/L		100	80 - 120
Iron	10.0	10.07		mg/L		101	80 - 120
Lead	0.200	0.196		mg/L		98	80 - 120
Magnesium	10.0	10.23		mg/L		102	80 - 120
Manganese	0.200	0.201		mg/L		101	80 - 120
Nickel	0.200	0.201		mg/L		100	80 - 120
Potassium	10.0	9.54		mg/L		95	80 - 120
Silver	0.0500	0.0501		mg/L		100	80 - 120
Sodium	10.0	9.61		mg/L		96	80 - 120
Thallium	0.200	0.200		mg/L		100	80 - 120
Vanadium	0.200	0.204		mg/L		102	80 - 120
Zinc	0.200	0.203		mg/L		101	80 - 120

Lab Sample ID: LCSD 480-489925/23-A
Matrix: Water
Analysis Batch: 491316

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 489925

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum	10.0	9.78		mg/L		98	80 - 120	2	20
Antimony	0.200	0.217		mg/L		109	80 - 120	3	20
Arsenic	0.200	0.199		mg/L		99	80 - 120	3	20
Barium	0.200	0.211		mg/L		105	80 - 120	3	20
Beryllium	0.200	0.198		mg/L		99	80 - 120	2	20
Boron	0.200	0.202		mg/L		101	80 - 120	4	20
Cadmium	0.200	0.199		mg/L		99	80 - 120	3	20
Calcium	10.0	9.67		mg/L		97	80 - 120	2	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 480-489925/23-A
Matrix: Water
Analysis Batch: 491316

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 489925

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	0.200	0.202		mg/L		101	80 - 120	2	20
Cobalt	0.200	0.188		mg/L		94	80 - 120	3	20
Copper	0.200	0.195		mg/L		97	80 - 120	2	20
Iron	10.0	9.77		mg/L		98	80 - 120	3	20
Lead	0.200	0.189		mg/L		94	80 - 120	4	20
Magnesium	10.0	10.01		mg/L		100	80 - 120	2	20
Manganese	0.200	0.195		mg/L		98	80 - 120	3	20
Nickel	0.200	0.195		mg/L		97	80 - 120	3	20
Potassium	10.0	9.19		mg/L		92	80 - 120	4	20
Silver	0.0500	0.0490		mg/L		98	80 - 120	2	20
Sodium	10.0	9.32		mg/L		93	80 - 120	3	20
Thallium	0.200	0.194		mg/L		97	80 - 120	3	20
Vanadium	0.200	0.198		mg/L		99	80 - 120	3	20
Zinc	0.200	0.199		mg/L		99	80 - 120	2	20

Lab Sample ID: MB 480-489960/1-A
Matrix: Water
Analysis Batch: 490293

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489960

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		09/04/19 09:46	09/04/19 19:16	1

Lab Sample ID: LCS 480-489960/2-A
Matrix: Water
Analysis Batch: 490293

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489960

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10.0	10.10		mg/L		101	80 - 120

Lab Sample ID: MB 480-490184/1-A
Matrix: Water
Analysis Batch: 490550

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 490184

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	ND		0.20		mg/L		09/05/19 05:35	09/05/19 16:06	1
Antimony	ND		0.015		mg/L		09/05/19 05:35	09/05/19 16:06	1
Arsenic	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:06	1
Barium	ND		0.20		mg/L		09/05/19 05:35	09/05/19 16:06	1
Beryllium	ND		0.0030		mg/L		09/05/19 05:35	09/05/19 16:06	1
Boron	ND		0.020		mg/L		09/05/19 05:35	09/05/19 16:06	1
Cadmium	ND		0.0050		mg/L		09/05/19 05:35	09/05/19 16:06	1
Calcium	ND		5.0		mg/L		09/05/19 05:35	09/05/19 16:06	1
Chromium	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:06	1
Cobalt	ND		0.050		mg/L		09/05/19 05:35	09/05/19 16:06	1
Copper	ND		0.025		mg/L		09/05/19 05:35	09/05/19 16:06	1
Iron	ND		0.10		mg/L		09/05/19 05:35	09/05/19 16:06	1
Lead	ND		0.0030		mg/L		09/05/19 05:35	09/05/19 16:06	1
Magnesium	ND		5.0		mg/L		09/05/19 05:35	09/05/19 16:06	1
Manganese	ND		0.015		mg/L		09/05/19 05:35	09/05/19 16:06	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 480-490184/1-A
Matrix: Water
Analysis Batch: 490550

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 490184

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	ND		0.040		mg/L		09/05/19 05:35	09/05/19 16:06	1
Potassium	ND		5.0		mg/L		09/05/19 05:35	09/05/19 16:06	1
Silver	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:06	1
Sodium	ND		5.0		mg/L		09/05/19 05:35	09/05/19 16:06	1
Thallium	ND		0.010		mg/L		09/05/19 05:35	09/05/19 16:06	1
Vanadium	ND		0.050		mg/L		09/05/19 05:35	09/05/19 16:06	1
Zinc	ND		0.020		mg/L		09/05/19 05:35	09/05/19 16:06	1

Lab Sample ID: LCS 480-490184/2-A
Matrix: Water
Analysis Batch: 490550

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490184

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10.0	10.01		mg/L		100	80 - 120
Antimony	0.200	0.221		mg/L		111	80 - 120
Arsenic	0.200	0.206		mg/L		103	80 - 120
Barium	0.200	0.209		mg/L		105	80 - 120
Beryllium	0.200	0.207		mg/L		104	80 - 120
Boron	0.200	0.209		mg/L		105	80 - 120
Cadmium	0.200	0.206		mg/L		103	80 - 120
Calcium	10.0	10.22		mg/L		102	80 - 120
Chromium	0.200	0.205		mg/L		102	80 - 120
Cobalt	0.200	0.192		mg/L		96	80 - 120
Copper	0.200	0.199		mg/L		99	80 - 120
Iron	10.0	10.39		mg/L		104	80 - 120
Lead	0.200	0.197		mg/L		99	80 - 120
Magnesium	10.0	9.91		mg/L		99	80 - 120
Manganese	0.200	0.202		mg/L		101	80 - 120
Nickel	0.200	0.200		mg/L		100	80 - 120
Potassium	10.0	9.77		mg/L		98	80 - 120
Silver	0.0500	0.0477		mg/L		95	80 - 120
Sodium	10.0	9.88		mg/L		99	80 - 120
Thallium	0.200	0.203		mg/L		102	80 - 120
Vanadium	0.200	0.206		mg/L		103	80 - 120
Zinc	0.200	0.203		mg/L		102	80 - 120

Lab Sample ID: MB 480-491000/1-A
Matrix: Water
Analysis Batch: 491318

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 491000

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	ND		0.010		mg/L		09/10/19 06:30	09/10/19 18:44	1

Lab Sample ID: LCS 480-491000/2-A
Matrix: Water
Analysis Batch: 491318

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 491000

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	0.200	0.189		mg/L		94	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 480-488390/1-A
Matrix: Water
Analysis Batch: 488655

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 488390

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 19:43	1
Antimony, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 19:43	1
Arsenic, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 19:43	1
Barium, Dissolved	ND		0.20		mg/L		08/23/19 08:45	08/23/19 19:43	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 19:43	1
Boron, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 19:43	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/23/19 08:45	08/23/19 19:43	1
Calcium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 19:43	1
Chromium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 19:43	1
Cobalt, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 19:43	1
Copper, Dissolved	ND		0.025		mg/L		08/23/19 08:45	08/23/19 19:43	1
Iron, Dissolved	ND		0.10		mg/L		08/23/19 08:45	08/23/19 19:43	1
Lead, Dissolved	ND		0.0030		mg/L		08/23/19 08:45	08/23/19 19:43	1
Magnesium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 19:43	1
Manganese, Dissolved	ND		0.015		mg/L		08/23/19 08:45	08/23/19 19:43	1
Nickel, Dissolved	ND		0.040		mg/L		08/23/19 08:45	08/23/19 19:43	1
Potassium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 19:43	1
Silver, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 19:43	1
Sodium, Dissolved	ND		5.0		mg/L		08/23/19 08:45	08/23/19 19:43	1
Thallium, Dissolved	ND		0.010		mg/L		08/23/19 08:45	08/23/19 19:43	1
Vanadium, Dissolved	ND		0.050		mg/L		08/23/19 08:45	08/23/19 19:43	1
Zinc, Dissolved	ND		0.020		mg/L		08/23/19 08:45	08/23/19 19:43	1

Lab Sample ID: LCS 480-488390/2-A
Matrix: Water
Analysis Batch: 488917

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 488390

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum, Dissolved	10.0	9.47		mg/L		95	80 - 120
Antimony, Dissolved	0.200	0.212		mg/L		106	80 - 120
Arsenic, Dissolved	0.200	0.191		mg/L		95	80 - 120
Barium, Dissolved	0.200	0.199	J	mg/L		100	80 - 120
Beryllium, Dissolved	0.200	0.197		mg/L		98	80 - 120
Boron, Dissolved	0.200	0.196		mg/L		98	80 - 120
Cadmium, Dissolved	0.200	0.193		mg/L		96	80 - 120
Calcium, Dissolved	10.0	9.81		mg/L		98	80 - 120
Chromium, Dissolved	0.200	0.194		mg/L		97	80 - 120
Cobalt, Dissolved	0.200	0.183		mg/L		91	80 - 120
Copper, Dissolved	0.200	0.190		mg/L		95	80 - 120
Iron, Dissolved	10.0	9.91		mg/L		99	80 - 120
Lead, Dissolved	0.200	0.188		mg/L		94	80 - 120
Magnesium, Dissolved	10.0	9.46		mg/L		95	80 - 120
Manganese, Dissolved	0.200	0.192		mg/L		96	80 - 120
Nickel, Dissolved	0.200	0.190		mg/L		95	80 - 120
Potassium, Dissolved	10.0	8.90		mg/L		89	80 - 120
Silver, Dissolved	0.0500	0.0500		mg/L		100	80 - 120
Sodium, Dissolved	10.0	8.93		mg/L		89	80 - 120
Thallium, Dissolved	0.200	0.191		mg/L		96	80 - 120
Vanadium, Dissolved	0.200	0.191		mg/L		95	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-488390/2-A
Matrix: Water
Analysis Batch: 488917

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 488390

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc, Dissolved	0.200	0.196		mg/L		98	80 - 120

Lab Sample ID: MB 480-488887/1-A
Matrix: Water
Analysis Batch: 489195

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 488887

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/27/19 08:48	08/27/19 17:33	1
Antimony, Dissolved	ND		0.020		mg/L		08/27/19 08:48	08/27/19 17:33	1
Arsenic, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 17:33	1
Barium, Dissolved	ND		0.20		mg/L		08/27/19 08:48	08/27/19 17:33	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 17:33	1
Boron, Dissolved	ND		0.020		mg/L		08/27/19 08:48	08/27/19 17:33	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/27/19 08:48	08/27/19 17:33	1
Calcium, Dissolved	ND		5.0		mg/L		08/27/19 08:48	08/27/19 17:33	1
Chromium, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 17:33	1
Cobalt, Dissolved	ND		0.050		mg/L		08/27/19 08:48	08/27/19 17:33	1
Copper, Dissolved	ND		0.025		mg/L		08/27/19 08:48	08/27/19 17:33	1
Iron, Dissolved	ND		0.10		mg/L		08/27/19 08:48	08/27/19 17:33	1
Lead, Dissolved	ND		0.0030		mg/L		08/27/19 08:48	08/27/19 17:33	1
Magnesium, Dissolved	ND		5.0		mg/L		08/27/19 08:48	08/27/19 17:33	1
Manganese, Dissolved	ND		0.015		mg/L		08/27/19 08:48	08/27/19 17:33	1
Nickel, Dissolved	ND		0.040		mg/L		08/27/19 08:48	08/27/19 17:33	1
Potassium, Dissolved	ND		5.0		mg/L		08/27/19 08:48	08/27/19 17:33	1
Silver, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 17:33	1
Sodium, Dissolved	ND		5.0		mg/L		08/27/19 08:48	08/27/19 17:33	1
Thallium, Dissolved	ND		0.010		mg/L		08/27/19 08:48	08/27/19 17:33	1
Vanadium, Dissolved	ND		0.050		mg/L		08/27/19 08:48	08/27/19 17:33	1
Zinc, Dissolved	ND		0.020		mg/L		08/27/19 08:48	08/27/19 17:33	1

Lab Sample ID: LCS 480-488887/2-A
Matrix: Water
Analysis Batch: 489195

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 488887

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum, Dissolved	10.0	9.14		mg/L		91	80 - 120
Antimony, Dissolved	0.200	0.207		mg/L		104	80 - 120
Arsenic, Dissolved	0.200	0.199		mg/L		99	80 - 120
Barium, Dissolved	0.200	0.200		mg/L		100	80 - 120
Beryllium, Dissolved	0.200	0.199		mg/L		99	80 - 120
Boron, Dissolved	0.200	0.196		mg/L		98	80 - 120
Cadmium, Dissolved	0.200	0.193		mg/L		96	80 - 120
Calcium, Dissolved	10.0	9.39		mg/L		94	80 - 120
Chromium, Dissolved	0.200	0.192		mg/L		96	80 - 120
Cobalt, Dissolved	0.200	0.180		mg/L		90	80 - 120
Copper, Dissolved	0.200	0.196		mg/L		98	80 - 120
Iron, Dissolved	10.0	9.95		mg/L		99	80 - 120
Lead, Dissolved	0.200	0.183		mg/L		92	80 - 120
Magnesium, Dissolved	10.0	9.61		mg/L		96	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-488887/2-A
Matrix: Water
Analysis Batch: 489195

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 488887

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese, Dissolved	0.200	0.199		mg/L		100	80 - 120
Nickel, Dissolved	0.200	0.193		mg/L		96	80 - 120
Potassium, Dissolved	10.0	9.39		mg/L		94	80 - 120
Silver, Dissolved	0.0500	0.0520		mg/L		104	80 - 120
Sodium, Dissolved	10.0	9.20		mg/L		92	80 - 120
Thallium, Dissolved	0.200	0.188		mg/L		94	80 - 120
Vanadium, Dissolved	0.200	0.201		mg/L		100	80 - 120
Zinc, Dissolved	0.200	0.199		mg/L		99	80 - 120

Lab Sample ID: MB 480-489092/1-A
Matrix: Water
Analysis Batch: 489443

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 489092

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		08/28/19 09:36	08/29/19 01:11	1
Antimony, Dissolved	ND		0.020		mg/L		08/28/19 09:36	08/29/19 01:11	1
Arsenic, Dissolved	ND		0.010		mg/L		08/28/19 09:36	08/29/19 01:11	1
Barium, Dissolved	ND		0.20		mg/L		08/28/19 09:36	08/29/19 01:11	1
Beryllium, Dissolved	ND		0.0030		mg/L		08/28/19 09:36	08/29/19 01:11	1
Boron, Dissolved	ND		0.020		mg/L		08/28/19 09:36	08/29/19 01:11	1
Cadmium, Dissolved	ND		0.0050		mg/L		08/28/19 09:36	08/29/19 01:11	1
Calcium, Dissolved	ND		5.0		mg/L		08/28/19 09:36	08/29/19 01:11	1
Chromium, Dissolved	ND		0.010		mg/L		08/28/19 09:36	08/29/19 01:11	1
Cobalt, Dissolved	ND		0.050		mg/L		08/28/19 09:36	08/29/19 01:11	1
Copper, Dissolved	ND		0.025		mg/L		08/28/19 09:36	08/29/19 01:11	1
Lead, Dissolved	ND		0.0030		mg/L		08/28/19 09:36	08/29/19 01:11	1
Magnesium, Dissolved	ND		5.0		mg/L		08/28/19 09:36	08/29/19 01:11	1
Manganese, Dissolved	ND		0.015		mg/L		08/28/19 09:36	08/29/19 01:11	1
Nickel, Dissolved	ND		0.040		mg/L		08/28/19 09:36	08/29/19 01:11	1
Potassium, Dissolved	ND		5.0		mg/L		08/28/19 09:36	08/29/19 01:11	1
Sodium, Dissolved	ND		5.0		mg/L		08/28/19 09:36	08/29/19 01:11	1
Thallium, Dissolved	ND		0.010		mg/L		08/28/19 09:36	08/29/19 01:11	1
Vanadium, Dissolved	ND		0.050		mg/L		08/28/19 09:36	08/29/19 01:11	1
Zinc, Dissolved	ND		0.020		mg/L		08/28/19 09:36	08/29/19 01:11	1

Lab Sample ID: MB 480-489092/1-A
Matrix: Water
Analysis Batch: 489670

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 489092

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	ND		0.10		mg/L		08/28/19 09:36	08/29/19 15:52	1
Silver, Dissolved	ND		0.010		mg/L		08/28/19 09:36	08/29/19 15:52	1

Lab Sample ID: LCS 480-489092/2-A
Matrix: Water
Analysis Batch: 489443

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 489092

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum, Dissolved	10.0	8.74		mg/L		87	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-489092/2-A
Matrix: Water
Analysis Batch: 489443

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 489092

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony, Dissolved	0.200	0.196		mg/L		98	80 - 120
Arsenic, Dissolved	0.200	0.178		mg/L		89	80 - 120
Barium, Dissolved	0.200	0.187	J	mg/L		93	80 - 120
Beryllium, Dissolved	0.200	0.186		mg/L		93	80 - 120
Boron, Dissolved	0.200	0.183		mg/L		91	80 - 120
Cadmium, Dissolved	0.200	0.180		mg/L		90	80 - 120
Calcium, Dissolved	10.0	9.07		mg/L		91	80 - 120
Chromium, Dissolved	0.200	0.182		mg/L		91	80 - 120
Cobalt, Dissolved	0.200	0.171		mg/L		86	80 - 120
Copper, Dissolved	0.200	0.175		mg/L		88	80 - 120
Iron, Dissolved	10.0	9.21		mg/L		92	80 - 120
Lead, Dissolved	0.200	0.173		mg/L		87	80 - 120
Magnesium, Dissolved	10.0	9.08		mg/L		91	80 - 120
Manganese, Dissolved	0.200	0.182		mg/L		91	80 - 120
Nickel, Dissolved	0.200	0.180		mg/L		90	80 - 120
Potassium, Dissolved	10.0	8.72		mg/L		87	80 - 120
Sodium, Dissolved	10.0	8.55		mg/L		85	80 - 120
Thallium, Dissolved	0.200	0.175		mg/L		88	80 - 120
Vanadium, Dissolved	0.200	0.181		mg/L		90	80 - 120
Zinc, Dissolved	0.200	0.190		mg/L		95	80 - 120

Lab Sample ID: LCS 480-489092/2-A
Matrix: Water
Analysis Batch: 489670

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 489092

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver, Dissolved	0.0500	0.0470		mg/L		94	80 - 120

Lab Sample ID: LCSD 480-489092/3-A
Matrix: Water
Analysis Batch: 489443

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 489092

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum, Dissolved	10.0	9.31		mg/L		93	80 - 120	6	20
Antimony, Dissolved	0.200	0.204		mg/L		102	80 - 120	4	20
Arsenic, Dissolved	0.200	0.187		mg/L		94	80 - 120	5	20
Barium, Dissolved	0.200	0.198	J	mg/L		99	80 - 120	6	20
Beryllium, Dissolved	0.200	0.193		mg/L		97	80 - 120	4	20
Boron, Dissolved	0.200	0.189		mg/L		94	80 - 120	3	20
Cadmium, Dissolved	0.200	0.189		mg/L		94	80 - 120	5	20
Calcium, Dissolved	10.0	9.52		mg/L		95	80 - 120	5	20
Chromium, Dissolved	0.200	0.193		mg/L		96	80 - 120	6	20
Cobalt, Dissolved	0.200	0.181		mg/L		90	80 - 120	5	20
Copper, Dissolved	0.200	0.184		mg/L		92	80 - 120	5	20
Iron, Dissolved	10.0	9.66		mg/L		97	80 - 120	5	20
Lead, Dissolved	0.200	0.182		mg/L		91	80 - 120	5	20
Magnesium, Dissolved	10.0	9.59		mg/L		96	80 - 120	5	20
Manganese, Dissolved	0.200	0.192		mg/L		96	80 - 120	5	20
Nickel, Dissolved	0.200	0.189		mg/L		94	80 - 120	5	20

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCSD 480-489092/3-A
Matrix: Water
Analysis Batch: 489443

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 489092

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Potassium, Dissolved	10.0	9.10		mg/L		91	80 - 120	4	20
Sodium, Dissolved	10.0	9.06		mg/L		90	80 - 120	6	20
Thallium, Dissolved	0.200	0.183		mg/L		92	80 - 120	4	20
Vanadium, Dissolved	0.200	0.192		mg/L		96	80 - 120	6	20
Zinc, Dissolved	0.200	0.201		mg/L		101	80 - 120	6	20

Lab Sample ID: LCSD 480-489092/3-A
Matrix: Water
Analysis Batch: 489670

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 489092

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver, Dissolved	0.0500	0.0489		mg/L		98	80 - 120	4	20

Lab Sample ID: MB 480-489962/1-A
Matrix: Water
Analysis Batch: 490288

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 489962

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		09/04/19 08:41	09/04/19 23:28	1
Antimony, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/04/19 23:28	1
Arsenic, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/04/19 23:28	1
Barium, Dissolved	ND		0.20		mg/L		09/04/19 08:41	09/04/19 23:28	1
Beryllium, Dissolved	ND		0.0030		mg/L		09/04/19 08:41	09/04/19 23:28	1
Boron, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/04/19 23:28	1
Cadmium, Dissolved	ND		0.0050		mg/L		09/04/19 08:41	09/04/19 23:28	1
Calcium, Dissolved	ND		5.0		mg/L		09/04/19 08:41	09/04/19 23:28	1
Chromium, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/04/19 23:28	1
Cobalt, Dissolved	ND		0.050		mg/L		09/04/19 08:41	09/04/19 23:28	1
Copper, Dissolved	ND		0.025		mg/L		09/04/19 08:41	09/04/19 23:28	1
Iron, Dissolved	ND		0.10		mg/L		09/04/19 08:41	09/04/19 23:28	1
Lead, Dissolved	ND		0.0030		mg/L		09/04/19 08:41	09/04/19 23:28	1
Magnesium, Dissolved	ND		5.0		mg/L		09/04/19 08:41	09/04/19 23:28	1
Manganese, Dissolved	ND		0.015		mg/L		09/04/19 08:41	09/04/19 23:28	1
Nickel, Dissolved	ND		0.040		mg/L		09/04/19 08:41	09/04/19 23:28	1
Potassium, Dissolved	ND		5.0		mg/L		09/04/19 08:41	09/04/19 23:28	1
Silver, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/04/19 23:28	1
Sodium, Dissolved	ND		5.0		mg/L		09/04/19 08:41	09/04/19 23:28	1
Thallium, Dissolved	ND		0.010		mg/L		09/04/19 08:41	09/04/19 23:28	1
Vanadium, Dissolved	ND		0.050		mg/L		09/04/19 08:41	09/04/19 23:28	1
Zinc, Dissolved	ND		0.020		mg/L		09/04/19 08:41	09/04/19 23:28	1

Lab Sample ID: LCS 480-489962/2-A
Matrix: Water
Analysis Batch: 490288

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 489962

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum, Dissolved	10.0	9.93		mg/L		99	80 - 120
Antimony, Dissolved	0.200	0.219		mg/L		110	80 - 120
Arsenic, Dissolved	0.200	0.204		mg/L		102	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-489962/2-A
Matrix: Water
Analysis Batch: 490288

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 489962

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium, Dissolved	0.200	0.213		mg/L		106	80 - 120
Beryllium, Dissolved	0.200	0.203		mg/L		101	80 - 120
Boron, Dissolved	0.200	0.202		mg/L		101	80 - 120
Cadmium, Dissolved	0.200	0.201		mg/L		101	80 - 120
Calcium, Dissolved	10.0	10.23		mg/L		102	80 - 120
Chromium, Dissolved	0.200	0.213		mg/L		106	80 - 120
Cobalt, Dissolved	0.200	0.194		mg/L		97	80 - 120
Copper, Dissolved	0.200	0.193		mg/L		97	80 - 120
Iron, Dissolved	10.0	10.03		mg/L		100	80 - 120
Lead, Dissolved	0.200	0.196		mg/L		98	80 - 120
Magnesium, Dissolved	10.0	10.43		mg/L		104	80 - 120
Manganese, Dissolved	0.200	0.202		mg/L		101	80 - 120
Nickel, Dissolved	0.200	0.201		mg/L		101	80 - 120
Potassium, Dissolved	10.0	9.48		mg/L		95	80 - 120
Silver, Dissolved	0.0500	0.0517		mg/L		103	80 - 120
Sodium, Dissolved	10.0	9.48		mg/L		95	80 - 120
Thallium, Dissolved	0.200	0.198		mg/L		99	80 - 120
Vanadium, Dissolved	0.200	0.202		mg/L		101	80 - 120
Zinc, Dissolved	0.200	0.216		mg/L		108	80 - 120

Lab Sample ID: MB 480-490197/1-A
Matrix: Water
Analysis Batch: 491325

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 490197

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum, Dissolved	ND		0.20		mg/L		09/06/19 10:59	09/11/19 02:35	1
Antimony, Dissolved	ND		0.020		mg/L		09/06/19 10:59	09/11/19 02:35	1
Arsenic, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 02:35	1
Barium, Dissolved	ND		0.20		mg/L		09/06/19 10:59	09/11/19 02:35	1
Beryllium, Dissolved	ND		0.0030		mg/L		09/06/19 10:59	09/11/19 02:35	1
Boron, Dissolved	ND		0.020		mg/L		09/06/19 10:59	09/11/19 02:35	1
Cadmium, Dissolved	ND		0.0050		mg/L		09/06/19 10:59	09/11/19 02:35	1
Calcium, Dissolved	ND		5.0		mg/L		09/06/19 10:59	09/11/19 02:35	1
Chromium, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 02:35	1
Cobalt, Dissolved	ND		0.050		mg/L		09/06/19 10:59	09/11/19 02:35	1
Copper, Dissolved	ND		0.025		mg/L		09/06/19 10:59	09/11/19 02:35	1
Iron, Dissolved	ND		0.10		mg/L		09/06/19 10:59	09/11/19 02:35	1
Lead, Dissolved	ND		0.0030		mg/L		09/06/19 10:59	09/11/19 02:35	1
Magnesium, Dissolved	ND		5.0		mg/L		09/06/19 10:59	09/11/19 02:35	1
Manganese, Dissolved	ND		0.015		mg/L		09/06/19 10:59	09/11/19 02:35	1
Nickel, Dissolved	ND		0.040		mg/L		09/06/19 10:59	09/11/19 02:35	1
Potassium, Dissolved	ND		5.0		mg/L		09/06/19 10:59	09/11/19 02:35	1
Silver, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 02:35	1
Sodium, Dissolved	ND		5.0		mg/L		09/06/19 10:59	09/11/19 02:35	1
Thallium, Dissolved	ND		0.010		mg/L		09/06/19 10:59	09/11/19 02:35	1
Vanadium, Dissolved	ND		0.050		mg/L		09/06/19 10:59	09/11/19 02:35	1
Zinc, Dissolved	ND		0.020		mg/L		09/06/19 10:59	09/11/19 02:35	1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-490197/2-A
Matrix: Water
Analysis Batch: 491325

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 490197

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum, Dissolved	10.0	9.78		mg/L		98	80 - 120
Antimony, Dissolved	0.200	0.219		mg/L		110	80 - 120
Arsenic, Dissolved	0.200	0.201		mg/L		101	80 - 120
Barium, Dissolved	0.200	0.207		mg/L		104	80 - 120
Beryllium, Dissolved	0.200	0.206		mg/L		103	80 - 120
Boron, Dissolved	0.200	0.203		mg/L		102	80 - 120
Cadmium, Dissolved	0.200	0.204		mg/L		102	80 - 120
Calcium, Dissolved	10.0	10.09		mg/L		101	80 - 120
Chromium, Dissolved	0.200	0.202		mg/L		101	80 - 120
Cobalt, Dissolved	0.200	0.192		mg/L		96	80 - 120
Copper, Dissolved	0.200	0.198		mg/L		99	80 - 120
Iron, Dissolved	10.0	10.20		mg/L		102	80 - 120
Lead, Dissolved	0.200	0.195		mg/L		98	80 - 120
Magnesium, Dissolved	10.0	10.00		mg/L		100	80 - 120
Manganese, Dissolved	0.200	0.202		mg/L		101	80 - 120
Nickel, Dissolved	0.200	0.199		mg/L		99	80 - 120
Potassium, Dissolved	10.0	9.28		mg/L		93	80 - 120
Silver, Dissolved	0.0500	0.0497		mg/L		99	80 - 120
Sodium, Dissolved	10.0	9.09		mg/L		91	80 - 120
Thallium, Dissolved	0.200	0.203		mg/L		102	80 - 120
Vanadium, Dissolved	0.200	0.202		mg/L		101	80 - 120
Zinc, Dissolved	0.200	0.204		mg/L		102	80 - 120

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488655

Client Sample ID: MW-17
Prep Type: Dissolved
Prep Batch: 488390

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum, Dissolved	ND		10.0	9.88		mg/L		99	75 - 125
Antimony, Dissolved	ND		0.200	0.218		mg/L		109	75 - 125
Arsenic, Dissolved	ND		0.200	0.205		mg/L		102	75 - 125
Barium, Dissolved	ND		0.200	0.292		mg/L		98	75 - 125
Beryllium, Dissolved	ND		0.200	0.199		mg/L		100	75 - 125
Boron, Dissolved	0.025		0.200	0.231		mg/L		103	75 - 125
Cadmium, Dissolved	ND		0.200	0.200		mg/L		100	75 - 125
Calcium, Dissolved	121		10.0	127.8	4	mg/L		63	75 - 125
Chromium, Dissolved	ND		0.200	0.199		mg/L		99	75 - 125
Cobalt, Dissolved	ND		0.200	0.200		mg/L		95	75 - 125
Copper, Dissolved	ND		0.200	0.192		mg/L		96	75 - 125
Iron, Dissolved	0.52		10.0	10.47		mg/L		100	75 - 125
Lead, Dissolved	0.0031		0.200	0.195		mg/L		96	75 - 125
Magnesium, Dissolved	39.1		10.0	48.43		mg/L		93	75 - 125
Manganese, Dissolved	0.060		0.200	0.273		mg/L		106	75 - 125
Nickel, Dissolved	ND		0.200	0.195		mg/L		98	75 - 125
Potassium, Dissolved	ND		10.0	11.05		mg/L		97	75 - 125
Silver, Dissolved	ND		0.0500	0.0541		mg/L		108	75 - 125
Sodium, Dissolved	61.0		10.0	42.56	4	mg/L		-184	75 - 125
Thallium, Dissolved	ND		0.200	0.198		mg/L		99	75 - 125
Vanadium, Dissolved	ND		0.200	0.193		mg/L		96	75 - 125

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488655

Client Sample ID: MW-17
Prep Type: Dissolved
Prep Batch: 488390

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc, Dissolved	ND		0.200	0.203		mg/L		100	75 - 125

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488655

Client Sample ID: MW-17
Prep Type: Dissolved
Prep Batch: 488390

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aluminum, Dissolved	ND		10.0	9.74		mg/L		97	75 - 125	1	20
Antimony, Dissolved	ND		0.200	0.219		mg/L		110	75 - 125	0	20
Arsenic, Dissolved	ND		0.200	0.203		mg/L		101	75 - 125	1	20
Barium, Dissolved	ND		0.200	0.288		mg/L		96	75 - 125	1	20
Beryllium, Dissolved	ND		0.200	0.196		mg/L		98	75 - 125	1	20
Boron, Dissolved	0.025		0.200	0.228		mg/L		102	75 - 125	1	20
Cadmium, Dissolved	ND		0.200	0.199		mg/L		99	75 - 125	1	20
Calcium, Dissolved	121		10.0	124.1	4	mg/L		26	75 - 125	3	20
Chromium, Dissolved	ND		0.200	0.196		mg/L		97	75 - 125	2	20
Cobalt, Dissolved	ND		0.200	0.198		mg/L		95	75 - 125	1	20
Copper, Dissolved	ND		0.200	0.191		mg/L		95	75 - 125	1	20
Iron, Dissolved	0.52		10.0	10.39		mg/L		99	75 - 125	1	20
Lead, Dissolved	0.0031		0.200	0.193		mg/L		95	75 - 125	1	20
Magnesium, Dissolved	39.1		10.0	47.00		mg/L		79	75 - 125	3	20
Manganese, Dissolved	0.060		0.200	0.271		mg/L		105	75 - 125	1	20
Nickel, Dissolved	ND		0.200	0.193		mg/L		96	75 - 125	1	20
Potassium, Dissolved	ND		10.0	10.90		mg/L		96	75 - 125	1	20
Silver, Dissolved	ND		0.0500	0.0535		mg/L		107	75 - 125	1	20
Sodium, Dissolved	61.0		10.0	40.28	4	mg/L		-206	75 - 125	6	20
Thallium, Dissolved	ND		0.200	0.194		mg/L		97	75 - 125	2	20
Vanadium, Dissolved	ND		0.200	0.192		mg/L		96	75 - 125	1	20
Zinc, Dissolved	ND		0.200	0.201		mg/L		99	75 - 125	1	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 480-488391/1-A
Matrix: Water
Analysis Batch: 488670

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488391

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/23/19 08:37	08/24/19 10:17	1

Lab Sample ID: LCS 480-488391/2-A
Matrix: Water
Analysis Batch: 488670

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488391

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium, Dissolved	0.0200	0.0199		mg/L		99	80 - 120

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 480-488398/1-A
Matrix: Water
Analysis Batch: 488669

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488398

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/23/19 08:37	08/24/19 11:19	1

Lab Sample ID: LCS 480-488398/2-A
Matrix: Water
Analysis Batch: 488669

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488398

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	0.0200	0.0186		mg/L		93	80 - 120

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488669

Client Sample ID: MW-17
Prep Type: Total/NA
Prep Batch: 488398

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	ND		0.0200	0.0199		mg/L		99	75 - 125

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488669

Client Sample ID: MW-17
Prep Type: Total/NA
Prep Batch: 488398

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium	ND		0.0200	0.0201		mg/L		100	75 - 125	1	20

Lab Sample ID: MB 480-488881/1-A
Matrix: Water
Analysis Batch: 489181

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488881

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/27/19 08:35	08/27/19 18:36	1

Lab Sample ID: LCS 480-488881/2-A
Matrix: Water
Analysis Batch: 489181

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488881

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	0.0200	0.0188		mg/L		94	80 - 120

Lab Sample ID: MB 480-488889/1-A
Matrix: Water
Analysis Batch: 489182

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/27/19 08:34	08/27/19 19:34	1

Lab Sample ID: LCS 480-488889/2-A
Matrix: Water
Analysis Batch: 489182

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium, Dissolved	0.0200	0.0202		mg/L		101	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 480-489080/1-A
Matrix: Water
Analysis Batch: 489347

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489080

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		08/28/19 07:59	08/28/19 16:10	1

Lab Sample ID: LCS 480-489080/2-A
Matrix: Water
Analysis Batch: 489347

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489080

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	0.0200	0.0184		mg/L		92	80 - 120

Lab Sample ID: LCSD 480-489080/23-A
Matrix: Water
Analysis Batch: 489347

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 489080

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium	0.0200	0.0188		mg/L		94	80 - 120	2	20

Lab Sample ID: MB 480-489093/1-A
Matrix: Water
Analysis Batch: 489346

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489093

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		08/28/19 09:38	08/28/19 15:40	1

Lab Sample ID: LCS 480-489093/2-A
Matrix: Water
Analysis Batch: 489346

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489093

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium, Dissolved	0.0200	0.0205		mg/L		103	80 - 120

Lab Sample ID: LCSD 480-489093/3-A
Matrix: Water
Analysis Batch: 489346

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 489093

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium, Dissolved	0.0200	0.0201		mg/L		100	80 - 120	2	20

Lab Sample ID: MB 480-489919/1-A
Matrix: Water
Analysis Batch: 490526

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489919

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		09/05/19 06:00	09/05/19 17:20	1

Lab Sample ID: LCS 480-489919/2-A
Matrix: Water
Analysis Batch: 490526

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489919

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	0.0200	0.0183		mg/L		92	80 - 120

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: LCSD 480-489919/23-A
Matrix: Water
Analysis Batch: 490526

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 489919

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium			0.0200	0.0183		mg/L		91	80 - 120	0	20

Lab Sample ID: MB 480-489963/1-A
Matrix: Water
Analysis Batch: 490524

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489963

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		09/04/19 08:33	09/05/19 15:27	1

Lab Sample ID: LCS 480-489963/2-A
Matrix: Water
Analysis Batch: 490524

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489963

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Selenium, Dissolved			0.0200	0.0184		mg/L		92	80 - 120		

Lab Sample ID: MB 480-490196/1-A
Matrix: Water
Analysis Batch: 490991

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 490196

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	ND		0.0010		mg/L		09/06/19 10:50	09/09/19 13:17	1

Lab Sample ID: LCS 480-490196/2-A
Matrix: Water
Analysis Batch: 490991

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490196

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Selenium, Dissolved			0.0200	0.0194		mg/L		97	80 - 120		

Lab Sample ID: MB 480-490409/1-A
Matrix: Water
Analysis Batch: 490643

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 490409

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	ND		0.0050		mg/L		09/06/19 06:30	09/06/19 13:30	1

Lab Sample ID: LCS 480-490409/2-A
Matrix: Water
Analysis Batch: 490643

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490409

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Selenium			0.0200	0.0189		mg/L		94	80 - 120		

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488670

Client Sample ID: MW-17
Prep Type: Dissolved
Prep Batch: 488391

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Selenium, Dissolved	ND		0.0200	0.0202		mg/L		101	75 - 125		

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488670

Client Sample ID: MW-17
Prep Type: Dissolved
Prep Batch: 488391

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium, Dissolved	ND		0.0200	0.0200		mg/L		100	75 - 125	1	20

Lab Sample ID: 480-158145-1 MS
Matrix: Ground Water
Analysis Batch: 489346

Client Sample ID: MW-50
Prep Type: Dissolved
Prep Batch: 489093

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium, Dissolved	ND		0.0200	0.0203		mg/L		102	75 - 125

Lab Sample ID: 480-158145-1 MSD
Matrix: Ground Water
Analysis Batch: 489346

Client Sample ID: MW-50
Prep Type: Dissolved
Prep Batch: 489093

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium, Dissolved	ND		0.0200	0.0198		mg/L		99	75 - 125	3	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 480-488784/1-A
Matrix: Water
Analysis Batch: 488894

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488784

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/26/19 12:12	08/26/19 15:20	1

Lab Sample ID: LCS 480-488784/2-A
Matrix: Water
Analysis Batch: 488894

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488784

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00667	0.00675		mg/L		101	80 - 120

Lab Sample ID: MB 480-488785/1-A
Matrix: Water
Analysis Batch: 488894

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488785

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/26/19 12:12	08/26/19 15:58	1

Lab Sample ID: LCS 480-488785/2-A
Matrix: Water
Analysis Batch: 488894

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488785

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00667	0.00658		mg/L		99	80 - 120

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488894

Client Sample ID: MW-17
Prep Type: Total/NA
Prep Batch: 488785

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	ND		0.00667	0.00708		mg/L		106	80 - 120

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488894

Client Sample ID: MW-17
Prep Type: Total/NA
Prep Batch: 488785

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	ND		0.00667	0.00697		mg/L		104	80 - 120	2	20

Lab Sample ID: MB 480-489002/1-A
Matrix: Water
Analysis Batch: 489089

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489002

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		08/27/19 11:20	08/27/19 14:21	1
Mercury, Dissolved	ND		0.00020		mg/L		08/27/19 11:20	08/27/19 14:21	1

Lab Sample ID: LCS 480-489002/2-A
Matrix: Water
Analysis Batch: 489089

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489002

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00667	0.00697		mg/L		104	80 - 120
Mercury, Dissolved	0.00667	0.00697		mg/L		104	80 - 120

Lab Sample ID: MB 480-489108/1-A
Matrix: Water
Analysis Batch: 489303

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489108

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/28/19 11:32	08/28/19 14:07	1

Lab Sample ID: LCS 480-489108/2-A
Matrix: Water
Analysis Batch: 489303

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489108

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury, Dissolved	0.00667	0.00712		mg/L		107	80 - 120

Lab Sample ID: MB 480-489397/1-A
Matrix: Water
Analysis Batch: 489514

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489397

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		08/29/19 11:53	08/29/19 14:52	1

Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 480-489397/2-A
Matrix: Water
Analysis Batch: 489514

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489397

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury, Dissolved	0.00667	0.00695		mg/L		104	80 - 120

Lab Sample ID: MB 480-489875/1-A
Matrix: Water
Analysis Batch: 489986

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489875

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		09/03/19 11:54	09/03/19 15:28	1

Lab Sample ID: LCS 480-489875/2-A
Matrix: Water
Analysis Batch: 489986

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489875

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00667	0.00622		mg/L		93	80 - 120

Lab Sample ID: MB 480-491032/1-A
Matrix: Water
Analysis Batch: 491285

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 491032

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		09/10/19 11:40	09/10/19 15:41	1

Lab Sample ID: LCS 480-491032/2-A
Matrix: Water
Analysis Batch: 491285

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 491032

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00667	0.00693		mg/L		104	80 - 120

Lab Sample ID: MB 480-491034/1-A
Matrix: Water
Analysis Batch: 491285

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 491034

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		09/10/19 11:40	09/10/19 16:59	1

Lab Sample ID: LCS 480-491034/2-A
Matrix: Water
Analysis Batch: 491285

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 491034

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00667	0.00690		mg/L		103	80 - 120

Lab Sample ID: MB 480-492571/1-A
Matrix: Water
Analysis Batch: 492778

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 492571

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	ND		0.00020		mg/L		09/18/19 11:00	09/18/19 14:14	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: LCS 480-492571/2-A
Matrix: Water
Analysis Batch: 492778

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 492571

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury, Dissolved			0.00667	0.00703		mg/L		105	80 - 120		

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 489089

Client Sample ID: MW-17
Prep Type: Dissolved
Prep Batch: 489002

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury, Dissolved	ND		0.00667	0.00675		mg/L		101	80 - 120		

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 489089

Client Sample ID: MW-17
Prep Type: Dissolved
Prep Batch: 489002

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury, Dissolved	ND		0.00667	0.00693		mg/L		104	80 - 120	3	20

Lab Sample ID: 480-157980-10 MS
Matrix: Ground Water
Analysis Batch: 489303

Client Sample ID: MW-P(S)
Prep Type: Dissolved
Prep Batch: 489108

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury, Dissolved	ND		0.00667	0.00705		mg/L		106	80 - 120		

Lab Sample ID: 480-157980-10 MSD
Matrix: Ground Water
Analysis Batch: 489303

Client Sample ID: MW-P(S)
Prep Type: Dissolved
Prep Batch: 489108

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury, Dissolved	ND		0.00667	0.00708		mg/L		106	80 - 120	0	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-488982/28
Matrix: Water
Analysis Batch: 488982

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.20		mg/L			08/27/19 18:07	1

Lab Sample ID: MB 480-488982/4
Matrix: Water
Analysis Batch: 488982

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.20		mg/L			08/27/19 12:13	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 480-488982/27
Matrix: Water
Analysis Batch: 488982

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	5.00	4.68		mg/L		94	90 - 110

Lab Sample ID: LCS 480-488982/3
Matrix: Water
Analysis Batch: 488982

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	5.00	4.68		mg/L		94	90 - 110

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488982

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	ND		25.0	24.70		mg/L		99	80 - 120

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488982

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromide	ND		25.0	24.48		mg/L		98	80 - 120	1	15

Lab Sample ID: MB 480-489055/4
Matrix: Water
Analysis Batch: 489055

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.20		mg/L			08/28/19 02:52	1

Lab Sample ID: LCS 480-489055/3
Matrix: Water
Analysis Batch: 489055

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	5.00	4.77		mg/L		95	90 - 110

Lab Sample ID: MB 480-489098/4
Matrix: Water
Analysis Batch: 489098

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.20		mg/L			08/28/19 11:38	1

Lab Sample ID: LCS 480-489098/3
Matrix: Water
Analysis Batch: 489098

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	5.00	4.76		mg/L		95	90 - 110

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-490899/28
Matrix: Water
Analysis Batch: 490899

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.20		mg/L			09/09/19 19:26	1

Lab Sample ID: MB 480-490899/4
Matrix: Water
Analysis Batch: 490899

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	ND		0.20		mg/L			09/09/19 13:33	1

Lab Sample ID: LCS 480-490899/27
Matrix: Water
Analysis Batch: 490899

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	5.00	4.50		mg/L		90	90 - 110

Lab Sample ID: LCS 480-490899/3
Matrix: Water
Analysis Batch: 490899

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	5.00	4.78		mg/L		96	90 - 110

Method: 310.2 - Alkalinity

Lab Sample ID: MB 480-488908/109
Matrix: Water
Analysis Batch: 488908

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0		mg/L			08/27/19 00:06	1

Lab Sample ID: MB 480-488908/125
Matrix: Water
Analysis Batch: 488908

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0		mg/L			08/27/19 00:19	1

Lab Sample ID: MB 480-488908/90
Matrix: Water
Analysis Batch: 488908

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0		mg/L			08/26/19 23:46	1

Method: 310.2 - Alkalinity (Continued)

Lab Sample ID: MB 480-488908/96
Matrix: Water
Analysis Batch: 488908

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0		mg/L			08/26/19 23:55	1

Lab Sample ID: LCS 480-488908/110
Matrix: Water
Analysis Batch: 488908

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	51.97		mg/L		104	90 - 110

Lab Sample ID: LCS 480-488908/126
Matrix: Water
Analysis Batch: 488908

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	50.67		mg/L		101	90 - 110

Lab Sample ID: LCS 480-488908/91
Matrix: Water
Analysis Batch: 488908

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	49.40		mg/L		99	90 - 110

Lab Sample ID: LCS 480-488908/97
Matrix: Water
Analysis Batch: 488908

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	54.26		mg/L		109	90 - 110

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488908

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	324		20.0	345.9	4	mg/L		109	60 - 140

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488908

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity, Total	324		20.0	355.1	4	mg/L		156	60 - 140	3	20

Lab Sample ID: MB 480-489320/73
Matrix: Water
Analysis Batch: 489320

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0		mg/L			08/28/19 21:10	1

Method: 310.2 - Alkalinity

Lab Sample ID: LCS 480-489320/74
Matrix: Water
Analysis Batch: 489320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	54.07		mg/L		108	90 - 110

Lab Sample ID: MB 480-491046/19
Matrix: Water
Analysis Batch: 491046

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0		mg/L			09/09/19 16:19	1

Lab Sample ID: MB 480-491046/43
Matrix: Water
Analysis Batch: 491046

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0		mg/L			09/09/19 17:01	1

Lab Sample ID: MB 480-491046/51
Matrix: Water
Analysis Batch: 491046

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0		mg/L			09/09/19 17:07	1

Lab Sample ID: MB 480-491046/70
Matrix: Water
Analysis Batch: 491046

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0		mg/L			09/09/19 17:17	1

Lab Sample ID: MB 480-491046/80
Matrix: Water
Analysis Batch: 491046

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	ND		5.0		mg/L			09/09/19 17:22	1

Lab Sample ID: LCS 480-491046/20
Matrix: Water
Analysis Batch: 491046

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	53.61		mg/L		107	90 - 110

Lab Sample ID: LCS 480-491046/44
Matrix: Water
Analysis Batch: 491046

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	49.72		mg/L		99	90 - 110

Method: 310.2 - Alkalinity

Lab Sample ID: LCS 480-491046/52
Matrix: Water
Analysis Batch: 491046

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	51.57		mg/L		103	90 - 110

Lab Sample ID: LCS 480-491046/71
Matrix: Water
Analysis Batch: 491046

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	49.77		mg/L		100	90 - 110

Lab Sample ID: LCS 480-491046/81
Matrix: Water
Analysis Batch: 491046

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	50.0	49.40		mg/L		99	90 - 110

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-488376/123
Matrix: Water
Analysis Batch: 488376

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.050		mg/L as N			08/22/19 11:33	1

Lab Sample ID: MB 480-488376/147
Matrix: Water
Analysis Batch: 488376

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.050		mg/L as N			08/22/19 11:54	1

Lab Sample ID: LCS 480-488376/124
Matrix: Water
Analysis Batch: 488376

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	1.00	1.03		mg/L as N		103	90 - 110

Lab Sample ID: LCS 480-488376/148
Matrix: Water
Analysis Batch: 488376

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	1.00	1.03		mg/L as N		103	90 - 110

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488376

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	ND	F1	0.200	0.192	F1	mg/L as N		72	90 - 110

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488376

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia (as N)	ND	F1	0.200	0.193	F1	mg/L as N		72	90 - 110	1	20

Lab Sample ID: 480-157980-6 MS
Matrix: Ground Water
Analysis Batch: 488376

Client Sample ID: MW-L(I)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	ND	F1	0.200	0.197	F1	mg/L as N		85	90 - 110

Lab Sample ID: MB 480-488778/27
Matrix: Water
Analysis Batch: 488778

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.050		mg/L as N			08/26/19 09:08	1

Lab Sample ID: LCS 480-488778/28
Matrix: Water
Analysis Batch: 488778

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	1.00	1.01		mg/L as N		101	90 - 110

Lab Sample ID: MB 480-489211/27
Matrix: Water
Analysis Batch: 489211

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.050		mg/L as N			08/28/19 09:03	1

Lab Sample ID: MB 480-489211/3
Matrix: Water
Analysis Batch: 489211

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.050		mg/L as N			08/28/19 08:42	1

Lab Sample ID: LCS 480-489211/28
Matrix: Water
Analysis Batch: 489211

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	1.00	1.01		mg/L as N		101	90 - 110

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: LCS 480-489211/4
Matrix: Water
Analysis Batch: 489211

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	1.00	1.02		mg/L as N		102	90 - 110

Lab Sample ID: MB 480-490559/27
Matrix: Water
Analysis Batch: 490559

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.050		mg/L as N			09/06/19 08:12	1

Lab Sample ID: MB 480-490559/51
Matrix: Water
Analysis Batch: 490559

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.050		mg/L as N			09/06/19 08:33	1

Lab Sample ID: LCS 480-490559/28
Matrix: Water
Analysis Batch: 490559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	1.00	1.02		mg/L as N		102	90 - 110

Lab Sample ID: LCS 480-490559/52
Matrix: Water
Analysis Batch: 490559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	1.00	1.01		mg/L as N		101	90 - 110

Lab Sample ID: 480-158409-1 MS
Matrix: Water
Analysis Batch: 490559

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	ND	F1	0.200	0.138	F1	mg/L as N		69	90 - 110

Lab Sample ID: MB 480-490641/27
Matrix: Water
Analysis Batch: 490641

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.050		mg/L as N			09/06/19 12:33	1

Lab Sample ID: MB 480-490641/3
Matrix: Water
Analysis Batch: 490641

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	ND		0.050		mg/L as N			09/06/19 12:12	1

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: LCS 480-490641/28
Matrix: Water
Analysis Batch: 490641

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	1.00	1.03		mg/L as N		103	90 - 110

Lab Sample ID: LCS 480-490641/4
Matrix: Water
Analysis Batch: 490641

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	1.00	1.04		mg/L as N		104	90 - 110

Lab Sample ID: 480-158492-1 MS
Matrix: Ground Water
Analysis Batch: 490641

Client Sample ID: MWSE-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia (as N)	ND	F1	0.200	0.159	F1	mg/L as N		80	90 - 110

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 480-488505/1-A
Matrix: Water
Analysis Batch: 488896

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488505

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		08/23/19 09:14	08/26/19 13:55	1

Lab Sample ID: LCS 480-488505/2-A
Matrix: Water
Analysis Batch: 488896

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488505

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.32		mg/L as N		93	90 - 110

Lab Sample ID: MB 480-488630/1-A
Matrix: Water
Analysis Batch: 488896

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 488630

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		08/24/19 08:41	08/26/19 09:12	1

Lab Sample ID: LCS 480-488630/2-A
Matrix: Water
Analysis Batch: 488896

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 488630

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.36		mg/L as N		94	90 - 110

Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488896

Client Sample ID: MW-17
Prep Type: Total/NA
Prep Batch: 488630

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	ND		1.00	1.02		mg/L as N		102	90 - 110

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488896

Client Sample ID: MW-17
Prep Type: Total/NA
Prep Batch: 488630

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Kjeldahl Nitrogen	ND		1.00	0.976		mg/L as N		98	90 - 110	4	20

Lab Sample ID: MB 480-489367/1-A
Matrix: Water
Analysis Batch: 489787

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489367

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		08/29/19 09:01	09/01/19 13:01	1

Lab Sample ID: LCS 480-489367/2-A
Matrix: Water
Analysis Batch: 489787

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489367

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.27		mg/L as N		91	90 - 110

Lab Sample ID: MB 480-490033/1-A
Matrix: Water
Analysis Batch: 490147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 490033

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		09/04/19 08:05	09/04/19 12:44	1

Lab Sample ID: LCS 480-490033/2-A
Matrix: Water
Analysis Batch: 490147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490033

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.38		mg/L as N		95	90 - 110

Lab Sample ID: 480-158093-3 MS
Matrix: Water
Analysis Batch: 490147

Client Sample ID: MW-Q(I)
Prep Type: Total/NA
Prep Batch: 490033

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	0.26	F1	1.00	1.13	F1	mg/L as N		88	90 - 110

Lab Sample ID: MB 480-490387/1-A
Matrix: Water
Analysis Batch: 490924

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 490387

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		09/05/19 13:33	09/08/19 15:59	1

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: LCS 480-490387/2-A
Matrix: Water
Analysis Batch: 490924

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490387

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.28		mg/L as N		91	90 - 110

Lab Sample ID: MB 480-491906/1-A
Matrix: Water
Analysis Batch: 492180

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 491906

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		09/13/19 10:03	09/15/19 09:54	1

Lab Sample ID: LCS 480-491906/2-A
Matrix: Water
Analysis Batch: 492180

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 491906

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.37		mg/L as N		95	90 - 110

Lab Sample ID: 480-158409-1 DU
Matrix: Water
Analysis Batch: 492180

Client Sample ID: FIELD BLANK
Prep Type: Total/NA
Prep Batch: 491906

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Kjeldahl Nitrogen	ND		4.14		mg/L as N		NC	20

Lab Sample ID: MB 480-492388/1-A
Matrix: Water
Analysis Batch: 492583

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 492388

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		09/17/19 07:30	09/17/19 15:18	1

Lab Sample ID: LCS 480-492388/2-A
Matrix: Water
Analysis Batch: 492583

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 492388

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.39		mg/L as N		96	90 - 110

Lab Sample ID: 480-158409-4 MS
Matrix: Ground Water
Analysis Batch: 492583

Client Sample ID: MW-O(I)
Prep Type: Total/NA
Prep Batch: 492388

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	ND		1.00	0.957		mg/L as N		96	90 - 110

Lab Sample ID: MB 480-492889/1-A
Matrix: Water
Analysis Batch: 493403

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 492889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		09/19/19 09:22	09/22/19 08:58	1

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: LCS 480-492889/2-A
Matrix: Water
Analysis Batch: 493403

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 492889

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.27		mg/L as N		91	90 - 110

Lab Sample ID: MB 480-494488/1-A
Matrix: Water
Analysis Batch: 494800

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 494488

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.15		mg/L as N		09/27/19 08:32	09/29/19 10:45	1

Lab Sample ID: LCS 480-494488/2-A
Matrix: Water
Analysis Batch: 494800

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 494488

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.44		mg/L as N		97	90 - 110

Lab Sample ID: 480-158409-1 DU
Matrix: Water
Analysis Batch: 494800

Client Sample ID: FIELD BLANK
Prep Type: Total/NA
Prep Batch: 494488

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Kjeldahl Nitrogen	ND	H	ND		mg/L as N		NC	20

Method: 410.4 - COD

Lab Sample ID: MB 480-488689/28
Matrix: Water
Analysis Batch: 488689

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		5.0		mg/L			08/23/19 18:15	1

Lab Sample ID: MB 480-488689/52
Matrix: Water
Analysis Batch: 488689

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		5.0		mg/L			08/23/19 18:15	1

Lab Sample ID: LCS 480-488689/29
Matrix: Water
Analysis Batch: 488689

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	25.67		mg/L		103	90 - 110

Method: 410.4 - COD (Continued)

Lab Sample ID: LCS 480-488689/53
Matrix: Water
Analysis Batch: 488689

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	25.33		mg/L		101	90 - 110

Lab Sample ID: MB 480-488739/28
Matrix: Water
Analysis Batch: 488739

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		5.0		mg/L			08/25/19 14:34	1

Lab Sample ID: MB 480-488739/4
Matrix: Water
Analysis Batch: 488739

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		5.0		mg/L			08/25/19 13:28	1

Lab Sample ID: LCS 480-488739/29
Matrix: Water
Analysis Batch: 488739

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	26.22		mg/L		105	90 - 110

Lab Sample ID: LCS 480-488739/5
Matrix: Water
Analysis Batch: 488739

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	25.26		mg/L		101	90 - 110

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488739

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	20.7		50.0	63.93		mg/L		87	75 - 125

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488739

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chemical Oxygen Demand	20.7		50.0	63.28		mg/L		85	75 - 125	1	20

Lab Sample ID: MB 480-489045/3
Matrix: Water
Analysis Batch: 489045

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		5.0		mg/L			08/27/19 11:23	1

Method: 410.4 - COD

Lab Sample ID: LCS 480-489045/4
Matrix: Water
Analysis Batch: 489045

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chemical Oxygen Demand			25.0	24.86		mg/L		99	90 - 110		

Lab Sample ID: 480-157980-10 MS
Matrix: Ground Water
Analysis Batch: 489045

Client Sample ID: MW-P(S)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chemical Oxygen Demand	7.2		50.0	63.37		mg/L		112	75 - 125		

Lab Sample ID: 480-157980-10 MSD
Matrix: Ground Water
Analysis Batch: 489045

Client Sample ID: MW-P(S)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chemical Oxygen Demand	7.2		50.0	52.46		mg/L		90	75 - 125	19	20

Lab Sample ID: MB 480-489430/27
Matrix: Water
Analysis Batch: 489430

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		5.0		mg/L			08/29/19 12:10	1

Lab Sample ID: LCS 480-489430/28
Matrix: Water
Analysis Batch: 489430

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chemical Oxygen Demand			25.0	25.83		mg/L		103	90 - 110		

Lab Sample ID: MB 480-489521/27
Matrix: Water
Analysis Batch: 489521

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		5.0		mg/L			08/29/19 15:50	1

Lab Sample ID: LCS 480-489521/28
Matrix: Water
Analysis Batch: 489521

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chemical Oxygen Demand			25.0	25.50		mg/L		102	90 - 110		

Lab Sample ID: MB 480-490698/51
Matrix: Water
Analysis Batch: 490698

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		5.0		mg/L			09/06/19 14:05	1

Method: 410.4 - COD

Lab Sample ID: MB 480-490698/75
Matrix: Water
Analysis Batch: 490698

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		5.0		mg/L			09/06/19 14:05	1

Lab Sample ID: LCS 480-490698/52
Matrix: Water
Analysis Batch: 490698

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	26.79		mg/L		107	90 - 110

Lab Sample ID: LCS 480-490698/76
Matrix: Water
Analysis Batch: 490698

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	26.47		mg/L		106	90 - 110

Lab Sample ID: MB 480-491715/3
Matrix: Water
Analysis Batch: 491715

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		5.0		mg/L			09/12/19 12:35	1

Lab Sample ID: LCS 480-491715/4
Matrix: Water
Analysis Batch: 491715

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	25.0	26.79		mg/L		107	90 - 110

Lab Sample ID: 480-158492-3 MS
Matrix: Ground Water
Analysis Batch: 491715

Client Sample ID: MWSE-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	ND		50.0	54.39		mg/L		109	75 - 125

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 480-488350/25
Matrix: Water
Analysis Batch: 488350

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010		mg/L			08/22/19 08:30	1

Method: 7196A - Chromium, Hexavalent (Continued)

Lab Sample ID: MB 480-488350/3
Matrix: Water
Analysis Batch: 488350

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010		mg/L			08/22/19 08:30	1

Lab Sample ID: LCS 480-488350/26
Matrix: Water
Analysis Batch: 488350

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			0.0500	0.0498		mg/L		100	85 - 115		

Lab Sample ID: LCS 480-488350/4
Matrix: Water
Analysis Batch: 488350

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			0.0500	0.0510		mg/L		102	85 - 115		

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488350

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent	ND		0.0500	0.0546		mg/L		109	85 - 115		

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488350

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	ND		0.0500	0.0558		mg/L		112	85 - 115	2	20

Lab Sample ID: 480-157980-8 MS
Matrix: Ground Water
Analysis Batch: 488350

Client Sample ID: MW-M(S)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent	ND		0.0500	0.0618		mg/L		106	85 - 115		

Lab Sample ID: 480-157980-2 DU
Matrix: Ground Water
Analysis Batch: 488350

Client Sample ID: MW-16
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chromium, hexavalent	ND			ND		mg/L				NC	20

Lab Sample ID: 480-157980-7 DU
Matrix: Ground Water
Analysis Batch: 488350

Client Sample ID: MW-M(I)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chromium, hexavalent	ND			ND		mg/L				NC	20

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 480-488637/3
Matrix: Water
Analysis Batch: 488637

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010		mg/L			08/24/19 08:15	1

Lab Sample ID: LCS 480-488637/4
Matrix: Water
Analysis Batch: 488637

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	0.0500	0.0498		mg/L		100	85 - 115

Lab Sample ID: MB 480-489096/3
Matrix: Water
Analysis Batch: 489096

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010		mg/L			08/27/19 11:11	1

Lab Sample ID: LCS 480-489096/4
Matrix: Water
Analysis Batch: 489096

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	0.0500	0.0510		mg/L		102	85 - 115

Lab Sample ID: 480-158145-1 MS
Matrix: Ground Water
Analysis Batch: 489096

Client Sample ID: MW-50
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		0.0500	0.0450		mg/L		90	85 - 115

Lab Sample ID: MB 480-489758/3
Matrix: Water
Analysis Batch: 489758

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010		mg/L			08/31/19 09:14	1

Lab Sample ID: LCS 480-489758/4
Matrix: Water
Analysis Batch: 489758

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	0.0500	0.0498		mg/L		100	85 - 115

Lab Sample ID: 480-158409-4 MS
Matrix: Ground Water
Analysis Batch: 489758

Client Sample ID: MW-O(I)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		0.0500	0.0522		mg/L		104	85 - 115

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: 480-158409-2 DU
Matrix: Ground Water
Analysis Batch: 489758

Client Sample ID: MWBA-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chromium, hexavalent	ND			ND		mg/L				NC	20

Lab Sample ID: MB 480-490115/3
Matrix: Water
Analysis Batch: 490115

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.010		mg/L			09/04/19 09:45	1

Lab Sample ID: LCS 480-490115/4
Matrix: Water
Analysis Batch: 490115

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			0.0500	0.0522		mg/L		104	85 - 115		

Lab Sample ID: 480-158492-4 MS
Matrix: Ground Water
Analysis Batch: 490115

Client Sample ID: MWSE-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent	ND		0.0500	0.0498		mg/L		100	85 - 115		

Lab Sample ID: 480-158492-4 DU
Matrix: Ground Water
Analysis Batch: 490115

Client Sample ID: MWSE-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chromium, hexavalent	ND			ND		mg/L				NC	20

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 480-489794/1-A
Matrix: Water
Analysis Batch: 489906

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 489794

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010		mg/L		09/01/19 16:04	09/03/19 11:05	1

Lab Sample ID: LCS 480-489794/2-A
Matrix: Water
Analysis Batch: 489911

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489794

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total			0.400	0.382		mg/L		96	90 - 110		

Method: 9012B - Cyanide, Total andor Amenable (Continued)

Lab Sample ID: LCS 480-489794/3-A
Matrix: Water
Analysis Batch: 489906

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 489794

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total			0.250	0.225		mg/L		90	90 - 110		

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 489906

Client Sample ID: MW-17
Prep Type: Total/NA
Prep Batch: 489794

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total	ND	F1	0.100	0.0850	F1	mg/L		85	90 - 110		

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 489906

Client Sample ID: MW-17
Prep Type: Total/NA
Prep Batch: 489794

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND	F1	0.100	0.0838	F1	mg/L		84	90 - 110	1	15

Lab Sample ID: 480-157980-9 MS
Matrix: Ground Water
Analysis Batch: 489911

Client Sample ID: MW-P(I)
Prep Type: Total/NA
Prep Batch: 489794

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total	ND	F1	0.100	0.0839	F1	mg/L		84	90 - 110		

Lab Sample ID: MB 480-490313/1-A
Matrix: Water
Analysis Batch: 490396

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 490313

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010		mg/L		09/04/19 20:50	09/05/19 13:22	1

Lab Sample ID: LCS 480-490313/2-A
Matrix: Water
Analysis Batch: 490396

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490313

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total			0.250	0.252		mg/L		101	90 - 110		

Lab Sample ID: MB 480-490819/1-A
Matrix: Water
Analysis Batch: 490939

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 490819

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010		mg/L		09/08/19 14:57	09/09/19 12:02	1

Lab Sample ID: LCS 480-490819/2-A
Matrix: Water
Analysis Batch: 490939

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490819

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cyanide, Total			0.400	0.376		mg/L		94	90 - 110		

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: LCS 480-490819/3-A
Matrix: Water
Analysis Batch: 490939

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490819

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.250	0.239		mg/L		96	90 - 110

Lab Sample ID: MB 480-491161/1-A
Matrix: Water
Analysis Batch: 491490

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 491161

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010		mg/L		09/09/19 19:35	09/11/19 13:27	1

Lab Sample ID: LCS 480-491161/2-A
Matrix: Water
Analysis Batch: 491490

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 491161

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.250	0.227		mg/L		91	90 - 110

Lab Sample ID: 480-158409-2 MS
Matrix: Ground Water
Analysis Batch: 491490

Client Sample ID: MWBA-1
Prep Type: Total/NA
Prep Batch: 491161

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND	F1	0.100	ND	F1	mg/L		8	90 - 110

Lab Sample ID: MB 480-491744/1-A
Matrix: Water
Analysis Batch: 491820

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 491744

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010		mg/L		09/12/19 14:04	09/12/19 17:01	1

Lab Sample ID: LCS 480-491744/2-A
Matrix: Water
Analysis Batch: 491820

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 491744

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.400	0.361		mg/L		90	90 - 110

Lab Sample ID: LCS 480-491744/3-A
Matrix: Water
Analysis Batch: 491820

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 491744

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.250	0.215	*	mg/L		86	90 - 110

Lab Sample ID: MB 480-492183/1-A
Matrix: Water
Analysis Batch: 492325

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 492183

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010		mg/L		09/15/19 15:19	09/16/19 12:28	1

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: LCS 480-492183/2-A
Matrix: Water
Analysis Batch: 492325

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 492183

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.400	0.441		mg/L		110	90 - 110

Lab Sample ID: LCS 480-492183/3-A
Matrix: Water
Analysis Batch: 492325

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 492183

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.250	0.277	*	mg/L		111	90 - 110

Lab Sample ID: MB 480-492184/1-A
Matrix: Water
Analysis Batch: 492324

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 492184

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010		mg/L		09/15/19 15:25	09/16/19 13:19	1

Lab Sample ID: LCS 480-492184/2-A
Matrix: Water
Analysis Batch: 492324

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 492184

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.400	0.407		mg/L		102	90 - 110

Lab Sample ID: MB 480-492463/1-A
Matrix: Water
Analysis Batch: 492555

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 492463

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010		mg/L		09/17/19 11:02	09/17/19 15:13	1

Lab Sample ID: LCS 480-492463/2-A
Matrix: Water
Analysis Batch: 492555

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 492463

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.400	0.368		mg/L		92	90 - 110

Lab Sample ID: LCS 480-492463/3-A
Matrix: Water
Analysis Batch: 492555

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 492463

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.250	0.224		mg/L		90	90 - 110

Lab Sample ID: 480-158492-2 MS
Matrix: Ground Water
Analysis Batch: 492555

Client Sample ID: MWSE-2
Prep Type: Total/NA
Prep Batch: 492463

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND	F1	0.100	0.0892	F1	mg/L		89	90 - 110

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 480-492820/1-A
Matrix: Water
Analysis Batch: 492894

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 492820

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		0.010		mg/L		09/18/19 18:35	09/19/19 08:35	1

Lab Sample ID: LCS 480-492820/2-A
Matrix: Water
Analysis Batch: 492894

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 492820

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.400	0.427		mg/L		107	90 - 110

Lab Sample ID: LCS 480-492820/3-B
Matrix: Water
Analysis Batch: 492894

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 492820

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	0.250	0.274		mg/L		110	90 - 110

Method: 9065 - Phenolics, Total Recoverable

Lab Sample ID: MB 480-490474/1-A
Matrix: Water
Analysis Batch: 490818

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 490474

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenolics, Total Recoverable	0.00632		0.0050		mg/L		09/05/19 23:15	09/08/19 10:54	1

Lab Sample ID: LCS 480-490474/2-A
Matrix: Water
Analysis Batch: 490818

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490474

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.100	0.0898		mg/L		90	90 - 110

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 490818

Client Sample ID: MW-17
Prep Type: Total/NA
Prep Batch: 490474

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.011	B F1	0.100	0.0973	F1	mg/L		86	90 - 110

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 490818

Client Sample ID: MW-17
Prep Type: Total/NA
Prep Batch: 490474

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenolics, Total Recoverable	0.011	B F1	0.100	0.0982	F1	mg/L		87	90 - 110	1	20

Method: 9065 - Phenolics, Total Recoverable (Continued)

Lab Sample ID: 480-157980-9 MS
Matrix: Ground Water
Analysis Batch: 490818

Client Sample ID: MW-P(I)
Prep Type: Total/NA
Prep Batch: 490474

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.0074	B F1	0.100	0.0937	F1	mg/L		86	90 - 110

Lab Sample ID: MB 480-490714/1-A
Matrix: Water
Analysis Batch: 490818

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 490714

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenolics, Total Recoverable	0.00532		0.0050		mg/L		09/07/19 00:56	09/08/19 11:04	1

Lab Sample ID: LCS 480-490714/2-A
Matrix: Water
Analysis Batch: 490818

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490714

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.100	0.0901		mg/L		90	90 - 110

Lab Sample ID: MB 480-490716/1-A
Matrix: Water
Analysis Batch: 490818

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 490716

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenolics, Total Recoverable	0.00619		0.0050		mg/L		09/07/19 01:20	09/08/19 11:33	1

Lab Sample ID: LCS 480-490716/2-A
Matrix: Water
Analysis Batch: 490818

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 490716

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.100	0.0917		mg/L		92	90 - 110

Lab Sample ID: MB 480-491834/1-A
Matrix: Water
Analysis Batch: 492044

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 491834

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenolics, Total Recoverable	0.00895		0.0050		mg/L		09/12/19 20:24	09/13/19 17:56	1

Lab Sample ID: LCS 480-491834/2-A
Matrix: Water
Analysis Batch: 492044

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 491834

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.100	0.0989		mg/L		99	90 - 110

Lab Sample ID: MB 480-492055/1-A
Matrix: Water
Analysis Batch: 492319

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 492055

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenolics, Total Recoverable	ND		0.0050		mg/L		09/13/19 23:44	09/15/19 14:42	1

Method: 9065 - Phenolics, Total Recoverable

Lab Sample ID: LCS 480-492055/2-A
Matrix: Water
Analysis Batch: 492319

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 492055

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.100	0.0933		mg/L		93	90 - 110

Lab Sample ID: 480-158409-1 MS
Matrix: Water
Analysis Batch: 492319

Client Sample ID: FIELD BLANK
Prep Type: Total/NA
Prep Batch: 492055

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.0088	F1	0.100	0.0848	F1	mg/L		76	90 - 110

Lab Sample ID: MB 480-492371/1-A
Matrix: Water
Analysis Batch: 492515

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 492371

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenolics, Total Recoverable	0.00708		0.0050		mg/L		09/16/19 23:07	09/17/19 10:24	1

Lab Sample ID: LCS 480-492371/2-A
Matrix: Water
Analysis Batch: 492515

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 492371

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.100	0.0908		mg/L		91	90 - 110

Lab Sample ID: 480-158492-1 MS
Matrix: Ground Water
Analysis Batch: 492515

Client Sample ID: MWSE-1
Prep Type: Total/NA
Prep Batch: 492371

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.0088	F1 B	0.100	0.0940	F1	mg/L		85	90 - 110

Lab Sample ID: MB 480-492372/1-A
Matrix: Water
Analysis Batch: 492515

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 492372

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenolics, Total Recoverable	0.00744		0.0050		mg/L		09/16/19 23:12	09/17/19 10:24	1

Lab Sample ID: LCS 480-492372/2-A
Matrix: Water
Analysis Batch: 492515

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 492372

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenolics, Total Recoverable	0.100	0.0943		mg/L		94	90 - 110

Method: SM 2120B - Color, Colorimetric

Lab Sample ID: MB 480-488596/3
Matrix: Water
Analysis Batch: 488596

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100			Color Units			08/23/19 10:10	1

Lab Sample ID: LCS 480-488596/4
Matrix: Water
Analysis Batch: 488596

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Color			30.0	30.00		Color Units		100	90 - 110		

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488596

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Color	ND	F1	20.0	20.00		Color Units		100	33 - 162		

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488596

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Color	ND	F1	20.0	ND	F1	Color Units		0	33 - 162	NC	20

Lab Sample ID: 480-157980-1 DU
Matrix: Ground Water
Analysis Batch: 488596

Client Sample ID: DUP
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Color	ND			ND		Color Units				NC	20

Lab Sample ID: 480-157980-5 DU
Matrix: Ground Water
Analysis Batch: 488596

Client Sample ID: MW-18BR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Color	5.00			5.000		Color Units				0	20

Lab Sample ID: MB 480-488668/3
Matrix: Water
Analysis Batch: 488668

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100			Color Units			08/24/19 10:16	1

Lab Sample ID: LCS 480-488668/4
Matrix: Water
Analysis Batch: 488668

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Color			30.0	30.00		Color Units		100	90 - 110		

Method: SM 2120B - Color, Colorimetric

Lab Sample ID: MB 480-489107/3
Matrix: Water
Analysis Batch: 489107

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			08/27/19 14:20	1

Lab Sample ID: LCS 480-489107/4
Matrix: Water
Analysis Batch: 489107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Color	30.0	30.00		Color Units		100	90 - 110

Lab Sample ID: MB 480-489781/3
Matrix: Water
Analysis Batch: 489781

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			09/01/19 08:10	1

Lab Sample ID: LCS 480-489781/4
Matrix: Water
Analysis Batch: 489781

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Color	30.0	30.00		Color Units		100	90 - 110

Lab Sample ID: 480-158409-3 DU
Matrix: Ground Water
Analysis Batch: 489781

Client Sample ID: MWBA-2
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Color	ND			ND		Color Units				NC	20

Lab Sample ID: MB 480-490392/3
Matrix: Water
Analysis Batch: 490392

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			09/05/19 11:30	1

Lab Sample ID: LCS 480-490392/4
Matrix: Water
Analysis Batch: 490392

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Color	30.0	30.00		Color Units		100	90 - 110

Lab Sample ID: MB 480-492507/3
Matrix: Water
Analysis Batch: 492507

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Color	ND		0.0100		Color Units			09/17/19 11:30	1

Method: SM 2120B - Color, Colorimetric

Lab Sample ID: LCS 480-492507/4
Matrix: Water
Analysis Batch: 492507

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Color			30.0	30.00		Color Units		100	90 - 110		

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 492507

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Color	ND	H	20.0	20.00	H	Color Units		100	33 - 162		

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 492507

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Color	ND	H	20.0	20.00	H	Color Units		100	33 - 162	0	20

Method: SM 2340C - Hardness, Total (mg/l as CaC03)

Lab Sample ID: MB 480-489301/3
Matrix: Water
Analysis Batch: 489301

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness	ND		1.0		mg/L			08/28/19 11:20	1

Lab Sample ID: LCS 480-489301/4
Matrix: Water
Analysis Batch: 489301

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Hardness			214	208.0		mg/L		97	90 - 110		

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 489301

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Hardness	470		500	960.0		mg/L		98	74 - 130		

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 489301

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hardness	470		500	980.0		mg/L		102	74 - 130	2	15

Method: SM 2340C - Hardness, Total (mg/l as CaC03) (Continued)

Lab Sample ID: MB 480-489771/3
Matrix: Water
Analysis Batch: 489771

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness	ND		1.0		mg/L			08/29/19 13:45	1

Lab Sample ID: LCS 480-489771/4
Matrix: Water
Analysis Batch: 489771

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness	214	212.0		mg/L		99	90 - 110

Lab Sample ID: 480-157980-6 MS
Matrix: Ground Water
Analysis Batch: 489771

Client Sample ID: MW-L(I)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness	320		200	516.0		mg/L		98	74 - 130

Lab Sample ID: MB 480-491025/27
Matrix: Water
Analysis Batch: 491025

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness	ND		1.0		mg/L			09/09/19 09:45	1

Lab Sample ID: MB 480-491025/3
Matrix: Water
Analysis Batch: 491025

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness	ND		1.0		mg/L			09/09/19 09:45	1

Lab Sample ID: LCS 480-491025/28
Matrix: Water
Analysis Batch: 491025

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness	214	208.0		mg/L		97	90 - 110

Lab Sample ID: LCS 480-491025/4
Matrix: Water
Analysis Batch: 491025

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness	214	212.0		mg/L		99	90 - 110

Lab Sample ID: 480-158093-1 MS
Matrix: Ground Water
Analysis Batch: 491025

Client Sample ID: MW-N(I)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness	430		500	950.0		mg/L		104	74 - 130

Method: SM 2340C - Hardness, Total (mg/l as CaC03)

Lab Sample ID: MB 480-492252/3
Matrix: Water
Analysis Batch: 492252

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness	ND		1.0		mg/L			09/15/19 11:45	1

Lab Sample ID: LCS 480-492252/4
Matrix: Water
Analysis Batch: 492252

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness	214	204.0		mg/L		95	90 - 110

Lab Sample ID: 480-158409-1 MS
Matrix: Water
Analysis Batch: 492252

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness	ND		200	196.0		mg/L		98	74 - 130

Lab Sample ID: 480-158409-1 MSD
Matrix: Water
Analysis Batch: 492252

Client Sample ID: FIELD BLANK
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hardness	ND		200	200.0		mg/L		100	74 - 130	2	15

Lab Sample ID: MB 480-492757/3
Matrix: Water
Analysis Batch: 492757

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hardness	ND		1.0		mg/L			09/18/19 11:45	1

Lab Sample ID: LCS 480-492757/4
Matrix: Water
Analysis Batch: 492757

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness	214	216.0		mg/L		101	90 - 110

Lab Sample ID: 480-158492-4 MS
Matrix: Ground Water
Analysis Batch: 492757

Client Sample ID: MWSE-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness	252		200	448.0		mg/L		98	74 - 130

Lab Sample ID: 480-158492-4 MSD
Matrix: Ground Water
Analysis Batch: 492757

Client Sample ID: MWSE-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hardness	252		200	444.0		mg/L		96	74 - 130	1	15

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 480-488496/1
Matrix: Water
Analysis Batch: 488496

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			08/23/19 08:29	1

Lab Sample ID: LCS 480-488496/2
Matrix: Water
Analysis Batch: 488496

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	500	510.0		mg/L		102	85 - 115

Lab Sample ID: MB 480-488839/1
Matrix: Water
Analysis Batch: 488839

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			08/26/19 14:39	1

Lab Sample ID: LCS 480-488839/2
Matrix: Water
Analysis Batch: 488839

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	500	455.0		mg/L		91	85 - 115

Lab Sample ID: MB 480-489206/1
Matrix: Water
Analysis Batch: 489206

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			08/28/19 09:29	1

Lab Sample ID: LCS 480-489206/2
Matrix: Water
Analysis Batch: 489206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	500	476.0		mg/L		95	85 - 115

Lab Sample ID: MB 480-490322/1
Matrix: Water
Analysis Batch: 490322

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			09/05/19 10:32	1

Lab Sample ID: LCS 480-490322/2
Matrix: Water
Analysis Batch: 490322

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	500	461.0		mg/L		92	85 - 115

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: 480-158492-3 DU
Matrix: Ground Water
Analysis Batch: 490322

Client Sample ID: MWSE-3
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	54.0		56.00		mg/L		4	10

Lab Sample ID: MB 480-490326/1
Matrix: Water
Analysis Batch: 490326

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10.0		mg/L			09/05/19 10:44	1

Lab Sample ID: LCS 480-490326/2
Matrix: Water
Analysis Batch: 490326

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	500	490.0		mg/L		98	85 - 115

Method: SM 4110B - Ion Chromatography

Lab Sample ID: MB 480-488983/28
Matrix: Water
Analysis Batch: 488983

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/27/19 18:07	1
Sulfate	ND		2.0		mg/L			08/27/19 18:07	1

Lab Sample ID: MB 480-488983/4
Matrix: Water
Analysis Batch: 488983

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/27/19 12:13	1
Sulfate	ND		2.0		mg/L			08/27/19 12:13	1

Lab Sample ID: LCS 480-488983/27
Matrix: Water
Analysis Batch: 488983

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	48.49		mg/L		97	90 - 110
Sulfate	50.0	48.13		mg/L		96	90 - 110

Lab Sample ID: LCS 480-488983/3
Matrix: Water
Analysis Batch: 488983

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	47.75		mg/L		96	90 - 110
Sulfate	50.0	47.35		mg/L		95	90 - 110

Method: SM 4110B - Ion Chromatography (Continued)

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488983

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	105		250	356.6		mg/L		101	81 - 120
Sulfate	55.3		250	300.7		mg/L		98	80 - 120

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488983

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	105		250	358.7		mg/L		101	81 - 120	1	15
Sulfate	55.3		250	303.9		mg/L		99	80 - 120	1	15

Lab Sample ID: MB 480-489056/4
Matrix: Water
Analysis Batch: 489056

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/28/19 02:52	1
Sulfate	ND		2.0		mg/L			08/28/19 02:52	1

Lab Sample ID: LCS 480-489056/3
Matrix: Water
Analysis Batch: 489056

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.27		mg/L		99	90 - 110
Sulfate	50.0	48.07		mg/L		96	90 - 110

Lab Sample ID: MB 480-489099/4
Matrix: Water
Analysis Batch: 489099

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/28/19 11:38	1
Sulfate	ND		2.0		mg/L			08/28/19 11:38	1

Lab Sample ID: LCS 480-489099/3
Matrix: Water
Analysis Batch: 489099

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.31		mg/L		99	90 - 110
Sulfate	50.0	49.12		mg/L		98	90 - 110

Lab Sample ID: MB 480-489262/4
Matrix: Water
Analysis Batch: 489262

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			08/28/19 14:52	1
Sulfate	ND		2.0		mg/L			08/28/19 14:52	1

Method: SM 4110B - Ion Chromatography

Lab Sample ID: LCS 480-489262/3
Matrix: Water
Analysis Batch: 489262

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	50.90		mg/L		102	90 - 110
Sulfate	50.0	50.10		mg/L		100	90 - 110

Lab Sample ID: MB 480-490900/28
Matrix: Water
Analysis Batch: 490900

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			09/09/19 19:26	1
Sulfate	ND		2.0		mg/L			09/09/19 19:26	1

Lab Sample ID: MB 480-490900/4
Matrix: Water
Analysis Batch: 490900

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50		mg/L			09/09/19 13:33	1
Sulfate	ND		2.0		mg/L			09/09/19 13:33	1

Lab Sample ID: LCS 480-490900/27
Matrix: Water
Analysis Batch: 490900

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.06		mg/L		102	90 - 110
Sulfate	50.0	51.11		mg/L		102	90 - 110

Lab Sample ID: LCS 480-490900/3
Matrix: Water
Analysis Batch: 490900

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.81		mg/L		100	90 - 110
Sulfate	50.0	49.99		mg/L		100	90 - 110

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 480-488225/1
Matrix: Water
Analysis Batch: 488225

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			08/22/19 02:22	1

Lab Sample ID: LCS 480-488225/2
Matrix: Water
Analysis Batch: 488225

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	183.5		mg/L		93	85 - 115

Method: SM 5210B - BOD, 5-Day (Continued)

Lab Sample ID: USB 480-488444/1
Matrix: Water
Analysis Batch: 488444

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			08/22/19 18:45	1

Lab Sample ID: LCS 480-488444/2
Matrix: Water
Analysis Batch: 488444

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	184.2		mg/L		93	85 - 115

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488444

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	ND		198	167.1		mg/L		84	51 - 143

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488444

Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Biochemical Oxygen Demand	ND		198	173.0		mg/L		87	51 - 143	3	20

Lab Sample ID: USB 480-488619/1
Matrix: Water
Analysis Batch: 488619

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			08/23/19 17:14	1

Lab Sample ID: LCS 480-488619/2
Matrix: Water
Analysis Batch: 488619

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	161.3	*	mg/L		81	85 - 115

Lab Sample ID: USB 480-489135/1
Matrix: Water
Analysis Batch: 489135

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			08/28/19 02:28	1

Lab Sample ID: LCS 480-489135/2
Matrix: Water
Analysis Batch: 489135

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	202.0		mg/L		102	85 - 115

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 480-489774/1
Matrix: Water
Analysis Batch: 489774

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			08/31/19 06:51	1

Lab Sample ID: LCS 480-489774/2
Matrix: Water
Analysis Batch: 489774

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Biochemical Oxygen Demand			198	175.7		mg/L		89	85 - 115		

Lab Sample ID: USB 480-489775/1
Matrix: Water
Analysis Batch: 489775

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			08/31/19 06:51	1

Lab Sample ID: LCS 480-489775/2
Matrix: Water
Analysis Batch: 489775

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Biochemical Oxygen Demand			198	175.7		mg/L		89	85 - 115		

Lab Sample ID: 480-158409-4 DU
Matrix: Ground Water
Analysis Batch: 489775

Client Sample ID: MW-O(I)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Biochemical Oxygen Demand	ND			ND		mg/L				NC	20

Lab Sample ID: USB 480-490229/1
Matrix: Water
Analysis Batch: 490229

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	USB Result	USB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0		mg/L			09/05/19 05:45	1

Lab Sample ID: LCS 480-490229/2
Matrix: Water
Analysis Batch: 490229

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Biochemical Oxygen Demand			198	187.4		mg/L		95	85 - 115		

Method: SM 5310C - TOC

Lab Sample ID: MB 480-488613/51
Matrix: Water
Analysis Batch: 488613
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			08/23/19 09:07	1

Lab Sample ID: MB 480-488613/75
Matrix: Water
Analysis Batch: 488613
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			08/23/19 15:07	1

Lab Sample ID: LCS 480-488613/52
Matrix: Water
Analysis Batch: 488613
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	60.24		mg/L		100	90 - 110

Lab Sample ID: LCS 480-488613/76
Matrix: Water
Analysis Batch: 488613
Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	60.55		mg/L		101	90 - 110

Lab Sample ID: 480-157980-4 MS
Matrix: Ground Water
Analysis Batch: 488613
Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	ND		22.7	23.64		mg/L		104	54 - 131

Lab Sample ID: 480-157980-4 MSD
Matrix: Ground Water
Analysis Batch: 488613
Client Sample ID: MW-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	ND		22.7	23.13		mg/L		102	54 - 131	2	20

Lab Sample ID: MB 480-489215/27
Matrix: Water
Analysis Batch: 489215
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			08/27/19 23:36	1

Lab Sample ID: MB 480-489215/4
Matrix: Water
Analysis Batch: 489215
Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			08/27/19 17:34	1

Method: SM 5310C - TOC

Lab Sample ID: LCS 480-489215/28
Matrix: Water
Analysis Batch: 489215

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			60.0	61.29		mg/L		102	90 - 110		

Lab Sample ID: LCS 480-489215/5
Matrix: Water
Analysis Batch: 489215

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			60.0	60.51		mg/L		101	90 - 110		

Lab Sample ID: 480-158093-3 MS
Matrix: Water
Analysis Batch: 489215

Client Sample ID: MW-Q(I)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	ND		44.0	39.00		mg/L		89	54 - 131		

Lab Sample ID: 480-158093-3 MSD
Matrix: Water
Analysis Batch: 489215

Client Sample ID: MW-Q(I)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	ND		44.0	39.49		mg/L		90	54 - 131	1	20

Lab Sample ID: MB 480-489502/4
Matrix: Water
Analysis Batch: 489502

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			08/28/19 15:19	1

Lab Sample ID: LCS 480-489502/5
Matrix: Water
Analysis Batch: 489502

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			60.0	56.36		mg/L		94	90 - 110		

Lab Sample ID: MB 480-490772/27
Matrix: Water
Analysis Batch: 490772

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			09/06/19 04:20	1

Lab Sample ID: MB 480-490772/4
Matrix: Water
Analysis Batch: 490772

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			09/05/19 22:21	1

Method: SM 5310C - TOC

Lab Sample ID: LCS 480-490772/28
Matrix: Water
Analysis Batch: 490772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			60.0	60.28		mg/L		100	90 - 110		

Lab Sample ID: LCS 480-490772/5
Matrix: Water
Analysis Batch: 490772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			60.0	60.76		mg/L		101	90 - 110		

Lab Sample ID: 480-158409-4 MS
Matrix: Ground Water
Analysis Batch: 490772

Client Sample ID: MW-O(I)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	ND		44.0	39.82		mg/L		90	54 - 131		

Lab Sample ID: 480-158409-4 MSD
Matrix: Ground Water
Analysis Batch: 490772

Client Sample ID: MW-O(I)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	ND		44.0	40.20		mg/L		91	54 - 131	1	20

Lab Sample ID: MB 480-491171/24
Matrix: Water
Analysis Batch: 491171

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0		mg/L			09/08/19 00:38	1

Lab Sample ID: LCS 480-491171/25
Matrix: Water
Analysis Batch: 491171

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			60.0	60.83		mg/L		101	90 - 110		

Lab Sample ID: 480-158492-1 MS
Matrix: Ground Water
Analysis Batch: 491171

Client Sample ID: MWSE-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon	ND		44.0	33.55		mg/L		76	54 - 131		

Lab Sample ID: 480-158492-1 MSD
Matrix: Ground Water
Analysis Batch: 491171

Client Sample ID: MWSE-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	ND		44.0	33.75		mg/L		77	54 - 131	1	20

GC/MS VOA

Analysis Batch: 488279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	8260C	
480-157980-2	MW-16	Total/NA	Ground Water	8260C	
480-157980-3	MW-16(S)	Total/NA	Ground Water	8260C	
480-157980-4	MW-17	Total/NA	Ground Water	8260C	
480-157980-5	MW-18BR	Total/NA	Ground Water	8260C	
480-157980-6	MW-L(I)	Total/NA	Ground Water	8260C	
480-157980-7	MW-M(I)	Total/NA	Ground Water	8260C	
480-157980-8	MW-M(S)	Total/NA	Ground Water	8260C	
480-157980-9	MW-P(I)	Total/NA	Ground Water	8260C	
480-157980-10	MW-P(S)	Total/NA	Ground Water	8260C	
480-157980-11	TRIP BLANK	Total/NA	Water	8260C	
MB 480-488279/7	Method Blank	Total/NA	Water	8260C	
LCS 480-488279/5	Lab Control Sample	Total/NA	Water	8260C	
480-157980-4 MS	MW-17	Total/NA	Ground Water	8260C	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	8260C	

Analysis Batch: 488663

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	8260C	
480-158093-2	MW-N(S)	Total/NA	Ground Water	8260C	
480-158093-3	MW-Q(I)	Total/NA	Water	8260C	
MB 480-488663/7	Method Blank	Total/NA	Water	8260C	
LCS 480-488663/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 489143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	8260C	
MB 480-489143/7	Method Blank	Total/NA	Water	8260C	
LCS 480-489143/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 491215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	8260C	
480-158409-2	MWBA-1	Total/NA	Ground Water	8260C	
480-158409-3	MWBA-2	Total/NA	Ground Water	8260C	
480-158409-4	MW-O(I)	Total/NA	Ground Water	8260C	
480-158409-5	TRIP BLANK	Total/NA	Water	8260C	
MB 480-491215/8	Method Blank	Total/NA	Water	8260C	
LCS 480-491215/6	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 491707

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-5	TRIP BLANK	Total/NA	Water	8260C	
MB 480-491707/9	Method Blank	Total/NA	Water	8260C	
LCS 480-491707/11	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 491769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	8260C	
480-158492-2	MWSE-2	Total/NA	Ground Water	8260C	
480-158492-3	MWSE-3	Total/NA	Ground Water	8260C	

GC/MS VOA (Continued)

Analysis Batch: 491769 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-4	MWSE-4	Total/NA	Ground Water	8260C	
MB 480-491769/7	Method Blank	Total/NA	Water	8260C	
LCS 480-491769/5	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 492966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158878-6	TRIP BLANK	Total/NA	Water	8260C	
MB 480-492966/7	Method Blank	Total/NA	Water	8260C	
LCS 480-492966/5	Lab Control Sample	Total/NA	Water	8260C	

LCMS

Prep Batch: 322696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158878-1	MWSE-1	Total/NA	Water	3535	
480-158878-2	MWSE-2	Total/NA	Water	3535	
480-158878-3	MWSE-3	Total/NA	Water	3535	
480-158878-4	MWSE-4	Total/NA	Water	3535	
480-158878-5	BLIND DUP	Total/NA	Water	3535	
MB 320-322696/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-322696/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-322696/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 323243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158878-1	MWSE-1	Total/NA	Water	537 (modified)	322696
480-158878-2	MWSE-2	Total/NA	Water	537 (modified)	322696
480-158878-3	MWSE-3	Total/NA	Water	537 (modified)	322696
480-158878-4	MWSE-4	Total/NA	Water	537 (modified)	322696
480-158878-5	BLIND DUP	Total/NA	Water	537 (modified)	322696
MB 320-322696/1-A	Method Blank	Total/NA	Water	537 (modified)	322696
LCS 320-322696/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	322696
LCSD 320-322696/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	322696

Metals

Prep Batch: 488390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Dissolved	Ground Water	3005A	
480-157980-2	MW-16	Dissolved	Ground Water	3005A	
480-157980-3	MW-16(S)	Dissolved	Ground Water	3005A	
480-157980-4	MW-17	Dissolved	Ground Water	3005A	
480-157980-5	MW-18BR	Dissolved	Ground Water	3005A	
480-157980-6	MW-L(I)	Dissolved	Ground Water	3005A	
480-157980-7	MW-M(I)	Dissolved	Ground Water	3005A	
480-157980-8	MW-M(S)	Dissolved	Ground Water	3005A	
480-157980-9	MW-P(I)	Dissolved	Ground Water	3005A	
480-157980-10	MW-P(S)	Dissolved	Ground Water	3005A	
MB 480-488390/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 480-488390/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
480-157980-4 MS	MW-17	Dissolved	Ground Water	3005A	
480-157980-4 MSD	MW-17	Dissolved	Ground Water	3005A	

QC Association Summary

Client: Waste Management
Project/Site: Chaffee Facility Western Exp-GW Baselin

Job ID: 480-157980-1

Metals

Prep Batch: 488391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Dissolved	Ground Water	3020A	
480-157980-2	MW-16	Dissolved	Ground Water	3020A	
480-157980-3	MW-16(S)	Dissolved	Ground Water	3020A	
480-157980-4	MW-17	Dissolved	Ground Water	3020A	
480-157980-5	MW-18BR	Dissolved	Ground Water	3020A	
480-157980-6	MW-L(I)	Dissolved	Ground Water	3020A	
480-157980-7	MW-M(I)	Dissolved	Ground Water	3020A	
480-157980-8	MW-M(S)	Dissolved	Ground Water	3020A	
480-157980-9	MW-P(I)	Dissolved	Ground Water	3020A	
480-157980-10	MW-P(S)	Dissolved	Ground Water	3020A	
MB 480-488391/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-488391/2-A	Lab Control Sample	Total/NA	Water	3020A	
480-157980-4 MS	MW-17	Dissolved	Ground Water	3020A	
480-157980-4 MSD	MW-17	Dissolved	Ground Water	3020A	

Prep Batch: 488397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	3005A	
480-157980-2	MW-16	Total/NA	Ground Water	3005A	
480-157980-3	MW-16(S)	Total/NA	Ground Water	3005A	
480-157980-4	MW-17	Total/NA	Ground Water	3005A	
480-157980-5	MW-18BR	Total/NA	Ground Water	3005A	
480-157980-6	MW-L(I)	Total/NA	Ground Water	3005A	
480-157980-7	MW-M(I)	Total/NA	Ground Water	3005A	
480-157980-8	MW-M(S)	Total/NA	Ground Water	3005A	
480-157980-9	MW-P(I)	Total/NA	Ground Water	3005A	
480-157980-10	MW-P(S)	Total/NA	Ground Water	3005A	
MB 480-488397/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-488397/2-A	Lab Control Sample	Total/NA	Water	3005A	
480-157980-4 MS	MW-17	Total/NA	Ground Water	3005A	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	3005A	

Prep Batch: 488398

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	3020A	
480-157980-2	MW-16	Total/NA	Ground Water	3020A	
480-157980-3	MW-16(S)	Total/NA	Ground Water	3020A	
480-157980-4	MW-17	Total/NA	Ground Water	3020A	
480-157980-5	MW-18BR	Total/NA	Ground Water	3020A	
480-157980-6	MW-L(I)	Total/NA	Ground Water	3020A	
480-157980-7	MW-M(I)	Total/NA	Ground Water	3020A	
480-157980-8	MW-M(S)	Total/NA	Ground Water	3020A	
480-157980-9	MW-P(I)	Total/NA	Ground Water	3020A	
480-157980-10	MW-P(S)	Total/NA	Ground Water	3020A	
MB 480-488398/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-488398/2-A	Lab Control Sample	Total/NA	Water	3020A	
480-157980-4 MS	MW-17	Total/NA	Ground Water	3020A	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	3020A	

Metals

Analysis Batch: 488652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	6010C	488397
480-157980-2	MW-16	Total/NA	Ground Water	6010C	488397
480-157980-3	MW-16(S)	Total/NA	Ground Water	6010C	488397
480-157980-4	MW-17	Total/NA	Ground Water	6010C	488397
480-157980-5	MW-18BR	Total/NA	Ground Water	6010C	488397
480-157980-6	MW-L(I)	Total/NA	Ground Water	6010C	488397
480-157980-7	MW-M(I)	Total/NA	Ground Water	6010C	488397
480-157980-8	MW-M(S)	Total/NA	Ground Water	6010C	488397
480-157980-9	MW-P(I)	Total/NA	Ground Water	6010C	488397
480-157980-10	MW-P(S)	Total/NA	Ground Water	6010C	488397
MB 480-488397/1-A	Method Blank	Total/NA	Water	6010C	488397
LCS 480-488397/2-A	Lab Control Sample	Total/NA	Water	6010C	488397
480-157980-4 MS	MW-17	Total/NA	Ground Water	6010C	488397
480-157980-4 MSD	MW-17	Total/NA	Ground Water	6010C	488397

Analysis Batch: 488655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Dissolved	Ground Water	6010C	488390
480-157980-2	MW-16	Dissolved	Ground Water	6010C	488390
480-157980-3	MW-16(S)	Dissolved	Ground Water	6010C	488390
480-157980-4	MW-17	Dissolved	Ground Water	6010C	488390
480-157980-5	MW-18BR	Dissolved	Ground Water	6010C	488390
480-157980-6	MW-L(I)	Dissolved	Ground Water	6010C	488390
480-157980-7	MW-M(I)	Dissolved	Ground Water	6010C	488390
480-157980-8	MW-M(S)	Dissolved	Ground Water	6010C	488390
480-157980-9	MW-P(I)	Dissolved	Ground Water	6010C	488390
480-157980-10	MW-P(S)	Dissolved	Ground Water	6010C	488390
MB 480-488390/1-A	Method Blank	Total Recoverable	Water	6010C	488390
480-157980-4 MS	MW-17	Dissolved	Ground Water	6010C	488390
480-157980-4 MSD	MW-17	Dissolved	Ground Water	6010C	488390

Analysis Batch: 488669

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	6020A	488398
480-157980-2	MW-16	Total/NA	Ground Water	6020A	488398
480-157980-3	MW-16(S)	Total/NA	Ground Water	6020A	488398
480-157980-4	MW-17	Total/NA	Ground Water	6020A	488398
480-157980-5	MW-18BR	Total/NA	Ground Water	6020A	488398
480-157980-6	MW-L(I)	Total/NA	Ground Water	6020A	488398
480-157980-7	MW-M(I)	Total/NA	Ground Water	6020A	488398
480-157980-8	MW-M(S)	Total/NA	Ground Water	6020A	488398
480-157980-9	MW-P(I)	Total/NA	Ground Water	6020A	488398
480-157980-10	MW-P(S)	Total/NA	Ground Water	6020A	488398
MB 480-488398/1-A	Method Blank	Total/NA	Water	6020A	488398
LCS 480-488398/2-A	Lab Control Sample	Total/NA	Water	6020A	488398
480-157980-4 MS	MW-17	Total/NA	Ground Water	6020A	488398
480-157980-4 MSD	MW-17	Total/NA	Ground Water	6020A	488398

Analysis Batch: 488670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Dissolved	Ground Water	6020A	488391

Metals (Continued)

Analysis Batch: 488670 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-2	MW-16	Dissolved	Ground Water	6020A	488391
480-157980-3	MW-16(S)	Dissolved	Ground Water	6020A	488391
480-157980-4	MW-17	Dissolved	Ground Water	6020A	488391
480-157980-5	MW-18BR	Dissolved	Ground Water	6020A	488391
480-157980-6	MW-L(I)	Dissolved	Ground Water	6020A	488391
480-157980-7	MW-M(I)	Dissolved	Ground Water	6020A	488391
480-157980-8	MW-M(S)	Dissolved	Ground Water	6020A	488391
480-157980-9	MW-P(I)	Dissolved	Ground Water	6020A	488391
480-157980-10	MW-P(S)	Dissolved	Ground Water	6020A	488391
MB 480-488391/1-A	Method Blank	Total/NA	Water	6020A	488391
LCS 480-488391/2-A	Lab Control Sample	Total/NA	Water	6020A	488391
480-157980-4 MS	MW-17	Dissolved	Ground Water	6020A	488391
480-157980-4 MSD	MW-17	Dissolved	Ground Water	6020A	488391

Prep Batch: 488784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	7470A	
480-157980-2	MW-16	Total/NA	Ground Water	7470A	
480-157980-3	MW-16(S)	Total/NA	Ground Water	7470A	
480-157980-5	MW-18BR	Total/NA	Ground Water	7470A	
480-157980-6	MW-L(I)	Total/NA	Ground Water	7470A	
480-157980-7	MW-M(I)	Total/NA	Ground Water	7470A	
480-157980-8	MW-M(S)	Total/NA	Ground Water	7470A	
480-157980-9	MW-P(I)	Total/NA	Ground Water	7470A	
480-157980-10	MW-P(S)	Total/NA	Ground Water	7470A	
MB 480-488784/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-488784/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 488785

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-4	MW-17	Total/NA	Ground Water	7470A	
MB 480-488785/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-488785/2-A	Lab Control Sample	Total/NA	Water	7470A	
480-157980-4 MS	MW-17	Total/NA	Ground Water	7470A	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	7470A	

Prep Batch: 488881

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	3020A	
480-158093-2	MW-N(S)	Total/NA	Ground Water	3020A	
480-158093-3	MW-Q(I)	Total/NA	Water	3020A	
MB 480-488881/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-488881/2-A	Lab Control Sample	Total/NA	Water	3020A	

Prep Batch: 488887

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Dissolved	Ground Water	3005A	
480-158093-2	MW-N(S)	Dissolved	Ground Water	3005A	
480-158093-3	MW-Q(I)	Dissolved	Water	3005A	
MB 480-488887/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 480-488887/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Metals

Prep Batch: 488889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Dissolved	Ground Water	3020A	
480-158093-2	MW-N(S)	Dissolved	Ground Water	3020A	
480-158093-3	MW-Q(I)	Dissolved	Water	3020A	
MB 480-488889/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-488889/2-A	Lab Control Sample	Total/NA	Water	3020A	

Analysis Batch: 488894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	7470A	488784
480-157980-2	MW-16	Total/NA	Ground Water	7470A	488784
480-157980-3	MW-16(S)	Total/NA	Ground Water	7470A	488784
480-157980-4	MW-17	Total/NA	Ground Water	7470A	488785
480-157980-5	MW-18BR	Total/NA	Ground Water	7470A	488784
480-157980-6	MW-L(I)	Total/NA	Ground Water	7470A	488784
480-157980-7	MW-M(I)	Total/NA	Ground Water	7470A	488784
480-157980-8	MW-M(S)	Total/NA	Ground Water	7470A	488784
480-157980-9	MW-P(I)	Total/NA	Ground Water	7470A	488784
480-157980-10	MW-P(S)	Total/NA	Ground Water	7470A	488784
MB 480-488784/1-A	Method Blank	Total/NA	Water	7470A	488784
MB 480-488785/1-A	Method Blank	Total/NA	Water	7470A	488785
LCS 480-488784/2-A	Lab Control Sample	Total/NA	Water	7470A	488784
LCS 480-488785/2-A	Lab Control Sample	Total/NA	Water	7470A	488785
480-157980-4 MS	MW-17	Total/NA	Ground Water	7470A	488785
480-157980-4 MSD	MW-17	Total/NA	Ground Water	7470A	488785

Analysis Batch: 488917

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-488390/2-A	Lab Control Sample	Total Recoverable	Water	6010C	488390

Prep Batch: 488943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	3005A	
480-158093-2	MW-N(S)	Total/NA	Ground Water	3005A	
480-158093-3	MW-Q(I)	Total/NA	Water	3005A	
MB 480-488943/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-488943/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 489002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Dissolved	Ground Water	7470A	
480-157980-2	MW-16	Dissolved	Ground Water	7470A	
480-157980-3	MW-16(S)	Dissolved	Ground Water	7470A	
480-157980-4	MW-17	Dissolved	Ground Water	7470A	
480-157980-5	MW-18BR	Dissolved	Ground Water	7470A	
480-158093-1	MW-N(I)	Total/NA	Ground Water	7470A	
480-158093-2	MW-N(S)	Total/NA	Ground Water	7470A	
480-158093-3	MW-Q(I)	Total/NA	Water	7470A	
MB 480-489002/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-489002/2-A	Lab Control Sample	Total/NA	Water	7470A	
480-157980-4 MS	MW-17	Dissolved	Ground Water	7470A	
480-157980-4 MSD	MW-17	Dissolved	Ground Water	7470A	

Metals

Prep Batch: 489078

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	3005A	
MB 480-489078/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-489078/2-A	Lab Control Sample	Total/NA	Water	3005A	
LCSD 480-489078/24-A	Lab Control Sample Dup	Total/NA	Water	3005A	

Prep Batch: 489080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	3020A	
MB 480-489080/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-489080/2-A	Lab Control Sample	Total/NA	Water	3020A	
LCSD 480-489080/23-A	Lab Control Sample Dup	Total/NA	Water	3020A	

Analysis Batch: 489089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Dissolved	Ground Water	7470A	489002
480-157980-2	MW-16	Dissolved	Ground Water	7470A	489002
480-157980-3	MW-16(S)	Dissolved	Ground Water	7470A	489002
480-157980-4	MW-17	Dissolved	Ground Water	7470A	489002
480-157980-5	MW-18BR	Dissolved	Ground Water	7470A	489002
480-158093-1	MW-N(I)	Total/NA	Ground Water	7470A	489002
480-158093-2	MW-N(S)	Total/NA	Ground Water	7470A	489002
480-158093-3	MW-Q(I)	Total/NA	Water	7470A	489002
MB 480-489002/1-A	Method Blank	Total/NA	Water	7470A	489002
LCS 480-489002/2-A	Lab Control Sample	Total/NA	Water	7470A	489002
480-157980-4 MS	MW-17	Dissolved	Ground Water	7470A	489002
480-157980-4 MSD	MW-17	Dissolved	Ground Water	7470A	489002

Prep Batch: 489092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Dissolved	Ground Water	3005A	
MB 480-489092/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 480-489092/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 480-489092/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	

Prep Batch: 489093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Dissolved	Ground Water	3020A	
MB 480-489093/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-489093/2-A	Lab Control Sample	Total/NA	Water	3020A	
LCSD 480-489093/3-A	Lab Control Sample Dup	Total/NA	Water	3020A	
480-158145-1 MS	MW-50	Dissolved	Ground Water	3020A	
480-158145-1 MSD	MW-50	Dissolved	Ground Water	3020A	

Prep Batch: 489108

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-6	MW-L(I)	Dissolved	Ground Water	7470A	
480-157980-7	MW-M(I)	Dissolved	Ground Water	7470A	
480-157980-8	MW-M(S)	Dissolved	Ground Water	7470A	
480-157980-9	MW-P(I)	Dissolved	Ground Water	7470A	
480-157980-10	MW-P(S)	Dissolved	Ground Water	7470A	
MB 480-489108/1-A	Method Blank	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 489108 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-489108/2-A	Lab Control Sample	Total/NA	Water	7470A	
480-157980-10 MS	MW-P(S)	Dissolved	Ground Water	7470A	
480-157980-10 MSD	MW-P(S)	Dissolved	Ground Water	7470A	

Analysis Batch: 489181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	6020A	488881
480-158093-2	MW-N(S)	Total/NA	Ground Water	6020A	488881
480-158093-3	MW-Q(I)	Total/NA	Water	6020A	488881
MB 480-488881/1-A	Method Blank	Total/NA	Water	6020A	488881
LCS 480-488881/2-A	Lab Control Sample	Total/NA	Water	6020A	488881

Analysis Batch: 489182

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Dissolved	Ground Water	6020A	488889
480-158093-2	MW-N(S)	Dissolved	Ground Water	6020A	488889
480-158093-3	MW-Q(I)	Dissolved	Water	6020A	488889
MB 480-488889/1-A	Method Blank	Total/NA	Water	6020A	488889
LCS 480-488889/2-A	Lab Control Sample	Total/NA	Water	6020A	488889

Analysis Batch: 489194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	6010C	488943
480-158093-2	MW-N(S)	Total/NA	Ground Water	6010C	488943
480-158093-3	MW-Q(I)	Total/NA	Water	6010C	488943
MB 480-488943/1-A	Method Blank	Total/NA	Water	6010C	488943
LCS 480-488943/2-A	Lab Control Sample	Total/NA	Water	6010C	488943

Analysis Batch: 489195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Dissolved	Ground Water	6010C	488887
480-158093-2	MW-N(S)	Dissolved	Ground Water	6010C	488887
480-158093-3	MW-Q(I)	Dissolved	Water	6010C	488887
MB 480-488887/1-A	Method Blank	Total Recoverable	Water	6010C	488887
LCS 480-488887/2-A	Lab Control Sample	Total Recoverable	Water	6010C	488887

Analysis Batch: 489303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-6	MW-L(I)	Dissolved	Ground Water	7470A	489108
480-157980-7	MW-M(I)	Dissolved	Ground Water	7470A	489108
480-157980-8	MW-M(S)	Dissolved	Ground Water	7470A	489108
480-157980-9	MW-P(I)	Dissolved	Ground Water	7470A	489108
480-157980-10	MW-P(S)	Dissolved	Ground Water	7470A	489108
MB 480-489108/1-A	Method Blank	Total/NA	Water	7470A	489108
LCS 480-489108/2-A	Lab Control Sample	Total/NA	Water	7470A	489108
480-157980-10 MS	MW-P(S)	Dissolved	Ground Water	7470A	489108
480-157980-10 MSD	MW-P(S)	Dissolved	Ground Water	7470A	489108

Analysis Batch: 489346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Dissolved	Ground Water	6020A	489093

Metals (Continued)

Analysis Batch: 489346 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-489093/1-A	Method Blank	Total/NA	Water	6020A	489093
LCS 480-489093/2-A	Lab Control Sample	Total/NA	Water	6020A	489093
LCSD 480-489093/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	489093
480-158145-1 MS	MW-50	Dissolved	Ground Water	6020A	489093
480-158145-1 MSD	MW-50	Dissolved	Ground Water	6020A	489093

Analysis Batch: 489347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	6020A	489080
MB 480-489080/1-A	Method Blank	Total/NA	Water	6020A	489080
LCS 480-489080/2-A	Lab Control Sample	Total/NA	Water	6020A	489080
LCSD 480-489080/23-A	Lab Control Sample Dup	Total/NA	Water	6020A	489080

Prep Batch: 489397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Dissolved	Ground Water	7470A	
480-158093-2	MW-N(S)	Dissolved	Ground Water	7470A	
480-158093-3	MW-Q(I)	Dissolved	Water	7470A	
480-158145-1	MW-50	Dissolved	Ground Water	7470A	
MB 480-489397/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-489397/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 489442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	6010C	489078
MB 480-489078/1-A	Method Blank	Total/NA	Water	6010C	489078
LCS 480-489078/2-A	Lab Control Sample	Total/NA	Water	6010C	489078
LCSD 480-489078/24-A	Lab Control Sample Dup	Total/NA	Water	6010C	489078

Analysis Batch: 489443

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Dissolved	Ground Water	6010C	489092
MB 480-489092/1-A	Method Blank	Total Recoverable	Water	6010C	489092
LCS 480-489092/2-A	Lab Control Sample	Total Recoverable	Water	6010C	489092
LCSD 480-489092/3-A	Lab Control Sample Dup	Total Recoverable	Water	6010C	489092

Analysis Batch: 489514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Dissolved	Ground Water	7470A	489397
480-158093-2	MW-N(S)	Dissolved	Ground Water	7470A	489397
480-158093-3	MW-Q(I)	Dissolved	Water	7470A	489397
480-158145-1	MW-50	Dissolved	Ground Water	7470A	489397
MB 480-489397/1-A	Method Blank	Total/NA	Water	7470A	489397
LCS 480-489397/2-A	Lab Control Sample	Total/NA	Water	7470A	489397

Analysis Batch: 489665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-489078/1-A	Method Blank	Total/NA	Water	6010C	489078
LCS 480-489078/2-A	Lab Control Sample	Total/NA	Water	6010C	489078
LCSD 480-489078/24-A	Lab Control Sample Dup	Total/NA	Water	6010C	489078

Metals

Analysis Batch: 489670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Dissolved	Ground Water	6010C	489092
MB 480-489092/1-A	Method Blank	Total Recoverable	Water	6010C	489092
LCS 480-489092/2-A	Lab Control Sample	Total Recoverable	Water	6010C	489092
LCSD 480-489092/3-A	Lab Control Sample Dup	Total Recoverable	Water	6010C	489092

Prep Batch: 489875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	7470A	
MB 480-489875/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-489875/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 489919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	3020A	
480-158409-2	MWBA-1	Total/NA	Ground Water	3020A	
480-158409-3	MWBA-2	Total/NA	Ground Water	3020A	
480-158409-4	MW-O(I)	Total/NA	Ground Water	3020A	
MB 480-489919/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-489919/2-A	Lab Control Sample	Total/NA	Water	3020A	
LCSD 480-489919/23-A	Lab Control Sample Dup	Total/NA	Water	3020A	

Prep Batch: 489925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	3005A	
480-158409-2	MWBA-1	Total/NA	Ground Water	3005A	
480-158409-3	MWBA-2	Total/NA	Ground Water	3005A	
480-158409-4	MW-O(I)	Total/NA	Ground Water	3005A	
MB 480-489925/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-489925/2-A	Lab Control Sample	Total/NA	Water	3005A	
LCSD 480-489925/23-A	Lab Control Sample Dup	Total/NA	Water	3005A	

Prep Batch: 489960

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-3	MW-Q(I)	Total/NA	Water	3005A	
MB 480-489960/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-489960/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 489962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Dissolved	Water	3005A	
480-158409-2	MWBA-1	Dissolved	Ground Water	3005A	
480-158409-3	MWBA-2	Dissolved	Ground Water	3005A	
480-158409-4	MW-O(I)	Dissolved	Ground Water	3005A	
MB 480-489962/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 480-489962/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 489963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Dissolved	Water	3020A	
480-158409-2	MWBA-1	Dissolved	Ground Water	3020A	
480-158409-3	MWBA-2	Dissolved	Ground Water	3020A	

Metals (Continued)

Prep Batch: 489963 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-4	MW-O(I)	Dissolved	Ground Water	3020A	
MB 480-489963/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-489963/2-A	Lab Control Sample	Total/NA	Water	3020A	

Analysis Batch: 489986

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	7470A	489875
MB 480-489875/1-A	Method Blank	Total/NA	Water	7470A	489875
LCS 480-489875/2-A	Lab Control Sample	Total/NA	Water	7470A	489875

Prep Batch: 490184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	3005A	
480-158492-2	MWSE-2	Total/NA	Ground Water	3005A	
480-158492-3	MWSE-3	Total/NA	Ground Water	3005A	
480-158492-4	MWSE-4	Total/NA	Ground Water	3005A	
MB 480-490184/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-490184/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 490196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Dissolved	Ground Water	3020A	
480-158492-2	MWSE-2	Dissolved	Ground Water	3020A	
480-158492-3	MWSE-3	Dissolved	Ground Water	3020A	
480-158492-4	MWSE-4	Dissolved	Ground Water	3020A	
MB 480-490196/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-490196/2-A	Lab Control Sample	Total/NA	Water	3020A	

Prep Batch: 490197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Dissolved	Ground Water	3005A	
480-158492-2	MWSE-2	Dissolved	Ground Water	3005A	
480-158492-3	MWSE-3	Dissolved	Ground Water	3005A	
480-158492-4	MWSE-4	Dissolved	Ground Water	3005A	
MB 480-490197/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 480-490197/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 490288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Dissolved	Water	6010C	489962
480-158409-2	MWBA-1	Dissolved	Ground Water	6010C	489962
480-158409-3	MWBA-2	Dissolved	Ground Water	6010C	489962
480-158409-4	MW-O(I)	Dissolved	Ground Water	6010C	489962
MB 480-489962/1-A	Method Blank	Total Recoverable	Water	6010C	489962
LCS 480-489962/2-A	Lab Control Sample	Total Recoverable	Water	6010C	489962

Analysis Batch: 490293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-3	MW-Q(I)	Total/NA	Water	6010C	489960
MB 480-489960/1-A	Method Blank	Total/NA	Water	6010C	489960
LCS 480-489960/2-A	Lab Control Sample	Total/NA	Water	6010C	489960

Metals

Prep Batch: 490409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	3020A	
480-158492-2	MWSE-2	Total/NA	Ground Water	3020A	
480-158492-3	MWSE-3	Total/NA	Ground Water	3020A	
480-158492-4	MWSE-4	Total/NA	Ground Water	3020A	
MB 480-490409/1-A	Method Blank	Total/NA	Water	3020A	
LCS 480-490409/2-A	Lab Control Sample	Total/NA	Water	3020A	

Analysis Batch: 490524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Dissolved	Water	6020A	489963
480-158409-2	MWBA-1	Dissolved	Ground Water	6020A	489963
480-158409-3	MWBA-2	Dissolved	Ground Water	6020A	489963
480-158409-4	MW-O(I)	Dissolved	Ground Water	6020A	489963
MB 480-489963/1-A	Method Blank	Total/NA	Water	6020A	489963
LCS 480-489963/2-A	Lab Control Sample	Total/NA	Water	6020A	489963

Analysis Batch: 490526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	6020A	489919
480-158409-2	MWBA-1	Total/NA	Ground Water	6020A	489919
480-158409-3	MWBA-2	Total/NA	Ground Water	6020A	489919
480-158409-4	MW-O(I)	Total/NA	Ground Water	6020A	489919
MB 480-489919/1-A	Method Blank	Total/NA	Water	6020A	489919
LCS 480-489919/2-A	Lab Control Sample	Total/NA	Water	6020A	489919
LCSD 480-489919/23-A	Lab Control Sample Dup	Total/NA	Water	6020A	489919

Analysis Batch: 490550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	6010C	490184
480-158492-2	MWSE-2	Total/NA	Ground Water	6010C	490184
480-158492-3	MWSE-3	Total/NA	Ground Water	6010C	490184
480-158492-4	MWSE-4	Total/NA	Ground Water	6010C	490184
MB 480-490184/1-A	Method Blank	Total/NA	Water	6010C	490184
LCS 480-490184/2-A	Lab Control Sample	Total/NA	Water	6010C	490184

Analysis Batch: 490643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	6020A	490409
480-158492-2	MWSE-2	Total/NA	Ground Water	6020A	490409
480-158492-3	MWSE-3	Total/NA	Ground Water	6020A	490409
480-158492-4	MWSE-4	Total/NA	Ground Water	6020A	490409
MB 480-490409/1-A	Method Blank	Total/NA	Water	6020A	490409
LCS 480-490409/2-A	Lab Control Sample	Total/NA	Water	6020A	490409

Analysis Batch: 490991

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Dissolved	Ground Water	6020A	490196
480-158492-2	MWSE-2	Dissolved	Ground Water	6020A	490196
480-158492-3	MWSE-3	Dissolved	Ground Water	6020A	490196
480-158492-4	MWSE-4	Dissolved	Ground Water	6020A	490196
MB 480-490196/1-A	Method Blank	Total/NA	Water	6020A	490196

Metals (Continued)

Analysis Batch: 490991 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-490196/2-A	Lab Control Sample	Total/NA	Water	6020A	490196

Prep Batch: 491000

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	3005A	
MB 480-491000/1-A	Method Blank	Total/NA	Water	3005A	
LCS 480-491000/2-A	Lab Control Sample	Total/NA	Water	3005A	

Prep Batch: 491032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	7470A	
480-158409-2	MWBA-1	Total/NA	Ground Water	7470A	
480-158409-3	MWBA-2	Total/NA	Ground Water	7470A	
480-158409-4	MW-O(I)	Total/NA	Ground Water	7470A	
MB 480-491032/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-491032/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 491034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	7470A	
480-158492-2	MWSE-2	Total/NA	Ground Water	7470A	
480-158492-3	MWSE-3	Total/NA	Ground Water	7470A	
480-158492-4	MWSE-4	Total/NA	Ground Water	7470A	
MB 480-491034/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-491034/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 491285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	7470A	491032
480-158409-2	MWBA-1	Total/NA	Ground Water	7470A	491032
480-158409-3	MWBA-2	Total/NA	Ground Water	7470A	491032
480-158409-4	MW-O(I)	Total/NA	Ground Water	7470A	491032
480-158492-1	MWSE-1	Total/NA	Ground Water	7470A	491034
480-158492-2	MWSE-2	Total/NA	Ground Water	7470A	491034
480-158492-3	MWSE-3	Total/NA	Ground Water	7470A	491034
480-158492-4	MWSE-4	Total/NA	Ground Water	7470A	491034
MB 480-491032/1-A	Method Blank	Total/NA	Water	7470A	491032
MB 480-491034/1-A	Method Blank	Total/NA	Water	7470A	491034
LCS 480-491032/2-A	Lab Control Sample	Total/NA	Water	7470A	491032
LCS 480-491034/2-A	Lab Control Sample	Total/NA	Water	7470A	491034

Analysis Batch: 491316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	6010C	489925
480-158409-2	MWBA-1	Total/NA	Ground Water	6010C	489925
480-158409-3	MWBA-2	Total/NA	Ground Water	6010C	489925
480-158409-4	MW-O(I)	Total/NA	Ground Water	6010C	489925
MB 480-489925/1-A	Method Blank	Total/NA	Water	6010C	489925
LCS 480-489925/2-A	Lab Control Sample	Total/NA	Water	6010C	489925
LCSD 480-489925/23-A	Lab Control Sample Dup	Total/NA	Water	6010C	489925

Metals

Analysis Batch: 491318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	6010C	491000
MB 480-491000/1-A	Method Blank	Total/NA	Water	6010C	491000
LCS 480-491000/2-A	Lab Control Sample	Total/NA	Water	6010C	491000

Analysis Batch: 491325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Dissolved	Ground Water	6010C	490197
480-158492-2	MWSE-2	Dissolved	Ground Water	6010C	490197
480-158492-3	MWSE-3	Dissolved	Ground Water	6010C	490197
480-158492-4	MWSE-4	Dissolved	Ground Water	6010C	490197
MB 480-490197/1-A	Method Blank	Total Recoverable	Water	6010C	490197
LCS 480-490197/2-A	Lab Control Sample	Total Recoverable	Water	6010C	490197

Prep Batch: 492571

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Dissolved	Water	7470A	
480-158409-2	MWBA-1	Dissolved	Ground Water	7470A	
480-158409-3	MWBA-2	Dissolved	Ground Water	7470A	
480-158409-4	MW-O(I)	Dissolved	Ground Water	7470A	
480-158492-1	MWSE-1	Dissolved	Ground Water	7470A	
480-158492-2	MWSE-2	Dissolved	Ground Water	7470A	
480-158492-3	MWSE-3	Dissolved	Ground Water	7470A	
480-158492-4	MWSE-4	Dissolved	Ground Water	7470A	
MB 480-492571/1-A	Method Blank	Total/NA	Water	7470A	
LCS 480-492571/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 492778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Dissolved	Water	7470A	492571
480-158409-2	MWBA-1	Dissolved	Ground Water	7470A	492571
480-158409-3	MWBA-2	Dissolved	Ground Water	7470A	492571
480-158409-4	MW-O(I)	Dissolved	Ground Water	7470A	492571
480-158492-1	MWSE-1	Dissolved	Ground Water	7470A	492571
480-158492-2	MWSE-2	Dissolved	Ground Water	7470A	492571
480-158492-3	MWSE-3	Dissolved	Ground Water	7470A	492571
480-158492-4	MWSE-4	Dissolved	Ground Water	7470A	492571
MB 480-492571/1-A	Method Blank	Total/NA	Water	7470A	492571
LCS 480-492571/2-A	Lab Control Sample	Total/NA	Water	7470A	492571

General Chemistry

Analysis Batch: 488225

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-3	MW-16(S)	Total/NA	Ground Water	SM 5210B	
USB 480-488225/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-488225/2	Lab Control Sample	Total/NA	Water	SM 5210B	

Analysis Batch: 488350

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	7196A	
480-157980-2	MW-16	Total/NA	Ground Water	7196A	

General Chemistry (Continued)

Analysis Batch: 488350 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-3	MW-16(S)	Total/NA	Ground Water	7196A	
480-157980-4	MW-17	Total/NA	Ground Water	7196A	
480-157980-5	MW-18BR	Total/NA	Ground Water	7196A	
480-157980-6	MW-L(I)	Total/NA	Ground Water	7196A	
480-157980-7	MW-M(I)	Total/NA	Ground Water	7196A	
480-157980-8	MW-M(S)	Total/NA	Ground Water	7196A	
480-157980-9	MW-P(I)	Total/NA	Ground Water	7196A	
480-157980-10	MW-P(S)	Total/NA	Ground Water	7196A	
MB 480-488350/25	Method Blank	Total/NA	Water	7196A	
MB 480-488350/3	Method Blank	Total/NA	Water	7196A	
LCS 480-488350/26	Lab Control Sample	Total/NA	Water	7196A	
LCS 480-488350/4	Lab Control Sample	Total/NA	Water	7196A	
480-157980-4 MS	MW-17	Total/NA	Ground Water	7196A	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	7196A	
480-157980-8 MS	MW-M(S)	Total/NA	Ground Water	7196A	
480-157980-2 DU	MW-16	Total/NA	Ground Water	7196A	
480-157980-7 DU	MW-M(I)	Total/NA	Ground Water	7196A	

Analysis Batch: 488376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	350.1	
480-157980-2	MW-16	Total/NA	Ground Water	350.1	
480-157980-3	MW-16(S)	Total/NA	Ground Water	350.1	
480-157980-4	MW-17	Total/NA	Ground Water	350.1	
480-157980-5	MW-18BR	Total/NA	Ground Water	350.1	
480-157980-6	MW-L(I)	Total/NA	Ground Water	350.1	
480-157980-7	MW-M(I)	Total/NA	Ground Water	350.1	
480-157980-8	MW-M(S)	Total/NA	Ground Water	350.1	
480-157980-9	MW-P(I)	Total/NA	Ground Water	350.1	
480-157980-10	MW-P(S)	Total/NA	Ground Water	350.1	
MB 480-488376/123	Method Blank	Total/NA	Water	350.1	
MB 480-488376/147	Method Blank	Total/NA	Water	350.1	
LCS 480-488376/124	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-488376/148	Lab Control Sample	Total/NA	Water	350.1	
480-157980-4 MS	MW-17	Total/NA	Ground Water	350.1	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	350.1	
480-157980-6 MS	MW-L(I)	Total/NA	Ground Water	350.1	

Analysis Batch: 488442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	353.2	
480-157980-2	MW-16	Total/NA	Ground Water	353.2	
480-157980-3	MW-16(S)	Total/NA	Ground Water	353.2	
480-157980-4	MW-17	Total/NA	Ground Water	353.2	
480-157980-5	MW-18BR	Total/NA	Ground Water	353.2	
480-157980-6	MW-L(I)	Total/NA	Ground Water	353.2	
480-157980-7	MW-M(I)	Total/NA	Ground Water	353.2	
480-157980-8	MW-M(S)	Total/NA	Ground Water	353.2	
480-157980-9	MW-P(I)	Total/NA	Ground Water	353.2	
480-157980-10	MW-P(S)	Total/NA	Ground Water	353.2	

General Chemistry

Analysis Batch: 488444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	SM 5210B	
480-157980-2	MW-16	Total/NA	Ground Water	SM 5210B	
480-157980-4	MW-17	Total/NA	Ground Water	SM 5210B	
480-157980-5	MW-18BR	Total/NA	Ground Water	SM 5210B	
480-157980-6	MW-L(I)	Total/NA	Ground Water	SM 5210B	
480-157980-7	MW-M(I)	Total/NA	Ground Water	SM 5210B	
480-157980-8	MW-M(S)	Total/NA	Ground Water	SM 5210B	
480-157980-9	MW-P(I)	Total/NA	Ground Water	SM 5210B	
480-157980-10	MW-P(S)	Total/NA	Ground Water	SM 5210B	
USB 480-488444/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-488444/2	Lab Control Sample	Total/NA	Water	SM 5210B	
480-157980-4 MS	MW-17	Total/NA	Ground Water	SM 5210B	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	SM 5210B	

Analysis Batch: 488496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	SM 2540C	
480-157980-2	MW-16	Total/NA	Ground Water	SM 2540C	
480-157980-3	MW-16(S)	Total/NA	Ground Water	SM 2540C	
480-157980-4	MW-17	Total/NA	Ground Water	SM 2540C	
480-157980-5	MW-18BR	Total/NA	Ground Water	SM 2540C	
480-157980-6	MW-L(I)	Total/NA	Ground Water	SM 2540C	
480-157980-7	MW-M(I)	Total/NA	Ground Water	SM 2540C	
480-157980-8	MW-M(S)	Total/NA	Ground Water	SM 2540C	
480-157980-9	MW-P(I)	Total/NA	Ground Water	SM 2540C	
480-157980-10	MW-P(S)	Total/NA	Ground Water	SM 2540C	
MB 480-488496/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-488496/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Prep Batch: 488505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	351.2	
480-157980-2	MW-16	Total/NA	Ground Water	351.2	
MB 480-488505/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-488505/2-A	Lab Control Sample	Total/NA	Water	351.2	

Analysis Batch: 488596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	SM 2120B	
480-157980-2	MW-16	Total/NA	Ground Water	SM 2120B	
480-157980-3	MW-16(S)	Total/NA	Ground Water	SM 2120B	
480-157980-4	MW-17	Total/NA	Ground Water	SM 2120B	
480-157980-5	MW-18BR	Total/NA	Ground Water	SM 2120B	
480-157980-6	MW-L(I)	Total/NA	Ground Water	SM 2120B	
480-157980-7	MW-M(I)	Total/NA	Ground Water	SM 2120B	
480-157980-8	MW-M(S)	Total/NA	Ground Water	SM 2120B	
480-157980-9	MW-P(I)	Total/NA	Ground Water	SM 2120B	
480-157980-10	MW-P(S)	Total/NA	Ground Water	SM 2120B	
MB 480-488596/3	Method Blank	Total/NA	Water	SM 2120B	
LCS 480-488596/4	Lab Control Sample	Total/NA	Water	SM 2120B	
480-157980-4 MS	MW-17	Total/NA	Ground Water	SM 2120B	

General Chemistry (Continued)

Analysis Batch: 488596 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-4 MSD	MW-17	Total/NA	Ground Water	SM 2120B	
480-157980-1 DU	DUP	Total/NA	Ground Water	SM 2120B	
480-157980-5 DU	MW-18BR	Total/NA	Ground Water	SM 2120B	

Analysis Batch: 488613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	SM 5310C	
480-157980-2	MW-16	Total/NA	Ground Water	SM 5310C	
480-157980-3	MW-16(S)	Total/NA	Ground Water	SM 5310C	
480-157980-4	MW-17	Total/NA	Ground Water	SM 5310C	
480-157980-5	MW-18BR	Total/NA	Ground Water	SM 5310C	
480-157980-6	MW-L(I)	Total/NA	Ground Water	SM 5310C	
480-157980-7	MW-M(I)	Total/NA	Ground Water	SM 5310C	
480-157980-8	MW-M(S)	Total/NA	Ground Water	SM 5310C	
480-157980-9	MW-P(I)	Total/NA	Ground Water	SM 5310C	
480-157980-10	MW-P(S)	Total/NA	Ground Water	SM 5310C	
MB 480-488613/51	Method Blank	Total/NA	Water	SM 5310C	
MB 480-488613/75	Method Blank	Total/NA	Water	SM 5310C	
LCS 480-488613/52	Lab Control Sample	Total/NA	Water	SM 5310C	
LCS 480-488613/76	Lab Control Sample	Total/NA	Water	SM 5310C	
480-157980-4 MS	MW-17	Total/NA	Ground Water	SM 5310C	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	SM 5310C	

Analysis Batch: 488619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	SM 5210B	
480-158093-2	MW-N(S)	Total/NA	Ground Water	SM 5210B	
480-158093-3	MW-Q(I)	Total/NA	Water	SM 5210B	
USB 480-488619/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-488619/2	Lab Control Sample	Total/NA	Water	SM 5210B	

Prep Batch: 488630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-4	MW-17	Total/NA	Ground Water	351.2	
480-157980-5	MW-18BR	Total/NA	Ground Water	351.2	
480-157980-6	MW-L(I)	Total/NA	Ground Water	351.2	
480-157980-7	MW-M(I)	Total/NA	Ground Water	351.2	
480-157980-9	MW-P(I)	Total/NA	Ground Water	351.2	
480-157980-10	MW-P(S)	Total/NA	Ground Water	351.2	
MB 480-488630/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-488630/2-A	Lab Control Sample	Total/NA	Water	351.2	
480-157980-4 MS	MW-17	Total/NA	Ground Water	351.2	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	351.2	

Analysis Batch: 488637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	7196A	
480-158093-2	MW-N(S)	Total/NA	Ground Water	7196A	
480-158093-3	MW-Q(I)	Total/NA	Water	7196A	
MB 480-488637/3	Method Blank	Total/NA	Water	7196A	
LCS 480-488637/4	Lab Control Sample	Total/NA	Water	7196A	

General Chemistry

Analysis Batch: 488668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	SM 2120B	
480-158093-2	MW-N(S)	Total/NA	Ground Water	SM 2120B	
480-158093-3	MW-Q(I)	Total/NA	Water	SM 2120B	
MB 480-488668/3	Method Blank	Total/NA	Water	SM 2120B	
LCS 480-488668/4	Lab Control Sample	Total/NA	Water	SM 2120B	

Analysis Batch: 488673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	353.2	
480-158093-2	MW-N(S)	Total/NA	Ground Water	353.2	
480-158093-3	MW-Q(I)	Total/NA	Water	353.2	

Analysis Batch: 488689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	410.4	
480-157980-3	MW-16(S)	Total/NA	Ground Water	410.4	
480-157980-5	MW-18BR	Total/NA	Ground Water	410.4	
480-157980-6	MW-L(I)	Total/NA	Ground Water	410.4	
480-157980-7	MW-M(I)	Total/NA	Ground Water	410.4	
480-157980-8	MW-M(S)	Total/NA	Ground Water	410.4	
MB 480-488689/28	Method Blank	Total/NA	Water	410.4	
MB 480-488689/52	Method Blank	Total/NA	Water	410.4	
LCS 480-488689/29	Lab Control Sample	Total/NA	Water	410.4	
LCS 480-488689/53	Lab Control Sample	Total/NA	Water	410.4	

Analysis Batch: 488739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-2	MW-16	Total/NA	Ground Water	410.4	
480-157980-4	MW-17	Total/NA	Ground Water	410.4	
480-157980-9	MW-P(I)	Total/NA	Ground Water	410.4	
MB 480-488739/28	Method Blank	Total/NA	Water	410.4	
MB 480-488739/4	Method Blank	Total/NA	Water	410.4	
LCS 480-488739/29	Lab Control Sample	Total/NA	Water	410.4	
LCS 480-488739/5	Lab Control Sample	Total/NA	Water	410.4	
480-157980-4 MS	MW-17	Total/NA	Ground Water	410.4	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	410.4	

Analysis Batch: 488778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	350.1	
480-158093-2	MW-N(S)	Total/NA	Ground Water	350.1	
480-158093-3	MW-Q(I)	Total/NA	Water	350.1	
MB 480-488778/27	Method Blank	Total/NA	Water	350.1	
LCS 480-488778/28	Lab Control Sample	Total/NA	Water	350.1	

Analysis Batch: 488839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	SM 2540C	
480-158093-2	MW-N(S)	Total/NA	Ground Water	SM 2540C	
480-158093-3	MW-Q(I)	Total/NA	Water	SM 2540C	
MB 480-488839/1	Method Blank	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 488839 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-488839/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 488896

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	351.2	488505
480-157980-2	MW-16	Total/NA	Ground Water	351.2	488505
480-157980-4	MW-17	Total/NA	Ground Water	351.2	488630
480-157980-5	MW-18BR	Total/NA	Ground Water	351.2	488630
480-157980-6	MW-L(I)	Total/NA	Ground Water	351.2	488630
480-157980-7	MW-M(I)	Total/NA	Ground Water	351.2	488630
480-157980-9	MW-P(I)	Total/NA	Ground Water	351.2	488630
480-157980-10	MW-P(S)	Total/NA	Ground Water	351.2	488630
MB 480-488505/1-A	Method Blank	Total/NA	Water	351.2	488505
MB 480-488630/1-A	Method Blank	Total/NA	Water	351.2	488630
LCS 480-488505/2-A	Lab Control Sample	Total/NA	Water	351.2	488505
LCS 480-488630/2-A	Lab Control Sample	Total/NA	Water	351.2	488630
480-157980-4 MS	MW-17	Total/NA	Ground Water	351.2	488630
480-157980-4 MSD	MW-17	Total/NA	Ground Water	351.2	488630

Analysis Batch: 488908

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	310.2	
480-157980-2	MW-16	Total/NA	Ground Water	310.2	
480-157980-3	MW-16(S)	Total/NA	Ground Water	310.2	
480-157980-4	MW-17	Total/NA	Ground Water	310.2	
480-157980-5	MW-18BR	Total/NA	Ground Water	310.2	
480-157980-6	MW-L(I)	Total/NA	Ground Water	310.2	
480-157980-7	MW-M(I)	Total/NA	Ground Water	310.2	
480-157980-8	MW-M(S)	Total/NA	Ground Water	310.2	
480-157980-9	MW-P(I)	Total/NA	Ground Water	310.2	
480-157980-10	MW-P(S)	Total/NA	Ground Water	310.2	
480-158093-1	MW-N(I)	Total/NA	Ground Water	310.2	
480-158093-2	MW-N(S)	Total/NA	Ground Water	310.2	
480-158093-3	MW-Q(I)	Total/NA	Water	310.2	
MB 480-488908/109	Method Blank	Total/NA	Water	310.2	
MB 480-488908/125	Method Blank	Total/NA	Water	310.2	
MB 480-488908/90	Method Blank	Total/NA	Water	310.2	
MB 480-488908/96	Method Blank	Total/NA	Water	310.2	
LCS 480-488908/110	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-488908/126	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-488908/91	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-488908/97	Lab Control Sample	Total/NA	Water	310.2	
480-157980-4 MS	MW-17	Total/NA	Ground Water	310.2	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	310.2	

Analysis Batch: 488982

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	300.0	
480-157980-2	MW-16	Total/NA	Ground Water	300.0	
480-157980-3	MW-16(S)	Total/NA	Ground Water	300.0	
480-157980-4	MW-17	Total/NA	Ground Water	300.0	

General Chemistry (Continued)

Analysis Batch: 488982 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-5	MW-18BR	Total/NA	Ground Water	300.0	
480-157980-6	MW-L(I)	Total/NA	Ground Water	300.0	
480-157980-7	MW-M(I)	Total/NA	Ground Water	300.0	
480-157980-8	MW-M(S)	Total/NA	Ground Water	300.0	
480-157980-9	MW-P(I)	Total/NA	Ground Water	300.0	
480-157980-10	MW-P(S)	Total/NA	Ground Water	300.0	
MB 480-488982/28	Method Blank	Total/NA	Water	300.0	
MB 480-488982/4	Method Blank	Total/NA	Water	300.0	
LCS 480-488982/27	Lab Control Sample	Total/NA	Water	300.0	
LCS 480-488982/3	Lab Control Sample	Total/NA	Water	300.0	
480-157980-4 MS	MW-17	Total/NA	Ground Water	300.0	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	300.0	

Analysis Batch: 488983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	SM 4110B	
480-157980-2	MW-16	Total/NA	Ground Water	SM 4110B	
480-157980-3	MW-16(S)	Total/NA	Ground Water	SM 4110B	
480-157980-4	MW-17	Total/NA	Ground Water	SM 4110B	
480-157980-5	MW-18BR	Total/NA	Ground Water	SM 4110B	
480-157980-6	MW-L(I)	Total/NA	Ground Water	SM 4110B	
480-157980-7	MW-M(I)	Total/NA	Ground Water	SM 4110B	
480-157980-8	MW-M(S)	Total/NA	Ground Water	SM 4110B	
480-157980-9	MW-P(I)	Total/NA	Ground Water	SM 4110B	
480-157980-10	MW-P(S)	Total/NA	Ground Water	SM 4110B	
MB 480-488983/28	Method Blank	Total/NA	Water	SM 4110B	
MB 480-488983/4	Method Blank	Total/NA	Water	SM 4110B	
LCS 480-488983/27	Lab Control Sample	Total/NA	Water	SM 4110B	
LCS 480-488983/3	Lab Control Sample	Total/NA	Water	SM 4110B	
480-157980-4 MS	MW-17	Total/NA	Ground Water	SM 4110B	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	SM 4110B	

Analysis Batch: 489045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-10	MW-P(S)	Total/NA	Ground Water	410.4	
MB 480-489045/3	Method Blank	Total/NA	Water	410.4	
LCS 480-489045/4	Lab Control Sample	Total/NA	Water	410.4	
480-157980-10 MS	MW-P(S)	Total/NA	Ground Water	410.4	
480-157980-10 MSD	MW-P(S)	Total/NA	Ground Water	410.4	

Analysis Batch: 489055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	300.0	
480-158093-2	MW-N(S)	Total/NA	Ground Water	300.0	
480-158093-3	MW-Q(I)	Total/NA	Water	300.0	
MB 480-489055/4	Method Blank	Total/NA	Water	300.0	
LCS 480-489055/3	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 489056

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	SM 4110B	

General Chemistry (Continued)

Analysis Batch: 489056 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-2	MW-N(S)	Total/NA	Ground Water	SM 4110B	
480-158093-3	MW-Q(I)	Total/NA	Water	SM 4110B	
MB 480-489056/4	Method Blank	Total/NA	Water	SM 4110B	
LCS 480-489056/3	Lab Control Sample	Total/NA	Water	SM 4110B	

Analysis Batch: 489096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	7196A	
MB 480-489096/3	Method Blank	Total/NA	Water	7196A	
LCS 480-489096/4	Lab Control Sample	Total/NA	Water	7196A	
480-158145-1 MS	MW-50	Total/NA	Ground Water	7196A	

Analysis Batch: 489098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	300.0	
MB 480-489098/4	Method Blank	Total/NA	Water	300.0	
LCS 480-489098/3	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 489099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	SM 4110B	
MB 480-489099/4	Method Blank	Total/NA	Water	SM 4110B	
LCS 480-489099/3	Lab Control Sample	Total/NA	Water	SM 4110B	

Analysis Batch: 489107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	SM 2120B	
MB 480-489107/3	Method Blank	Total/NA	Water	SM 2120B	
LCS 480-489107/4	Lab Control Sample	Total/NA	Water	SM 2120B	

Analysis Batch: 489130

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	353.2	

Analysis Batch: 489135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	SM 5210B	
USB 480-489135/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-489135/2	Lab Control Sample	Total/NA	Water	SM 5210B	

Analysis Batch: 489206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	SM 2540C	
MB 480-489206/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-489206/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 489211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	350.1	
MB 480-489211/27	Method Blank	Total/NA	Water	350.1	
MB 480-489211/3	Method Blank	Total/NA	Water	350.1	

General Chemistry (Continued)

Analysis Batch: 489211 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-489211/28	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-489211/4	Lab Control Sample	Total/NA	Water	350.1	

Analysis Batch: 489215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	SM 5310C	
480-158093-2	MW-N(S)	Total/NA	Ground Water	SM 5310C	
480-158093-3	MW-Q(I)	Total/NA	Water	SM 5310C	
MB 480-489215/27	Method Blank	Total/NA	Water	SM 5310C	
MB 480-489215/4	Method Blank	Total/NA	Water	SM 5310C	
LCS 480-489215/28	Lab Control Sample	Total/NA	Water	SM 5310C	
LCS 480-489215/5	Lab Control Sample	Total/NA	Water	SM 5310C	
480-158093-3 MS	MW-Q(I)	Total/NA	Water	SM 5310C	
480-158093-3 MSD	MW-Q(I)	Total/NA	Water	SM 5310C	

Analysis Batch: 489262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-9	MW-P(I)	Total/NA	Ground Water	SM 4110B	
MB 480-489262/4	Method Blank	Total/NA	Water	SM 4110B	
LCS 480-489262/3	Lab Control Sample	Total/NA	Water	SM 4110B	

Analysis Batch: 489301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	SM 2340C	
480-157980-2	MW-16	Total/NA	Ground Water	SM 2340C	
480-157980-3	MW-16(S)	Total/NA	Ground Water	SM 2340C	
480-157980-4	MW-17	Total/NA	Ground Water	SM 2340C	
MB 480-489301/3	Method Blank	Total/NA	Water	SM 2340C	
LCS 480-489301/4	Lab Control Sample	Total/NA	Water	SM 2340C	
480-157980-4 MS	MW-17	Total/NA	Ground Water	SM 2340C	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	SM 2340C	

Analysis Batch: 489320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	310.2	
MB 480-489320/73	Method Blank	Total/NA	Water	310.2	
LCS 480-489320/74	Lab Control Sample	Total/NA	Water	310.2	

Prep Batch: 489367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-3	MW-16(S)	Total/NA	Ground Water	351.2	
480-157980-8	MW-M(S)	Total/NA	Ground Water	351.2	
MB 480-489367/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-489367/2-A	Lab Control Sample	Total/NA	Water	351.2	

Analysis Batch: 489430

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	410.4	
480-158093-2	MW-N(S)	Total/NA	Ground Water	410.4	
480-158093-3	MW-Q(I)	Total/NA	Water	410.4	
MB 480-489430/27	Method Blank	Total/NA	Water	410.4	

General Chemistry (Continued)

Analysis Batch: 489430 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-489430/28	Lab Control Sample	Total/NA	Water	410.4	

Analysis Batch: 489502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	SM 5310C	
MB 480-489502/4	Method Blank	Total/NA	Water	SM 5310C	
LCS 480-489502/5	Lab Control Sample	Total/NA	Water	SM 5310C	

Analysis Batch: 489521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	410.4	
MB 480-489521/27	Method Blank	Total/NA	Water	410.4	
LCS 480-489521/28	Lab Control Sample	Total/NA	Water	410.4	

Analysis Batch: 489755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	353.2	
480-158409-2	MWBA-1	Total/NA	Ground Water	353.2	
480-158409-3	MWBA-2	Total/NA	Ground Water	353.2	
480-158409-4	MW-O(I)	Total/NA	Ground Water	353.2	

Analysis Batch: 489758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	7196A	
480-158409-2	MWBA-1	Total/NA	Ground Water	7196A	
480-158409-3	MWBA-2	Total/NA	Ground Water	7196A	
480-158409-4	MW-O(I)	Total/NA	Ground Water	7196A	
MB 480-489758/3	Method Blank	Total/NA	Water	7196A	
LCS 480-489758/4	Lab Control Sample	Total/NA	Water	7196A	
480-158409-4 MS	MW-O(I)	Total/NA	Ground Water	7196A	
480-158409-2 DU	MWBA-1	Total/NA	Ground Water	7196A	

Analysis Batch: 489771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-5	MW-18BR	Total/NA	Ground Water	SM 2340C	
480-157980-6	MW-L(I)	Total/NA	Ground Water	SM 2340C	
480-157980-7	MW-M(I)	Total/NA	Ground Water	SM 2340C	
480-157980-8	MW-M(S)	Total/NA	Ground Water	SM 2340C	
480-157980-9	MW-P(I)	Total/NA	Ground Water	SM 2340C	
480-157980-10	MW-P(S)	Total/NA	Ground Water	SM 2340C	
MB 480-489771/3	Method Blank	Total/NA	Water	SM 2340C	
LCS 480-489771/4	Lab Control Sample	Total/NA	Water	SM 2340C	
480-157980-6 MS	MW-L(I)	Total/NA	Ground Water	SM 2340C	

Analysis Batch: 489774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	SM 5210B	
USB 480-489774/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-489774/2	Lab Control Sample	Total/NA	Water	SM 5210B	

General Chemistry

Analysis Batch: 489775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-2	MWBA-1	Total/NA	Ground Water	SM 5210B	
480-158409-3	MWBA-2	Total/NA	Ground Water	SM 5210B	
480-158409-4	MW-O(I)	Total/NA	Ground Water	SM 5210B	
USB 480-489775/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-489775/2	Lab Control Sample	Total/NA	Water	SM 5210B	
480-158409-4 DU	MW-O(I)	Total/NA	Ground Water	SM 5210B	

Analysis Batch: 489781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	SM 2120B	
480-158409-2	MWBA-1	Total/NA	Ground Water	SM 2120B	
480-158409-3	MWBA-2	Total/NA	Ground Water	SM 2120B	
480-158409-4	MW-O(I)	Total/NA	Ground Water	SM 2120B	
MB 480-489781/3	Method Blank	Total/NA	Water	SM 2120B	
LCS 480-489781/4	Lab Control Sample	Total/NA	Water	SM 2120B	
480-158409-3 DU	MWBA-2	Total/NA	Ground Water	SM 2120B	

Analysis Batch: 489787

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-3	MW-16(S)	Total/NA	Ground Water	351.2	489367
480-157980-8	MW-M(S)	Total/NA	Ground Water	351.2	489367
MB 480-489367/1-A	Method Blank	Total/NA	Water	351.2	489367
LCS 480-489367/2-A	Lab Control Sample	Total/NA	Water	351.2	489367

Prep Batch: 489794

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	9012B	
480-157980-2	MW-16	Total/NA	Ground Water	9012B	
480-157980-3	MW-16(S)	Total/NA	Ground Water	9012B	
480-157980-4	MW-17	Total/NA	Ground Water	9012B	
480-157980-5	MW-18BR	Total/NA	Ground Water	9012B	
480-157980-6	MW-L(I)	Total/NA	Ground Water	9012B	
480-157980-7	MW-M(I)	Total/NA	Ground Water	9012B	
480-157980-8	MW-M(S)	Total/NA	Ground Water	9012B	
480-157980-9	MW-P(I)	Total/NA	Ground Water	9012B	
480-157980-10	MW-P(S)	Total/NA	Ground Water	9012B	
MB 480-489794/1-A	Method Blank	Total/NA	Water	9012B	
LCS 480-489794/2-A	Lab Control Sample	Total/NA	Water	9012B	
LCS 480-489794/3-A	Lab Control Sample	Total/NA	Water	9012B	
480-157980-4 MS	MW-17	Total/NA	Ground Water	9012B	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	9012B	
480-157980-9 MS	MW-P(I)	Total/NA	Ground Water	9012B	

Analysis Batch: 489906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-2	MW-16	Total/NA	Ground Water	9012B	489794
480-157980-3	MW-16(S)	Total/NA	Ground Water	9012B	489794
480-157980-4	MW-17	Total/NA	Ground Water	9012B	489794
MB 480-489794/1-A	Method Blank	Total/NA	Water	9012B	489794
LCS 480-489794/3-A	Lab Control Sample	Total/NA	Water	9012B	489794
480-157980-4 MS	MW-17	Total/NA	Ground Water	9012B	489794

General Chemistry (Continued)

Analysis Batch: 489906 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-4 MSD	MW-17	Total/NA	Ground Water	9012B	489794

Analysis Batch: 489911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	9012B	489794
480-157980-5	MW-18BR	Total/NA	Ground Water	9012B	489794
480-157980-6	MW-L(I)	Total/NA	Ground Water	9012B	489794
480-157980-7	MW-M(I)	Total/NA	Ground Water	9012B	489794
480-157980-8	MW-M(S)	Total/NA	Ground Water	9012B	489794
480-157980-9	MW-P(I)	Total/NA	Ground Water	9012B	489794
480-157980-10	MW-P(S)	Total/NA	Ground Water	9012B	489794
LCS 480-489794/2-A	Lab Control Sample	Total/NA	Water	9012B	489794
480-157980-9 MS	MW-P(I)	Total/NA	Ground Water	9012B	489794

Prep Batch: 490033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	351.2	
480-158093-2	MW-N(S)	Total/NA	Ground Water	351.2	
480-158093-3	MW-Q(I)	Total/NA	Water	351.2	
MB 480-490033/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-490033/2-A	Lab Control Sample	Total/NA	Water	351.2	
480-158093-3 MS	MW-Q(I)	Total/NA	Water	351.2	

Analysis Batch: 490115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	7196A	
480-158492-2	MWSE-2	Total/NA	Ground Water	7196A	
480-158492-3	MWSE-3	Total/NA	Ground Water	7196A	
480-158492-4	MWSE-4	Total/NA	Ground Water	7196A	
MB 480-490115/3	Method Blank	Total/NA	Water	7196A	
LCS 480-490115/4	Lab Control Sample	Total/NA	Water	7196A	
480-158492-4 MS	MWSE-4	Total/NA	Ground Water	7196A	
480-158492-4 DU	MWSE-4	Total/NA	Ground Water	7196A	

Analysis Batch: 490147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	351.2	490033
480-158093-2	MW-N(S)	Total/NA	Ground Water	351.2	490033
480-158093-3	MW-Q(I)	Total/NA	Water	351.2	490033
MB 480-490033/1-A	Method Blank	Total/NA	Water	351.2	490033
LCS 480-490033/2-A	Lab Control Sample	Total/NA	Water	351.2	490033
480-158093-3 MS	MW-Q(I)	Total/NA	Water	351.2	490033

Analysis Batch: 490214

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	353.2	
480-158492-2	MWSE-2	Total/NA	Ground Water	353.2	
480-158492-3	MWSE-3	Total/NA	Ground Water	353.2	
480-158492-4	MWSE-4	Total/NA	Ground Water	353.2	

General Chemistry

Analysis Batch: 490229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	SM 5210B	
480-158492-2	MWSE-2	Total/NA	Ground Water	SM 5210B	
480-158492-3	MWSE-3	Total/NA	Ground Water	SM 5210B	
480-158492-4	MWSE-4	Total/NA	Ground Water	SM 5210B	
USB 480-490229/1	Method Blank	Total/NA	Water	SM 5210B	
LCS 480-490229/2	Lab Control Sample	Total/NA	Water	SM 5210B	

Prep Batch: 490313

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	9012B	
480-158093-2	MW-N(S)	Total/NA	Ground Water	9012B	
480-158093-3	MW-Q(I)	Total/NA	Water	9012B	
MB 480-490313/1-A	Method Blank	Total/NA	Water	9012B	
LCS 480-490313/2-A	Lab Control Sample	Total/NA	Water	9012B	

Analysis Batch: 490322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	SM 2540C	
480-158492-2	MWSE-2	Total/NA	Ground Water	SM 2540C	
480-158492-3	MWSE-3	Total/NA	Ground Water	SM 2540C	
480-158492-4	MWSE-4	Total/NA	Ground Water	SM 2540C	
MB 480-490322/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-490322/2	Lab Control Sample	Total/NA	Water	SM 2540C	
480-158492-3 DU	MWSE-3	Total/NA	Ground Water	SM 2540C	

Analysis Batch: 490326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	SM 2540C	
480-158409-2	MWBA-1	Total/NA	Ground Water	SM 2540C	
480-158409-3	MWBA-2	Total/NA	Ground Water	SM 2540C	
480-158409-4	MW-O(I)	Total/NA	Ground Water	SM 2540C	
MB 480-490326/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 480-490326/2	Lab Control Sample	Total/NA	Water	SM 2540C	

Prep Batch: 490387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	351.2	
MB 480-490387/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-490387/2-A	Lab Control Sample	Total/NA	Water	351.2	

Analysis Batch: 490392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	SM 2120B	
480-158492-2	MWSE-2	Total/NA	Ground Water	SM 2120B	
480-158492-3	MWSE-3	Total/NA	Ground Water	SM 2120B	
480-158492-4	MWSE-4	Total/NA	Ground Water	SM 2120B	
MB 480-490392/3	Method Blank	Total/NA	Water	SM 2120B	
LCS 480-490392/4	Lab Control Sample	Total/NA	Water	SM 2120B	

General Chemistry

Analysis Batch: 490396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	9012B	490313
480-158093-2	MW-N(S)	Total/NA	Ground Water	9012B	490313
480-158093-3	MW-Q(I)	Total/NA	Water	9012B	490313
MB 480-490313/1-A	Method Blank	Total/NA	Water	9012B	490313
LCS 480-490313/2-A	Lab Control Sample	Total/NA	Water	9012B	490313

Prep Batch: 490474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	Distill/Phenol	
480-157980-2	MW-16	Total/NA	Ground Water	Distill/Phenol	
480-157980-4	MW-17	Total/NA	Ground Water	Distill/Phenol	
480-157980-5	MW-18BR	Total/NA	Ground Water	Distill/Phenol	
480-157980-6	MW-L(I)	Total/NA	Ground Water	Distill/Phenol	
480-157980-7	MW-M(I)	Total/NA	Ground Water	Distill/Phenol	
480-157980-8	MW-M(S)	Total/NA	Ground Water	Distill/Phenol	
480-157980-9	MW-P(I)	Total/NA	Ground Water	Distill/Phenol	
480-157980-10	MW-P(S)	Total/NA	Ground Water	Distill/Phenol	
MB 480-490474/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 480-490474/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	
480-157980-4 MS	MW-17	Total/NA	Ground Water	Distill/Phenol	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	Distill/Phenol	
480-157980-9 MS	MW-P(I)	Total/NA	Ground Water	Distill/Phenol	

Analysis Batch: 490559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	350.1	
480-158409-2	MWBA-1	Total/NA	Ground Water	350.1	
480-158409-3	MWBA-2	Total/NA	Ground Water	350.1	
480-158409-4	MW-O(I)	Total/NA	Ground Water	350.1	
MB 480-490559/27	Method Blank	Total/NA	Water	350.1	
MB 480-490559/51	Method Blank	Total/NA	Water	350.1	
LCS 480-490559/28	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-490559/52	Lab Control Sample	Total/NA	Water	350.1	
480-158409-1 MS	FIELD BLANK	Total/NA	Water	350.1	

Analysis Batch: 490641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	350.1	
480-158492-2	MWSE-2	Total/NA	Ground Water	350.1	
480-158492-3	MWSE-3	Total/NA	Ground Water	350.1	
480-158492-4	MWSE-4	Total/NA	Ground Water	350.1	
MB 480-490641/27	Method Blank	Total/NA	Water	350.1	
MB 480-490641/3	Method Blank	Total/NA	Water	350.1	
LCS 480-490641/28	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-490641/4	Lab Control Sample	Total/NA	Water	350.1	
480-158492-1 MS	MWSE-1	Total/NA	Ground Water	350.1	

Analysis Batch: 490698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	410.4	
480-158409-2	MWBA-1	Total/NA	Ground Water	410.4	

General Chemistry (Continued)

Analysis Batch: 490698 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-3	MWBA-2	Total/NA	Ground Water	410.4	
480-158409-4	MW-O(I)	Total/NA	Ground Water	410.4	
MB 480-490698/51	Method Blank	Total/NA	Water	410.4	
MB 480-490698/75	Method Blank	Total/NA	Water	410.4	
LCS 480-490698/52	Lab Control Sample	Total/NA	Water	410.4	
LCS 480-490698/76	Lab Control Sample	Total/NA	Water	410.4	

Prep Batch: 490714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	Distill/Phenol	
480-158093-3	MW-Q(I)	Total/NA	Water	Distill/Phenol	
MB 480-490714/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 480-490714/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Prep Batch: 490716

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	Distill/Phenol	
MB 480-490716/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 480-490716/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Analysis Batch: 490772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	SM 5310C	
480-158409-2	MWBA-1	Total/NA	Ground Water	SM 5310C	
480-158409-3	MWBA-2	Total/NA	Ground Water	SM 5310C	
480-158409-4	MW-O(I)	Total/NA	Ground Water	SM 5310C	
MB 480-490772/27	Method Blank	Total/NA	Water	SM 5310C	
MB 480-490772/4	Method Blank	Total/NA	Water	SM 5310C	
LCS 480-490772/28	Lab Control Sample	Total/NA	Water	SM 5310C	
LCS 480-490772/5	Lab Control Sample	Total/NA	Water	SM 5310C	
480-158409-4 MS	MW-O(I)	Total/NA	Ground Water	SM 5310C	
480-158409-4 MSD	MW-O(I)	Total/NA	Ground Water	SM 5310C	

Analysis Batch: 490818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	9065	490474
480-157980-2	MW-16	Total/NA	Ground Water	9065	490474
480-157980-4	MW-17	Total/NA	Ground Water	9065	490474
480-157980-5	MW-18BR	Total/NA	Ground Water	9065	490474
480-157980-6	MW-L(I)	Total/NA	Ground Water	9065	490474
480-157980-7	MW-M(I)	Total/NA	Ground Water	9065	490474
480-157980-8	MW-M(S)	Total/NA	Ground Water	9065	490474
480-157980-9	MW-P(I)	Total/NA	Ground Water	9065	490474
480-157980-10	MW-P(S)	Total/NA	Ground Water	9065	490474
480-158093-1	MW-N(I)	Total/NA	Ground Water	9065	490714
480-158093-3	MW-Q(I)	Total/NA	Water	9065	490714
480-158145-1	MW-50	Total/NA	Ground Water	9065	490716
MB 480-490474/1-A	Method Blank	Total/NA	Water	9065	490474
MB 480-490714/1-A	Method Blank	Total/NA	Water	9065	490714
MB 480-490716/1-A	Method Blank	Total/NA	Water	9065	490716
LCS 480-490474/2-A	Lab Control Sample	Total/NA	Water	9065	490474

General Chemistry (Continued)

Analysis Batch: 490818 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-490714/2-A	Lab Control Sample	Total/NA	Water	9065	490714
LCS 480-490716/2-A	Lab Control Sample	Total/NA	Water	9065	490716
480-157980-4 MS	MW-17	Total/NA	Ground Water	9065	490474
480-157980-4 MSD	MW-17	Total/NA	Ground Water	9065	490474
480-157980-9 MS	MW-P(I)	Total/NA	Ground Water	9065	490474

Prep Batch: 490819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	9012B	
MB 480-490819/1-A	Method Blank	Total/NA	Water	9012B	
LCS 480-490819/2-A	Lab Control Sample	Total/NA	Water	9012B	
LCS 480-490819/3-A	Lab Control Sample	Total/NA	Water	9012B	

Analysis Batch: 490899

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	300.0	
480-158409-2	MWBA-1	Total/NA	Ground Water	300.0	
480-158409-3	MWBA-2	Total/NA	Ground Water	300.0	
480-158409-4	MW-O(I)	Total/NA	Ground Water	300.0	
480-158492-1	MWSE-1	Total/NA	Ground Water	300.0	
480-158492-2	MWSE-2	Total/NA	Ground Water	300.0	
480-158492-3	MWSE-3	Total/NA	Ground Water	300.0	
480-158492-4	MWSE-4	Total/NA	Ground Water	300.0	
MB 480-490899/28	Method Blank	Total/NA	Water	300.0	
MB 480-490899/4	Method Blank	Total/NA	Water	300.0	
LCS 480-490899/27	Lab Control Sample	Total/NA	Water	300.0	
LCS 480-490899/3	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 490900

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	SM 4110B	
480-158409-2	MWBA-1	Total/NA	Ground Water	SM 4110B	
480-158409-3	MWBA-2	Total/NA	Ground Water	SM 4110B	
480-158409-4	MW-O(I)	Total/NA	Ground Water	SM 4110B	
480-158492-1	MWSE-1	Total/NA	Ground Water	SM 4110B	
480-158492-2	MWSE-2	Total/NA	Ground Water	SM 4110B	
480-158492-3	MWSE-3	Total/NA	Ground Water	SM 4110B	
480-158492-4	MWSE-4	Total/NA	Ground Water	SM 4110B	
MB 480-490900/28	Method Blank	Total/NA	Water	SM 4110B	
MB 480-490900/4	Method Blank	Total/NA	Water	SM 4110B	
LCS 480-490900/27	Lab Control Sample	Total/NA	Water	SM 4110B	
LCS 480-490900/3	Lab Control Sample	Total/NA	Water	SM 4110B	

Analysis Batch: 490924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	351.2	490387
MB 480-490387/1-A	Method Blank	Total/NA	Water	351.2	490387
LCS 480-490387/2-A	Lab Control Sample	Total/NA	Water	351.2	490387

General Chemistry

Analysis Batch: 490939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	9012B	490819
MB 480-490819/1-A	Method Blank	Total/NA	Water	9012B	490819
LCS 480-490819/2-A	Lab Control Sample	Total/NA	Water	9012B	490819
LCS 480-490819/3-A	Lab Control Sample	Total/NA	Water	9012B	490819

Analysis Batch: 491025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	SM 2340C	
480-158093-2	MW-N(S)	Total/NA	Ground Water	SM 2340C	
480-158093-3	MW-Q(I)	Total/NA	Water	SM 2340C	
480-158145-1	MW-50	Total/NA	Ground Water	SM 2340C	
MB 480-491025/27	Method Blank	Total/NA	Water	SM 2340C	
MB 480-491025/3	Method Blank	Total/NA	Water	SM 2340C	
LCS 480-491025/28	Lab Control Sample	Total/NA	Water	SM 2340C	
LCS 480-491025/4	Lab Control Sample	Total/NA	Water	SM 2340C	
480-158093-1 MS	MW-N(I)	Total/NA	Ground Water	SM 2340C	

Analysis Batch: 491046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	310.2	
480-158409-2	MWBA-1	Total/NA	Ground Water	310.2	
480-158409-3	MWBA-2	Total/NA	Ground Water	310.2	
480-158409-4	MW-O(I)	Total/NA	Ground Water	310.2	
480-158492-1	MWSE-1	Total/NA	Ground Water	310.2	
480-158492-2	MWSE-2	Total/NA	Ground Water	310.2	
480-158492-3	MWSE-3	Total/NA	Ground Water	310.2	
480-158492-4	MWSE-4	Total/NA	Ground Water	310.2	
MB 480-491046/19	Method Blank	Total/NA	Water	310.2	
MB 480-491046/43	Method Blank	Total/NA	Water	310.2	
MB 480-491046/51	Method Blank	Total/NA	Water	310.2	
MB 480-491046/70	Method Blank	Total/NA	Water	310.2	
MB 480-491046/80	Method Blank	Total/NA	Water	310.2	
LCS 480-491046/20	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-491046/44	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-491046/52	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-491046/71	Lab Control Sample	Total/NA	Water	310.2	
LCS 480-491046/81	Lab Control Sample	Total/NA	Water	310.2	

Prep Batch: 491161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	9012B	
480-158409-2	MWBA-1	Total/NA	Ground Water	9012B	
MB 480-491161/1-A	Method Blank	Total/NA	Water	9012B	
LCS 480-491161/2-A	Lab Control Sample	Total/NA	Water	9012B	
480-158409-2 MS	MWBA-1	Total/NA	Ground Water	9012B	

Analysis Batch: 491171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	SM 5310C	
480-158492-2	MWSE-2	Total/NA	Ground Water	SM 5310C	
480-158492-3	MWSE-3	Total/NA	Ground Water	SM 5310C	

General Chemistry (Continued)

Analysis Batch: 491171 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-4	MWSE-4	Total/NA	Ground Water	SM 5310C	
MB 480-491171/24	Method Blank	Total/NA	Water	SM 5310C	
LCS 480-491171/25	Lab Control Sample	Total/NA	Water	SM 5310C	
480-158492-1 MS	MWSE-1	Total/NA	Ground Water	SM 5310C	
480-158492-1 MSD	MWSE-1	Total/NA	Ground Water	SM 5310C	

Analysis Batch: 491490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	9012B	491161
480-158409-2	MWBA-1	Total/NA	Ground Water	9012B	491161
MB 480-491161/1-A	Method Blank	Total/NA	Water	9012B	491161
LCS 480-491161/2-A	Lab Control Sample	Total/NA	Water	9012B	491161
480-158409-2 MS	MWBA-1	Total/NA	Ground Water	9012B	491161

Analysis Batch: 491715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	410.4	
480-158492-2	MWSE-2	Total/NA	Ground Water	410.4	
480-158492-3	MWSE-3	Total/NA	Ground Water	410.4	
480-158492-4	MWSE-4	Total/NA	Ground Water	410.4	
MB 480-491715/3	Method Blank	Total/NA	Water	410.4	
LCS 480-491715/4	Lab Control Sample	Total/NA	Water	410.4	
480-158492-3 MS	MWSE-3	Total/NA	Ground Water	410.4	

Prep Batch: 491744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-3	MWBA-2	Total/NA	Ground Water	9012B	
480-158409-4	MW-O(I)	Total/NA	Ground Water	9012B	
MB 480-491744/1-A	Method Blank	Total/NA	Water	9012B	
LCS 480-491744/2-A	Lab Control Sample	Total/NA	Water	9012B	
LCS 480-491744/3-A	Lab Control Sample	Total/NA	Water	9012B	

Analysis Batch: 491820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-3	MWBA-2	Total/NA	Ground Water	9012B	491744
480-158409-4	MW-O(I)	Total/NA	Ground Water	9012B	491744
MB 480-491744/1-A	Method Blank	Total/NA	Water	9012B	491744
LCS 480-491744/2-A	Lab Control Sample	Total/NA	Water	9012B	491744
LCS 480-491744/3-A	Lab Control Sample	Total/NA	Water	9012B	491744

Prep Batch: 491834

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-3	MW-16(S)	Total/NA	Ground Water	Distill/Phenol	
MB 480-491834/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 480-491834/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Prep Batch: 491906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	351.2	
480-158492-1	MWSE-1	Total/NA	Ground Water	351.2	
480-158492-2	MWSE-2	Total/NA	Ground Water	351.2	

General Chemistry (Continued)

Prep Batch: 491906 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-3	MWSE-3	Total/NA	Ground Water	351.2	
480-158492-4	MWSE-4	Total/NA	Ground Water	351.2	
MB 480-491906/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-491906/2-A	Lab Control Sample	Total/NA	Water	351.2	
480-158409-1 DU	FIELD BLANK	Total/NA	Water	351.2	

Analysis Batch: 492044

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-3	MW-16(S)	Total/NA	Ground Water	9065	491834
MB 480-491834/1-A	Method Blank	Total/NA	Water	9065	491834
LCS 480-491834/2-A	Lab Control Sample	Total/NA	Water	9065	491834

Prep Batch: 492055

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	Distill/Phenol	
480-158409-3	MWBA-2	Total/NA	Ground Water	Distill/Phenol	
480-158409-4	MW-O(I)	Total/NA	Ground Water	Distill/Phenol	
MB 480-492055/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 480-492055/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	
480-158409-1 MS	FIELD BLANK	Total/NA	Water	Distill/Phenol	

Analysis Batch: 492180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	351.2	491906
480-158492-1	MWSE-1	Total/NA	Ground Water	351.2	491906
480-158492-2	MWSE-2	Total/NA	Ground Water	351.2	491906
480-158492-3	MWSE-3	Total/NA	Ground Water	351.2	491906
480-158492-4	MWSE-4	Total/NA	Ground Water	351.2	491906
MB 480-491906/1-A	Method Blank	Total/NA	Water	351.2	491906
LCS 480-491906/2-A	Lab Control Sample	Total/NA	Water	351.2	491906
480-158409-1 DU	FIELD BLANK	Total/NA	Water	351.2	491906

Prep Batch: 492183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	9012B	
480-158492-3	MWSE-3	Total/NA	Ground Water	9012B	
480-158492-4	MWSE-4	Total/NA	Ground Water	9012B	
MB 480-492183/1-A	Method Blank	Total/NA	Water	9012B	
LCS 480-492183/2-A	Lab Control Sample	Total/NA	Water	9012B	
LCS 480-492183/3-A	Lab Control Sample	Total/NA	Water	9012B	

Prep Batch: 492184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	9012B	
MB 480-492184/1-A	Method Blank	Total/NA	Water	9012B	
LCS 480-492184/2-A	Lab Control Sample	Total/NA	Water	9012B	

Analysis Batch: 492252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	SM 2340C	
480-158409-2	MWBA-1	Total/NA	Ground Water	SM 2340C	

General Chemistry (Continued)

Analysis Batch: 492252 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-3	MWBA-2	Total/NA	Ground Water	SM 2340C	
MB 480-492252/3	Method Blank	Total/NA	Water	SM 2340C	
LCS 480-492252/4	Lab Control Sample	Total/NA	Water	SM 2340C	
480-158409-1 MS	FIELD BLANK	Total/NA	Water	SM 2340C	
480-158409-1 MSD	FIELD BLANK	Total/NA	Water	SM 2340C	

Analysis Batch: 492319

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	9065	492055
480-158409-3	MWBA-2	Total/NA	Ground Water	9065	492055
480-158409-4	MW-O(I)	Total/NA	Ground Water	9065	492055
MB 480-492055/1-A	Method Blank	Total/NA	Water	9065	492055
LCS 480-492055/2-A	Lab Control Sample	Total/NA	Water	9065	492055
480-158409-1 MS	FIELD BLANK	Total/NA	Water	9065	492055

Analysis Batch: 492324

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158145-1	MW-50	Total/NA	Ground Water	9012B	492184
MB 480-492184/1-A	Method Blank	Total/NA	Water	9012B	492184
LCS 480-492184/2-A	Lab Control Sample	Total/NA	Water	9012B	492184

Analysis Batch: 492325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	9012B	492183
480-158492-3	MWSE-3	Total/NA	Ground Water	9012B	492183
480-158492-4	MWSE-4	Total/NA	Ground Water	9012B	492183
MB 480-492183/1-A	Method Blank	Total/NA	Water	9012B	492183
LCS 480-492183/2-A	Lab Control Sample	Total/NA	Water	9012B	492183
LCS 480-492183/3-A	Lab Control Sample	Total/NA	Water	9012B	492183

Prep Batch: 492371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	Distill/Phenol	
480-158492-2	MWSE-2	Total/NA	Ground Water	Distill/Phenol	
480-158492-3	MWSE-3	Total/NA	Ground Water	Distill/Phenol	
480-158492-4	MWSE-4	Total/NA	Ground Water	Distill/Phenol	
MB 480-492371/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 480-492371/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	
480-158492-1 MS	MWSE-1	Total/NA	Ground Water	Distill/Phenol	

Prep Batch: 492372

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-2	MW-N(S)	Total/NA	Ground Water	Distill/Phenol	
480-158409-2	MWBA-1	Total/NA	Ground Water	Distill/Phenol	
MB 480-492372/1-A	Method Blank	Total/NA	Water	Distill/Phenol	
LCS 480-492372/2-A	Lab Control Sample	Total/NA	Water	Distill/Phenol	

Prep Batch: 492388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-3	MWBA-2	Total/NA	Ground Water	351.2	
480-158409-4	MW-O(I)	Total/NA	Ground Water	351.2	

General Chemistry (Continued)

Prep Batch: 492388 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-492388/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-492388/2-A	Lab Control Sample	Total/NA	Water	351.2	
480-158409-4 MS	MW-O(I)	Total/NA	Ground Water	351.2	

Prep Batch: 492463

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-2	MWSE-2	Total/NA	Ground Water	9012B	
MB 480-492463/1-A	Method Blank	Total/NA	Water	9012B	
LCS 480-492463/2-A	Lab Control Sample	Total/NA	Water	9012B	
LCS 480-492463/3-A	Lab Control Sample	Total/NA	Water	9012B	
480-158492-2 MS	MWSE-2	Total/NA	Ground Water	9012B	

Analysis Batch: 492507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-4	MW-17	Total/NA	Ground Water	SM 2120B	
MB 480-492507/3	Method Blank	Total/NA	Water	SM 2120B	
LCS 480-492507/4	Lab Control Sample	Total/NA	Water	SM 2120B	
480-157980-4 MS	MW-17	Total/NA	Ground Water	SM 2120B	
480-157980-4 MSD	MW-17	Total/NA	Ground Water	SM 2120B	

Analysis Batch: 492515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-2	MW-N(S)	Total/NA	Ground Water	9065	492372
480-158409-2	MWBA-1	Total/NA	Ground Water	9065	492372
480-158492-1	MWSE-1	Total/NA	Ground Water	9065	492371
480-158492-2	MWSE-2	Total/NA	Ground Water	9065	492371
480-158492-3	MWSE-3	Total/NA	Ground Water	9065	492371
480-158492-4	MWSE-4	Total/NA	Ground Water	9065	492371
MB 480-492371/1-A	Method Blank	Total/NA	Water	9065	492371
MB 480-492372/1-A	Method Blank	Total/NA	Water	9065	492372
LCS 480-492371/2-A	Lab Control Sample	Total/NA	Water	9065	492371
LCS 480-492372/2-A	Lab Control Sample	Total/NA	Water	9065	492372
480-158492-1 MS	MWSE-1	Total/NA	Ground Water	9065	492371

Analysis Batch: 492555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-2	MWSE-2	Total/NA	Ground Water	9012B	492463
MB 480-492463/1-A	Method Blank	Total/NA	Water	9012B	492463
LCS 480-492463/2-A	Lab Control Sample	Total/NA	Water	9012B	492463
LCS 480-492463/3-A	Lab Control Sample	Total/NA	Water	9012B	492463
480-158492-2 MS	MWSE-2	Total/NA	Ground Water	9012B	492463

Analysis Batch: 492583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-3	MWBA-2	Total/NA	Ground Water	351.2	492388
480-158409-4	MW-O(I)	Total/NA	Ground Water	351.2	492388
MB 480-492388/1-A	Method Blank	Total/NA	Water	351.2	492388
LCS 480-492388/2-A	Lab Control Sample	Total/NA	Water	351.2	492388
480-158409-4 MS	MW-O(I)	Total/NA	Ground Water	351.2	492388

General Chemistry

Analysis Batch: 492757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-4	MW-O(I)	Total/NA	Ground Water	SM 2340C	
480-158492-1	MWSE-1	Total/NA	Ground Water	SM 2340C	
480-158492-2	MWSE-2	Total/NA	Ground Water	SM 2340C	
480-158492-3	MWSE-3	Total/NA	Ground Water	SM 2340C	
480-158492-4	MWSE-4	Total/NA	Ground Water	SM 2340C	
MB 480-492757/3	Method Blank	Total/NA	Water	SM 2340C	
LCS 480-492757/4	Lab Control Sample	Total/NA	Water	SM 2340C	
480-158492-4 MS	MWSE-4	Total/NA	Ground Water	SM 2340C	
480-158492-4 MSD	MWSE-4	Total/NA	Ground Water	SM 2340C	

Prep Batch: 492820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-2	MWBA-1	Total/NA	Ground Water	9012B	
480-158409-3	MWBA-2	Total/NA	Ground Water	9012B	
480-158409-4	MW-O(I)	Total/NA	Ground Water	9012B	
MB 480-492820/1-A	Method Blank	Total/NA	Water	9012B	
LCS 480-492820/2-A	Lab Control Sample	Total/NA	Water	9012B	
LCS 480-492820/3-B	Lab Control Sample	Total/NA	Water	9012B	

Prep Batch: 492889

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-2	MWBA-1	Total/NA	Ground Water	351.2	
MB 480-492889/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-492889/2-A	Lab Control Sample	Total/NA	Water	351.2	

Analysis Batch: 492894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-2	MWBA-1	Total/NA	Ground Water	9012B	492820
480-158409-3	MWBA-2	Total/NA	Ground Water	9012B	492820
480-158409-4	MW-O(I)	Total/NA	Ground Water	9012B	492820
MB 480-492820/1-A	Method Blank	Total/NA	Water	9012B	492820
LCS 480-492820/2-A	Lab Control Sample	Total/NA	Water	9012B	492820
LCS 480-492820/3-B	Lab Control Sample	Total/NA	Water	9012B	492820

Analysis Batch: 493403

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-2	MWBA-1	Total/NA	Ground Water	351.2	492889
MB 480-492889/1-A	Method Blank	Total/NA	Water	351.2	492889
LCS 480-492889/2-A	Lab Control Sample	Total/NA	Water	351.2	492889

Prep Batch: 494488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	351.2	
MB 480-494488/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-494488/2-A	Lab Control Sample	Total/NA	Water	351.2	
480-158409-1 DU	FIELD BLANK	Total/NA	Water	351.2	

Analysis Batch: 494800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-1	FIELD BLANK	Total/NA	Water	351.2	494488
MB 480-494488/1-A	Method Blank	Total/NA	Water	351.2	494488

General Chemistry (Continued)

Analysis Batch: 494800 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-494488/2-A	Lab Control Sample	Total/NA	Water	351.2	494488
480-158409-1 DU	FIELD BLANK	Total/NA	Water	351.2	494488

Field Service / Mobile Lab

Analysis Batch: 490099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-157980-1	DUP	Total/NA	Ground Water	Field Sampling	
480-157980-2	MW-16	Total/NA	Ground Water	Field Sampling	
480-157980-3	MW-16(S)	Total/NA	Ground Water	Field Sampling	
480-157980-4	MW-17	Total/NA	Ground Water	Field Sampling	
480-157980-5	MW-18BR	Total/NA	Ground Water	Field Sampling	
480-157980-6	MW-L(I)	Total/NA	Ground Water	Field Sampling	
480-157980-7	MW-M(I)	Total/NA	Ground Water	Field Sampling	
480-157980-8	MW-M(S)	Total/NA	Ground Water	Field Sampling	
480-157980-9	MW-P(I)	Total/NA	Ground Water	Field Sampling	
480-157980-10	MW-P(S)	Total/NA	Ground Water	Field Sampling	

Analysis Batch: 491150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158093-1	MW-N(I)	Total/NA	Ground Water	Field Sampling	
480-158093-2	MW-N(S)	Total/NA	Ground Water	Field Sampling	
480-158093-3	MW-Q(I)	Total/NA	Water	Field Sampling	
480-158145-1	MW-50	Total/NA	Ground Water	Field Sampling	

Analysis Batch: 491928

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158409-2	MWBA-1	Total/NA	Ground Water	Field Sampling	
480-158409-3	MWBA-2	Total/NA	Ground Water	Field Sampling	
480-158409-4	MW-O(I)	Total/NA	Ground Water	Field Sampling	

Analysis Batch: 492103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-158492-1	MWSE-1	Total/NA	Ground Water	Field Sampling	
480-158492-2	MWSE-2	Total/NA	Ground Water	Field Sampling	
480-158492-3	MWSE-3	Total/NA	Ground Water	Field Sampling	
480-158492-4	MWSE-4	Total/NA	Ground Water	Field Sampling	

Client Sample ID: DUP

Date Collected: 08/21/19 12:35
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488279	08/22/19 14:20	KMN	TAL BUF
Dissolved	Prep	3005A			488390	08/23/19 08:45	NSW	TAL BUF
Dissolved	Analysis	6010C		1	488655	08/23/19 20:02	LMH	TAL BUF
Total/NA	Prep	3005A			488397	08/23/19 08:49	NSW	TAL BUF
Total/NA	Analysis	6010C		1	488652	08/23/19 18:08	LMH	TAL BUF
Dissolved	Prep	3020A			488391	08/23/19 08:37	NSW	TAL BUF
Dissolved	Analysis	6020A		1	488670	08/24/19 10:21	KMP	TAL BUF
Total/NA	Prep	3020A			488398	08/23/19 08:37	NSW	TAL BUF
Total/NA	Analysis	6020A		1	488669	08/24/19 11:24	KMP	TAL BUF
Dissolved	Prep	7470A			489002	08/27/19 11:20	EMB	TAL BUF
Dissolved	Analysis	7470A		1	489089	08/27/19 14:49	BMB	TAL BUF
Total/NA	Prep	7470A			488784	08/26/19 12:12	BMB	TAL BUF
Total/NA	Analysis	7470A		1	488894	08/26/19 15:42	BMB	TAL BUF
Total/NA	Analysis	300.0		5	488982	08/27/19 13:26	IMZ	TAL BUF
Total/NA	Analysis	310.2		4	488908	08/26/19 23:54	SRW	TAL BUF
Total/NA	Analysis	350.1		1	488376	08/22/19 11:36	CLT	TAL BUF
Total/NA	Prep	351.2			488505	08/23/19 09:14	CAM	TAL BUF
Total/NA	Analysis	351.2		1	488896	08/26/19 11:59	KEB	TAL BUF
Total/NA	Analysis	353.2		1	488442	08/22/19 20:19	RLM	TAL BUF
Total/NA	Analysis	410.4		1	488689	08/23/19 18:15	CSS	TAL BUF
Total/NA	Analysis	7196A		1	488350	08/22/19 08:30	CAM	TAL BUF
Total/NA	Prep	9012B			489794	09/01/19 16:04	MDL	TAL BUF
Total/NA	Analysis	9012B		1	489911	09/03/19 12:13	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			490474	09/05/19 23:15	AEF	TAL BUF
Total/NA	Analysis	9065		1	490818	09/08/19 10:54	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	488596	08/23/19 10:10	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	489301	08/28/19 11:20	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	488496	08/23/19 08:29	BBB	TAL BUF
Total/NA	Analysis	SM 4110B		5	488983	08/27/19 13:26	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	488444	08/22/19 18:45	BEF	TAL BUF
Total/NA	Analysis	SM 5310C		1	488613	08/23/19 12:38	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	490099	08/21/19 12:35	FLD	TAL BUF

Client Sample ID: MW-16

Date Collected: 08/21/19 11:18
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488279	08/22/19 14:47	KMN	TAL BUF
Dissolved	Prep	3005A			488390	08/23/19 08:45	NSW	TAL BUF
Dissolved	Analysis	6010C		1	488655	08/23/19 20:06	LMH	TAL BUF
Total/NA	Prep	3005A			488397	08/23/19 08:49	NSW	TAL BUF
Total/NA	Analysis	6010C		1	488652	08/23/19 18:12	LMH	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MW-16
Date Collected: 08/21/19 11:18
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3020A			488391	08/23/19 08:37	NSW	TAL BUF
Dissolved	Analysis	6020A		1	488670	08/24/19 10:24	KMP	TAL BUF
Total/NA	Prep	3020A			488398	08/23/19 08:37	NSW	TAL BUF
Total/NA	Analysis	6020A		1	488669	08/24/19 11:26	KMP	TAL BUF
Dissolved	Prep	7470A			489002	08/27/19 11:20	EMB	TAL BUF
Dissolved	Analysis	7470A		1	489089	08/27/19 14:50	BMB	TAL BUF
Total/NA	Prep	7470A			488784	08/26/19 12:12	BMB	TAL BUF
Total/NA	Analysis	7470A		1	488894	08/26/19 15:43	BMB	TAL BUF
Total/NA	Analysis	300.0		5	488982	08/27/19 14:54	IMZ	TAL BUF
Total/NA	Analysis	310.2		4	488908	08/27/19 00:07	SRW	TAL BUF
Total/NA	Analysis	350.1		1	488376	08/22/19 11:36	CLT	TAL BUF
Total/NA	Prep	351.2			488505	08/23/19 09:14	CAM	TAL BUF
Total/NA	Analysis	351.2		1	488896	08/26/19 11:59	KEB	TAL BUF
Total/NA	Analysis	353.2		1	488442	08/22/19 20:20	RLM	TAL BUF
Total/NA	Analysis	410.4		1	488739	08/25/19 14:19	DLG	TAL BUF
Total/NA	Analysis	7196A		1	488350	08/22/19 08:30	CAM	TAL BUF
Total/NA	Prep	9012B			489794	09/01/19 16:04	MDL	TAL BUF
Total/NA	Analysis	9012B		1	489906	09/03/19 11:12	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			490474	09/05/19 23:15	AEF	TAL BUF
Total/NA	Analysis	9065		1	490818	09/08/19 11:04	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	488596	08/23/19 10:10	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	489301	08/28/19 11:20	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	488496	08/23/19 08:29	BBB	TAL BUF
Total/NA	Analysis	SM 4110B		5	488983	08/27/19 14:54	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	488444	08/22/19 18:45	BEF	TAL BUF
Total/NA	Analysis	SM 5310C		1	488613	08/23/19 12:53	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	490099	08/21/19 11:18	FLD	TAL BUF

Client Sample ID: MW-16(S)
Date Collected: 08/21/19 11:10
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488279	08/22/19 15:13	KMN	TAL BUF
Dissolved	Prep	3005A			488390	08/23/19 08:45	NSW	TAL BUF
Dissolved	Analysis	6010C		1	488655	08/23/19 20:09	LMH	TAL BUF
Total/NA	Prep	3005A			488397	08/23/19 08:49	NSW	TAL BUF
Total/NA	Analysis	6010C		1	488652	08/23/19 18:16	LMH	TAL BUF
Dissolved	Prep	3020A			488391	08/23/19 08:37	NSW	TAL BUF
Dissolved	Analysis	6020A		1	488670	08/24/19 10:26	KMP	TAL BUF
Total/NA	Prep	3020A			488398	08/23/19 08:37	NSW	TAL BUF
Total/NA	Analysis	6020A		1	488669	08/24/19 11:28	KMP	TAL BUF

Client Sample ID: MW-16(S)

Lab Sample ID: 480-157980-3

Date Collected: 08/21/19 11:10

Matrix: Ground Water

Date Received: 08/21/19 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	7470A			489002	08/27/19 11:20	EMB	TAL BUF
Dissolved	Analysis	7470A		1	489089	08/27/19 14:51	BMB	TAL BUF
Total/NA	Prep	7470A			488784	08/26/19 12:12	BMB	TAL BUF
Total/NA	Analysis	7470A		1	488894	08/26/19 15:45	BMB	TAL BUF
Total/NA	Analysis	300.0		1	488982	08/27/19 15:08	IMZ	TAL BUF
Total/NA	Analysis	310.2		3	488908	08/27/19 00:07	SRW	TAL BUF
Total/NA	Analysis	350.1		1	488376	08/22/19 11:37	CLT	TAL BUF
Total/NA	Prep	351.2			489367	08/29/19 09:01	CAM	TAL BUF
Total/NA	Analysis	351.2		1	489787	09/01/19 11:48	KEB	TAL BUF
Total/NA	Analysis	353.2		1	488442	08/22/19 21:11	RLM	TAL BUF
Total/NA	Analysis	410.4		1	488689	08/23/19 18:15	CSS	TAL BUF
Total/NA	Analysis	7196A		1	488350	08/22/19 08:30	CAM	TAL BUF
Total/NA	Prep	9012B			489794	09/01/19 16:04	MDL	TAL BUF
Total/NA	Analysis	9012B		1	489906	09/03/19 11:13	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			491834	09/12/19 20:24	AEF	TAL BUF
Total/NA	Analysis	9065		1	492044	09/13/19 17:56	SRW	TAL BUF
Total/NA	Analysis	SM 2120B		1	488596	08/23/19 10:10	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	489301	08/28/19 11:20	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	488496	08/23/19 08:29	BBB	TAL BUF
Total/NA	Analysis	SM 4110B		1	488983	08/27/19 15:08	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	488225	08/22/19 02:22	EY	TAL BUF
Total/NA	Analysis	SM 5310C		1	488613	08/23/19 13:08	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	490099	08/21/19 11:10	FLD	TAL BUF

Client Sample ID: MW-17

Lab Sample ID: 480-157980-4

Date Collected: 08/21/19 13:20

Matrix: Ground Water

Date Received: 08/21/19 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488279	08/22/19 15:39	KMN	TAL BUF
Dissolved	Prep	3005A			488390	08/23/19 08:45	NSW	TAL BUF
Dissolved	Analysis	6010C		1	488655	08/23/19 20:13	LMH	TAL BUF
Total/NA	Prep	3005A			488397	08/23/19 08:49	NSW	TAL BUF
Total/NA	Analysis	6010C		1	488652	08/23/19 18:31	LMH	TAL BUF
Dissolved	Prep	3020A			488391	08/23/19 08:37	NSW	TAL BUF
Dissolved	Analysis	6020A		1	488670	08/24/19 10:28	KMP	TAL BUF
Total/NA	Prep	3020A			488398	08/23/19 08:37	NSW	TAL BUF
Total/NA	Analysis	6020A		1	488669	08/24/19 11:30	KMP	TAL BUF
Dissolved	Prep	7470A			489002	08/27/19 11:20	EMB	TAL BUF
Dissolved	Analysis	7470A		1	489089	08/27/19 14:52	BMB	TAL BUF
Total/NA	Prep	7470A			488785	08/26/19 12:12	BMB	TAL BUF
Total/NA	Analysis	7470A		1	488894	08/26/19 16:00	BMB	TAL BUF
Total/NA	Analysis	300.0		5	488982	08/27/19 19:35	IMZ	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MW-17
Date Collected: 08/21/19 13:20
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	310.2		4	488908	08/26/19 23:54	SRW	TAL BUF
Total/NA	Analysis	350.1		1	488376	08/22/19 11:38	CLT	TAL BUF
Total/NA	Prep	351.2			488630	08/24/19 08:41	CAM	TAL BUF
Total/NA	Analysis	351.2		1	488896	08/26/19 10:32	KEB	TAL BUF
Total/NA	Analysis	353.2		1	488442	08/22/19 21:12	RLM	TAL BUF
Total/NA	Analysis	410.4		1	488739	08/25/19 15:12	DLG	TAL BUF
Total/NA	Analysis	7196A		1	488350	08/22/19 08:30	CAM	TAL BUF
Total/NA	Prep	9012B			489794	09/01/19 16:04	MDL	TAL BUF
Total/NA	Analysis	9012B		1	489906	09/03/19 11:15	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			490474	09/05/19 23:15	AEF	TAL BUF
Total/NA	Analysis	9065		1	490818	09/08/19 10:54	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	488596	08/23/19 10:10	CSS	TAL BUF
Total/NA	Analysis	SM 2120B		1	492507	09/17/19 11:30	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	489301	08/28/19 11:20	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	488496	08/23/19 08:29	BBB	TAL BUF
Total/NA	Analysis	SM 4110B		5	488983	08/27/19 19:35	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	488444	08/22/19 18:45	BEF	TAL BUF
Total/NA	Analysis	SM 5310C		1	488613	08/23/19 15:38	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	490099	08/21/19 13:20	FLD	TAL BUF

Client Sample ID: MW-18BR
Date Collected: 08/21/19 13:05
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-5
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488279	08/22/19 16:06	KMN	TAL BUF
Dissolved	Prep	3005A			488390	08/23/19 08:45	NSW	TAL BUF
Dissolved	Analysis	6010C		1	488655	08/23/19 20:32	LMH	TAL BUF
Total/NA	Prep	3005A			488397	08/23/19 08:49	NSW	TAL BUF
Total/NA	Analysis	6010C		1	488652	08/23/19 18:49	LMH	TAL BUF
Dissolved	Prep	3020A			488391	08/23/19 08:37	NSW	TAL BUF
Dissolved	Analysis	6020A		1	488670	08/24/19 10:47	KMP	TAL BUF
Total/NA	Prep	3020A			488398	08/23/19 08:37	NSW	TAL BUF
Total/NA	Analysis	6020A		1	488669	08/24/19 11:49	KMP	TAL BUF
Dissolved	Prep	7470A			489002	08/27/19 11:20	EMB	TAL BUF
Dissolved	Analysis	7470A		1	489089	08/27/19 14:58	BMB	TAL BUF
Total/NA	Prep	7470A			488784	08/26/19 12:12	BMB	TAL BUF
Total/NA	Analysis	7470A		1	488894	08/26/19 15:46	BMB	TAL BUF
Total/NA	Analysis	300.0		5	488982	08/27/19 15:27	IMZ	TAL BUF
Total/NA	Analysis	310.2		2	488908	08/26/19 23:57	SRW	TAL BUF
Total/NA	Analysis	350.1		1	488376	08/22/19 11:41	CLT	TAL BUF
Total/NA	Prep	351.2			488630	08/24/19 08:41	CAM	TAL BUF
Total/NA	Analysis	351.2		1	488896	08/26/19 10:32	KEB	TAL BUF

Client Sample ID: MW-18BR
Lab Sample ID: 480-157980-5

Date Collected: 08/21/19 13:05
Matrix: Ground Water
Date Received: 08/21/19 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	353.2		1	488442	08/22/19 20:30	RLM	TAL BUF
Total/NA	Analysis	410.4		1	488689	08/23/19 18:15	CSS	TAL BUF
Total/NA	Analysis	7196A		1	488350	08/22/19 08:30	CAM	TAL BUF
Total/NA	Prep	9012B			489794	09/01/19 16:04	MDL	TAL BUF
Total/NA	Analysis	9012B		1	489911	09/03/19 11:52	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			490474	09/05/19 23:15	AEF	TAL BUF
Total/NA	Analysis	9065		1	490818	09/08/19 10:57	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	488596	08/23/19 10:10	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	489771	08/29/19 13:45	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	488496	08/23/19 08:29	BBB	TAL BUF
Total/NA	Analysis	SM 4110B		5	488983	08/27/19 15:27	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	488444	08/22/19 18:45	BEF	TAL BUF
Total/NA	Analysis	SM 5310C		1	488613	08/23/19 13:23	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	490099	08/21/19 13:05	FLD	TAL BUF

Client Sample ID: MW-L(I)
Lab Sample ID: 480-157980-6

Date Collected: 08/21/19 11:50
Matrix: Ground Water
Date Received: 08/21/19 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488279	08/22/19 16:33	KMN	TAL BUF
Dissolved	Prep	3005A			488390	08/23/19 08:45	NSW	TAL BUF
Dissolved	Analysis	6010C		1	488655	08/23/19 20:47	LMH	TAL BUF
Total/NA	Prep	3005A			488397	08/23/19 08:49	NSW	TAL BUF
Total/NA	Analysis	6010C		1	488652	08/23/19 18:53	LMH	TAL BUF
Dissolved	Prep	3020A			488391	08/23/19 08:37	NSW	TAL BUF
Dissolved	Analysis	6020A		1	488670	08/24/19 10:49	KMP	TAL BUF
Total/NA	Prep	3020A			488398	08/23/19 08:37	NSW	TAL BUF
Total/NA	Analysis	6020A		1	488669	08/24/19 11:51	KMP	TAL BUF
Dissolved	Prep	7470A			489108	08/28/19 11:32	BMB	TAL BUF
Dissolved	Analysis	7470A		1	489303	08/28/19 14:10	BMB	TAL BUF
Total/NA	Prep	7470A			488784	08/26/19 12:12	BMB	TAL BUF
Total/NA	Analysis	7470A		1	488894	08/26/19 15:47	BMB	TAL BUF
Total/NA	Analysis	300.0		2	488982	08/27/19 15:41	IMZ	TAL BUF
Total/NA	Analysis	310.2		3	488908	08/26/19 23:57	SRW	TAL BUF
Total/NA	Analysis	350.1		1	488376	08/22/19 11:43	CLT	TAL BUF
Total/NA	Prep	351.2			488630	08/24/19 08:41	CAM	TAL BUF
Total/NA	Analysis	351.2		1	488896	08/26/19 10:32	KEB	TAL BUF
Total/NA	Analysis	353.2		1	488442	08/22/19 20:31	RLM	TAL BUF
Total/NA	Analysis	410.4		1	488689	08/23/19 18:15	CSS	TAL BUF
Total/NA	Analysis	7196A		1	488350	08/22/19 08:30	CAM	TAL BUF
Total/NA	Prep	9012B			489794	09/01/19 16:04	MDL	TAL BUF
Total/NA	Analysis	9012B		1	489911	09/03/19 11:54	MDL	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MW-L(I)
Lab Sample ID: 480-157980-6
Date Collected: 08/21/19 11:50
Matrix: Ground Water
Date Received: 08/21/19 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	Distill/Phenol			490474	09/05/19 23:15	AEF	TAL BUF
Total/NA	Analysis	9065		1	490818	09/08/19 10:57	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	488596	08/23/19 10:10	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	489771	08/29/19 13:45	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	488496	08/23/19 08:29	BBB	TAL BUF
Total/NA	Analysis	SM 4110B		2	488983	08/27/19 15:41	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	488444	08/22/19 18:45	BEF	TAL BUF
Total/NA	Analysis	SM 5310C		1	488613	08/23/19 13:37	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	490099	08/21/19 11:50	FLD	TAL BUF

Client Sample ID: MW-M(I)
Lab Sample ID: 480-157980-7
Date Collected: 08/21/19 13:55
Matrix: Ground Water
Date Received: 08/21/19 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488279	08/22/19 16:59	KMN	TAL BUF
Dissolved	Prep	3005A			488390	08/23/19 08:45	NSW	TAL BUF
Dissolved	Analysis	6010C		1	488655	08/23/19 20:51	LMH	TAL BUF
Total/NA	Prep	3005A			488397	08/23/19 08:49	NSW	TAL BUF
Total/NA	Analysis	6010C		1	488652	08/23/19 18:57	LMH	TAL BUF
Dissolved	Prep	3020A			488391	08/23/19 08:37	NSW	TAL BUF
Dissolved	Analysis	6020A		1	488670	08/24/19 10:51	KMP	TAL BUF
Total/NA	Prep	3020A			488398	08/23/19 08:37	NSW	TAL BUF
Total/NA	Analysis	6020A		1	488669	08/24/19 11:53	KMP	TAL BUF
Dissolved	Prep	7470A			489108	08/28/19 11:32	BMB	TAL BUF
Dissolved	Analysis	7470A		1	489303	08/28/19 14:11	BMB	TAL BUF
Total/NA	Prep	7470A			488784	08/26/19 12:12	BMB	TAL BUF
Total/NA	Analysis	7470A		1	488894	08/26/19 15:51	BMB	TAL BUF
Total/NA	Analysis	300.0		2	488982	08/27/19 15:56	IMZ	TAL BUF
Total/NA	Analysis	310.2		3	488908	08/26/19 23:57	SRW	TAL BUF
Total/NA	Analysis	350.1		1	488376	08/22/19 11:45	CLT	TAL BUF
Total/NA	Prep	351.2			488630	08/24/19 08:41	CAM	TAL BUF
Total/NA	Analysis	351.2		1	488896	08/26/19 10:32	KEB	TAL BUF
Total/NA	Analysis	353.2		1	488442	08/22/19 21:16	RLM	TAL BUF
Total/NA	Analysis	410.4		1	488689	08/23/19 18:15	CSS	TAL BUF
Total/NA	Analysis	7196A		1	488350	08/22/19 08:30	CAM	TAL BUF
Total/NA	Prep	9012B			489794	09/01/19 16:04	MDL	TAL BUF
Total/NA	Analysis	9012B		1	489911	09/03/19 11:55	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			490474	09/05/19 23:15	AEF	TAL BUF
Total/NA	Analysis	9065		1	490818	09/08/19 10:57	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	488596	08/23/19 10:10	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	489771	08/29/19 13:45	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	488496	08/23/19 08:29	BBB	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MW-M(I)
Lab Sample ID: 480-157980-7
Date Collected: 08/21/19 13:55
Matrix: Ground Water
Date Received: 08/21/19 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 4110B		2	488983	08/27/19 15:56	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	488444	08/22/19 18:45	BEF	TAL BUF
Total/NA	Analysis	SM 5310C		1	488613	08/23/19 13:52	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	490099	08/21/19 13:55	FLD	TAL BUF

Client Sample ID: MW-M(S)
Lab Sample ID: 480-157980-8
Date Collected: 08/21/19 14:10
Matrix: Ground Water
Date Received: 08/21/19 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488279	08/22/19 17:26	KMN	TAL BUF
Dissolved	Prep	3005A			488390	08/23/19 08:45	NSW	TAL BUF
Dissolved	Analysis	6010C		1	488655	08/23/19 20:55	LMH	TAL BUF
Total/NA	Prep	3005A			488397	08/23/19 08:49	NSW	TAL BUF
Total/NA	Analysis	6010C		1	488652	08/23/19 19:01	LMH	TAL BUF
Dissolved	Prep	3020A			488391	08/23/19 08:37	NSW	TAL BUF
Dissolved	Analysis	6020A		1	488670	08/24/19 10:54	KMP	TAL BUF
Total/NA	Prep	3020A			488398	08/23/19 08:37	NSW	TAL BUF
Total/NA	Analysis	6020A		1	488669	08/24/19 11:56	KMP	TAL BUF
Dissolved	Prep	7470A			489108	08/28/19 11:32	BMB	TAL BUF
Dissolved	Analysis	7470A		1	489303	08/28/19 14:12	BMB	TAL BUF
Total/NA	Prep	7470A			488784	08/26/19 12:12	BMB	TAL BUF
Total/NA	Analysis	7470A		1	488894	08/26/19 15:53	BMB	TAL BUF
Total/NA	Analysis	300.0		5	488982	08/27/19 16:11	IMZ	TAL BUF
Total/NA	Analysis	310.2		5	488908	08/26/19 23:58	SRW	TAL BUF
Total/NA	Analysis	350.1		1	488376	08/22/19 11:46	CLT	TAL BUF
Total/NA	Prep	351.2			489367	08/29/19 09:01	CAM	TAL BUF
Total/NA	Analysis	351.2		1	489787	09/01/19 11:48	KEB	TAL BUF
Total/NA	Analysis	353.2		1	488442	08/22/19 20:33	RLM	TAL BUF
Total/NA	Analysis	410.4		1	488689	08/23/19 18:15	CSS	TAL BUF
Total/NA	Analysis	7196A		1	488350	08/22/19 08:30	CAM	TAL BUF
Total/NA	Prep	9012B			489794	09/01/19 16:04	MDL	TAL BUF
Total/NA	Analysis	9012B		1	489911	09/03/19 11:57	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			490474	09/05/19 23:15	AEF	TAL BUF
Total/NA	Analysis	9065		1	490818	09/08/19 11:04	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	488596	08/23/19 10:10	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	489771	08/29/19 13:45	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	488496	08/23/19 08:29	BBB	TAL BUF
Total/NA	Analysis	SM 4110B		5	488983	08/27/19 16:11	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	488444	08/22/19 18:45	BEF	TAL BUF
Total/NA	Analysis	SM 5310C		1	488613	08/23/19 14:07	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	490099	08/21/19 14:10	FLD	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MW-P(I)
Date Collected: 08/21/19 12:35
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-9
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488279	08/22/19 17:52	KMN	TAL BUF
Dissolved	Prep	3005A			488390	08/23/19 08:45	NSW	TAL BUF
Dissolved	Analysis	6010C		1	488655	08/23/19 20:58	LMH	TAL BUF
Total/NA	Prep	3005A			488397	08/23/19 08:49	NSW	TAL BUF
Total/NA	Analysis	6010C		1	488652	08/23/19 19:16	LMH	TAL BUF
Dissolved	Prep	3020A			488391	08/23/19 08:37	NSW	TAL BUF
Dissolved	Analysis	6020A		1	488670	08/24/19 10:56	KMP	TAL BUF
Total/NA	Prep	3020A			488398	08/23/19 08:37	NSW	TAL BUF
Total/NA	Analysis	6020A		1	488669	08/24/19 11:58	KMP	TAL BUF
Dissolved	Prep	7470A			489108	08/28/19 11:32	BMB	TAL BUF
Dissolved	Analysis	7470A		1	489303	08/28/19 14:13	BMB	TAL BUF
Total/NA	Prep	7470A			488784	08/26/19 12:12	BMB	TAL BUF
Total/NA	Analysis	7470A		1	488894	08/26/19 15:54	BMB	TAL BUF
Total/NA	Analysis	300.0		5	488982	08/27/19 16:25	IMZ	TAL BUF
Total/NA	Analysis	310.2		3	488908	08/26/19 23:58	SRW	TAL BUF
Total/NA	Analysis	350.1		1	488376	08/22/19 11:47	CLT	TAL BUF
Total/NA	Prep	351.2			488630	08/24/19 08:41	CAM	TAL BUF
Total/NA	Analysis	351.2		1	488896	08/26/19 10:32	KEB	TAL BUF
Total/NA	Analysis	353.2		1	488442	08/22/19 20:35	RLM	TAL BUF
Total/NA	Analysis	410.4		1	488739	08/25/19 14:23	DLG	TAL BUF
Total/NA	Analysis	7196A		1	488350	08/22/19 08:30	CAM	TAL BUF
Total/NA	Prep	9012B			489794	09/01/19 16:04	MDL	TAL BUF
Total/NA	Analysis	9012B		1	489911	09/03/19 11:58	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			490474	09/05/19 23:15	AEF	TAL BUF
Total/NA	Analysis	9065		1	490818	09/08/19 11:04	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	488596	08/23/19 10:10	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	489771	08/29/19 13:45	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	488496	08/23/19 08:29	BBB	TAL BUF
Total/NA	Analysis	SM 4110B		5	488983	08/27/19 16:25	IMZ	TAL BUF
Total/NA	Analysis	SM 4110B		5	489262	08/28/19 15:17	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	488444	08/22/19 18:45	BEF	TAL BUF
Total/NA	Analysis	SM 5310C		1	488613	08/23/19 14:21	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	490099	08/21/19 12:35	FLD	TAL BUF

Client Sample ID: MW-P(S)
Date Collected: 08/21/19 12:20
Date Received: 08/21/19 17:30

Lab Sample ID: 480-157980-10
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488279	08/22/19 18:19	KMN	TAL BUF
Dissolved	Prep	3005A			488390	08/23/19 08:45	NSW	TAL BUF
Dissolved	Analysis	6010C		1	488655	08/23/19 21:02	LMH	TAL BUF

Client Sample ID: MW-P(S)
Lab Sample ID: 480-157980-10

Date Collected: 08/21/19 12:20
Matrix: Ground Water
Date Received: 08/21/19 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			488397	08/23/19 08:49	NSW	TAL BUF
Total/NA	Analysis	6010C		1	488652	08/23/19 19:20	LMH	TAL BUF
Dissolved	Prep	3020A			488391	08/23/19 08:37	NSW	TAL BUF
Dissolved	Analysis	6020A		1	488670	08/24/19 10:58	KMP	TAL BUF
Total/NA	Prep	3020A			488398	08/23/19 08:37	NSW	TAL BUF
Total/NA	Analysis	6020A		1	488669	08/24/19 12:00	KMP	TAL BUF
Dissolved	Prep	7470A			489108	08/28/19 11:32	BMB	TAL BUF
Dissolved	Analysis	7470A		1	489303	08/28/19 14:15	BMB	TAL BUF
Total/NA	Prep	7470A			488784	08/26/19 12:12	BMB	TAL BUF
Total/NA	Analysis	7470A		1	488894	08/26/19 15:55	BMB	TAL BUF
Total/NA	Analysis	300.0		5	488982	08/27/19 16:40	IMZ	TAL BUF
Total/NA	Analysis	310.2		4	488908	08/26/19 23:58	SRW	TAL BUF
Total/NA	Analysis	350.1		1	488376	08/22/19 11:48	CLT	TAL BUF
Total/NA	Prep	351.2			488630	08/24/19 08:41	CAM	TAL BUF
Total/NA	Analysis	351.2		1	488896	08/26/19 10:38	KEB	TAL BUF
Total/NA	Analysis	353.2		1	488442	08/22/19 21:17	RLM	TAL BUF
Total/NA	Analysis	410.4		1	489045	08/27/19 11:23	CSS	TAL BUF
Total/NA	Analysis	7196A		1	488350	08/22/19 08:30	CAM	TAL BUF
Total/NA	Prep	9012B			489794	09/01/19 16:04	MDL	TAL BUF
Total/NA	Analysis	9012B		1	489911	09/03/19 12:01	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			490474	09/05/19 23:15	AEF	TAL BUF
Total/NA	Analysis	9065		1	490818	09/08/19 11:04	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	488596	08/23/19 10:10	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	489771	08/29/19 13:45	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	488496	08/23/19 08:29	BBB	TAL BUF
Total/NA	Analysis	SM 4110B		5	488983	08/27/19 16:40	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	488444	08/22/19 18:45	BEF	TAL BUF
Total/NA	Analysis	SM 5310C		1	488613	08/23/19 16:23	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	490099	08/21/19 12:20	FLD	TAL BUF

Client Sample ID: TRIP BLANK
Lab Sample ID: 480-157980-11

Date Collected: 08/21/19 00:00
Matrix: Water
Date Received: 08/21/19 17:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488279	08/22/19 18:46	KMN	TAL BUF

Client Sample ID: MW-N(I)
Lab Sample ID: 480-158093-1

Date Collected: 08/23/19 11:12
Matrix: Ground Water
Date Received: 08/23/19 16:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488663	08/24/19 20:54	AMM	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MW-N(I)
Date Collected: 08/23/19 11:12
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			488887	08/27/19 08:48	NSW	TAL BUF
Dissolved	Analysis	6010C		1	489195	08/27/19 19:12	LMH	TAL BUF
Total/NA	Prep	3005A			488943	08/27/19 08:48	EMB	TAL BUF
Total/NA	Analysis	6010C		1	489194	08/27/19 16:47	AMH	TAL BUF
Dissolved	Prep	3020A			488889	08/27/19 08:34	NSW	TAL BUF
Dissolved	Analysis	6020A		1	489182	08/27/19 20:34	KMP	TAL BUF
Total/NA	Prep	3020A			488881	08/27/19 08:35	NSW	TAL BUF
Total/NA	Analysis	6020A		1	489181	08/27/19 19:06	KMP	TAL BUF
Dissolved	Prep	7470A			489397	08/29/19 11:53	BMB	TAL BUF
Dissolved	Analysis	7470A		1	489514	08/29/19 15:00	BMB	TAL BUF
Total/NA	Prep	7470A			489002	08/27/19 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	489089	08/27/19 14:25	BMB	TAL BUF
Total/NA	Analysis	300.0		5	489055	08/28/19 05:33	IMZ	TAL BUF
Total/NA	Analysis	310.2		4	488908	08/27/19 00:22	SRW	TAL BUF
Total/NA	Analysis	350.1		1	488778	08/26/19 09:24	CLT	TAL BUF
Total/NA	Prep	351.2			490033	09/04/19 08:05	CLT	TAL BUF
Total/NA	Analysis	351.2		1	490147	09/04/19 13:38	KEB	TAL BUF
Total/NA	Analysis	353.2		1	488673	08/24/19 12:32	RLM	TAL BUF
Total/NA	Analysis	410.4		1	489430	08/29/19 12:10	CSS	TAL BUF
Total/NA	Analysis	7196A		1	488637	08/24/19 08:15	RLM	TAL BUF
Total/NA	Prep	9012B			490313	09/04/19 20:50	LAW	TAL BUF
Total/NA	Analysis	9012B		1	490396	09/05/19 13:35	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			490714	09/07/19 00:56	AEF	TAL BUF
Total/NA	Analysis	9065		1	490818	09/08/19 11:20	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	488668	08/24/19 10:16	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	491025	09/09/19 09:45	MJB	TAL BUF
Total/NA	Analysis	SM 2540C		1	488839	08/26/19 14:39	ZFM	TAL BUF
Total/NA	Analysis	SM 4110B		5	489056	08/28/19 05:33	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	488619	08/23/19 17:14	SRW	TAL BUF
Total/NA	Analysis	SM 5310C		1	489215	08/27/19 22:36	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	491150	08/23/19 11:12	FLD	TAL BUF

Client Sample ID: MW-N(S)
Date Collected: 08/23/19 11:00
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488663	08/24/19 21:17	AMM	TAL BUF
Dissolved	Prep	3005A			488887	08/27/19 08:48	NSW	TAL BUF
Dissolved	Analysis	6010C		1	489195	08/27/19 19:16	LMH	TAL BUF
Total/NA	Prep	3005A			488943	08/27/19 08:48	EMB	TAL BUF
Total/NA	Analysis	6010C		1	489194	08/27/19 16:51	AMH	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MW-N(S)
Date Collected: 08/23/19 11:00
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3020A			488889	08/27/19 08:34	NSW	TAL BUF
Dissolved	Analysis	6020A		1	489182	08/27/19 20:36	KMP	TAL BUF
Total/NA	Prep	3020A			488881	08/27/19 08:35	NSW	TAL BUF
Total/NA	Analysis	6020A		1	489181	08/27/19 19:08	KMP	TAL BUF
Dissolved	Prep	7470A			489397	08/29/19 11:53	BMB	TAL BUF
Dissolved	Analysis	7470A		1	489514	08/29/19 15:01	BMB	TAL BUF
Total/NA	Prep	7470A			489002	08/27/19 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	489089	08/27/19 14:26	BMB	TAL BUF
Total/NA	Analysis	300.0		5	489055	08/28/19 05:47	IMZ	TAL BUF
Total/NA	Analysis	310.2		4	488908	08/27/19 00:27	SRW	TAL BUF
Total/NA	Analysis	350.1		1	488778	08/26/19 09:25	CLT	TAL BUF
Total/NA	Prep	351.2			490033	09/04/19 08:05	CLT	TAL BUF
Total/NA	Analysis	351.2		1	490147	09/04/19 13:38	KEB	TAL BUF
Total/NA	Analysis	353.2		1	488673	08/24/19 12:34	RLM	TAL BUF
Total/NA	Analysis	410.4		1	489430	08/29/19 12:10	CSS	TAL BUF
Total/NA	Analysis	7196A		1	488637	08/24/19 08:15	RLM	TAL BUF
Total/NA	Prep	9012B			490313	09/04/19 20:50	LAW	TAL BUF
Total/NA	Analysis	9012B		1	490396	09/05/19 13:39	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			492372	09/16/19 23:12	AEF	TAL BUF
Total/NA	Analysis	9065		1	492515	09/17/19 10:36	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	488668	08/24/19 10:16	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	491025	09/09/19 09:45	MJB	TAL BUF
Total/NA	Analysis	SM 2540C		1	488839	08/26/19 14:39	ZFM	TAL BUF
Total/NA	Analysis	SM 4110B		5	489056	08/28/19 05:47	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	488619	08/23/19 17:14	SRW	TAL BUF
Total/NA	Analysis	SM 5310C		1	489215	08/27/19 22:50	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	491150	08/23/19 11:00	FLD	TAL BUF

Client Sample ID: MW-Q(I)
Date Collected: 08/23/19 11:30
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	488663	08/24/19 21:40	AMM	TAL BUF
Dissolved	Prep	3005A			488887	08/27/19 08:48	NSW	TAL BUF
Dissolved	Analysis	6010C		1	489195	08/27/19 19:20	LMH	TAL BUF
Total/NA	Prep	3005A			488943	08/27/19 08:48	EMB	TAL BUF
Total/NA	Analysis	6010C		1	489194	08/27/19 16:55	AMH	TAL BUF
Total/NA	Prep	3005A			489960	09/04/19 09:46	EMB	TAL BUF
Total/NA	Analysis	6010C		1	490293	09/04/19 21:10	LMH	TAL BUF
Dissolved	Prep	3020A			488889	08/27/19 08:34	NSW	TAL BUF
Dissolved	Analysis	6020A		1	489182	08/27/19 20:39	KMP	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MW-Q(I)
Date Collected: 08/23/19 11:30
Date Received: 08/23/19 16:45

Lab Sample ID: 480-158093-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3020A			488881	08/27/19 08:35	NSW	TAL BUF
Total/NA	Analysis	6020A		1	489181	08/27/19 19:11	KMP	TAL BUF
Dissolved	Prep	7470A			489397	08/29/19 11:53	BMB	TAL BUF
Dissolved	Analysis	7470A		1	489514	08/29/19 15:03	BMB	TAL BUF
Total/NA	Prep	7470A			489002	08/27/19 11:20	EMB	TAL BUF
Total/NA	Analysis	7470A		1	489089	08/27/19 14:30	BMB	TAL BUF
Total/NA	Analysis	300.0		5	489055	08/28/19 06:02	IMZ	TAL BUF
Total/NA	Analysis	310.2		4	488908	08/27/19 00:25	SRW	TAL BUF
Total/NA	Analysis	350.1		1	488778	08/26/19 09:25	CLT	TAL BUF
Total/NA	Prep	351.2			490033	09/04/19 08:05	CLT	TAL BUF
Total/NA	Analysis	351.2		1	490147	09/04/19 13:38	KEB	TAL BUF
Total/NA	Analysis	353.2		1	488673	08/24/19 12:35	RLM	TAL BUF
Total/NA	Analysis	410.4		1	489430	08/29/19 12:10	CSS	TAL BUF
Total/NA	Analysis	7196A		1	488637	08/24/19 08:15	RLM	TAL BUF
Total/NA	Prep	9012B			490313	09/04/19 20:50	LAW	TAL BUF
Total/NA	Analysis	9012B		1	490396	09/05/19 13:40	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			490714	09/07/19 00:56	AEF	TAL BUF
Total/NA	Analysis	9065		1	490818	09/08/19 11:20	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	488668	08/24/19 10:16	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	491025	09/09/19 09:45	MJB	TAL BUF
Total/NA	Analysis	SM 2540C		1	488839	08/26/19 14:39	ZFM	TAL BUF
Total/NA	Analysis	SM 4110B		5	489056	08/28/19 06:02	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	488619	08/23/19 17:14	SRW	TAL BUF
Total/NA	Analysis	SM 5310C		1	489215	08/28/19 00:06	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	491150	08/23/19 11:30	FLD	TAL BUF

Client Sample ID: MW-50
Date Collected: 08/26/19 13:45
Date Received: 08/26/19 16:30

Lab Sample ID: 480-158145-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	489143	08/28/19 16:37	RJF	TAL BUF
Dissolved	Prep	3005A			489092	08/28/19 09:36	JAL	TAL BUF
Dissolved	Analysis	6010C		1	489443	08/29/19 01:53	AMH	TAL BUF
Dissolved	Prep	3005A			489092	08/28/19 09:36	JAL	TAL BUF
Dissolved	Analysis	6010C		1	489670	08/29/19 16:33	AMH	TAL BUF
Total/NA	Prep	3005A			489078	08/28/19 08:05	JAL	TAL BUF
Total/NA	Analysis	6010C		1	489442	08/29/19 00:44	AMH	TAL BUF
Total/NA	Prep	3005A			491000	09/10/19 06:30	NSW	TAL BUF
Total/NA	Analysis	6010C		1	491318	09/10/19 19:14	LMH	TAL BUF
Dissolved	Prep	3020A			489093	08/28/19 09:38	JAL	TAL BUF
Dissolved	Analysis	6020A		1	489346	08/28/19 15:49	KMP	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MW-50
Lab Sample ID: 480-158145-1
Date Collected: 08/26/19 13:45
Matrix: Ground Water
Date Received: 08/26/19 16:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3020A			489080	08/28/19 07:59	JAL	TAL BUF
Total/NA	Analysis	6020A		1	489347	08/28/19 17:15	KMP	TAL BUF
Dissolved	Prep	7470A			489397	08/29/19 11:53	BMB	TAL BUF
Dissolved	Analysis	7470A		1	489514	08/29/19 15:18	BMB	TAL BUF
Total/NA	Prep	7470A			489875	09/03/19 11:54	BMB	TAL BUF
Total/NA	Analysis	7470A		1	489986	09/03/19 15:45	BMB	TAL BUF
Total/NA	Analysis	300.0		1	489098	08/28/19 14:48	IMZ	TAL BUF
Total/NA	Analysis	310.2		3	489320	08/28/19 21:18	SRW	TAL BUF
Total/NA	Analysis	350.1		1	489211	08/28/19 09:07	CLT	TAL BUF
Total/NA	Prep	351.2			490387	09/05/19 13:33	CAM	TAL BUF
Total/NA	Analysis	351.2		1	490924	09/08/19 16:47	KEB	TAL BUF
Total/NA	Analysis	353.2		1	489130	08/28/19 00:41	BEF	TAL BUF
Total/NA	Analysis	410.4		1	489521	08/29/19 15:50	CSS	TAL BUF
Total/NA	Analysis	7196A		1	489096	08/27/19 11:11	MJB	TAL BUF
Total/NA	Prep	9012B			490819	09/08/19 14:57	AJL	TAL BUF
Total/NA	Analysis	9012B		1	490939	09/09/19 12:19	MDL	TAL BUF
Total/NA	Prep	9012B			492184	09/15/19 15:25	MDL	TAL BUF
Total/NA	Analysis	9012B		1	492324	09/16/19 13:40	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			490716	09/07/19 01:20	AEF	TAL BUF
Total/NA	Analysis	9065		1	490818	09/08/19 12:27	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	489107	08/27/19 14:20	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	491025	09/09/19 09:45	MJB	TAL BUF
Total/NA	Analysis	SM 2540C		1	489206	08/28/19 09:29	ZFM	TAL BUF
Total/NA	Analysis	SM 4110B		1	489099	08/28/19 14:48	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	489135	08/28/19 02:28	EY	TAL BUF
Total/NA	Analysis	SM 5310C		1	489502	08/28/19 18:59	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	491150	08/26/19 13:45	FLD	TAL BUF

Client Sample ID: FIELD BLANK
Lab Sample ID: 480-158409-1
Date Collected: 08/30/19 11:00
Matrix: Water
Date Received: 08/30/19 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	491215	09/11/19 01:29	BTP	TAL BUF
Dissolved	Prep	3005A			489962	09/04/19 08:41	EMB	TAL BUF
Dissolved	Analysis	6010C		1	490288	09/05/19 00:10	LMH	TAL BUF
Total/NA	Prep	3005A			489925	09/05/19 06:30	EMB	TAL BUF
Total/NA	Analysis	6010C		1	491316	09/10/19 16:12	LMH	TAL BUF
Dissolved	Prep	3020A			489963	09/04/19 08:33	EMB	TAL BUF
Dissolved	Analysis	6020A		1	490524	09/05/19 15:53	KMP	TAL BUF
Total/NA	Prep	3020A			489919	09/05/19 06:00	EMB	TAL BUF
Total/NA	Analysis	6020A		1	490526	09/05/19 18:20	KMP	TAL BUF

Client Sample ID: FIELD BLANK
Lab Sample ID: 480-158409-1
Date Collected: 08/30/19 11:00
Matrix: Water
Date Received: 08/30/19 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	7470A			492571	09/18/19 11:00	BMB	TAL BUF
Dissolved	Analysis	7470A		1	492778	09/18/19 14:28	BMB	TAL BUF
Total/NA	Prep	7470A			491032	09/10/19 11:40	BMB	TAL BUF
Total/NA	Analysis	7470A		1	491285	09/10/19 16:04	BMB	TAL BUF
Total/NA	Analysis	300.0		1	490899	09/09/19 13:47	IMZ	TAL BUF
Total/NA	Analysis	310.2		1	491046	09/09/19 16:37	SRW	TAL BUF
Total/NA	Analysis	350.1		1	490559	09/06/19 08:34	CLT	TAL BUF
Total/NA	Prep	351.2			491906	09/13/19 10:03	CAM	TAL BUF
Total/NA	Analysis	351.2		1	492180	09/15/19 11:59	KEB	TAL BUF
Total/NA	Prep	351.2			494488	09/27/19 08:32	CAM	TAL BUF
Total/NA	Analysis	351.2		1	494800	09/29/19 12:00	KEB	TAL BUF
Total/NA	Analysis	353.2		1	489755	08/31/19 09:27	RLM	TAL BUF
Total/NA	Analysis	410.4		1	490698	09/06/19 14:05	CSS	TAL BUF
Total/NA	Analysis	7196A		1	489758	08/31/19 09:14	AJL	TAL BUF
Total/NA	Prep	9012B			491161	09/09/19 19:35	LAW	TAL BUF
Total/NA	Analysis	9012B		1	491490	09/11/19 13:57	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			492055	09/13/19 23:44	AEF	TAL BUF
Total/NA	Analysis	9065		1	492319	09/15/19 14:51	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	489781	09/01/19 08:10	MJB	TAL BUF
Total/NA	Analysis	SM 2340C		1	492252	09/15/19 11:45	MDL	TAL BUF
Total/NA	Analysis	SM 2540C		1	490326	09/05/19 10:44	CSS	TAL BUF
Total/NA	Analysis	SM 4110B		1	490900	09/09/19 13:47	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	489774	08/31/19 06:51	EY	TAL BUF
Total/NA	Analysis	SM 5310C		1	490772	09/06/19 03:05	CLA	TAL BUF

Client Sample ID: MWBA-1
Lab Sample ID: 480-158409-2
Date Collected: 08/30/19 14:22
Matrix: Ground Water
Date Received: 08/30/19 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	491215	09/11/19 01:53	BTP	TAL BUF
Dissolved	Prep	3005A			489962	09/04/19 08:41	EMB	TAL BUF
Dissolved	Analysis	6010C		1	490288	09/05/19 00:14	LMH	TAL BUF
Total/NA	Prep	3005A			489925	09/05/19 06:30	EMB	TAL BUF
Total/NA	Analysis	6010C		1	491316	09/10/19 16:16	LMH	TAL BUF
Dissolved	Prep	3020A			489963	09/04/19 08:33	EMB	TAL BUF
Dissolved	Analysis	6020A		1	490524	09/05/19 15:55	KMP	TAL BUF
Total/NA	Prep	3020A			489919	09/05/19 06:00	EMB	TAL BUF
Total/NA	Analysis	6020A		1	490526	09/05/19 18:22	KMP	TAL BUF
Dissolved	Prep	7470A			492571	09/18/19 11:00	BMB	TAL BUF
Dissolved	Analysis	7470A		1	492778	09/18/19 14:29	BMB	TAL BUF
Total/NA	Prep	7470A			491032	09/10/19 11:40	BMB	TAL BUF
Total/NA	Analysis	7470A		1	491285	09/10/19 16:05	BMB	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MWBA-1
Date Collected: 08/30/19 14:22
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2	490899	09/09/19 14:02	IMZ	TAL BUF
Total/NA	Analysis	310.2		3	491046	09/09/19 17:09	SRW	TAL BUF
Total/NA	Analysis	350.1		1	490559	09/06/19 08:36	CLT	TAL BUF
Total/NA	Prep	351.2			492889	09/19/19 09:22	CAM	TAL BUF
Total/NA	Analysis	351.2		1	493403	09/22/19 10:27	KEB	TAL BUF
Total/NA	Analysis	353.2		1	489755	08/31/19 09:28	RLM	TAL BUF
Total/NA	Analysis	410.4		1	490698	09/06/19 14:05	CSS	TAL BUF
Total/NA	Analysis	7196A		1	489758	08/31/19 09:14	AJL	TAL BUF
Total/NA	Prep	9012B			491161	09/09/19 19:35	LAW	TAL BUF
Total/NA	Analysis	9012B		1	491490	09/11/19 14:02	MDL	TAL BUF
Total/NA	Prep	9012B			492820	09/18/19 18:35	LAW	TAL BUF
Total/NA	Analysis	9012B		1	492894	09/19/19 08:54	CLT	TAL BUF
Total/NA	Prep	Distill/Phenol			492372	09/16/19 23:12	AEF	TAL BUF
Total/NA	Analysis	9065		1	492515	09/17/19 10:36	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	489781	09/01/19 08:10	MJB	TAL BUF
Total/NA	Analysis	SM 2340C		1	492252	09/15/19 11:45	MDL	TAL BUF
Total/NA	Analysis	SM 2540C		1	490326	09/05/19 10:44	CSS	TAL BUF
Total/NA	Analysis	SM 4110B		2	490900	09/09/19 14:02	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	489775	08/31/19 06:51	EY	TAL BUF
Total/NA	Analysis	SM 5310C		1	490772	09/06/19 03:20	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	491928	08/30/19 14:22	FLD	TAL BUF

Client Sample ID: MWBA-2
Date Collected: 08/30/19 13:45
Date Received: 08/30/19 16:15

Lab Sample ID: 480-158409-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	491215	09/11/19 02:17	BTP	TAL BUF
Dissolved	Prep	3005A			489962	09/04/19 08:41	EMB	TAL BUF
Dissolved	Analysis	6010C		1	490288	09/05/19 00:18	LMH	TAL BUF
Total/NA	Prep	3005A			489925	09/05/19 06:30	EMB	TAL BUF
Total/NA	Analysis	6010C		1	491316	09/10/19 16:20	LMH	TAL BUF
Dissolved	Prep	3020A			489963	09/04/19 08:33	EMB	TAL BUF
Dissolved	Analysis	6020A		1	490524	09/05/19 15:57	KMP	TAL BUF
Total/NA	Prep	3020A			489919	09/05/19 06:00	EMB	TAL BUF
Total/NA	Analysis	6020A		1	490526	09/05/19 18:25	KMP	TAL BUF
Dissolved	Prep	7470A			492571	09/18/19 11:00	BMB	TAL BUF
Dissolved	Analysis	7470A		1	492778	09/18/19 14:30	BMB	TAL BUF
Total/NA	Prep	7470A			491032	09/10/19 11:40	BMB	TAL BUF
Total/NA	Analysis	7470A		1	491285	09/10/19 16:07	BMB	TAL BUF
Total/NA	Analysis	300.0		2	490899	09/09/19 14:17	IMZ	TAL BUF
Total/NA	Analysis	310.2		3	491046	09/09/19 17:09	SRW	TAL BUF
Total/NA	Analysis	350.1		1	490559	09/06/19 08:37	CLT	TAL BUF

Client Sample ID: MWBA-2

Lab Sample ID: 480-158409-3

Date Collected: 08/30/19 13:45

Matrix: Ground Water

Date Received: 08/30/19 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			492388	09/17/19 07:30	CLT	TAL BUF
Total/NA	Analysis	351.2		1	492583	09/17/19 16:31	KEB	TAL BUF
Total/NA	Analysis	353.2		1	489755	08/31/19 09:46	RLM	TAL BUF
Total/NA	Analysis	410.4		1	490698	09/06/19 14:05	CSS	TAL BUF
Total/NA	Analysis	7196A		1	489758	08/31/19 09:14	AJL	TAL BUF
Total/NA	Prep	9012B			491744	09/12/19 14:04	MDL	TAL BUF
Total/NA	Analysis	9012B		1	491820	09/12/19 17:20	MDL	TAL BUF
Total/NA	Prep	9012B			492820	09/18/19 18:35	LAW	TAL BUF
Total/NA	Analysis	9012B		1	492894	09/19/19 08:55	CLT	TAL BUF
Total/NA	Prep	Distill/Phenol			492055	09/13/19 23:44	AEF	TAL BUF
Total/NA	Analysis	9065		1	492319	09/15/19 14:51	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	489781	09/01/19 08:10	MJB	TAL BUF
Total/NA	Analysis	SM 2340C		1	492252	09/15/19 11:45	MDL	TAL BUF
Total/NA	Analysis	SM 2540C		1	490326	09/05/19 10:44	CSS	TAL BUF
Total/NA	Analysis	SM 4110B		2	490900	09/09/19 14:17	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	489775	08/31/19 06:51	EY	TAL BUF
Total/NA	Analysis	SM 5310C		1	490772	09/06/19 03:35	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	491928	08/30/19 13:45	FLD	TAL BUF

Client Sample ID: MW-O(I)

Lab Sample ID: 480-158409-4

Date Collected: 08/30/19 11:39

Matrix: Ground Water

Date Received: 08/30/19 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	491215	09/11/19 02:42	BTP	TAL BUF
Dissolved	Prep	3005A			489962	09/04/19 08:41	EMB	TAL BUF
Dissolved	Analysis	6010C		1	490288	09/05/19 00:21	LMH	TAL BUF
Total/NA	Prep	3005A			489925	09/05/19 06:30	EMB	TAL BUF
Total/NA	Analysis	6010C		1	491316	09/10/19 16:24	LMH	TAL BUF
Dissolved	Prep	3020A			489963	09/04/19 08:33	EMB	TAL BUF
Dissolved	Analysis	6020A		1	490524	09/05/19 16:07	KMP	TAL BUF
Total/NA	Prep	3020A			489919	09/05/19 06:00	EMB	TAL BUF
Total/NA	Analysis	6020A		1	490526	09/05/19 18:27	KMP	TAL BUF
Dissolved	Prep	7470A			492571	09/18/19 11:00	BMB	TAL BUF
Dissolved	Analysis	7470A		1	492778	09/18/19 14:32	BMB	TAL BUF
Total/NA	Prep	7470A			491032	09/10/19 11:40	BMB	TAL BUF
Total/NA	Analysis	7470A		1	491285	09/10/19 16:08	BMB	TAL BUF
Total/NA	Analysis	300.0		2	490899	09/09/19 14:31	IMZ	TAL BUF
Total/NA	Analysis	310.2		3	491046	09/09/19 17:09	SRW	TAL BUF
Total/NA	Analysis	350.1		1	490559	09/06/19 08:38	CLT	TAL BUF
Total/NA	Prep	351.2			492388	09/17/19 07:30	CLT	TAL BUF
Total/NA	Analysis	351.2		1	492583	09/17/19 16:31	KEB	TAL BUF
Total/NA	Analysis	353.2		1	489755	08/31/19 09:30	RLM	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MW-O(I)
Lab Sample ID: 480-158409-4
Date Collected: 08/30/19 11:39
Matrix: Ground Water
Date Received: 08/30/19 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	410.4		1	490698	09/06/19 14:05	CSS	TAL BUF
Total/NA	Analysis	7196A		1	489758	08/31/19 09:14	AJL	TAL BUF
Total/NA	Prep	9012B			491744	09/12/19 14:04	MDL	TAL BUF
Total/NA	Analysis	9012B		1	491820	09/12/19 17:21	MDL	TAL BUF
Total/NA	Prep	9012B			492820	09/18/19 18:35	LAW	TAL BUF
Total/NA	Analysis	9012B		1	492894	09/19/19 08:56	CLT	TAL BUF
Total/NA	Prep	Distill/Phenol			492055	09/13/19 23:44	AEF	TAL BUF
Total/NA	Analysis	9065		1	492319	09/15/19 14:51	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	489781	09/01/19 08:10	MJB	TAL BUF
Total/NA	Analysis	SM 2340C		1	492757	09/18/19 11:45	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	490326	09/05/19 10:44	CSS	TAL BUF
Total/NA	Analysis	SM 4110B		2	490900	09/09/19 14:31	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	489775	08/31/19 06:51	EY	TAL BUF
Total/NA	Analysis	SM 5310C		1	490772	09/06/19 04:49	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	491928	08/30/19 11:39	FLD	TAL BUF

Client Sample ID: TRIP BLANK
Lab Sample ID: 480-158409-5
Date Collected: 08/30/19 09:00
Matrix: Water
Date Received: 08/30/19 16:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	491215	09/11/19 03:06	BTP	TAL BUF

Client Sample ID: MWSE-1
Lab Sample ID: 480-158492-1
Date Collected: 09/03/19 13:10
Matrix: Ground Water
Date Received: 09/03/19 16:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	491769	09/12/19 22:26	OMI	TAL BUF
Dissolved	Prep	3005A			490197	09/06/19 10:59	JAL	TAL BUF
Dissolved	Analysis	6010C		1	491325	09/11/19 03:26	AMH	TAL BUF
Total/NA	Prep	3005A			490184	09/05/19 05:35	JAL	TAL BUF
Total/NA	Analysis	6010C		1	490550	09/05/19 16:50	AMH	TAL BUF
Dissolved	Prep	3020A			490196	09/06/19 10:50	JAL	TAL BUF
Dissolved	Analysis	6020A		1	490991	09/09/19 13:50	KMP	TAL BUF
Total/NA	Prep	3020A			490409	09/06/19 06:30	EMB	TAL BUF
Total/NA	Analysis	6020A		1	490643	09/06/19 14:00	KMP	TAL BUF
Dissolved	Prep	7470A			492571	09/18/19 11:00	BMB	TAL BUF
Dissolved	Analysis	7470A		1	492778	09/18/19 14:33	BMB	TAL BUF
Total/NA	Prep	7470A			491034	09/10/19 11:40	BMB	TAL BUF
Total/NA	Analysis	7470A		1	491285	09/10/19 17:15	BMB	TAL BUF
Total/NA	Analysis	300.0		5	490899	09/09/19 14:46	IMZ	TAL BUF
Total/NA	Analysis	310.2		3	491046	09/09/19 17:22	SRW	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MWSE-1
Date Collected: 09/03/19 13:10
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	350.1		1	490641	09/06/19 12:35	CLT	TAL BUF
Total/NA	Prep	351.2			491906	09/13/19 10:03	CAM	TAL BUF
Total/NA	Analysis	351.2		1	492180	09/15/19 12:17	KEB	TAL BUF
Total/NA	Analysis	353.2		1	490214	09/04/19 21:06	RLM	TAL BUF
Total/NA	Analysis	410.4		1	491715	09/12/19 12:35	CSS	TAL BUF
Total/NA	Analysis	7196A		1	490115	09/04/19 09:45	RLM	TAL BUF
Total/NA	Prep	9012B			492183	09/15/19 15:19	MDL	TAL BUF
Total/NA	Analysis	9012B		1	492325	09/16/19 12:50	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			492371	09/16/19 23:07	AEF	TAL BUF
Total/NA	Analysis	9065		1	492515	09/17/19 10:24	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	490392	09/05/19 11:30	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	492757	09/18/19 11:45	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	490322	09/05/19 10:32	CSS	TAL BUF
Total/NA	Analysis	SM 4110B		5	490900	09/09/19 14:46	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	490229	09/05/19 05:45	EY	TAL BUF
Total/NA	Analysis	SM 5310C		1	491171	09/07/19 23:08	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	492103	09/03/19 13:10	FLD	TAL BUF

Client Sample ID: MWSE-2
Date Collected: 09/03/19 11:50
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	491769	09/12/19 22:49	OMI	TAL BUF
Dissolved	Prep	3005A			490197	09/06/19 10:59	JAL	TAL BUF
Dissolved	Analysis	6010C		1	491325	09/11/19 03:30	AMH	TAL BUF
Total/NA	Prep	3005A			490184	09/05/19 05:35	JAL	TAL BUF
Total/NA	Analysis	6010C		1	490550	09/05/19 16:54	AMH	TAL BUF
Dissolved	Prep	3020A			490196	09/06/19 10:50	JAL	TAL BUF
Dissolved	Analysis	6020A		1	490991	09/09/19 13:52	KMP	TAL BUF
Total/NA	Prep	3020A			490409	09/06/19 06:30	EMB	TAL BUF
Total/NA	Analysis	6020A		1	490643	09/06/19 14:09	KMP	TAL BUF
Dissolved	Prep	7470A			492571	09/18/19 11:00	BMB	TAL BUF
Dissolved	Analysis	7470A		1	492778	09/18/19 14:34	BMB	TAL BUF
Total/NA	Prep	7470A			491034	09/10/19 11:40	BMB	TAL BUF
Total/NA	Analysis	7470A		1	491285	09/10/19 17:16	BMB	TAL BUF
Total/NA	Analysis	300.0		5	490899	09/09/19 22:06	IMZ	TAL BUF
Total/NA	Analysis	310.2		3	491046	09/09/19 17:22	SRW	TAL BUF
Total/NA	Analysis	350.1		1	490641	09/06/19 12:36	CLT	TAL BUF
Total/NA	Prep	351.2			491906	09/13/19 10:03	CAM	TAL BUF
Total/NA	Analysis	351.2		1	492180	09/15/19 12:17	KEB	TAL BUF
Total/NA	Analysis	353.2		1	490214	09/04/19 21:07	RLM	TAL BUF
Total/NA	Analysis	410.4		1	491715	09/12/19 12:35	CSS	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MWSE-2
Date Collected: 09/03/19 11:50
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1	490115	09/04/19 09:45	RLM	TAL BUF
Total/NA	Prep	9012B			492463	09/17/19 11:02	MDL	TAL BUF
Total/NA	Analysis	9012B		1	492555	09/17/19 15:34	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			492371	09/16/19 23:07	AEF	TAL BUF
Total/NA	Analysis	9065		1	492515	09/17/19 10:24	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	490392	09/05/19 11:30	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	492757	09/18/19 11:45	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	490322	09/05/19 10:32	CSS	TAL BUF
Total/NA	Analysis	SM 4110B		5	490900	09/09/19 22:06	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	490229	09/05/19 05:45	EY	TAL BUF
Total/NA	Analysis	SM 5310C		1	491171	09/07/19 23:53	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	492103	09/03/19 11:50	FLD	TAL BUF

Client Sample ID: MWSE-3
Date Collected: 09/03/19 14:25
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	491769	09/12/19 23:14	OMI	TAL BUF
Dissolved	Prep	3005A			490197	09/06/19 10:59	JAL	TAL BUF
Dissolved	Analysis	6010C		1	491325	09/11/19 03:34	AMH	TAL BUF
Total/NA	Prep	3005A			490184	09/05/19 05:35	JAL	TAL BUF
Total/NA	Analysis	6010C		1	490550	09/05/19 16:57	AMH	TAL BUF
Dissolved	Prep	3020A			490196	09/06/19 10:50	JAL	TAL BUF
Dissolved	Analysis	6020A		1	490991	09/09/19 13:54	KMP	TAL BUF
Total/NA	Prep	3020A			490409	09/06/19 06:30	EMB	TAL BUF
Total/NA	Analysis	6020A		1	490643	09/06/19 14:11	KMP	TAL BUF
Dissolved	Prep	7470A			492571	09/18/19 11:00	BMB	TAL BUF
Dissolved	Analysis	7470A		1	492778	09/18/19 14:38	BMB	TAL BUF
Total/NA	Prep	7470A			491034	09/10/19 11:40	BMB	TAL BUF
Total/NA	Analysis	7470A		1	491285	09/10/19 17:17	BMB	TAL BUF
Total/NA	Analysis	300.0		1	490899	09/09/19 16:16	IMZ	TAL BUF
Total/NA	Analysis	310.2		1	491046	09/09/19 16:37	SRW	TAL BUF
Total/NA	Analysis	350.1		1	490641	09/06/19 12:37	CLT	TAL BUF
Total/NA	Prep	351.2			491906	09/13/19 10:03	CAM	TAL BUF
Total/NA	Analysis	351.2		1	492180	09/15/19 12:17	KEB	TAL BUF
Total/NA	Analysis	353.2		1	490214	09/04/19 21:08	RLM	TAL BUF
Total/NA	Analysis	410.4		1	491715	09/12/19 12:35	CSS	TAL BUF
Total/NA	Analysis	7196A		1	490115	09/04/19 09:45	RLM	TAL BUF
Total/NA	Prep	9012B			492183	09/15/19 15:19	MDL	TAL BUF
Total/NA	Analysis	9012B		1	492325	09/16/19 12:54	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			492371	09/16/19 23:07	AEF	TAL BUF
Total/NA	Analysis	9065		1	492515	09/17/19 10:24	KEB	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MWSE-3
Date Collected: 09/03/19 14:25
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2120B		1	490392	09/05/19 11:30	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	492757	09/18/19 11:45	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	490322	09/05/19 10:32	CSS	TAL BUF
Total/NA	Analysis	SM 4110B		1	490900	09/09/19 16:16	IMZ	TAL BUF
Total/NA	Analysis	SM 5210B		1	490229	09/05/19 05:45	EY	TAL BUF
Total/NA	Analysis	SM 5310C		1	491171	09/08/19 01:09	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	492103	09/03/19 14:25	FLD	TAL BUF

Client Sample ID: MWSE-4
Date Collected: 09/03/19 12:25
Date Received: 09/03/19 16:50

Lab Sample ID: 480-158492-4
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	491769	09/12/19 23:37	OMI	TAL BUF
Dissolved	Prep	3005A			490197	09/06/19 10:59	JAL	TAL BUF
Dissolved	Analysis	6010C		1	491325	09/11/19 03:38	AMH	TAL BUF
Total/NA	Prep	3005A			490184	09/05/19 05:35	JAL	TAL BUF
Total/NA	Analysis	6010C		1	490550	09/05/19 17:01	AMH	TAL BUF
Dissolved	Prep	3020A			490196	09/06/19 10:50	JAL	TAL BUF
Dissolved	Analysis	6020A		1	490991	09/09/19 14:04	KMP	TAL BUF
Total/NA	Prep	3020A			490409	09/06/19 06:30	EMB	TAL BUF
Total/NA	Analysis	6020A		1	490643	09/06/19 14:13	KMP	TAL BUF
Dissolved	Prep	7470A			492571	09/18/19 11:00	BMB	TAL BUF
Dissolved	Analysis	7470A		1	492778	09/18/19 14:40	BMB	TAL BUF
Total/NA	Prep	7470A			491034	09/10/19 11:40	BMB	TAL BUF
Total/NA	Analysis	7470A		1	491285	09/10/19 17:18	BMB	TAL BUF
Total/NA	Analysis	300.0		2	490899	09/09/19 16:31	IMZ	TAL BUF
Total/NA	Analysis	310.2		2	491046	09/09/19 17:20	SRW	TAL BUF
Total/NA	Analysis	350.1		1	490641	09/06/19 12:38	CLT	TAL BUF
Total/NA	Prep	351.2			491906	09/13/19 10:03	CAM	TAL BUF
Total/NA	Analysis	351.2		1	492180	09/15/19 12:17	KEB	TAL BUF
Total/NA	Analysis	353.2		1	490214	09/04/19 13:58	RLM	TAL BUF
Total/NA	Analysis	410.4		1	491715	09/12/19 12:35	CSS	TAL BUF
Total/NA	Analysis	7196A		1	490115	09/04/19 09:45	RLM	TAL BUF
Total/NA	Prep	9012B			492183	09/15/19 15:19	MDL	TAL BUF
Total/NA	Analysis	9012B		1	492325	09/16/19 12:56	MDL	TAL BUF
Total/NA	Prep	Distill/Phenol			492371	09/16/19 23:07	AEF	TAL BUF
Total/NA	Analysis	9065		1	492515	09/17/19 10:24	KEB	TAL BUF
Total/NA	Analysis	SM 2120B		1	490392	09/05/19 11:30	CSS	TAL BUF
Total/NA	Analysis	SM 2340C		1	492757	09/18/19 11:45	AJL	TAL BUF
Total/NA	Analysis	SM 2540C		1	490322	09/05/19 10:32	CSS	TAL BUF
Total/NA	Analysis	SM 4110B		2	490900	09/09/19 16:31	IMZ	TAL BUF

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: MWSE-4
Lab Sample ID: 480-158492-4
Date Collected: 09/03/19 12:25
Matrix: Ground Water
Date Received: 09/03/19 16:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 5210B		1	490229	09/05/19 05:45	EY	TAL BUF
Total/NA	Analysis	SM 5310C		1	491171	09/08/19 01:24	CLA	TAL BUF
Total/NA	Analysis	Field Sampling		1	492103	09/03/19 12:25	FLD	TAL BUF

Client Sample ID: TRIP BLANK
Lab Sample ID: 480-158492-5
Date Collected: 09/03/19 08:00
Matrix: Water
Date Received: 09/03/19 16:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	491707	09/12/19 17:33	BTP	TAL BUF

Client Sample ID: MWSE-1
Lab Sample ID: 480-158878-1
Date Collected: 09/09/19 12:35
Matrix: Water
Date Received: 09/09/19 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			322696	09/12/19 07:48	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1	323243	09/13/19 21:30	P1N	TAL SAC

Client Sample ID: MWSE-2
Lab Sample ID: 480-158878-2
Date Collected: 09/09/19 11:20
Matrix: Water
Date Received: 09/09/19 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			322696	09/12/19 07:48	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1	323243	09/13/19 21:39	P1N	TAL SAC

Client Sample ID: MWSE-3
Lab Sample ID: 480-158878-3
Date Collected: 09/09/19 13:41
Matrix: Water
Date Received: 09/09/19 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			322696	09/12/19 07:48	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1	323243	09/13/19 21:49	P1N	TAL SAC

Client Sample ID: MWSE-4
Lab Sample ID: 480-158878-4
Date Collected: 09/09/19 11:46
Matrix: Water
Date Received: 09/09/19 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			322696	09/12/19 07:48	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1	323243	09/13/19 21:59	P1N	TAL SAC

Lab Chronicle

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Client Sample ID: BLIND DUP
Lab Sample ID: 480-158878-5
Date Collected: 09/09/19 11:46
Matrix: Water
Date Received: 09/09/19 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			322696	09/12/19 07:48	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1	323243	09/13/19 22:08	P1N	TAL SAC

Client Sample ID: TRIP BLANK
Lab Sample ID: 480-158878-6
Date Collected: 09/09/19 09:00
Matrix: Water
Date Received: 09/09/19 15:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	492966	09/20/19 00:45	KMN	TAL BUF

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Laboratory: Eurofins TestAmerica, Buffalo

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10026	03-31-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260C		Ground Water	Tetrahydrofuran
8260C		Water	Tetrahydrofuran
Field Sampling		Ground Water	Depth to Water from Top of Casing
Field Sampling		Ground Water	Field EH/ORP
Field Sampling		Ground Water	Odor
Field Sampling		Ground Water	pH, Field
Field Sampling		Ground Water	Specific Conductance
Field Sampling		Ground Water	Temperature, Field
Field Sampling		Ground Water	Turbidity
Field Sampling		Ground Water	Well Depth
Field Sampling		Water	Depth to Water from Top of Casing
Field Sampling		Water	Field EH/ORP
Field Sampling		Water	Odor
Field Sampling		Water	pH, Field
Field Sampling		Water	Specific Conductance
Field Sampling		Water	Temperature, Field
Field Sampling		Water	Turbidity
Field Sampling		Water	Well Depth

Accreditation/Certification Summary

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State Program	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	DoD	L2468	01-20-21
ANAB	DOE	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	08-09-21
Arizona	State	AZ0708	08-11-20
Arizona	State Program	AZ0708	08-11-20
Arkansas DEQ	State Program	88-0691	06-17-20
California	State	2897	01-31-20
California	State Program	2897	01-31-20
Colorado	State	CA0004	08-31-20
Colorado	State Program	CA00044	08-31-20
Connecticut	State	PH-0691	06-30-21
Connecticut	State Program	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Florida	NELAP	E87570	06-30-20
Hawaii	State	<cert No.>	01-29-20
Hawaii	State Program	N/A	01-29-20
Illinois	NELAP	200060	03-17-20 *
Illinois	NELAP	200060	03-17-20
Kansas	NELAP	E-10375	10-31-19
Kansas	NELAP	E-10375	10-31-19
Louisiana	NELAP	30612	06-30-20
Louisiana	NELAP	01944	06-30-20
Maine	State Program	CA0004	04-14-20
Michigan	State	9947	01-29-20
Michigan	State Program	9947	01-31-20
Nevada	State Program	CA00044	07-31-20
New Hampshire	NELAP	2997	04-20-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-20
Oregon	NELAP	4040	01-29-20
Pennsylvania	NELAP	68-01272	03-31-20
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399	05-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	Federal	LE148388-0	07-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	Federal	P330-18-00239	01-17-21
USDA	US Federal Programs	P330-18-00239	07-31-21
USEPA UCMR	Federal	CA00044	12-31-20
Utah	NELAP	CA00044	02-29-20
Vermont	State	VT-4040	04-16-20
Vermont	State Program	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-20
Virginia	NELAP	460278	03-14-20
Washington	State	C581	05-05-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Laboratory: Eurofins TestAmerica, Sacramento (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State Program	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-19
West Virginia (DW)	State Program	9930C	12-31-19
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
6010C	Metals (ICP)	SW846	TAL BUF
6020A	Metals (ICP/MS)	SW846	TAL BUF
7470A	Mercury (CVAA)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
310.2	Alkalinity	MCAWW	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
410.4	COD	MCAWW	TAL BUF
7196A	Chromium, Hexavalent	SW846	TAL BUF
9012B	Cyanide, Total andor Amenable	SW846	TAL BUF
9065	Phenolics, Total Recoverable	SW846	TAL BUF
SM 2120B	Color, Colorimetric	SM	TAL BUF
SM 2340C	Hardness, Total (mg/l as CaC03)	SM	TAL BUF
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL BUF
SM 4110B	Ion Chromatography	SM	TAL BUF
SM 5210B	BOD, 5-Day	SM	TAL BUF
SM 5310C	TOC	SM	TAL BUF
Field Sampling	Field Sampling	EPA	TAL BUF
3005A	Preparation, Total Metals	SW846	TAL BUF
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL BUF
3020A	Preparation, Total Metals	SW846	TAL BUF
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
5030C	Purge and Trap	SW846	TAL BUF
7470A	Preparation, Mercury	SW846	TAL BUF
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	TAL BUF
Distill/Phenol	Distillation, Phenolics	None	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency
MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-157980-1	DUP	Ground Water	08/21/19 12:35	08/21/19 17:30	
480-157980-2	MW-16	Ground Water	08/21/19 11:18	08/21/19 17:30	
480-157980-3	MW-16(S)	Ground Water	08/21/19 11:10	08/21/19 17:30	
480-157980-4	MW-17	Ground Water	08/21/19 13:20	08/21/19 17:30	
480-157980-5	MW-18BR	Ground Water	08/21/19 13:05	08/21/19 17:30	
480-157980-6	MW-L(I)	Ground Water	08/21/19 11:50	08/21/19 17:30	
480-157980-7	MW-M(I)	Ground Water	08/21/19 13:55	08/21/19 17:30	
480-157980-8	MW-M(S)	Ground Water	08/21/19 14:10	08/21/19 17:30	
480-157980-9	MW-P(I)	Ground Water	08/21/19 12:35	08/21/19 17:30	
480-157980-10	MW-P(S)	Ground Water	08/21/19 12:20	08/21/19 17:30	
480-157980-11	TRIP BLANK	Water	08/21/19 00:00	08/21/19 17:30	
480-158093-1	MW-N(I)	Ground Water	08/23/19 11:12	08/23/19 16:45	
480-158093-2	MW-N(S)	Ground Water	08/23/19 11:00	08/23/19 16:45	
480-158093-3	MW-Q(I)	Water	08/23/19 11:30	08/23/19 16:45	
480-158145-1	MW-50	Ground Water	08/26/19 13:45	08/26/19 16:30	
480-158409-1	FIELD BLANK	Water	08/30/19 11:00	08/30/19 16:15	
480-158409-2	MWBA-1	Ground Water	08/30/19 14:22	08/30/19 16:15	
480-158409-3	MWBA-2	Ground Water	08/30/19 13:45	08/30/19 16:15	
480-158409-4	MW-O(I)	Ground Water	08/30/19 11:39	08/30/19 16:15	
480-158409-5	TRIP BLANK	Water	08/30/19 09:00	08/30/19 16:15	
480-158492-1	MWSE-1	Ground Water	09/03/19 13:10	09/03/19 16:50	
480-158492-2	MWSE-2	Ground Water	09/03/19 11:50	09/03/19 16:50	
480-158492-3	MWSE-3	Ground Water	09/03/19 14:25	09/03/19 16:50	
480-158492-4	MWSE-4	Ground Water	09/03/19 12:25	09/03/19 16:50	
480-158492-5	TRIP BLANK	Water	09/03/19 08:00	09/03/19 16:50	
480-158878-1	MWSE-1	Water	09/09/19 12:35	09/09/19 15:40	
480-158878-2	MWSE-2	Water	09/09/19 11:20	09/09/19 15:40	
480-158878-3	MWSE-3	Water	09/09/19 13:41	09/09/19 15:40	
480-158878-4	MWSE-4	Water	09/09/19 11:46	09/09/19 15:40	
480-158878-5	BLIND DUP	Water	09/09/19 11:46	09/09/19 15:40	
480-158878-6	TRIP BLANK	Water	09/09/19 09:00	09/09/19 15:40	

Quantitation Limit Exceptions Summary

Client: Waste Management
Job ID: 480-157980-1
Project/Site: Chaffee Facility Western Exp-GW Baselin

The requested project specific reporting limits listed below were less than laboratory standard quantitation limits (PQL) but greater than or equal to the laboratory method detection limits (MDL). It must be noted that results reported below lab standard quantitation limits may result in false positive/false negative values and less accurate quantitation. Routine laboratory procedures do not indicate corrective action for detections below the laboratory's PQL.

Method	Analyte	Matrix	Prep Type	Unit	Client RL	Lab PQL
8260C	2-Butanone (MEK)	Ground Water	Total/NA	ug/L	5.0	10
8260C	2-Butanone (MEK)	Water	Total/NA	ug/L	5.0	10
8260C	Acetone	Ground Water	Total/NA	ug/L	5.0	10
8260C	Acetone	Water	Total/NA	ug/L	5.0	10
6010C	Antimony	Ground Water	Total/NA	mg/L	0.015	0.02
6010C	Antimony	Water	Total/NA	mg/L	0.015	0.02
6010C	Arsenic	Ground Water	Total/NA	mg/L	0.010	0.015
6010C	Arsenic	Water	Total/NA	mg/L	0.010	0.015
6010C	Arsenic, Dissolved	Ground Water	Dissolved	mg/L	0.010	0.015
6010C	Arsenic, Dissolved	Water	Dissolved	mg/L	0.010	0.015
6010C	Lead	Ground Water	Total/NA	mg/L	0.0030	0.01
6010C	Lead	Water	Total/NA	mg/L	0.0030	0.01
6010C	Lead, Dissolved	Ground Water	Dissolved	mg/L	0.0030	0.01
6010C	Lead, Dissolved	Water	Dissolved	mg/L	0.0030	0.01
6010C	Thallium	Ground Water	Total/NA	mg/L	0.010	0.02
6010C	Thallium	Water	Total/NA	mg/L	0.010	0.02
6010C	Thallium, Dissolved	Ground Water	Dissolved	mg/L	0.010	0.02
6010C	Thallium, Dissolved	Water	Dissolved	mg/L	0.010	0.02
310.2	Alkalinity, Total	Ground Water	Total/NA	mg/L	5.0	10
310.2	Alkalinity, Total	Water	Total/NA	mg/L	5.0	10
351.2	Total Kjeldahl Nitrogen	Ground Water	Total/NA	mg/L as N	0.15	0.2
351.2	Total Kjeldahl Nitrogen	Water	Total/NA	mg/L as N	0.15	0.2
410.4	Chemical Oxygen Demand	Ground Water	Total/NA	mg/L	5.0	10
410.4	Chemical Oxygen Demand	Water	Total/NA	mg/L	5.0	10
9065	Phenolics, Total Recoverable	Ground Water	Total/NA	mg/L	0.0050	0.01
9065	Phenolics, Total Recoverable	Water	Total/NA	mg/L	0.0050	0.01
SM 2120B	Color	Ground Water	Total/NA	Color Units	0.0100	5
SM 2120B	Color	Water	Total/NA	Color Units	0.0100	5
SM 2340C	Hardness	Ground Water	Total/NA	mg/L	1.0	2
SM 2340C	Hardness	Water	Total/NA	mg/L	1.0	2

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

480-157980 Chain of Custody

Client Information	Sampler: TB/SO	Lab PM: Giglia, Denise L	C
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com	
Company: TestAmerica Laboratories, Inc		Analysis Req	
Address: 10 Hazelwood Drive	Due Date Requested:		
City: Amherst	TAT Requested (days):		
State, Zip: NY, 14228			
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested		
Email: timothy.bly@testamericainc.com	WO #:		
Project Name: Chaffee Facility Western Expansion/NY12 Event Desc: Chaffee	Project #: 48002685		
Site: New York	SSOW#:		

B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300.0_28D, SM4110B_28D	350.1, 351.2, 410.4	6010C, 6020A, 7470A	2340C - Hardness	9065 - Phenolics, Total Recoverable	8260C - NY Part 360 Baseline Volatiles	5310C - Total Organic Carbon	5210B - Biochemical Oxygen Demand	2540C_Calcd - Total Dissolved Solids	FieldSampling - Field Parameters	9012B - Cyanide, Total	2120B, 353.2, 353.2_Nitrite, Nitrate_Calc	7196A - Chromium, hexavalent	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	S	D	D	S	A	A	N	N	N	B	N	N		
MW-P(I)	8/21/19	1235	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		DUP Taken
DUP	8/21/19	1235	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		Taken @ MW-P(I)
Matrix Spike	8/21/19	1320	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		Taken @ MW-17
Matrix Spike Dup	8/21/19	1320	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		Taken @ MW-17
MW-16	8/21/19	1118	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		
MW-16(S)	8/21/19	1110	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		
MW-17	8/21/19	1320	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		MS/MSD Taken
MW-18BR	8/21/19	1305	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		
MW-L(I)	8/21/19	1150	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		
~~MW-L(S)~~	8/21/19	DRY	G	Water			0	0	0	0	0	0	0	0	0	0	0	0	0		Well DRY- No Sample
MW-P(S)	8/21/19	1220	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	8-21-19/1700	TAL			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 8-21-19 1730	Company TAB

Custody Seals Intact: ∆ Yes ∆ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.9 3.1 3.7 2.9 #1

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: TB/SO	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-134071-30195.2
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 2 of 4
Company: TestAmerica Laboratories, Inc		Analysis Requested		Job #:

Address: 10 Hazelwood Drive	Due Date Requested:	
City: Amherst	TAT Requested (days):	
State, Zip: NY, 14228		
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested	
Email: timothy.bly@testamericainc.com	WO #:	
Project Name: Chaffee Facility Western Expansion/NY12 Event Desc: Chaffee	Project #: 48002685	
Site: New York	SSOW#:	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	310.2 - Alkalinity, Total	8260C - (MOD) NY Part 360 Baseline Volatiles	6010C, 6020A, 7470A-Dis	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A			
MW-P(I)	8/21/19	1235	G	Water			1	0	1		DUP Taken
DUP	8/21/19	1235	G	Water			1	0	1		Taken @ MW-P(I)
Matrix Spike	8/21/19	1320	G	Water			1	0	1		Taken @ MW-17
Matrix Spike Dup	8/21/19	1320	G	Water			1	0	1		Taken @ MW-17
MW-16	8/21/19	1118	G	Water			1	0	1		
MW-16(S)	8/21/19	1110	G	Water			1	0	1		
MW-17	8/21/19	1320	G	Water			1	0	1		MS/MSD Taken
MW-18BR	8/21/19	1305	G	Water			1	0	1		
MW-L(I)	8/21/19	1150	G	Water			1	0	1		
MW-L(S)	8/21/19	DRY	G	Water			0	0	0		Well DRY - No Sample
MW-P(S)	8/21/19	1220	G	Water			1	0	1		

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	8-21-19/1700	TAL			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 8-21-19 1730	Company TAS

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 4C 1.1

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: TB/SO	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-134071-30195.3
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 3 of 4
Company: TestAmerica Laboratories, Inc				Job #:

Address: 10 Hazelwood Drive	Due Date Requested:
City: Amherst	TAT Requested (days):
State, Zip: NY, 14228	
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested
Email: timothy.bly@testamericainc.com	WO #:
Project Name: Chaffee Facility Western Expansion/NY12 Event Desc: Chaffee	Project #: 48002685
Site: New York	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300.0_28D, SM4110B_28D	350.1, 351.2, 410.4	6010C, 6020A, 7470A	2340C - Hardness	9065 - Phenolics, Total Recoverable	8260C - NY Part 360 Baseline Volatiles	5310C - Total Organic Carbon	5210B - Biochemical Oxygen Demand	2540C_Calcd - Total Dissolved Solids	FieldSampling - Field Parameters	9012B - Cyanide, Total	2120B, 353.2, 353.2_Nitrite, Nitrate_Calc	7196A - Chromium, hexavalent	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	N	S	D	D	S	A	A	N	N	N	B	N	N	X	
MW-M(I)	8/21/19	1355	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		
MW-M(S)	8/21/19	1410	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		
Trip Blank 8	8/21/19	0800	G	Water			0	0	0	0	0	0	0	0	0	0	0	0	0		

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 8-21-19/1720	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 8-21-19 1730	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1C 11

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

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Client Information	Sampler: TB/SO	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-134071-30195.4
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 4 of 4
Company: TestAmerica Laboratories, Inc				Job #:

Address: 10 Hazelwood Drive	Due Date Requested:
City: Amherst	TAT Requested (days):
State, Zip: NY, 14228	
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested
Email: timothy.bly@testamericainc.com	WO #:
Project Name: Chaffee Facility Western Expansion/NY12 Event Desc: Chaffee	Project #: 48002685
Site: New York	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	310.2 - Alkalinity, Total	8260C - (MOD) NY Part 360 Baseline Volatiles	6010C, 6020A, 7470A-Dis											Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A	D												
MW-M(I)	8/21/19	1355	G	Water			1	0	1												
MW-M(S)	8/21/19	1410	G	Water			1	0	1												
Trip Blank 8	8/21/19	0800	G	Water			0	2	0												

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 8-21-19/1700	Company TAL	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 8-21-19 1730	Company TAB

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1c 1

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: TB/SO	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-134071-30195.1
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc				Job #:

Address: 10 Hazelwood Drive	Due Date Requested:
City: Amherst	TAT Requested (days):
State, Zip: NY, 14228	
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested
Email: timothy.bly@testamericainc.com	WO #:
Project Name: Chaffee Facility Western Expansion/NY12 Event Desc: Chaffee W	Project #: 48002685
Site: New York	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300.0_28D, SM4110B_28D	350.1, 351.2, 410.4	6010C, 6020A, 7470A	2340C - Hardness	9065 - Phenolics, Total Recoverable	8260C - NY Part 360 Baseline Volatiles	5310C - Total Organic Carbon	5210B - Biochemical Oxygen Demand	2540C_Calcd - Total Dissolved Solids	FieldSampling - Field Parameters	9012B - Cyanide, Total	2120B, 353.2, 353.2_Nitrite, Nitrate_Calc	7196A - Chromium, hexavalent	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	S	D	D	S	A	A	N	N	N	B	N	N		
MW-N(I)	8/23/19	1112	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		
MW-N(S)	8/23/19	1100	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		
MW-Q(I)	8/23/19	1130	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		
MW-Q(S)	8/23/19	DRY	G	Water																	Well DRY- No Sample

480-158093 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	8-23-19/1645	TAL			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 8-23-19 1645	Company MB

Custody Seals Intact: Δ Yes Δ No	Custody Seal No:	Cooler Temperature(s) °C and Other Remarks: 3.6 #1

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: TB/SO	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-134071-30195.2
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc				Job #:
Address: 10 Hazelwood Drive	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228				
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested			
Email: timothy.bly@testamericainc.com	WO #:			
Project Name: Chaffee Facility Western Expansion/NY12 Event Desc: Chaffee V	Project #: 48002685			
Site: New York	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	310.2 - Alkalinity, Total	8260C - (MOD) NY Part 360 Baseline Volatiles	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A		
MW-N(I)	8/23/19	1112	G	Water			1			
MW-N(S)	8/23/19	1100	G	Water			1			
MW-Q(I)	8/23/19	1130	G	Water			1			
MW-Q(S)	8/23/19	DRY	G	Water						Well DRY- No Sample

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	8-23-19/1645	TAL			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 8-23-19 1645	Company TAB

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.6#1

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins Environment Testing TestAmerica

Client Information	Sampler: TB/SO/ZV	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-134071-30195.1
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc				Job #:

Address: 10 Hazelwood Drive	Due Date Requested:
City: Amherst	TAT Requested (days):
State, Zip: NY, 14228	
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested
Email: timothy.bly@testamericainc.com	WO #:
Project Name: Chaffee Facility Western Expansion/NY12 Event Desc: Chaffee V	Project #: 48002685
Site: New York	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300.0_28D, SM4110B_28D	350.1, 351.2, 410.4	6010C, 6020A, 7470A	2340C - Hardness	9065 - Phenolics, Total Recoverable	8260C - NY Part 360 Baseline Volatiles	5310C - Total Organic Carbon	5210B - Biochemical Oxygen Demand	2540C_Calcd - Total Dissolved Solids	FieldSampling - Field Parameters	9012B - Cyanide, Total	2120B, 353.2, 353.2_Nitrite, Nitrate_Calc	7196A - Chromium, hexavalent	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	S	D	D	S	A	A	N	N	N	B	N	N		
MW- 50	8/26/19	1345	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		

480-158145 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: S.O.Z	Date/Time: 08-26-19 1630	Company: TAL	Received by: [illegible]	Date/Time: 08/26/19 1630	Company: TA
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 4iz #1ICE

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: TB/SO	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-134071-30195.2
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc				Job #:

Address: 10 Hazelwood Drive	Due Date Requested:
City: Amherst	TAT Requested (days):
State, Zip: NY, 14228	
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested
Email: timothy.bly@testamericainc.com	WO #:
Project Name: Chaffee Facility Western Expansion/NY12 Event Desc: Chaffee V	Project #: 48002685
Site: New York	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	310.2 - Alkalinity, Total	8260C - (MOD) NY Part 360 Baseline Volatiles	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A		
MW- 50	8/26/19	1345	G	Water			1			

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: SOZ	Date/Time: 08-26-19/1630	Company: TAL	Received by: Cmw Kow Cikolb	Date/Time: 08/26/19 1630	Company: TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

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Client Information	Sampler: SO/ZV	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-134071-30195.1
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc				Job #:
Address: 10 Hazelwood Drive	Due Date Requested:			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228				
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested			
Email: timothy.bly@testamericainc.com	WO #:			
Project Name: Chaffee Facility Western Expansion/NY12 Event Desc: Chaffee V	Project #: 48002685			
Site: New York	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300.0_28D, SM4110B_28D	350.1, 351.2, 410.4	6010C, 6020A, 7470A	2340C - Hardness	9065 - Phenolics, Total Recoverable	8260C - NY Part 360 Baseline Volatiles	5310C - Total Organic Carbon	5210B - Biochemical Oxygen Demand	2540C_Calcd - Total Dissolved Solids	310.2 - Alkalinity, Total	9012B - Cyanide, Total	2120B, 353.2, 353.2_Nitrite, Nitrate_Calc	7196A - Chromium, hexavalent	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	S	D	D	S	A	A	N	N	N	B	N	N		
FIELD BLANK	8/30/19	1100	G	Water			1	1	1	1	1	3	2	1	1	1	1	2	1		
MWBA-1	8/30/19	1422	G	Water			1	1	1	1	1	3	2	1	1	1	1	2	1		
MWBA-2	8/30/19	1345	G	Water			1	1	1	1	1	3	2	1	1	1	1	2	1		
~~MWBA-3~~	8/30/19	DRY	G	Water			0	0	0	0	0	0	0	0	0	0	0	0	0		Well DRY- No Sample
~~MW-K(S)~~	8/30/19	DRY	G	Water			0	0	0	0	0	0	0	0	0	0	0	0	0		Well DRY- No Sample
MW-O(I)	8/30/19	1139	G	Water			1	1	1	1	1	3	2	1	1	1	1	2	1		
Trip Blank	8/30/19	0900	G	Water			0	0	0	0	0	2	0	0	0	0	0	0	0		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample ☐ Re ...ed longer than 1 month)
Special In... ...Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
S.D2	08-30-19/1615	TAL			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 8/30/19 1615	Company TTAS

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 2-9 3.1 #1

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: SO/ZV	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-134071-30195.3
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page:

Company: TestAmerica Laboratories, Inc
Address: 10 Hazelwood Drive
City: Amherst
State, Zip: NY, 14228
Phone: 716-863-3438(Tel)
Email: timothy.bly@testamericainc.com
Project Name: Chaffee Facility Western Expansion/NY12 Event Desc: Chaffee W
Site: New York

Due Date Requested:
TAT Requested (days):
PO #: Purchase Order Requested
WO #:
Project #: 48002685
SSOW#:

480-158492 Chain of Custody

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300.0_28D, SM4110B_28D	350.1, 351.2, 410.4	6010C, 6020A, 7470A	2340C - Hardness	9065 - Phenolics, Total Recoverable	8260C - NY Part 360 Baseline Volatiles	5310C - Total Organic Carbon	5210B - Biochemical Oxygen Demand	2540C_Calcd - Total Dissolved Solids	FieldSampling - Field Parameters	9012B - Cyanide, Total	2120B, 353.2, 353.2_Nitrite, Nitrate_Calc	7196A - Chromium, hexavalent	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	S	D	D	S	A	A	N	N	N	B	N	N		
MWSE 1	9/3/19	1310	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		
MWSE 2	9/3/19	1150	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		
MWSE 3	9/3/19	1425	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		
MWSE 4	9/3/19	1225	G	Water			1	1	1	1	1	3	2	1	1	0	1	2	1		
TRIP BLANK	9/3/19	0800	G	Water			0	0	0	0	0	0	0	0	0	0	0	0	0		

F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
Other:

O - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment: 9/3/19 CW

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	[signature]	09/03/19 16:50		[signature]	9/3/19 1650	TAS
2						
3						

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: #13,5 318

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins Environment Testing TestAmerica

Client Information	Sampler: SO/ZV	Lab PM: Giglia, Denise L	Carrier Tracking No(s):	COC No: 480-134071-30195.4
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com		Page: Page 4 of 4
Company: TestAmerica Laboratories, Inc		Analysis Requested		Job #:

Address: 10 Hazelwood Drive	Due Date Requested:	Preservation Codes:
City: Amherst	TAT Requested (days):	A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: NY, 14228		
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested	
Email: timothy.bly@testamericainc.com	WO #:	Other:
Project Name: Chaffee Facility Western Expansion/NY12 Event Desc: Chaffee W	Project #: 48002685	
Site: New York	SSOW#:	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	310.2 - Alkalinity, Total	8260C - (MOD) NY Part 360 Baseline Volatiles	6010C, 6020A, 7470A-Dis	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	A	D		
MWSE 1	9/3/19	1310	G	Water			1	0	1		
MWSE 2	9/3/19	1150	G	Water			1	0	1		
MWSE 3	9/3/19	1425	G	Water			1	0	1		
MWSE 4	9/3/19	1225	G	Water			1	0	1		
TRIP BLANK	9/3/19	0800	G	Water			0	2	0		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
		TAL	C Wattle	9/3/19 1650	TAS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

480-158878 Chain of Custody

Client Information	Sampler:	Lab PM: Giglia, Denise L
Client Contact: Timothy Bly	Phone:	E-Mail: denise.giglia@testamericainc.com
Company: TestAmerica Laboratories, Inc		
Address: 10 Hazelwood Drive	Due Date Requested:	
City: Amherst	TAT Requested (days):	
State, Zip: NY, 14228		
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested	
Email: timothy.bly@testamericainc.com	WO #:	
Project Name: Chaffee Facility Western Expansion	Project #: 48002685	
Site: New York	SSOW#:	

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - PFAS, Standard List (21 Analytes)	8260C - NY Part 360 Baseline Volatiles	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N			
MWSE-1	9/9/19	1235	G	Water			2	0		
MWSE-2	9/9/19	1120	G	Water			2	0		
MWSE-3	9/9/19	1341	G	Water			2	0		
MWSE-4	9/9/19	1146	G	Water			2	0		DUP TAKEN
Blind Duplicate	9/9/19	1146	G	Water			2	0		TAKEN AT MWSE-4
TRIP BLANK	9/9/19	0900	G	Water			0	2		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	09/09/19 15:40			9/9/19 15:40	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 3.3 #1

Ver: 01/16/2019

FIELD INFORMATION FORM

Site Name: CHAFFEE
Site No.:
Sample Point: MW5E1
Sample ID

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

WM WASTE MANAGEMENT

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hr:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
08/31/19	1250	1:20			3

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N

Purging Device: B
Sampling Device: B
X-Other:

A- Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle

Filter Device: (Y) or N — 0.45 µ or ____ µ (circle or fill in)
Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other
Sample Tube Type: ____ — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC): ____ (ft/msl)
Depth to Water (DTW) (from TOC): 154 (ft)
Groundwater Elevation (elev datum, from TOC): ____ (ft/msl)
Total Well Depth (from TOC): ____ (ft)
Stick Up (from ground elevation): ____ (ft)
Casing ID: 20 (in)
Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1250	1st	7.58	1st 2501004	13.6	11.7		210.0	
1252	2nd	7.46	2nd 2500.61	13.6	11.8		187.0	
1255	3rd	7.39	3rd 3901412	13.6	11.7		150.0	
1258	4th	7.39	4th 3144148	13.2	11.6		150.0	
1300		7.38	2621.10	13.0	11.4		147.0	
1302		7.35	2601.03	13.1	11.7		133.0	
1305		7.35	2571.20	13.1	11.8		128.0	
1308		7.34	2555.0	13.1	11.9		133.0	
1310		7.34	2583.0	13.1	11.9		135.0	
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	-	-	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields where are needed, use separate sheet or form.

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: ____ Units ____
08/31/19	7.34	2583.0	13.1	11.9		135.0	

Final Field Readings are required (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.

FIELD COMMENTS

Sample Appearance: CLEAR
Odor: NO
Color: —
Other: —
Weather Conditions (required daily, or as conditions change):
Direction/Speed: ESE - 6 MPH Outlook: cloudy
Precipitation: Y or (N)
Specific Comments (including purge/well volume calculations if required):

PURGING low flow @ 200 mL/min.

sampled @ 13:10

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
08/31/19	ZORAN V.		TAL

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

Site Name: CHAFFEE
Site No.:
Sample Point: MWSE2 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hr:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
08/31/19	1125	:25			3

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N
Purging Device: B
Sampling Device: B
A- Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle
X-Other:
Filter Device: (Y) or N — 0.45 µ or ____ µ (circle or fill in)
Filter Type: A — A-In-line Disposable, B-Pressure, C-Vacuum, X-Other
Sample Tube Type: ____ — A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____

WELL DATA

Well Elevation (at TOC) (ft/msl)
Depth to Water (DTW) (from TOC): 15.76 (ft)
Groundwater Elevation (site datum, from TOC) (ft/msl)
Total Well Depth (from TOC) (ft)
Stick Up (from ground elevation) (ft)
Casing ID: 2.0 (in)
Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1130	1st	7.01	2970	13.4	12.1		237.0	
1135	2nd	7.19	1790	12.9	1.8		189.0	
1137	3rd	7.23	1718	12.5	1.3		176.0	
1140	4th	7.30	1468	12.4	1.6		187.0	
1142		7.33	1404	12.4	1.7		181.0	
1145		7.35	1401	12.4	1.8		113.0	
1147		7.37	1395	12.4	1.6		121.5	
1150		7.37	1408	12.4	1.8		100.0	
							99.0	
		+/- 0.2	+/- 3%	-	-	+/- 10%	+/- 25 mV	Stabilize

Suggested range for 3 consec. readings or note Permit/State requirements.

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Others / Units
08/31/19	7.37	1408	12.4	1.8		99.0	

Final Field Readings are required (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.

FIELD COMMENTS

Sample Appearance: clear
Odor: no
Color: —
Other: —
Weather Conditions (required daily, or as conditions change):
Direction/Speed: SSE-6 mph
Outlook: cloudy
Precipitation: Y or (N)
Specific Comments (including purge/well volume calculations if required):

PURGED at low flow rate of 150 mL/min.

sampled @ 11:50

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
08/31/19	ZOLAN V.		TAL

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample; YELLOW - Returned to Client; PINK - Field Copy

FIELD INFORMATION FORM

Site Name: Chaffee
Site No.:
Sample Point: MWSC3 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hr:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
09 03 19	1320	165	13	19	15

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N
Purging Device: B
Sampling Device: B
A- Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle
X-Other:
Filter Device: (Y) or N — 0.45 µ or ____ µ (circle or fill in)
Filter Type: A (A-In-line Disposable, B-Pressure, C-Vacuum, X-Other)
Sample Tube Type: ____ (A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____)

WELL DATA

Well Elevation (at TOC): ____ (ft/msl)
Depth to Water (DTW) (from TOC): 22.56 (ft)
Groundwater Elevation (site datum, from TOC): ____ (ft/msl)
Total Well Depth (from TOC): 30.60 (ft)
Stick Up (from ground elevation): ____ (ft)
Casing ID: 2.0 (in)
Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1335	1st	7.02	103	15.2	193		153.0	
1345	2nd	6.52	102	15.0	17.6		159.0	
1355	3rd	6.42	102	14.8	14.7		163.0	
1405	4th	6.08	104	16.6	14.2		169.0	
1415		6.22	103	16.5	12.2		174.0	
1420		6.19	104	16.8	11.9		176.0	
1425		6.18	105	16.6	11.8		174.0	
:								
:								
:								
Suggested range for 3 consec. readings or state Permit/State requirements:		+/- 0.2	+/- 3%	–	–	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: ____ Units ____
09 03 19	6.18	1.05	16.6	11.8		174.0	

Final Field Readings are required (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.

Sample Appearance: Clear
Odor: NO
Color: —
Other: —
Weather Conditions (required daily, or as conditions change):
Direction/Speed: NE 5mph
Outlook: Sunny
Precipitation: Y or (N)

FIELD COMMENTS

Specific Comments (including purge/well volume calculations if required):

30.6 − 22.56 = 8.04 × 0.1632 = 1.3 gal.
Low-flow purge @ 140 ml/min
Purged 1.9 gal.
Sampled @ 1425
WL = 22.60

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
09/03/19	S.OZ		TAL
___/___/___			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

Site Name: CHAFFEE
Site No.:
Sample Point: MWS64 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hr:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED
09/03/19	1130	155	15	20	13

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment ... Dedicated: (Y) or N
Purging Device: B
Sampling Device: B
A- Submersible Pump, B-Peristaltic Pump, C-QED Bladder Pump, D-Bailer, E-Piston Pump, F-Dipper/Bottle
X-Other:
Filter Devices: (Y) or N — 0.45 µ or ____ µ (circle or fill in)
Filter Type: A (A-In-line Disposable, B-Pressure, C-Vacuum, X-Other)
Sample Tube Type: ____ (A-Teflon, B-Stainless Steel, C-PVC, D-Polypropylene, X-Other: ____)

WELL DATA

Well Elevation (at TOC): ____ (ft/msl)
Depth to Water (DTW) (from TOC): 12.72 (ft)
Groundwater Elevation (site datum, from TOC): ____ (ft/msl)
Total Well Depth (from TOC): 22.45 (ft)
Stick Up (from ground elevation): ____ (ft)
Casing ID: 2.0 (in)
Casing Material: PVC

Note: Total Well Depth, Stick Up, Casing Id, etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm @ 25 °C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
1145		1st 6.70	1st 563	1.63	34		860	
1155		2nd 6.78	2nd 567	1.61	43		670	
1205		3rd 6.69	3rd 568	1.59	41		640	
1210		4th 6.75	4th 569	1.60	38		590	
1215		6.81	570	1.61	29		620	
1220		6.83	571	1.61	28		640	
1225		6.84	570	1.60	27		670	
:								
:								
:								
Suggested range for 3 consec. readings or state Permit/State requirements		+/- 0.2	+/- 3%	-	-	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional (i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (µmhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: ____ Units ____
09/03/19	6.84	570	1.60	27		670	

Final Field Readings are required (i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.

FIELD COMMENTS

Sample Appearance: Clear
Odor: NO
Color: —
Other: —
Weather Conditions (required daily, or as conditions change):
Direction/Speed: NE 5 mph
Outlook: Sunny
Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

22.45 − 12.72 = 9.73 × 0.16322 1.5 gal
Low-flow purge @ 120 ml/min.
Purged ~2.0 gal.
Sampled @ 1225
W.L − 12.88

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
09/03/19	[illegible]		TAL

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-157980-1

Login Number: 157980
List Number: 1
Creator: Harper, Marcus D

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	TAL
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-157980-1

Login Number: 158093
List Number: 1
Creator: Harper, Marcus D

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	TAL
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-157980-1

Login Number: 158145
List Number: 1
Creator: Manhardt, Kara M

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	TAL
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-157980-1

Login Number: 158409
List Number: 1
Creator: Harper, Marcus D

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	TAL
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-157980-1

Login Number: 158492
List Number: 1
Creator: Wallace, Cameron

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	TAL
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-157980-1

Login Number: 158878
List Number: 1
Creator: Stopa, Erik S

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	TAL
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-157980-1

Login Number: 158878
List Number: 2
Creator: Kintaudi, Pauline W

List Source: Eurofins TestAmerica, Sacramento
List Creation: 09/11/19 01:36 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	993303
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

February 6, 2020 Sampling Event - PFAS wells MWSE-3 MWSE-4, Basin #1, Hosmer Brook

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

Laboratory Job ID: 320-58497-1
Client Project/Site: Chaffee Facility Western Expansion: PFAS

For:
Waste Management
Chaffee Landfill
10860 Olean Road
Chaffee, New York 14030-9799

Attn: Christopher Chapman

Katelyn Ferguson

Authorized for release by:
2/17/2020 4:06:43 PM

Katelyn Ferguson, Project Management Assistant I
(716)691-2600
katelyn.ferguson@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Waste Management
Job ID: 320-58497-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
I	Value is EMPC (estimated maximum possible concentration).

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Waste Management
Job ID: 320-58497-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Job ID: 320-58497-1

Laboratory: Eurofins TestAmerica, Sacramento

Narrative

Job Narrative
320-58497-1

Comments
No additional comments.

Receipt
The samples were received on 2/10/2020 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.5º C.

LCMS
Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte were outside of the established ratio limits. The qualitative identification of the analyte have some degree of uncertainty. However, analyst judgment was used to positively identify the analyte.

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for M2-6:2 FTS in the following sample: Basin#1 (320-58497-3). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method 3535: The following samples were observed to contain brown sediment prior to extraction: MWSE-3 (320-58497-1), MWSE-3 (320-58497-1[MS]) and MWSE-3 (320-58497-1[MSD]).

Method 3535: The following samples contain non-settleable particulate matter which clogged the solid-phase extraction column: MWSE-3 (320-58497-1), MWSE-3 (320-58497-1[MS]) and MWSE-3 (320-58497-1[MSD]).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Waste Management
Job ID: 320-58497-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Client Sample ID: MWSE-3 — Lab Sample ID: 320-58497-1

No Detections.

Client Sample ID: MWSE-4 — Lab Sample ID: 320-58497-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	19		1.8		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	27		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	43		1.8		ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	10		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	26		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	2.6		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.7		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.9		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.8		1.8		ng/L	1		537 (modified)	Total/NA

Client Sample ID: Basin#1 — Lab Sample ID: 320-58497-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	14		1.9		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	17		1.9		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	42		1.9		ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.4		1.9		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	14		1.9		ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.3		1.9		ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	13	I	1.9		ng/L	1		537 (modified)	Total/NA

Client Sample ID: HBSW-1 — Lab Sample ID: 320-58497-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.8		1.8		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.3		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	6.9		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.9		1.8		ng/L	1		537 (modified)	Total/NA

Client Sample ID: Blind Dup — Lab Sample ID: 320-58497-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	18		1.8		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	27		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	42		1.8		ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	11		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	23		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	2.8		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.2		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.8		1.8		ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.6	I	1.8		ng/L	1		537 (modified)	Total/NA

Client Sample ID: EQ Blank — Lab Sample ID: 320-58497-6

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Sacramento

Client: Waste Management
Project/Site: Chaffee Facility Western Expansion: PFAS

Job ID: 320-58497-1

Client Sample ID: MWSE-3
Date Collected: 02/06/20 12:00
Date Received: 02/10/20 09:45

Lab Sample ID: 320-58497-1
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluoropentanoic acid (PFPeA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluorohexanoic acid (PFHxA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluorooctanoic acid (PFOA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluorononanoic acid (PFNA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluorododecanoic acid (PFDoA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:11	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18		ng/L		02/12/20 06:02	02/12/20 18:11	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18		ng/L		02/12/20 06:02	02/12/20 18:11	1
6:2 FTS	ND		18		ng/L		02/12/20 06:02	02/12/20 18:11	1
8:2 FTS	ND		18		ng/L		02/12/20 06:02	02/12/20 18:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*50*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
13C5-PFPeA DNU	*52*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
13C2 PFHxA	*53*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
13C4 PFHpA	*54*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
13C4 PFOA	*53*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
13C5 PFNA	*52*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
13C2 PFDA	*48*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
13C2 PFUnA	*50*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
13C2 PFDoA	*53*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
13C2 PFTeDA	*55*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
13C3 PFBS	*53*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
18O2 PFHxS	*50*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
13C4 PFOS	*49*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
13C8 FOSA	*45*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
d3-NMeFOSAA	*48*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
d5-NEtFOSAA	*51*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
M2-6:2 FTS	*56*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*
M2-8:2 FTS	*54*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:11*	*1*

Client Sample ID: MWSE-4
Lab Sample ID: 320-58497-2

Date Collected: 02/06/20 09:30
Matrix: Water

Date Received: 02/10/20 09:45

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**19**		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluoropentanoic acid (PFPeA)	**27**		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluorohexanoic acid (PFHxA)	**43**		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluoroheptanoic acid (PFHpA)	**10**		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluorooctanoic acid (PFOA)	**26**		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluorononanoic acid (PFNA)	**2.6**		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluorododecanoic acid (PFDoA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluorobutanesulfonic acid (PFBS)	**5.7**		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluorohexanesulfonic acid (PFHxS)	**1.9**		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluorooctanesulfonic acid (PFOS)	**3.8**		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:40	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18		ng/L		02/12/20 06:02	02/12/20 18:40	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18		ng/L		02/12/20 06:02	02/12/20 18:40	1
6:2 FTS	ND		18		ng/L		02/12/20 06:02	02/12/20 18:40	1
8:2 FTS	ND		18		ng/L		02/12/20 06:02	02/12/20 18:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*80*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
13C5-PFPeA DNU	*94*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
13C2 PFHxA	*100*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
13C4 PFHpA	*103*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
13C4 PFOA	*98*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
13C5 PFNA	*102*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
13C2 PFDA	*98*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
13C2 PFUnA	*103*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
13C2 PFDoA	*103*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
13C2 PFTeDA	*99*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
13C3 PFBS	*97*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
18O2 PFHxS	*96*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
13C4 PFOS	*94*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
13C8 FOSA	*94*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
d3-NMeFOSAA	*99*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
d5-NEtFOSAA	*96*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
M2-6:2 FTS	*111*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*
M2-8:2 FTS	*94*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:40*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Expansion: PFAS

Job ID: 320-58497-1

Client Sample ID: Basin#1
Date Collected: 02/06/20 10:00
Date Received: 02/10/20 09:45

Lab Sample ID: 320-58497-3
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**14**		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluoropentanoic acid (PFPeA)	**17**		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluorohexanoic acid (PFHxA)	**42**		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluoroheptanoic acid (PFHpA)	**5.4**		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluorooctanoic acid (PFOA)	**14**		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluorononanoic acid (PFNA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluorodecanoic acid (PFDA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluorododecanoic acid (PFDoA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluorobutanesulfonic acid (PFBS)	**5.3**		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluorooctanesulfonic acid (PFOS)	**13**	**I**	1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 18:50	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19		ng/L		02/12/20 06:02	02/12/20 18:50	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19		ng/L		02/12/20 06:02	02/12/20 18:50	1
6:2 FTS	ND		19		ng/L		02/12/20 06:02	02/12/20 18:50	1
8:2 FTS	ND		19		ng/L		02/12/20 06:02	02/12/20 18:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*72*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
13C5-PFPeA DNU	*85*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
13C2 PFHxA	*93*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
13C4 PFHpA	*101*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
13C4 PFOA	*102*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
13C5 PFNA	*105*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
13C2 PFDA	*100*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
13C2 PFUnA	*103*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
13C2 PFDoA	*100*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
13C2 PFTeDA	*77*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
13C3 PFBS	*89*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
18O2 PFHxS	*88*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
13C4 PFOS	*90*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
13C8 FOSA	*92*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
d3-NMeFOSAA	*107*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
d5-NEtFOSAA	*110*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
M2-6:2 FTS	*170*	*	*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*
M2-8:2 FTS	*136*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:50*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Expansion: PFAS

Job ID: 320-58497-1

Client Sample ID: HBSW-1
Date Collected: 02/06/20 12:40
Date Received: 02/10/20 09:45

Lab Sample ID: 320-58497-4
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**3.8**		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluoropentanoic acid (PFPeA)	**3.3**		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluorohexanoic acid (PFHxA)	**6.9**		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluorooctanoic acid (PFOA)	**2.9**		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluorononanoic acid (PFNA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluorododecanoic acid (PFDoA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 18:59	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18		ng/L		02/12/20 06:02	02/12/20 18:59	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18		ng/L		02/12/20 06:02	02/12/20 18:59	1
6:2 FTS	ND		18		ng/L		02/12/20 06:02	02/12/20 18:59	1
8:2 FTS	ND		18		ng/L		02/12/20 06:02	02/12/20 18:59	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*81*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
13C5-PFPeA DNU	*93*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
13C2 PFHxA	*99*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
13C4 PFHpA	*103*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
13C4 PFOA	*98*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
13C5 PFNA	*100*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
13C2 PFDA	*103*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
13C2 PFUnA	*103*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
13C2 PFDoA	*98*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
13C2 PFTeDA	*85*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
13C3 PFBS	*96*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
18O2 PFHxS	*91*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
13C4 PFOS	*95*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
13C8 FOSA	*97*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
d3-NMeFOSAA	*105*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
d5-NEtFOSAA	*102*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
M2-6:2 FTS	*134*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*
M2-8:2 FTS	*114*		*25 - 150*	*02/12/20 06:02*	*02/12/20 18:59*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Expansion: PFAS

Job ID: 320-58497-1

Client Sample ID: Blind Dup

Date Collected: 02/06/20 00:00
Date Received: 02/10/20 09:45

Lab Sample ID: 320-58497-5

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**18**		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluoropentanoic acid (PFPeA)	**27**		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluorohexanoic acid (PFHxA)	**42**		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluoroheptanoic acid (PFHpA)	**11**		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluorooctanoic acid (PFOA)	**23**		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluorononanoic acid (PFNA)	**2.8**		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluorododecanoic acid (PFDoA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluorobutanesulfonic acid (PFBS)	**5.2**		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluorohexanesulfonic acid (PFHxS)	**1.8**		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluorooctanesulfonic acid (PFOS)	**3.6**	**I**	1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8		ng/L		02/12/20 06:02	02/12/20 19:09	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		18		ng/L		02/12/20 06:02	02/12/20 19:09	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		18		ng/L		02/12/20 06:02	02/12/20 19:09	1
6:2 FTS	ND		18		ng/L		02/12/20 06:02	02/12/20 19:09	1
8:2 FTS	ND		18		ng/L		02/12/20 06:02	02/12/20 19:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*87*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
13C5-PFPeA DNU	*97*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
13C2 PFHxA	*100*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
13C4 PFHpA	*105*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
13C4 PFOA	*105*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
13C5 PFNA	*102*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
13C2 PFDA	*98*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
13C2 PFUnA	*100*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
13C2 PFDoA	*103*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
13C2 PFTeDA	*106*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
13C3 PFBS	*99*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
18O2 PFHxS	*97*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
13C4 PFOS	*99*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
13C8 FOSA	*94*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
d3-NMeFOSAA	*104*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
d5-NEtFOSAA	*103*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
M2-6:2 FTS	*117*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*
M2-8:2 FTS	*106*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:09*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Expansion: PFAS

Job ID: 320-58497-1

Client Sample ID: EQ Blank

Date Collected: 02/06/20 10:30
Date Received: 02/10/20 09:45

Lab Sample ID: 320-58497-6

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluoropentanoic acid (PFPeA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluorohexanoic acid (PFHxA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluoroheptanoic acid (PFHpA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluorooctanoic acid (PFOA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluorononanoic acid (PFNA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluorodecanoic acid (PFDA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluoroundecanoic acid (PFUnA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluorododecanoic acid (PFDoA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluorotridecanoic acid (PFTriA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
Perfluorooctanesulfonamide (FOSA)	ND		1.9		ng/L		02/12/20 06:02	02/12/20 19:18	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		19		ng/L		02/12/20 06:02	02/12/20 19:18	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		19		ng/L		02/12/20 06:02	02/12/20 19:18	1
6:2 FTS	ND		19		ng/L		02/12/20 06:02	02/12/20 19:18	1
8:2 FTS	ND		19		ng/L		02/12/20 06:02	02/12/20 19:18	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*99*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
13C5-PFPeA DNU	*103*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
13C2 PFHxA	*103*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
13C4 PFHpA	*100*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
13C4 PFOA	*106*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
13C5 PFNA	*104*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
13C2 PFDA	*102*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
13C2 PFUnA	*105*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
13C2 PFDoA	*112*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
13C2 PFTeDA	*111*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
13C3 PFBS	*102*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
18O2 PFHxS	*98*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
13C4 PFOS	*103*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
13C8 FOSA	*103*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
d3-NMeFOSAA	*109*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
d5-NEtFOSAA	*111*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
M2-6:2 FTS	*109*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*
M2-8:2 FTS	*107*		*25 - 150*	*02/12/20 06:02*	*02/12/20 19:18*	*1*

Isotope Dilution Summary

Client: Waste Management
Project/Site: Chaffee Facility Western Expansion: PFAS

Job ID: 320-58497-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-58497-1	MWSE-3	50	52	53	54	53	52	48	50
320-58497-1 MS	MWSE-3	52	53	55	54	54	52	50	49
320-58497-1 MSD	MWSE-3	64	66	68	64	67	66	62	56
320-58497-2	MWSE-4	80	94	100	103	98	102	98	103
320-58497-3	Basin#1	72	85	93	101	102	105	100	103
320-58497-4	HBSW-1	81	93	99	103	98	100	103	103
320-58497-5	Blind Dup	87	97	100	105	105	102	98	100
320-58497-6	EQ Blank	99	103	103	100	106	104	102	105
LCS 320-356792/2-A	Lab Control Sample	99	97	104	102	99	101	99	103
MB 320-356792/1-A	Method Blank	97	99	99	96	102	102	104	102

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	3C3-PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	-NMeFOSA (25-150)	-NEtFOSA (25-150)
320-58497-1	MWSE-3	53	55	53	50	49	45	48	51
320-58497-1 MS	MWSE-3	49	53	54	52	49	43	50	49
320-58497-1 MSD	MWSE-3	58	64	69	66	62	53	57	58
320-58497-2	MWSE-4	103	99	97	96	94	94	99	96
320-58497-3	Basin#1	100	77	89	88	90	92	107	110
320-58497-4	HBSW-1	98	85	96	91	95	97	105	102
320-58497-5	Blind Dup	103	106	99	97	99	94	104	103
320-58497-6	EQ Blank	112	111	102	98	103	103	109	111
LCS 320-356792/2-A	Lab Control Sample	112	116	98	97	97	98	105	102
MB 320-356792/1-A	Method Blank	109	117	96	93	94	94	99	100

		Percent Isotope Dilution Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)
320-58497-1	MWSE-3	56	54
320-58497-1 MS	MWSE-3	56	48
320-58497-1 MSD	MWSE-3	71	61
320-58497-2	MWSE-4	111	94
320-58497-3	Basin#1	170 *	136
320-58497-4	HBSW-1	134	114
320-58497-5	Blind Dup	117	106
320-58497-6	EQ Blank	109	107
LCS 320-356792/2-A	Lab Control Sample	104	106
MB 320-356792/1-A	Method Blank	99	104

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5-PFPeA DNU
PFHxA = 13C2 PFHxA
PFHpA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
13C3-PFBS = 13C3 PFBS

Isotope Dilution Summary

Client: Waste Management
Job ID: 320-58497-1
Project/Site: Chaffee Facility Western Expansion: PFAS

PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-356792/1-A
Matrix: Water
Analysis Batch: 356875

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 356792

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluoropentanoic acid (PFPeA)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluorohexanoic acid (PFHxA)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluorooctanoic acid (PFOA)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluorononanoic acid (PFNA)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluorodecanoic acid (PFDA)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluorododecanoic acid (PFDoA)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0		ng/L		02/12/20 06:02	02/12/20 16:08	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20		ng/L		02/12/20 06:02	02/12/20 16:08	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20		ng/L		02/12/20 06:02	02/12/20 16:08	1
6:2 FTS	ND		20		ng/L		02/12/20 06:02	02/12/20 16:08	1
8:2 FTS	ND		20		ng/L		02/12/20 06:02	02/12/20 16:08	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*97*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
13C5-PFPeA DNU	*99*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
13C2 PFHxA	*99*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
13C4 PFHpA	*96*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
13C4 PFOA	*102*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
13C5 PFNA	*102*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
13C2 PFDA	*104*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
13C2 PFUnA	*102*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
13C2 PFDoA	*109*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
13C2 PFTeDA	*117*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
13C3 PFBS	*96*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
18O2 PFHxS	*93*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
13C4 PFOS	*94*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
13C8 FOSA	*94*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
d3-NMeFOSAA	*99*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
d5-NEtFOSAA	*100*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
M2-6:2 FTS	*99*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*
M2-8:2 FTS	*104*		*25 - 150*	*02/12/20 06:02*	*02/12/20 16:08*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-356792/2-A
Matrix: Water
Analysis Batch: 356875

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 356792

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	41.1		ng/L		103	76 - 136
Perfluoropentanoic acid (PFPeA)	40.0	40.8		ng/L		102	71 - 131
Perfluorohexanoic acid (PFHxA)	40.0	38.9		ng/L		97	73 - 133
Perfluoroheptanoic acid (PFHpA)	40.0	41.6		ng/L		104	72 - 132
Perfluorooctanoic acid (PFOA)	40.0	40.4		ng/L		101	70 - 130
Perfluorononanoic acid (PFNA)	40.0	48.5		ng/L		121	75 - 135
Perfluorodecanoic acid (PFDA)	40.0	37.9		ng/L		95	76 - 136
Perfluoroundecanoic acid (PFUnA)	40.0	38.8		ng/L		97	68 - 128
Perfluorododecanoic acid (PFDoA)	40.0	36.5		ng/L		91	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	38.0		ng/L		95	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	37.7		ng/L		94	70 - 130
Perfluorobutanesulfonic acid (PFBS)	35.4	33.6		ng/L		95	67 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.6		ng/L		95	59 - 119
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	38.5		ng/L		101	76 - 136
Perfluorooctanesulfonic acid (PFOS)	37.1	34.5		ng/L		93	70 - 130
Perfluorodecanesulfonic acid (PFDS)	38.6	40.3		ng/L		105	71 - 131
Perfluorooctanesulfonamide (FOSA)	40.0	38.4		ng/L		96	73 - 133
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	38.5		ng/L		96	76 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	38.5		ng/L		96	76 - 136
6:2 FTS	37.9	35.2		ng/L		93	59 - 175
8:2 FTS	38.3	33.2		ng/L		87	75 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*99*		*25 - 150*
13C5-PFPeA DNU	*97*		*25 - 150*
13C2 PFHxA	*104*		*25 - 150*
13C4 PFHpA	*102*		*25 - 150*
13C4 PFOA	*99*		*25 - 150*
13C5 PFNA	*101*		*25 - 150*
13C2 PFDA	*99*		*25 - 150*
13C2 PFUnA	*103*		*25 - 150*
13C2 PFDoA	*112*		*25 - 150*
13C2 PFTeDA	*116*		*25 - 150*
13C3 PFBS	*98*		*25 - 150*
18O2 PFHxS	*97*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
13C8 FOSA	*98*		*25 - 150*
d3-NMeFOSAA	*105*		*25 - 150*
d5-NEtFOSAA	*102*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-356792/2-A
Matrix: Water
Analysis Batch: 356875

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 356792

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
M2-6:2 FTS	104		25 - 150
M2-8:2 FTS	106		25 - 150

Lab Sample ID: 320-58497-1 MS
Matrix: Water
Analysis Batch: 356875

Client Sample ID: MWSE-3
Prep Type: Total/NA
Prep Batch: 356792

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	ND		34.5	33.9		ng/L		95	76 - 136
Perfluoropentanoic acid (PFPeA)	ND		34.5	33.1		ng/L		96	71 - 131
Perfluorohexanoic acid (PFHxA)	ND		34.5	32.1		ng/L		93	73 - 133
Perfluoroheptanoic acid (PFHpA)	ND		34.5	35.5		ng/L		103	72 - 132
Perfluorooctanoic acid (PFOA)	ND		34.5	33.2		ng/L		96	70 - 130
Perfluorononanoic acid (PFNA)	ND		34.5	40.6		ng/L		118	75 - 135
Perfluorodecanoic acid (PFDA)	ND		34.5	33.2		ng/L		96	76 - 136
Perfluoroundecanoic acid (PFUnA)	ND		34.5	29.6		ng/L		86	68 - 128
Perfluorododecanoic acid (PFDoA)	ND		34.5	31.5		ng/L		91	71 - 131
Perfluorotridecanoic acid (PFTriA)	ND		34.5	32.8		ng/L		95	71 - 131
Perfluorotetradecanoic acid (PFTeA)	ND		34.5	33.8		ng/L		98	70 - 130
Perfluorobutanesulfonic acid (PFBS)	ND		30.5	29.2		ng/L		96	67 - 127
Perfluorohexanesulfonic acid (PFHxS)	ND		31.4	29.5		ng/L		93	59 - 119
Perfluoroheptanesulfonic Acid (PFHpS)	ND		32.9	35.0		ng/L		107	76 - 136
Perfluorooctanesulfonic acid (PFOS)	ND		32.1	29.5		ng/L		92	70 - 130
Perfluorodecanesulfonic acid (PFDS)	ND		33.3	29.3		ng/L		88	71 - 131
Perfluorooctanesulfonamide (FOSA)	ND		34.5	34.1		ng/L		99	73 - 133
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		34.5	31.9		ng/L		92	76 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		34.5	31.2		ng/L		90	76 - 136
6:2 FTS	ND		32.7	29.6		ng/L		91	59 - 175
8:2 FTS	ND		33.1	28.6		ng/L		86	75 - 135

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C4 PFBA	52		25 - 150
13C5-PFPeA DNU	53		25 - 150
13C2 PFHxA	55		25 - 150
13C4 PFHpA	54		25 - 150
13C4 PFOA	54		25 - 150
13C5 PFNA	52		25 - 150
13C2 PFDA	50		25 - 150
13C2 PFUnA	49		25 - 150
13C2 PFDoA	49		25 - 150

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 320-58497-1 MS
Matrix: Water
Analysis Batch: 356875

Client Sample ID: MWSE-3
Prep Type: Total/NA
Prep Batch: 356792

Isotope Dilution	MS %Recovery	MS Qualifier	Limits
13C2 PFTeDA	53		25 - 150
13C3 PFBS	54		25 - 150
18O2 PFHxS	52		25 - 150
13C4 PFOS	49		25 - 150
13C8 FOSA	43		25 - 150
d3-NMeFOSAA	50		25 - 150
d5-NEtFOSAA	49		25 - 150
M2-6:2 FTS	56		25 - 150
M2-8:2 FTS	48		25 - 150

Lab Sample ID: 320-58497-1 MSD
Matrix: Water
Analysis Batch: 356875

Client Sample ID: MWSE-3
Prep Type: Total/NA
Prep Batch: 356792

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	ND		36.6	36.9		ng/L		98	76 - 136	9	30
Perfluoropentanoic acid (PFPeA)	ND		36.6	35.2		ng/L		96	71 - 131	6	30
Perfluorohexanoic acid (PFHxA)	ND		36.6	35.5		ng/L		97	73 - 133	10	30
Perfluoroheptanoic acid (PFHpA)	ND		36.6	39.5		ng/L		108	72 - 132	10	30
Perfluorooctanoic acid (PFOA)	ND		36.6	35.3		ng/L		96	70 - 130	6	30
Perfluorononanoic acid (PFNA)	ND		36.6	43.9		ng/L		120	75 - 135	8	30
Perfluorodecanoic acid (PFDA)	ND		36.6	35.5		ng/L		97	76 - 136	6	30
Perfluoroundecanoic acid (PFUnA)	ND		36.6	33.1		ng/L		90	68 - 128	11	30
Perfluorododecanoic acid (PFDoA)	ND		36.6	33.2		ng/L		91	71 - 131	5	30
Perfluorotridecanoic acid (PFTriA)	ND		36.6	35.8		ng/L		98	71 - 131	9	30
Perfluorotetradecanoic acid (PFTeA)	ND		36.6	33.3		ng/L		91	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	ND		32.4	30.2		ng/L		93	67 - 127	4	30
Perfluorohexanesulfonic acid (PFHxS)	ND		33.3	32.2		ng/L		96	59 - 119	8	30
Perfluoroheptanesulfonic Acid (PFHpS)	ND		34.9	37.5		ng/L		107	76 - 136	7	30
Perfluorooctanesulfonic acid (PFOS)	ND		34.0	30.9		ng/L		91	70 - 130	5	30
Perfluorodecanesulfonic acid (PFDS)	ND		35.3	29.0		ng/L		82	71 - 131	1	30
Perfluorooctanesulfonamide (FOSA)	ND		36.6	35.8		ng/L		98	73 - 133	5	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		36.6	34.3		ng/L		94	76 - 136	7	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		36.6	33.3		ng/L		91	76 - 136	6	30
6:2 FTS	ND		34.7	31.6		ng/L		91	59 - 175	6	30
8:2 FTS	ND		35.1	30.3		ng/L		86	75 - 135	6	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C4 PFBA	64		25 - 150
13C5-PFPeA DNU	66		25 - 150

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 320-58497-1 MSD
Matrix: Water
Analysis Batch: 356875

Client Sample ID: MWSE-3
Prep Type: Total/NA
Prep Batch: 356792

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C2 PFHxA	68		25 - 150
13C4 PFHpA	64		25 - 150
13C4 PFOA	67		25 - 150
13C5 PFNA	66		25 - 150
13C2 PFDA	62		25 - 150
13C2 PFUnA	56		25 - 150
13C2 PFDoA	58		25 - 150
13C2 PFTeDA	64		25 - 150
13C3 PFBS	69		25 - 150
18O2 PFHxS	66		25 - 150
13C4 PFOS	62		25 - 150
13C8 FOSA	53		25 - 150
d3-NMeFOSAA	57		25 - 150
d5-NEtFOSAA	58		25 - 150
M2-6:2 FTS	71		25 - 150
M2-8:2 FTS	61		25 - 150

QC Association Summary

Client: Waste Management
Job ID: 320-58497-1
Project/Site: Chaffee Facility Western Expansion: PFAS

LCMS

Prep Batch: 356792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-58497-1	MWSE-3	Total/NA	Water	3535	
320-58497-2	MWSE-4	Total/NA	Water	3535	
320-58497-3	Basin#1	Total/NA	Water	3535	
320-58497-4	HBSW-1	Total/NA	Water	3535	
320-58497-5	Blind Dup	Total/NA	Water	3535	
320-58497-6	EQ Blank	Total/NA	Water	3535	
MB 320-356792/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-356792/2-A	Lab Control Sample	Total/NA	Water	3535	
320-58497-1 MS	MWSE-3	Total/NA	Water	3535	
320-58497-1 MSD	MWSE-3	Total/NA	Water	3535	

Analysis Batch: 356875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-58497-1	MWSE-3	Total/NA	Water	537 (modified)	356792
320-58497-2	MWSE-4	Total/NA	Water	537 (modified)	356792
320-58497-3	Basin#1	Total/NA	Water	537 (modified)	356792
320-58497-4	HBSW-1	Total/NA	Water	537 (modified)	356792
320-58497-5	Blind Dup	Total/NA	Water	537 (modified)	356792
320-58497-6	EQ Blank	Total/NA	Water	537 (modified)	356792
MB 320-356792/1-A	Method Blank	Total/NA	Water	537 (modified)	356792
LCS 320-356792/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	356792
320-58497-1 MS	MWSE-3	Total/NA	Water	537 (modified)	356792
320-58497-1 MSD	MWSE-3	Total/NA	Water	537 (modified)	356792

Lab Chronicle

Client: Waste Management
Job ID: 320-58497-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Client Sample ID: MWSE-3
Lab Sample ID: 320-58497-1
Date Collected: 02/06/20 12:00
Matrix: Water
Date Received: 02/10/20 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			279.4 mL	10 mL	356792	02/12/20 06:02	AF	TAL SAC
Total/NA	Analysis	537 (modified)		1			356875	02/12/20 18:11	P1N	TAL SAC

Client Sample ID: MWSE-4
Lab Sample ID: 320-58497-2
Date Collected: 02/06/20 09:30
Matrix: Water
Date Received: 02/10/20 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			276.2 mL	10 mL	356792	02/12/20 06:02	AF	TAL SAC
Total/NA	Analysis	537 (modified)		1			356875	02/12/20 18:40	P1N	TAL SAC

Client Sample ID: Basin#1
Lab Sample ID: 320-58497-3
Date Collected: 02/06/20 10:00
Matrix: Water
Date Received: 02/10/20 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			265.3 mL	10 mL	356792	02/12/20 06:02	AF	TAL SAC
Total/NA	Analysis	537 (modified)		1			356875	02/12/20 18:50	P1N	TAL SAC

Client Sample ID: HBSW-1
Lab Sample ID: 320-58497-4
Date Collected: 02/06/20 12:40
Matrix: Water
Date Received: 02/10/20 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			271.6 mL	10 mL	356792	02/12/20 06:02	AF	TAL SAC
Total/NA	Analysis	537 (modified)		1			356875	02/12/20 18:59	P1N	TAL SAC

Client Sample ID: Blind Dup
Lab Sample ID: 320-58497-5
Date Collected: 02/06/20 00:00
Matrix: Water
Date Received: 02/10/20 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			271.9 mL	10 mL	356792	02/12/20 06:02	AF	TAL SAC
Total/NA	Analysis	537 (modified)		1			356875	02/12/20 19:09	P1N	TAL SAC

Client Sample ID: EQ Blank
Lab Sample ID: 320-58497-6
Date Collected: 02/06/20 10:30
Matrix: Water
Date Received: 02/10/20 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			269.8 mL	10 mL	356792	02/12/20 06:02	AF	TAL SAC
Total/NA	Analysis	537 (modified)		1			356875	02/12/20 19:18	P1N	TAL SAC

Laboratory References:
TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Waste Management
Job ID: 320-58497-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-20 *
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-20 *
Hawaii	State	<cert No.>	01-29-21
Illinois	NELAP	200060	03-17-20
Kansas	NELAP	E-10375	10-31-20 *
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-29-20
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-20
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-19 *
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

Laboratory: Eurofins TestAmerica, Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10026	04-01-20 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Waste Management
Job ID: 320-58497-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Waste Management
Job ID: 320-58497-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
320-58497-1	MWSE-3	Water	02/06/20 12:00	02/10/20 09:45	
320-58497-2	MWSE-4	Water	02/06/20 09:30	02/10/20 09:45	
320-58497-3	Basin#1	Water	02/06/20 10:00	02/10/20 09:45	
320-58497-4	HBSW-1	Water	02/06/20 12:40	02/10/20 09:45	
320-58497-5	Blind Dup	Water	02/06/20 00:00	02/10/20 09:45	
320-58497-6	EQ Blank	Water	02/06/20 10:30	02/10/20 09:45	

Eurofins TestAmerica, Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916-373-5600 Fax: 916-372-1059

Chain of Custody Record

eurofins Environment Testing TestAmerica

Client Information	Sampler: M. Cummings, GEI	Lab PM: Ferguson, Katelyn M	Carrier Tracking No(s):	COC No: 480-142003-31730.1
Client Contact: Christopher Chapman	Phone: 716-572-4362	E-Mail: katelyn.ferguson@testamericainc.com		Page: Page 1 of 1
Company: Waste Management				Job #:

Address: Chaffee Landfill 10860 Olean Road	Due Date Requested:
City: Chaffee	TAT Requested (days): STD
State, Zip: NY, 14030-9799	
Phone: 716-863-3438(Tel)	PO #: Purchase Order Requested
Email: cchapman@wm.com	WO #:
Project Name: Chaffee Facility Western Expansion	Project #: 48002685
Site: New York	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - PFAS, Standard List (21 Analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
MWSE-3	2/6/20	1200	G	Water			X		
MWSE-4		930	G	Water			X		
Basin#1		1000	G	Water			X		
HBSW-1		1240	G	Water			X		
Blind Dup		—	G	Water			X		
MWSE-3MS		1200	G	Water		Y	X		
MWSE-3MSD		1200	G	Water		Y	X		
EQ Blank		1030	G	Water			X		

320-58497 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Michael Cummings	2/6/20	GEI		Feb 10 20 945	EVA-SAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 5.5°C

No time on labels / 10 feb 20

Ver: 01/16/2019

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2/17/2020

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 320-58497-1

Login Number: 58497

List Source: Eurofins TestAmerica, Sacramento

List Number: 1

Creator: Kintaudi, Pauline W

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	False	Sample containers do not list sample times
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

February 26, 2020 Hosmer Brook Sampling Event for PFAS

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ANALYTICAL REPORT

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

Laboratory Job ID: 480-166782-1
Client Project/Site: Chaffee Facility Western Expansion: PFAS

For:
Waste Management
Chaffee Landfill
10860 Olean Road
Chaffee, New York 14030-9799

Attn: Christopher Chapman

Katelyn Ferguson

Authorized for release by:
3/16/2020 12:06:49 PM

Katelyn Ferguson, Project Management Assistant I
(716)691-2600
katelyn.ferguson@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Waste Management
Job ID: 480-166782-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 480-166782-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-166782-1

Comments
No additional comments.

Receipt
The samples were received on 2/27/2020 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.3º C.

LCMS
Method 537 (modified): Isotope Dilution Analyte (IDA) recovery for M2-8:2 FTS and M2-6:2 FTS is above the method recommended limit for the following samples: HBSW-1 (480-166782-1), US-HBSW-1 (480-166782-2), DS-HBSW-1 (480-166782-3) and DUP (480-166782-4). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method 3535: The following samples contain a small amount dark particulates prior to extraction: HBSW-1 (480-166782-1), DS-HBSW-1 (480-166782-3) and DUP (480-166782-4)

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-363186.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Waste Management
Job ID: 480-166782-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Client Sample ID: HBSW-1 — Lab Sample ID: 480-166782-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.4		1.6		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.6		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	7.4		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.9		1.6		ng/L	1		537 (modified)	Total/NA

Client Sample ID: US-HBSW-1 — Lab Sample ID: 480-166782-2

No Detections.

Client Sample ID: DS-HBSW-1 — Lab Sample ID: 480-166782-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.1		1.6		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.4		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	10		1.6		ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.7		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.7		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.6		1.6		ng/L	1		537 (modified)	Total/NA

Client Sample ID: DUP — Lab Sample ID: 480-166782-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.0		1.6		ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.5		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	9.5		1.6		ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.6		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.1		1.6		ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.7		1.6		ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Waste Management
Project/Site: Chaffee Facility Western Expansion: PFAS

Job ID: 480-166782-1

Client Sample ID: HBSW-1
Date Collected: 02/26/20 09:30
Date Received: 02/27/20 10:00

Lab Sample ID: 480-166782-1
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**3.4**		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluoropentanoic acid (PFPeA)	**3.6**		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluorohexanoic acid (PFHxA)	**7.4**		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluorooctanoic acid (PFOA)	**2.9**		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluorononanoic acid (PFNA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluorodecanoic acid (PFDA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluorododecanoic acid (PFDoA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluorotridecanoic acid (PFTriA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
Perfluorooctanesulfonamide (FOSA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 16:49	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		16		ng/L		03/09/20 16:34	03/11/20 16:49	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		16		ng/L		03/09/20 16:34	03/11/20 16:49	1
6:2 FTS	ND		16		ng/L		03/09/20 16:34	03/11/20 16:49	1
8:2 FTS	ND		16		ng/L		03/09/20 16:34	03/11/20 16:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*59*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
13C5 PFPeA	*80*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
13C2 PFHxA	*91*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
13C4 PFHpA	*97*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
13C4 PFOA	*101*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
13C5 PFNA	*98*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
13C2 PFDA	*97*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
13C2 PFUnA	*90*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
13C2 PFDoA	*80*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
13C2 PFTeDA	*70*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
13C3 PFBS	*85*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
18O2 PFHxS	*88*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
13C4 PFOS	*93*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
13C8 FOSA	*93*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
d3-NMeFOSAA	*83*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
d5-NEtFOSAA	*83*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
M2-6:2 FTS	*185*	*	*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*
M2-8:2 FTS	*160*	*	*25 - 150*	*03/09/20 16:34*	*03/11/20 16:49*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Expansion: PFAS

Job ID: 480-166782-1

Client Sample ID: US-HBSW-1
Date Collected: 02/26/20 12:00
Date Received: 02/27/20 10:00

Lab Sample ID: 480-166782-2
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluoropentanoic acid (PFPeA)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluorohexanoic acid (PFHxA)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluoroheptanoic acid (PFHpA)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluorooctanoic acid (PFOA)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluorononanoic acid (PFNA)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluorodecanoic acid (PFDA)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluoroundecanoic acid (PFUnA)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluorododecanoic acid (PFDoA)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluorotridecanoic acid (PFTriA)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
Perfluorooctanesulfonamide (FOSA)	ND		1.7		ng/L		03/09/20 16:34	03/11/20 16:58	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		17		ng/L		03/09/20 16:34	03/11/20 16:58	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		17		ng/L		03/09/20 16:34	03/11/20 16:58	1
6:2 FTS	ND		17		ng/L		03/09/20 16:34	03/11/20 16:58	1
8:2 FTS	ND		17		ng/L		03/09/20 16:34	03/11/20 16:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*71*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
13C5 PFPeA	*86*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
13C2 PFHxA	*97*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
13C4 PFHpA	*105*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
13C4 PFOA	*100*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
13C5 PFNA	*102*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
13C2 PFDA	*104*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
13C2 PFUnA	*103*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
13C2 PFDoA	*83*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
13C2 PFTeDA	*93*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
13C3 PFBS	*89*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
18O2 PFHxS	*90*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
13C4 PFOS	*98*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
13C8 FOSA	*98*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
d3-NMeFOSAA	*89*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
d5-NEtFOSAA	*91*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
M2-6:2 FTS	*169*	*	*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*
M2-8:2 FTS	*154*	*	*25 - 150*	*03/09/20 16:34*	*03/11/20 16:58*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Expansion: PFAS

Job ID: 480-166782-1

Client Sample ID: DS-HBSW-1
Date Collected: 02/26/20 10:30
Date Received: 02/27/20 10:00

Lab Sample ID: 480-166782-3
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**4.1**		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluoropentanoic acid (PFPeA)	**4.4**		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluorohexanoic acid (PFHxA)	**10**		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluoroheptanoic acid (PFHpA)	**1.7**		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluorooctanoic acid (PFOA)	**4.7**		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluorononanoic acid (PFNA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluorodecanoic acid (PFDA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluorododecanoic acid (PFDoA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluorotridecanoic acid (PFTriA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluorooctanesulfonic acid (PFOS)	**3.6**		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
Perfluorooctanesulfonamide (FOSA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:07	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		16		ng/L		03/09/20 16:34	03/11/20 17:07	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		16		ng/L		03/09/20 16:34	03/11/20 17:07	1
6:2 FTS	ND		16		ng/L		03/09/20 16:34	03/11/20 17:07	1
8:2 FTS	ND		16		ng/L		03/09/20 16:34	03/11/20 17:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*60*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
13C5 PFPeA	*79*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
13C2 PFHxA	*89*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
13C4 PFHpA	*94*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
13C4 PFOA	*100*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
13C5 PFNA	*90*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
13C2 PFDA	*106*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
13C2 PFUnA	*95*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
13C2 PFDoA	*93*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
13C2 PFTeDA	*66*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
13C3 PFBS	*87*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
18O2 PFHxS	*88*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
13C4 PFOS	*92*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
13C8 FOSA	*92*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
d3-NMeFOSAA	*85*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
d5-NEtFOSAA	*93*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
M2-6:2 FTS	*183*	*	*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*
M2-8:2 FTS	*170*	*	*25 - 150*	*03/09/20 16:34*	*03/11/20 17:07*	*1*

Client: Waste Management
Project/Site: Chaffee Facility Western Expansion: PFAS

Job ID: 480-166782-1

Client Sample ID: DUP
Date Collected: 02/26/20 00:00
Date Received: 02/27/20 10:00

Lab Sample ID: 480-166782-4
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**4.0**		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluoropentanoic acid (PFPeA)	**4.5**		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluorohexanoic acid (PFHxA)	**9.5**		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluoroheptanoic acid (PFHpA)	**1.6**		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluorooctanoic acid (PFOA)	**4.1**		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluorononanoic acid (PFNA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluorodecanoic acid (PFDA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluorododecanoic acid (PFDoA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluorotridecanoic acid (PFTriA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluorooctanesulfonic acid (PFOS)	**2.7**		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
Perfluorooctanesulfonamide (FOSA)	ND		1.6		ng/L		03/09/20 16:34	03/11/20 17:16	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		16		ng/L		03/09/20 16:34	03/11/20 17:16	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		16		ng/L		03/09/20 16:34	03/11/20 17:16	1
6:2 FTS	ND		16		ng/L		03/09/20 16:34	03/11/20 17:16	1
8:2 FTS	ND		16		ng/L		03/09/20 16:34	03/11/20 17:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*60*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
13C5 PFPeA	*81*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
13C2 PFHxA	*96*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
13C4 PFHpA	*100*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
13C4 PFOA	*99*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
13C5 PFNA	*101*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
13C2 PFDA	*100*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
13C2 PFUnA	*111*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
13C2 PFDoA	*91*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
13C2 PFTeDA	*84*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
13C3 PFBS	*88*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
18O2 PFHxS	*94*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
13C4 PFOS	*98*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
13C8 FOSA	*99*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
d3-NMeFOSAA	*91*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
d5-NEtFOSAA	*99*		*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
M2-6:2 FTS	*188*	*	*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*
M2-8:2 FTS	*176*	*	*25 - 150*	*03/09/20 16:34*	*03/11/20 17:16*	*1*

Isotope Dilution Summary

Client: Waste Management
Job ID: 480-166782-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	PFHpA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
480-166782-1	HBSW-1	59	80	91	97	101	98	97	90
480-166782-2	US-HBSW-1	71	86	97	105	100	102	104	103
480-166782-3	DS-HBSW-1	60	79	89	94	100	90	106	95
480-166782-4	DUP	60	81	96	100	99	101	100	111
LCS 320-363186/2-A	Lab Control Sample	96	93	99	107	98	99	111	96
LCSD 320-363186/3-A	Lab Control Sample Dup	94	90	97	99	101	92	100	103
MB 320-363186/1-A	Method Blank	93	92	98	100	100	94	108	93

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	3C3-PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (25-150)	d3-NMeFOSAA (25-150)	d5-NEtFOSAA (25-150)
480-166782-1	HBSW-1	80	70	85	88	93	93	83	83
480-166782-2	US-HBSW-1	83	93	89	90	98	98	89	91
480-166782-3	DS-HBSW-1	93	66	87	88	92	92	85	93
480-166782-4	DUP	91	84	88	94	98	99	91	99
LCS 320-363186/2-A	Lab Control Sample	100	94	96	93	94	93	88	88
LCSD 320-363186/3-A	Lab Control Sample Dup	90	96	94	90	92	90	86	90
MB 320-363186/1-A	Method Blank	102	118	98	95	95	94	95	97

		Percent Isotope Dilution Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)
480-166782-1	HBSW-1	185 *	160 *
480-166782-2	US-HBSW-1	169 *	154 *
480-166782-3	DS-HBSW-1	183 *	170 *
480-166782-4	DUP	188 *	176 *
LCS 320-363186/2-A	Lab Control Sample	137	146
LCSD 320-363186/3-A	Lab Control Sample Dup	135	126
MB 320-363186/1-A	Method Blank	148	150

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
PFHpA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
13C3-PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFOSA = 13C8 FOSA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-363186/1-A
Matrix: Water
Analysis Batch: 363749

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 363186

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluoropentanoic acid (PFPeA)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluorohexanoic acid (PFHxA)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluorooctanoic acid (PFOA)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluorononanoic acid (PFNA)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluorodecanoic acid (PFDA)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluorododecanoic acid (PFDoA)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0		ng/L		03/09/20 16:34	03/11/20 16:22	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20		ng/L		03/09/20 16:34	03/11/20 16:22	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20		ng/L		03/09/20 16:34	03/11/20 16:22	1
6:2 FTS	ND		20		ng/L		03/09/20 16:34	03/11/20 16:22	1
8:2 FTS	ND		20		ng/L		03/09/20 16:34	03/11/20 16:22	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
13C5 PFPeA	*92*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
13C2 PFHxA	*98*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
13C4 PFHpA	*100*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
13C4 PFOA	*100*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
13C5 PFNA	*94*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
13C2 PFDA	*108*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
13C2 PFUnA	*93*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
13C2 PFDoA	*102*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
13C2 PFTeDA	*118*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
13C3 PFBS	*98*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
18O2 PFHxS	*95*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
13C4 PFOS	*95*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
13C8 FOSA	*94*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
d3-NMeFOSAA	*95*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
d5-NEtFOSAA	*97*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
M2-6:2 FTS	*148*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*
M2-8:2 FTS	*150*		*25 - 150*	*03/09/20 16:34*	*03/11/20 16:22*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-363186/2-A
Matrix: Water
Analysis Batch: 363749

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 363186

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	39.9		ng/L		100	76 - 136
Perfluoropentanoic acid (PFPeA)	40.0	39.0		ng/L		98	71 - 131
Perfluorohexanoic acid (PFHxA)	40.0	37.7		ng/L		94	73 - 133
Perfluoroheptanoic acid (PFHpA)	40.0	37.2		ng/L		93	72 - 132
Perfluorooctanoic acid (PFOA)	40.0	37.2		ng/L		93	70 - 130
Perfluorononanoic acid (PFNA)	40.0	37.1		ng/L		93	75 - 135
Perfluorodecanoic acid (PFDA)	40.0	34.5		ng/L		86	76 - 136
Perfluoroundecanoic acid (PFUnA)	40.0	40.4		ng/L		101	68 - 128
Perfluorododecanoic acid (PFDoA)	40.0	39.8		ng/L		100	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	44.6		ng/L		112	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	39.6		ng/L		99	70 - 130
Perfluorobutanesulfonic acid (PFBS)	35.4	33.1		ng/L		94	67 - 127
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.7		ng/L		90	59 - 119
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	38.8		ng/L		102	76 - 136
Perfluorooctanesulfonic acid (PFOS)	37.1	35.2		ng/L		95	70 - 130
Perfluorodecanesulfonic acid (PFDS)	38.6	35.2		ng/L		91	71 - 131
Perfluorooctanesulfonamide (FOSA)	40.0	38.9		ng/L		97	73 - 133
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	39.1		ng/L		98	76 - 136
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	37.4		ng/L		94	76 - 136
6:2 FTS	37.9	36.1		ng/L		95	59 - 175
8:2 FTS	38.3	34.7		ng/L		91	75 - 135

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*96*		*25 - 150*
13C5 PFPeA	*93*		*25 - 150*
13C2 PFHxA	*99*		*25 - 150*
13C4 PFHpA	*107*		*25 - 150*
13C4 PFOA	*98*		*25 - 150*
13C5 PFNA	*99*		*25 - 150*
13C2 PFDA	*111*		*25 - 150*
13C2 PFUnA	*96*		*25 - 150*
13C2 PFDoA	*100*		*25 - 150*
13C2 PFTeDA	*94*		*25 - 150*
13C3 PFBS	*96*		*25 - 150*
18O2 PFHxS	*93*		*25 - 150*
13C4 PFOS	*94*		*25 - 150*
13C8 FOSA	*93*		*25 - 150*
d3-NMeFOSAA	*88*		*25 - 150*
d5-NEtFOSAA	*88*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-363186/2-A
Matrix: Water
Analysis Batch: 363749

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 363186

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
M2-6:2 FTS	*137*		*25 - 150*
M2-8:2 FTS	*146*		*25 - 150*

Lab Sample ID: LCSD 320-363186/3-A
Matrix: Water
Analysis Batch: 363749

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 363186

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	40.3		ng/L		101	76 - 136	1	30
Perfluoropentanoic acid (PFPeA)			40.0	40.1		ng/L		100	71 - 131	3	30
Perfluorohexanoic acid (PFHxA)			40.0	37.5		ng/L		94	73 - 133	1	30
Perfluoroheptanoic acid (PFHpA)			40.0	37.9		ng/L		95	72 - 132	2	30
Perfluorooctanoic acid (PFOA)			40.0	35.6		ng/L		89	70 - 130	4	30
Perfluorononanoic acid (PFNA)			40.0	41.7		ng/L		104	75 - 135	12	30
Perfluorodecanoic acid (PFDA)			40.0	35.4		ng/L		89	76 - 136	3	30
Perfluoroundecanoic acid (PFUnA)			40.0	35.8		ng/L		90	68 - 128	12	30
Perfluorododecanoic acid (PFDoA)			40.0	43.2		ng/L		108	71 - 131	8	30
Perfluorotridecanoic acid (PFTriA)			40.0	51.8		ng/L		130	71 - 131	15	30
Perfluorotetradecanoic acid (PFTeA)			40.0	34.8		ng/L		87	70 - 130	13	30
Perfluorobutanesulfonic acid (PFBS)			35.4	32.4		ng/L		92	67 - 127	2	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	33.4		ng/L		92	59 - 119	2	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	38.4		ng/L		101	76 - 136	1	30
Perfluorooctanesulfonic acid (PFOS)			37.1	34.5		ng/L		93	70 - 130	2	30
Perfluorodecanesulfonic acid (PFDS)			38.6	34.9		ng/L		90	71 - 131	1	30
Perfluorooctanesulfonamide (FOSA)			40.0	37.1		ng/L		93	73 - 133	5	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	39.1		ng/L		98	76 - 136	0	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	37.7		ng/L		94	76 - 136	1	30
6:2 FTS			37.9	34.8		ng/L		92	59 - 175	4	30
8:2 FTS			38.3	35.8		ng/L		93	75 - 135	3	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C4 PFBA	*94*		*25 - 150*
13C5 PFPeA	*90*		*25 - 150*
13C2 PFHxA	*97*		*25 - 150*
13C4 PFHpA	*99*		*25 - 150*
13C4 PFOA	*101*		*25 - 150*
13C5 PFNA	*92*		*25 - 150*
13C2 PFDA	*100*		*25 - 150*
13C2 PFUnA	*103*		*25 - 150*
13C2 PFDoA	*90*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-363186/3-A
Matrix: Water
Analysis Batch: 363749

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 363186

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C2 PFTeDA	96		25 - 150
13C3 PFBS	94		25 - 150
18O2 PFHxS	90		25 - 150
13C4 PFOS	92		25 - 150
13C8 FOSA	90		25 - 150
d3-NMeFOSAA	86		25 - 150
d5-NEtFOSAA	90		25 - 150
M2-6:2 FTS	135		25 - 150
M2-8:2 FTS	126		25 - 150

QC Association Summary

Client: Waste Management
Job ID: 480-166782-1
Project/Site: Chaffee Facility Western Expansion: PFAS

LCMS

Prep Batch: 363186

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166782-1	HBSW-1	Total/NA	Water	3535	
480-166782-2	US-HBSW-1	Total/NA	Water	3535	
480-166782-3	DS-HBSW-1	Total/NA	Water	3535	
480-166782-4	DUP	Total/NA	Water	3535	
MB 320-363186/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-363186/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-363186/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 363749

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-166782-1	HBSW-1	Total/NA	Water	537 (modified)	363186
480-166782-2	US-HBSW-1	Total/NA	Water	537 (modified)	363186
480-166782-3	DS-HBSW-1	Total/NA	Water	537 (modified)	363186
480-166782-4	DUP	Total/NA	Water	537 (modified)	363186
MB 320-363186/1-A	Method Blank	Total/NA	Water	537 (modified)	363186
LCS 320-363186/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	363186
LCSD 320-363186/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	363186

Lab Chronicle

Client: Waste Management
Job ID: 480-166782-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Client Sample ID: HBSW-1
Lab Sample ID: 480-166782-1
Date Collected: 02/26/20 09:30
Matrix: Water
Date Received: 02/27/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			363186	03/09/20 16:34	IH	TAL SAC
Total/NA	Analysis	537 (modified)		1	363749	03/11/20 16:49	S1M	TAL SAC

Client Sample ID: US-HBSW-1
Lab Sample ID: 480-166782-2
Date Collected: 02/26/20 12:00
Matrix: Water
Date Received: 02/27/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			363186	03/09/20 16:34	IH	TAL SAC
Total/NA	Analysis	537 (modified)		1	363749	03/11/20 16:58	S1M	TAL SAC

Client Sample ID: DS-HBSW-1
Lab Sample ID: 480-166782-3
Date Collected: 02/26/20 10:30
Matrix: Water
Date Received: 02/27/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			363186	03/09/20 16:34	IH	TAL SAC
Total/NA	Analysis	537 (modified)		1	363749	03/11/20 17:07	S1M	TAL SAC

Client Sample ID: DUP
Lab Sample ID: 480-166782-4
Date Collected: 02/26/20 00:00
Matrix: Water
Date Received: 02/27/20 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			363186	03/09/20 16:34	IH	TAL SAC
Total/NA	Analysis	537 (modified)		1	363749	03/11/20 17:16	S1M	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Waste Management
Job ID: 480-166782-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Laboratory: Eurofins TestAmerica, Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
New York	NELAP	10026	04-01-20

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	01-20-21
ANAB	Dept. of Defense ELAP	L2468	01-20-21
ANAB	Dept. of Energy	L2468.01	01-20-21
ANAB	ISO/IEC 17025	L2468	01-20-21
Arizona	State	AZ0708	08-11-20
Arkansas DEQ	State	19-042-0	06-17-20
California	State	2897	01-31-22
Colorado	State	CA0004	08-31-20
Connecticut	State	PH-0691	06-30-21
Florida	NELAP	E87570	06-30-20
Georgia	State	4040	01-30-21
Hawaii	State	<cert No.>	01-29-21
Illinois	NELAP	200060	03-17-20
Kansas	NELAP	E-10375	10-31-20
Louisiana	NELAP	01944	06-30-20
Maine	State	2018009	04-14-20
Michigan	State	9947	01-29-20 *
Nevada	State	CA000442020-1	07-31-20
New Hampshire	NELAP	2997	04-18-20
New Jersey	NELAP	CA005	06-30-20
New York	NELAP	11666	04-01-20
Oregon	NELAP	4040	01-29-21
Pennsylvania	NELAP	68-01272	03-31-20
Texas	NELAP	T104704399-19-13	05-31-20
US Fish & Wildlife	US Federal Programs	58448	07-31-20
USDA	US Federal Programs	P330-18-00239	07-31-21
Utah	NELAP	CA000442019-01	02-28-21
Vermont	State	VT-4040	04-16-20
Virginia	NELAP	460278	03-14-20
Washington	State	C581	05-05-20
West Virginia (DW)	State	9930C	12-31-20
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: Waste Management
Job ID: 480-166782-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Waste Management
Job ID: 480-166782-1
Project/Site: Chaffee Facility Western Expansion: PFAS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-166782-1	HBSW-1	Water	02/26/20 09:30	02/27/20 10:00	
480-166782-2	US-HBSW-1	Water	02/26/20 12:00	02/27/20 10:00	
480-166782-3	DS-HBSW-1	Water	02/26/20 10:30	02/27/20 10:00	
480-166782-4	DUP	Water	02/26/20 00:00	02/27/20 10:00	

2685

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

WASTE MANAGEMENT CHAIN OF CUSTODY

Internal Use Only

480-166782 Chain of Custody

Sampler Name (Print)	Signature:
MICHAEL CUMMINGS	
Site Name:	**Spec Request:**
CHAFFEE LANDFILL	AC
Site Location:	**Event Name:**
SARDINIA, NY	

TA Sample No.	Client Sample ID	Sampling Date	Sampling Time	MATRIX	COMP / GRAB	8260VOA	T-METALS	D-METALS	CHLORIDE/SULFATE/NITRATE PH, TSS, TDS	ALK / CARB / BICARB	HARDNESS	NH_3 / COD	TOC	PFAS -STD LIST (21 ANALYTES)					Additional Analysis/Remarks
				INDICATE PRESERVATIVE BY USING KEY BELOW (OPTIONAL)															
				INDICATE CONTAINER BY USING KEY BELOW															
HBSW-1	HBSW-1	2/20/20	9:30	W	G									X					
US-HBSW-1	US-HBSW-1		12:00	W	G									X					
DS-HBSW-1	DS-HBSW-1		10:30	W	G									X					
DUP	DUP		—	W	G									X					

RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
Michael Cummings	GEI	2/26/20					
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
RELINQUISHED BY	COMPANY	DATE	TIME	RECEIVED BY	COMPANY	DATE	TIME
					TMB	2-27-20	10:00

Matrix Key
WW = Wastewater
W = Water/Groundwater
S = Solid
SI = Sludge
MS = Miscellaneous Solids
OI = Oil
A = Air
O = _____

Container Key
1. Plastic
2. VOA Vial
3. Sterile Plastic
4. Amber Glass
5. Widemouth Glass
6. Other

Preservation Key
1. HCl, Cool to 4°
2. H_2SO_4, Cool to 4°
3. HNO_3, Cool to 4°
4. NaOH, Cool to 4°
5. NaOH/Zn Acetate, Cool to 4°
6. Cool to 4°
7. None

COMMENTS: TA PROJECT # 480002685

Courier: 3.3 #1

Bill of Lading:

TAL-8219 (1108)

3/16/2020

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Ferguson, Katelyn M	Carrier Tracking No(s):	COC No: 480-54615.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: katelyn.ferguson@testamericainc.com	State of Origin: New York	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York		Job #: 480-166782-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 3/10/2020			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: Chaffee Facility Western Expansion: PFAS	Project #: 48002685			
Site: Chaffee Facility Western Expansion	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC PFAS, Standard List (21 Analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
HBSW-1 (480-166782-1)	2/26/20	09:30 Eastern		Water			X	2	
US-HBSW-1 (480-166782-2)	2/26/20	12:00 Eastern		Water			X	2	
DS-HBSW-1 (480-166782-3)	2/26/20	10:30 Eastern		Water			X	2	
DUP (480-166782-4)	2/26/20	Eastern		Water			X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time	Company
1		3-2-20 17:00	ETAB		03/03/20 920	eta sac
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No. 992881	Cooler Temperature(s) °C and Other Remarks: 3.4

Ver: 01/16/2019

FIELD INFORMATION FORM

Site Name: CHAFFEE LANDFILL
Site No.:
Sample Point: USHBSW1 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: [Y] or [N]
Filter Device: [Y] or [N] [0.45 µ] or [ ] µ (circle or fill in)
Purging Device [ ] A-Submersible Pump B-Peristaltic Pump C-QED Bladder Pump D-Bailer E-Piston Pump F-Dipper/Bottle
Sampling Device [ ]
Filter Type: [ ] A-In-line Disposable B-Pressure C-Vacuum X-Other
X-Other: NA
Sample Tube Type: [ ] A-Teflon B-Stainless Steel C-PVC D-Polypropylene X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)
Depth to Water (DTW) (from TOC) (ft)
Groundwater Elevation (site datum, from TOC) (ft/msl)
Total Well Depth (from TOC) (ft)
Stick Up (from ground elevation) (ft)
Casing ID (in)
Casing Material

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
:		1st	1st	NA	SURFACE WATER GRAB SAMPLE			
:		2nd	2nd					
:		3rd	3rd					
:		4th	4th					
:								
:								
:								
:								
:								
:								
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%	–	–	+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
022620	6.87	288	09	350	4.8	856	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: Clear
Odor: NO
Color: NONE
Other:
Weather Conditions (required daily, or as conditions change):
Direction/Speed: Calm
Outlook: cloudy, snow
Precipitation: Y or (N)

Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

WATER BODY UPSTREAM SURFACE WATER SAMPLE
SAMPLED AT 1200

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
2/26/20	MICHAEL CUMMINGS		GEI CONSULTANTS
___/___/___			

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample, YELLOW - Returned to Client, PINK - Field Copy

FIELD INFORMATION FORM

Site Name: CHAFFEE LANDFILL
Site No.:
Sample Point: DS HBS W-1 (Sample ID)

This Waste Management Field Information Form is Required
This form is to be completed, in addition to any State Forms. The Field Form is submitted along with the Chain of Custody Forms that accompany the sample containers (i.e. with the cooler that is returned to the laboratory).

Laboratory Use Only/Lab ID:

PURGE INFO

PURGE DATE (MM DD YY)	PURGE TIME (2400 Hr Clock)	ELAPSED HRS (hrs:min)	WATER VOL IN CASING (Gallons)	ACTUAL VOL PURGED (Gallons)	WELL VOLs PURGED

Note: For Passive Sampling, replace "Water Vol in Casing" and "Well Vols Purged" w/ Water Vol in Tubing/Flow Cell and Tubing/Flow Cell Vols Purged. Mark changes, record field data, below.

PURGE/SAMPLE EQUIPMENT

Purging and Sampling Equipment . . . Dedicated: [Y] or [N]
Filter Device: [Y] or [N] [0.45 µ] or [ ] µ (circle or fill in)

Purging Device [ ] A-Submersible Pump B-Peristaltic Pump C-QED Bladder Pump D-Bailer E-Piston Pump F-Dipper/Bottle
Sampling Device [ ]
X-Other: NA

Filter Type: [ ] A-In-line Disposable B-Pressure C-Vacuum X-Other
Sample Tube Type: [ ] A-Teflon B-Stainless Steel C-PVC D-Polypropylene X-Other:

WELL DATA

Well Elevation (at TOC) (ft/msl)
Depth to Water (DTW) (from TOC) (ft)
Groundwater Elevation (site datum, from TOC) (ft/msl)
Total Well Depth (from TOC) (ft)
Stick Up (from ground elevation) (ft)
Casing ID (in)
Casing Material

Note: Total Well Depth, Stick Up, Casing Id. etc. are optional and can be from historical data, unless required by Site/Permit. Well Elevation, DTW, and Groundwater Elevation must be current.

STABILIZATION DATA (Optional)

Sample Time (2400 Hr Clock)	Rate/Unit	pH (std)	Conductance (SC/EC) (µmhos/cm@25°C)	Temp. (°C)	Turbidity (ntu)	D.O. (mg/L - ppm)	eH/ORP (mV)	DTW (ft)
	1st	1st	1st NA					
	2nd	2nd	2nd					
	3rd	3rd	3rd					
	4th	4th	4th		SURFACE WATER GRAB SAMPLE			
Suggested range for 3 consec. readings or note Permit/State requirements:		+/- 0.2	+/- 3%			+/- 10%	+/- 25 mV	Stabilize

Stabilization Data Fields are Optional *(i.e. complete stabilization readings for parameters required by WM, Site, or State). These fields can be used where four (4) field measurements are required by State/Permit/Site. If a Data Logger or other Electronic format is used, fill in final readings below and submit electronic data separately to Site. If more fields above are needed, use separate sheet or form.*

FIELD DATA

SAMPLE DATE (MM DD YY)	pH (std)	CONDUCTANCE (umhos/cm @ 25°C)	TEMP. (°C)	TURBIDITY (ntu)	DO (mg/L-ppm)	eH/ORP (mV)	Other: Units
02 26 20	6 8 2	3 0 6	0 8	4 2 0	4 6	8 9 4	

Final Field Readings are required *(i.e. record field measurements, final stabilized readings, passive sample readings before sampling for all field parameters required by State/Permit/Site.*

Sample Appearance: clear Odor: NO Color: NONE Other:
Weather Conditions (required daily, or as conditions change): Direction/Speed: calm Outlook: cloudy, sunny Precipitation: Y or (N)
Specific Comments (including purge/well volume calculations if required):

FIELD COMMENTS

HOME BROOK DOWNSTREAM SURFACE WATER SAMPLE
sampled at 1030

I certify that sampling procedures were in accordance with applicable EPA, State, and WM protocols (if more than one sampler, all should sign):

Date	Name	Signature	Company
2/26/20	MICHAEL CUMMINGS		

DISTRIBUTION: WHITE/ORIGINAL - Stays with Sample. YELLOW - Returned to Client. PINK - Field Copy

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-166782-1

Login Number: 166782
List Number: 1
Creator: Harper, Marcus D

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Waste Management

Job Number: 480-166782-1

Login Number: 166782
List Number: 2
Creator: Guzman, Juan

List Source: Eurofins TestAmerica, Sacramento
List Creation: 03/03/20 04:48 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	992881
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix F

Water Well Survey Documentation

GEI Consultants

Consulting
Engineers and
Scientists

Water Well Survey Documentation
Appendix F

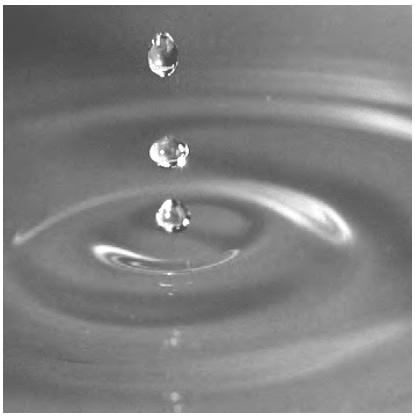
Chaffee Landfill Facility Area 7/8 Development
Town of Sardinia, New York

Submitted to:
Waste Management of New York, LLC
Chaffee, New York

Submitted by:
GEI Consultants, Inc., P.C.
100 Sylvan Pkwy, Suite 100
Amherst, NY 14228

July 2020

Project 1900192



Richard H. Frappa, P.G.
Senior Consultant/Hydrogeologist

Kelly R. McIntosh, P.E., Ph.D.
Senior Consultant/Engineer

Table of Contents

Figures

Attachments

1. Private Water Well Survey

The Chaffee Landfill Facility is located in the Town of Sardinia, Erie County, New York and is owned and operated by Waste Management of New York, LLC under Solid Waste Management Facility (SWMF) Permit I.D 9 1462-00001/00006. A 6 NYCRR Part 360/363 Permit Application is being submitted for the Area 7/8 Development with partial overlap on the Closed Landfill, Western Landfill, and Valley Fill Landfill Areas. The preparation of a Hydrogeologic Investigation Report (HIR) is a permit application requirement and has been prepared per regulation 6 NYCRR Part 363-4.4(a). A survey of public and private water wells is required in 6NYCRR Part 363.4-4(g) and details are contained in this Appendix to the HIR.

1.1 Background

A water well survey of tax parcels within one-mile of the Western Landfill Area and Closed landfill was documented in April 2004 for the Part 360 permit approval for the Western Landfill development project. While Department regulations at that time (and currently) require the survey cover a one-mile downgradient distance and a one quarter mile upgradient distance from the project area, the 2004 survey was extended one mile in an upgradient direction due to the proximity of a groundwater flow divide in the Upper Water-Bearing Zone located near the WMNY southern property boundary.

The 2004 water well survey was conducted of 158 properties within the search area and excluded 72 homes located in the Hamlet of Chaffee (situated in the southeast corner of the search radius) that are supplied with water by the Chaffee Water Works Company. Of the 158 properties that received water well use questionnaires, 56 responses were received. A total of 47 respondents indicated the presence of water supply wells for home and/or farm use on the property. Two respondents, the Chaffee Community Baptist Church located on Allen Road located 1.1 miles southeast of the Chaffee Facility and Camp Seven Hill located one mile north of the Chaffee Facility, indicated community water supplies on the property.

1.2 2019 Water Well Survey

In 2019, the water well survey was updated to fulfill requirements in 6NYCRR Part 363.4-4(g) and included a search of landowners for tax parcels within a one-mile search radius of the limits of the Area 7/8 Development and existing boundaries of waste containment. The source of tax parcel information was obtained from the 2019 Erie County Office of GIS database. A letter requesting a list of customers was requested from the Chaffee Water Works Company to exclude from the survey. The request was submitted via courier with signed receipt of acceptance; however, no response was provided. Attempts were made to contact Chaffee Water Works by telephone but no responses to voicemails were received. Therefore, consistent with the 2004 survey, the 72 tax parcels located in the Hamlet of Chaffee and serviced by the Chaffee Water

Works Company were excluded from the 2019 survey. Questionnaires were not mailed to parcels known to be owned by Waste Management subsidiaries. A total of 161 questionnaires were mailed via USPS to parcel owners within the survey area, with 63 responses received. Attachment 1 provides an example cover letter and questionnaire mailed to parcel owners. Attachment 2 is the 2004 list of Chaffee Water Works Company customers excluded from the 2019 water well survey. Attachment 3 summarizes the list of parcels receiving questionnaires and a summary of information provided. GEI has retained copies of questionnaire responses to maintain privacy of respondents.

1.3 2019 Water Well Survey Findings

Among the 63 respondents to the survey, 14 respondents indicated their parcel did not have a well and was either an undeveloped property or situated on Allen Road or Olean Road and serviced by municipal water provided by the Chaffee Water Works. The remaining 49 parcels reported having a well which was utilized for household or farm water supply. Figure F-1 identifies the location of tax parcels with water supply wells.

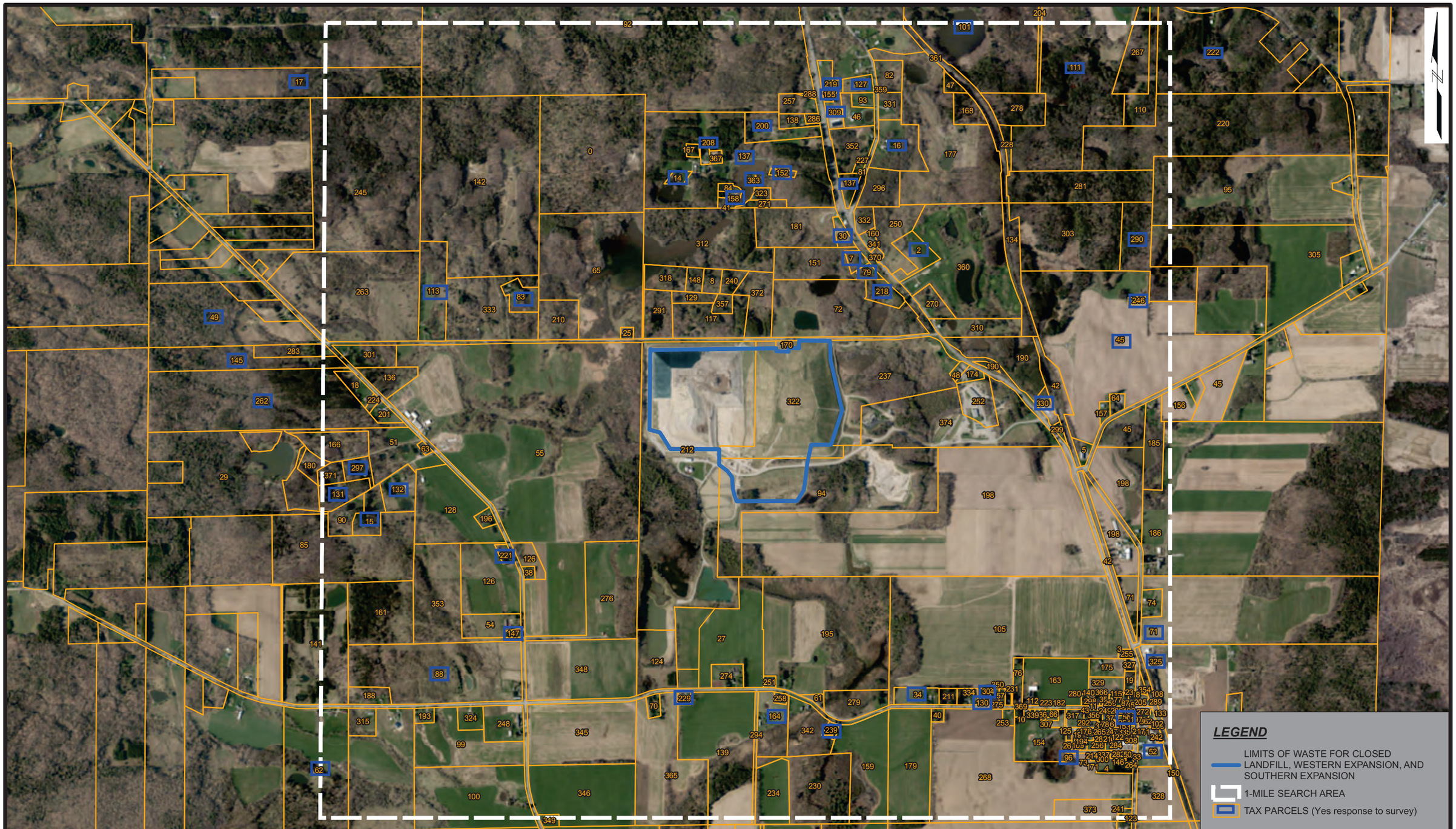
The majority of respondents reported drilled wells with well depths of 80 feet or more. Several wells are drilled through the overburden into bedrock – particularly parcels on Savage Road west of the Chaffee Facility. Based on well depth, most wells likely obtain water from the overburden. The closest domestic well to the Chafee Facility is situated at Parcel 218 located on Olean Rd. approximately 0.25 miles northeast of the Facility. The well was reported to be 80 feet deep and likely produces water from the overburden as bedrock is reported to be approximately 400 to 600 feet below the landfill facility. In a south direction from the Chaffee Facility, Parcel 164 is the closest private well and is located on Allen Road. The respondent reported to utilize a 100-foot deep well for household supply.

In the Hamlet of Chaffee, the Chaffee Water Works provides water to its customers from either an older water supply well screened in the upper 20 feet of sand and gravel outwash in the Sardinia Aquifer or a newer, deeper well screened in confined sand and gravel deposits (personal communication with Lynette Franz, dated December 16, 2019). The municipal water supply is located 1.1 miles southeast of the Area 7/8 Development.

2. References

McMahon & Mann Consulting Engineers, P.C. and Terra-Dynamics, Inc, February 2005. Hydrogeologic Report for Chaffee Western Landfill Expansion – Part 360 Permit Modification Application.

Figure



SOURCE:
2011 ESRI WORLD IMAGERY ACCESSED VIA ARCGIS ONLINE *(www.arcgis.com)*.
2. TAX PARCELS FROM ERIE COUNTY NEW YORK INTERACTIVE MAPPING VIEWER:
https://gis.erie.gov/Html5Viewer/index.html?viewer=ErieCountyNY.HTML5_2_11_0

0 1,500 3,000
SCALE: 1" = 1,500'

Hydrogeologic Investigation Report
Chaffee Landfill- Area 7/8 Development
Town of Sardinia, New York

Waste Management of New York, L.L.C.
Chaffee, New York

GEI Consultants

WATER WELL SURVEY
SEARCH AREA

Project 1900192 | March 2020 | Appendix F - Fig. 1

\\Gtb1v-fs01\gis\Projects\Waste Managment of New York\Chaffee Landfill Facility\Chaffee-Landfill Public Notification.mxd

Attachment 1

Example Cover Letter and Water Well Survey Questionnaire in 2019

November 18, 2019

ADDRESS <MAIL MERGE>

Consulting
Engineers and
Scientists

Subject: **Town of Sardinia – Public and Private Water Well Survey Questionnaire**

Dear Sir/Madame:

GEI Consultants, Inc., P.C. (GEI), on behalf of Waste Management of New York, is conducting a survey of public and private water wells located in the area of the Chaffee Landfill. The purpose of the survey is to fulfill obligations for hydrogeologic studies required for a soon to be completed landfill permit application in accordance with 6 NYCRR Part 363-4-4(g). The Erie County GIS property ownership database identified you as the owner of property near the Chaffee Landfill.

It would be greatly appreciated if you would complete the enclosed Well Information Questionnaire. Please return the completed questionnaire in the pre-addressed, stamped envelope as soon as possible. Completion of the survey will assist the NYSDEC in the assessment of water usage within a mile of the landfill.

Thank you for your time and consideration. Please contact the undersigned if you have questions.

Sincerely yours,

GEI Consultants, Inc., P.C.

Richard H. Frappa, P.G.
Senior Hydrogeologist

Enc. Questionnaire with addressed, stamped envelope

GEI Consultants, Inc., P.C.
100 Sylvan Pkwy, Suite 400, Amherst, NY 14228
716.204.7154

CHAFFEE AREA WATER WELL QUESTIONNAIRE

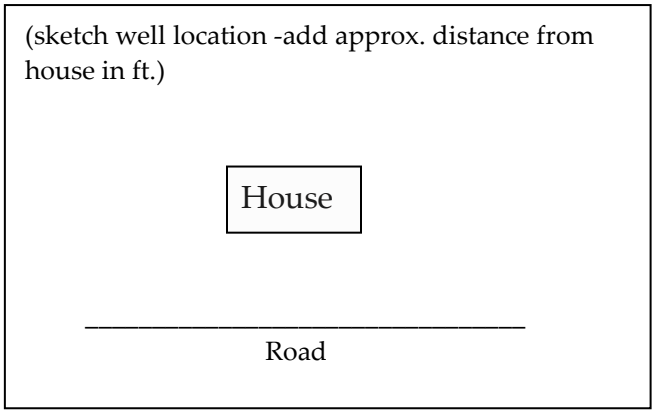
Name: _____

Address: _____

Phone: _____ If Required, Best Time to Contact Owner:__

1. Do you have a water well? (It does not need to be working.)
   If No, check the box, Stop and please return survey. Yes ☐ No ☐

   If yes, where?



2. Is the well(s) currently used, unused, or abandoned (circle one)? If used, for what purpose?

Drinking Washing Clothes Shower/Bath Irrigation Seasonal Camp (circle all that apply)

3. If known, well depth_____feet How old? _____Years How deep to water? ____ feet

4. Is well open to groundwater in soil or bedrock? _____

5. If known, estimated well yield _____ gpm Does well go dry? Yes ☐ No ☐

6. Any problems with water quality (cloudy, odor, taste, iron staining)? Please describe below:

_____

7. Do you have well construction details? Please provide if able.

Attachment 2

Chaffee Water Works Customer List from 2004 Water Well Survey

APPENDIX A

CHAFFEE WATER WORKS CUSTOMERS

From: 2004 Water Well Survey for Western Landfill Development (MMCE, 2005)

FirstName	LastName	Address1	City	State	PostalCode
Donn	Smith	13490 Allen Road	Chaffee	NY	14030
Horace K	Gasper	P.O. Box 97	Chaffee	NY	14030
Harlan	Spruce	13499 Lake Street	Chaffee	NY	14030
Owen	Stacey	13489 Allen Road	Chaffee	NY	14030
Richard	Szewczyk	13470 Grove Street	Chaffee	NY	14030
Tom's	Auto	Route 16	Chaffee	NY	14030
Bonnie	Tucker	13479 Grove Street	Chaffee	NY	14030
Scott	Virga	13489 Lake Street	Chaffee	NY	14030
John	Wallace	13470 Allen Road	Chaffee	NY	14030
Richard	Wallace	13460 Allen Road	Chaffee	NY	14030
Robbie	Webber	13450 Allen Road	Chaffee	NY	14030
Thomas	Webber	13539 Grove Street	Chaffee	NY	14030
Jeremy	Schoepflin	P.O. Box 205, 11360 Olean Rd	Chaffee	NY	14030
Henry	Williams	13489 Grove Street	Chaffee	NY	14030
Hank	Williams Jr.	13669 Briggs Street	Chaffee	NY	14030
Delbert	Wolcott	13379 Allen Road	Chaffee	NY	14030

FirstName	LastName	Address1	City	State	PostalCode
Marriane	Majchrzak	13325 Allen Road	Chaffee	NY	14030
Manion	Park	C/O Town of Sardinia 12320 Savage Road	Sardinia	NY	14134
Roy	Martin	13459 Grove Street	Chaffee	NY	14030
The	Milestone	11449 Olean Road	Chaffee	NY	14030
Miles	Marthenson	11439 Olean Road	Chaffee	NY	14030
Daniel	Moltrup	13520 Allen Road	Chaffee	NY	14030
Joyce	Monkelban	11440 Olean Road	Chaffee	NY	14030
Todd	Murphy	13359 Allen Road	Chaffee	NY	14030
Betty	Olin	11520 Olean Road	Chaffee	NY	14030
Michael	Pleace	13500 Lake Street	Chaffee	NY	14030
Dan	Plewa	11390 Olean Road	Chaffee	NY	14030
Daniel	Plewa	13509 Allen Road	Chaffee	NY	14030
Rose	Cunningham	11500 Olean Road	Chaffee	NY	14030
Dale	Rice	13509 Grove Street	Chaffee	NY	14030
Jerry	Roberts	13429 Allen Road	Chaffee	NY	14030
Michelle	Rodgers	13480 Grove Street	Chaffee	NY	14030
Charles	Shaw	13549 Grove Street	Chaffee	NY	14030
James R	Shaw Company	11480 Olean	Chaffee	NY	14030

FirstName	LastName	Address1	City	State	PostalCode
Shawn	Hediger	13349 Allen Road	Chaffee	NY	14030
Larry	Hittle	13480 Lake Street	Chaffee	NY	14030
Thomas	Hittle	13399 Allen Road	Chaffee	NY	14030
Duane	Holts	13359 Allen Road	Chaffee	NY	14030
IOOF	Lodge	Route 16	Chaffee	NY	14030
Anna	Jackson	13499 Grove Street	Chaffee	NY	14030
Violet	Jackson	13479 Allen Road	Chaffee	NY	14030
Mark	Kandel	13500 Grove Street	Chaffee	NY	14030
Ronald	Kenyon	P.O. Box 12, 13519 Allen Road	Chaffee	NY	14030
Ronald	Kenyon	11389 Olean Road	Chaffee	NY	14030
Douglas	Kimball	11569 Olean Road	Chaffee	NY	14030
Doug	Kimball (Collsion Shop)	13519 Lake Street	Chaffee	NY	14030
Douglas	Kimball (Rental House)	13529 Lake Street	Chaffee	NY	14030
Chris & Jennifer	Kline	13529 Grove Street	Chaffee	NY	14030
David	Kluiczynski	1261 West Blood	East Aurora	NY	14052
Donald	Long	13519 Grove Street	Chaffee	NY	14030
Terry	Lord	13345 Allen Road	Chaffee	NY	14030
Robert	Luther	13330 Allen Road	Chaffee	NY	14030

FirstName	LastName	Address1	City	State	PostalCode
Gene	Alister	P.O. Box 23	Chaffee	NY	14030
Joseph	Becht	13480 Allen Road	Chaffee	NY	14030
Jeff	Bellinger	11600 Olean Road	Chaffee	NY	14030
Margaret	Blake	11460 Olean Road	Chaffee	NY	14030
Debra	Brundage	P.O. Box 363	Yorkshire	NY	14173
Chaffee Baptist	Ladies Aid	13510 Grove Street	Chaffee	NY	14030
Chaffee Baptist	Parsonage	13499 Allen Road	Chaffee	NY	14030
Chaffee Lawn &	Garden	Route 16	Chaffee	NY	14030
Roger	Dole	P.O. Box 24, 13659 Briggs St.	Chaffee	NY	14030
Gail	Dabolt	13519 Lake Street	Chaffee	NY	14030
Erla	Dyke	13530 Grove Street	Chaffee	NY	14030
Glenn	Echam	13469 Allen Road	Chaffee	NY	14030
John	Jacobs	11610 Olean Road	Chaffee	NY	14030
Thomas	Farr	13439 Allen Road	Chaffee	NY	14030
Carm	Feraldi	Allen Road	Chaffee	NY	14030
Philip	Feraldi	13490 Allen Road	Chaffee	NY	14030
Oliver & Jennifer	Frazzini	13440 Allen Road	Chaffee	NY	14030
Roger	Garbowski	11450 Olean Road	Chaffee	NY	14030
Thomas	Gehen	11350 Olean Road	Chaffee	NY	14030
Katie	Roblee	13469 Grove	Chaffee	NY	14030

Attachment 3

2019 Water Well Survey Response Summary

Attachment 3.

Parcels Receiving Water Well Questionnaire and Summary of Responses

Tax Parcel ID Number (FID)	Property Address	Does Property have a Water Well? (YES/NO)	Well Use	Well Depth/ Material Screened
1	11450 OLEAN RD	NO	N/A	N/A
2	0 OLEAN RD	YES	Drinking, household supply	Unknown / Unknown
3	0 OLEAN RD			
4	11590 OLEAN RD			
5	13520 CURRIERS RD			
7	10650 OLEAN RD	YES	Drinking, household supply	105 feet / Unknown
10	13350 ALLEN RD	NO	N/A	N/A
14	0 OLEAN RD	YES	Drinking, household supply	50 feet / Unknown
15	10982 SAVAGE RD	YES	Drinking, household supply	Unknown / Unknown
16	10479 S PROTECTION RD	YES	Drinking, household supply	65 feet / Unknown
17	0 SAVAGE RD	YES	Drinking; Girl Scouts - 7 Hill Camp	11 wells; 26 to 120 feet / Overburden
18	10890 SAVAGE RD			
23	11380 OLEAN RD			
27	0 ALLEN RD	NO	N/A	N/A
29	11000 SAVAGE RD			
30	10600 OLEAN RD	YES	Drinking, household supply	80 feet / Unknown
34	13210 ALLEN RD	YES	Drinking, household supply	Unknown / Unknown
38	11229 SAVAGE RD			
40	13239 ALLEN RD			
41	0 OLEAN RD			
45	0 CURRIERS RD	YES	Drinking, household supply	70 feet / Overburden
46	10440 S PROTECTION RD			
47	0 S PROTECTION RD			
49	0 SAVAGE RD	YES	Drinking, household supply	3 wells; 24 to 80 feet / Unknown
50	11500 OLEAN RD			
52	11489 OLEAN RD	YES	No drinking, garage/yard use	30 feet / Unknown
54	11300 SAVAGE RD			
55	10989 SAVAGE RD			
56	11430 OLEAN RD	YES	Not used	Unknown / Unknown
57	13316 ALLEN RD			
60	13449 GROVE ST			
62	12319 ALLEN RD	YES	Drinking, household supply	Unknown / Unknown
64	13580 CURRIERS RD			

Attachment 3.
Parcels Receiving Water Well Questionnaire and Summary of Responses

Tax Parcel ID Number (FID)	Property Address	Does Property have a Water Well? (YES/NO)	Well Use	Well Depth/ Material Screened
70	12819 ALLEN RD			
71	0 CURRIERS RD	YES	Drinking, household supply	2 wells; 45/185 feet / Soil
73	13469 LAKE ST			
74	11269 CURRIERS RD			
76	13340 ALLEN RD			
78	13490 GROVE ST			
79	10660 OLEAN RD	YES	Drinking, household supply	Unknown / Unknown
81	10500 S PROTECTION RD			
82	0 S PROTECTION RD			
83	12580 HAND RD	YES	Drinking, household supply	Unknown / Unknown
84	10500 OLEAN RD			
88	11400 SAVAGE RD	YES	Drinking, household supply	70 feet / Unknown
90	10972 SAVAGE RD			
93	10430 S PROTECTION RD			
95	0 MILLER AVE	NO	N/A	N/A
96	13439 LAKE ST	YES	Drinking, household supply	140 feet / Unknown
100	11580 SAVAGE RD			
101	13319 MILLER AVE	YES	Drinking, household supply	21 feet / Unknown
105	0 OLEAN RD	NO	N/A	N/A
108	13670 ALLEN RD			
110	13659 MILLER AVE			
111	13599 MILLER AVE	YES	Drinking, household supply	40 feet / Unknown
112	13355 ALLEN RD	NO	N/A	N/A
113	12470 HAND RD	YES	Drinking, household supply	60 feet / Unknown
123	11620 OLEAN RD	NO	N/A	N/A
127	10420 S PROTECTION RD	YES	Drinking, household supply	Unknown / Unknown
130	13290 ALLEN RD	YES	Drinking, household supply	40 feet / Overburden
131	10966 SAVAGE RD	YES	No drinking, seasonal camp	Unknown / Soil goes dry
132	10986 SAVAGE RD	YES	Drinking, household supply	50 feet / Unknown
133	11439 OLEAN RD			
136	0 SAVAGE RD			
137	0 HAND RD	YES	Drinking, household supply	280 feet / Unknown
138	10440 OLEAN RD			

Attachment 3.
Parcels Receiving Water Well Questionnaire and Summary of Responses

Tax Parcel ID Number (FID)	Property Address	Does Property have a Water Well? (YES/NO)	Well Use	Well Depth/ Material Screened
139	0 ALLEN RD	NO	N/A	N/A
141	0 ALLEN RD			
145	10840 SAVAGE RD	YES	Drinking, household supply	120 feet / Unknown
147	11320 SAVAGE RD	YES	Drinking, household supply	95 feet / Bedrock
151	0 OLEAN RD			
152	10500 OLEAN RD	YES	Drinking, household supply	Unknown / Unknown
155	10409 OLEAN RD	YES	Drinking, household supply	Unknown / Unknown
156	0 CURRIERS RD			
158	99990 OLEAN RD	YES	Drinking, household supply	350 feet / Unknown; seasonal use
160	10619 OLEAN RD			
164	12955 ALLEN RD	YES	Drinking, household supply	100 feet / Overburden
169	13450 LAKE ST			
175	13510 ALLEN RD			
177	99999 S PROTECTION RD	NO	N/A	N/A
181	0 OLEAN RD			
182	0 ALLEN RD			
183	11420 OLEAN RD			
186	11209 CURRIERS RD			
188	12400 ALLEN RD			
193	12479 ALLEN RD			
194	13460 LAKE ST			
195	13000 ALLEN RD			
196	11140 SAVAGE RD			
197	11429 OLEAN RD	NO	N/A	N/A
200	10450 OLEAN RD	YES	Drinking, household supply	90 feet / Unknown
201	10930 SAVAGE RD			
202	13509 ALLEN RD			
205	11409 OLEAN RD			
208	10500 OLEAN RD	YES	Drinking, household supply	270 feet / Unknown
211	13250 ALLEN RD			
214	13479 LAKE ST	NO	N/A	N/A
217	11459 OLEAN RD			
218	10760 OLEAN RD	YES	Drinking, household supply	80 feet / Unknown

Attachment 3.
Parcels Receiving Water Well Questionnaire and Summary of Responses

Tax Parcel ID Number (FID)	Property Address	Does Property have a Water Well? (YES/NO)	Well Use	Well Depth/ Material Screened
219	10359 OLEAN RD	YES	Drinking, household supply	319 feet / Bedrock
220	0 MILLER AVE			
221	11200 SAVAGE RD	YES	Drinking, household supply	130 feet / Unknown
222	13729 MILLER AVE	YES	Drinking, household supply	50 feet / Unknown
227	0 S PROTECTION RD			
228	0 S PROTECTION RD			
229	12865 ALLEN RD	YES	Drinking, household supply	50 feet / Unknown
230	0 ALLEN RD	NO	N/A	N/A
235	11410 OLEAN RD			
239	13079 ALLEN RD	YES	Drinking, household supply	18 feet / Overburden
242	11550 OLEAN RD			
245	0 SAVAGE RD			
246	13620 CURRIERS RD	YES	Information not for parcel	Information not for parcel
248	11430 SAVAGE RD			
251	12690 ALLEN RD			
257	10420 OLEAN RD			
258	12999 ALLEN RD			
262	10870 SAVAGE RD	YES	Drinking, household supply	60 feet / Unknown
267	13655 MILLER AVE			
268	0 OLEAN RD			
270	10759 OLEAN RD			
271	10500 OLEAN RD			
274	12920 ALLEN RD			
275	13310 ALLEN RD			
276	11329 SAVAGE RD			
278	0 S PROTECTION RD			
279	13140 ALLEN RD			
282	13529 LAKE ST			
283	10810 SAVAGE RD			
286	10430 OLEAN RD			
288	10400 OLEAN RD			
290	0 CURRIERS RD	YES	Drinking, household supply	80 feet / Unknown
296	0 S PROTECTION RD	NO	N/A	N/A

Attachment 3.
Parcels Receiving Water Well Questionnaire and Summary of Responses

Tax Parcel ID Number (FID)	Property Address	Does Property have a Water Well? (YES/NO)	Well Use	Well Depth/ Material Screened
297	10946 SAVAGE RD	YES	Drinking, household supply	39 feet / Overburden
299	10959 OLEAN RD			
304	13300 ALLEN RD	YES	Drinking, household supply	21 feet / Overburden
307	13419 ALLEN RD			
309	10429 OLEAN RD	YES	Drinking, household supply	Unknown / Unknown
310	10799 OLEAN RD			
315	12329 ALLEN RD			
323	10500 OLEAN RD			
324	12509 ALLEN RD			
325	11349 CURRIERS RD	YES	Drinking, household supply	100 feet / Unknown
328	11569 OLEAN RD			
330	10945 OLEAN RD	YES	Drinking, commercial supply	85 feet / 75 gpm
331	10459 S PROTECTION RD			
332	0 OLEAN RD			
334	13270 ALLEN RD			
342	13045 ALLEN RD			
346	0 SAVAGE RD			
348	0 ALLEN RD			
349	0 SAVAGE RD			
350	0 ALLEN RD			
351	11550 OLEAN RD			
352	10460 S PROTECTION RD			
356	13459 ALLEN RD			
363	10500 OLEAN RD	YES	Drinking, household supply	130 feet / Artesian
367	67 OLEAN RD			
370	10659 OLEAN RD			
371	10952 SAVAGE RD			
372	13010 HAND RD			
373	11600 OLEAN RD	NO	N/A	N/A

Notes:
A blank space indicates property owner did not return the water well questionnaire.
N/A = Not applicable.

Appendix G

Soil Types and USDA Soil Mapping

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Erie County, New York

USDA Mapped Soils

November 26, 2019

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:7,330 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 19, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 29, 2011—Oct 18, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cc	Canandaigua silt loam	23.8	8.4%
Cd	Canandaigua mucky silt loam	1.9	0.7%
CeA	Castile gravelly loam, 0 to 3 percent slopes	15.5	5.5%
CeB	Castile gravelly loam, 3 to 8 percent slopes	25.0	8.8%
CkA	Chenango gravelly loam, 0 to 3 percent slopes	0.5	0.2%
CkB	Chenango gravelly loam, 3 to 8 percent slopes	36.1	12.7%
CkC	Chenango gravelly loam, 8 to 15 percent slopes	27.4	9.6%
DcB	Darien silt loam, silty substratum, 3 to 8 percent slop es	3.3	1.2%
Dp	Dumps	15.1	5.3%
ErB	Erie channery silt loam, 3 to 8 percent slopes	6.7	2.4%
Ha	Halsey silt loam	38.8	13.6%
LgC	Langford channery silt loam, silty substratum, 8 to 15 percent slopes	10.8	3.8%
Pa	Palms muck	31.5	11.1%
Re	Red Hook silt loam	5.0	1.8%
RgA	Rhinebeck silt loam, 0 to 3 percent slopes	2.2	0.8%
RgB	Rhinebeck silt loam, 3 to 8 percent slopes	3.1	1.1%
RhC3	Rhinebeck silty clay loam, 8 to 15 percent slopes, seve relyeroded	4.7	1.6%
RkB	Rhinebeck gravelly loam, 3 to 8 percent slopes	14.4	5.1%
W	Water	18.9	6.6%
Totals for Area of Interest		**284.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

Erie County, New York

Cc—Canandaigua silt loam

Map Unit Setting

National map unit symbol: 9rkd
Elevation: 100 to 1,000 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Canandaigua and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canandaigua

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 37 inches: silt loam
H3 - 37 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Lamson

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Canadice
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Lyons
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Niagara
Percent of map unit: 5 percent
Hydric soil rating: No

Lakemont
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Cd—Canandaigua mucky silt loam

Map Unit Setting
National map unit symbol: 9rkf
Elevation: 100 to 1,000 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition
Canandaigua and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canandaigua

Setting
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey glaciolacustrine deposits

Typical profile
H1 - 0 to 9 inches: mucky silt loam
H2 - 9 to 37 inches: silt loam
H3 - 37 to 60 inches: silt loam

Properties and qualities
Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Lakemont

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Canadice

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Lamson

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Niagara

Percent of map unit: 5 percent
Hydric soil rating: No

Palms

Percent of map unit: 5 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

CeA—Castile gravelly loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9rkg
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Castile and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Castile

Setting

Landform: Terraces, valley trains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 31 inches: very gravelly loam
H3 - 31 to 65 inches: stratified extremely gravelly sandy loam to loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A/D
Hydric soil rating: No

Minor Components

Unnamed soils

Percent of map unit: 5 percent
Hydric soil rating: No

Varysburg

Percent of map unit: 5 percent
Hydric soil rating: No

Chenango

Percent of map unit: 5 percent
Hydric soil rating: No

Red hook

Percent of map unit: 5 percent
Hydric soil rating: No

CeB—Castile gravelly loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9rkh
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Castile and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Castile

Setting

Landform: Valley trains, terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 31 inches: very gravelly loam
H3 - 31 to 65 inches: stratified extremely gravelly sandy loam to loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A/D
Hydric soil rating: No

Minor Components

Unnamed soils
Percent of map unit: 5 percent
Hydric soil rating: No

Chenango
Percent of map unit: 5 percent
Hydric soil rating: No

Varysburg
Percent of map unit: 5 percent
Hydric soil rating: No

Red hook
Percent of map unit: 5 percent
Hydric soil rating: No

CkA—Chenango gravelly loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 9rkp
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Chenango and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chenango

Setting
Landform: Valley trains, terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

Typical profile
H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 30 inches: very gravelly loam
H3 - 30 to 60 inches: very gravelly loamy sand

Properties and qualities
Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Castile

Percent of map unit: 5 percent
Hydric soil rating: No

Allard

Percent of map unit: 5 percent
Hydric soil rating: No

Valois

Percent of map unit: 5 percent
Hydric soil rating: No

Alton

Percent of map unit: 5 percent
Hydric soil rating: No

Varysburg

Percent of map unit: 5 percent
Hydric soil rating: No

CkB—Chenango gravelly loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9rkq
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Chenango and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chenango

Setting

Landform: Valley trains, terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 30 inches: very gravelly loam
H3 - 30 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Castile

Percent of map unit: 5 percent
Hydric soil rating: No

Allard

Percent of map unit: 5 percent
Hydric soil rating: No

Red hook

Percent of map unit: 5 percent
Hydric soil rating: No

Alton

Percent of map unit: 5 percent
Hydric soil rating: No

Valois

Percent of map unit: 5 percent
Hydric soil rating: No

CkC—Chenango gravelly loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9rkr
Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Chenango and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chenango

Setting

Landform: Valley trains, terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 30 inches: very gravelly loam
H3 - 30 to 60 inches: very gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Castile
Percent of map unit: 5 percent
Hydric soil rating: No

Allard
Percent of map unit: 5 percent
Hydric soil rating: No

Red hook
Percent of map unit: 5 percent
Hydric soil rating: No

Valois
Percent of map unit: 5 percent
Hydric soil rating: No

Alton
Percent of map unit: 5 percent
Hydric soil rating: No

DcB—Darien silt loam, silty substratum, 3 to 8 percent slop es

Map Unit Setting
National map unit symbol: 9rlh
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Prime farmland if drained

Map Unit Composition
Darien, silty substratum, and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Darien, Silty Substratum

Setting
Landform: Drumlinoid ridges, hills, till plains
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived predominantly from calcareous gray shale

Typical profile
H1 - 0 to 13 inches: silt loam
H2 - 13 to 34 inches: silty clay loam
H3 - 34 to 48 inches: channery silty clay loam
H4 - 48 to 60 inches: silty clay loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Ilion

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Danley

Percent of map unit: 5 percent
Hydric soil rating: No

Langford

Percent of map unit: 5 percent
Hydric soil rating: No

Honeoye

Percent of map unit: 5 percent
Hydric soil rating: No

Remsen

Percent of map unit: 5 percent
Hydric soil rating: No

Dp—Dumps

Map Unit Setting

National map unit symbol: 9rlm
Elevation: 100 to 1,600 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

Dumps: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dumps

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydric soil rating: Unranked

Minor Components

Mardin

Percent of map unit: 5 percent
Hydric soil rating: No

Darien

Percent of map unit: 5 percent
Hydric soil rating: No

Honeoye

Percent of map unit: 5 percent
Hydric soil rating: No

Canandaigua

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Lakemont

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

ErB—Erie channery silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2wn35
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Erie and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Erie

Setting

Landform: Hills
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope, interfluve
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Till

Typical profile

Ap - 0 to 9 inches: channery silt loam
E - 9 to 13 inches: channery silt loam
Bg - 13 to 15 inches: channery silt loam
Bx - 15 to 38 inches: channery silt loam
C - 38 to 72 inches: channery loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 10 to 21 inches to fragipan
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 7 to 14 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Langford

Percent of map unit: 10 percent
Landform: Hills
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Fremont

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope, interfluve
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Chippewa

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Ha—Halsey silt loam

Map Unit Setting

National map unit symbol: 9rm6
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

Halsey and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Halsey

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 20 inches: gravelly silt loam
H3 - 20 to 25 inches: very gravelly sandy loam
H4 - 25 to 60 inches: stratified very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent

Available water storage in profile: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Fluvaquents

Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: Yes

Wayland

Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: Yes

Unnamed soils

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Red hook

Percent of map unit: 5 percent
Hydric soil rating: No

Farnham

Percent of map unit: 5 percent
Hydric soil rating: No

LgC—Langford channery silt loam, silty substratum, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9rmy
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Langford, silty substratum, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Langford, Silty Substratum

Setting

Landform: Hills, till plains, drumlinoid ridges

Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy till derived from siltstone, sandstone, shale, and some limestone

Typical profile

H1 - 0 to 6 inches: channery silt loam
H2 - 6 to 16 inches: channery silt loam
H3 - 16 to 40 inches: channery silt loam
H4 - 40 to 60 inches: silt loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 15 to 28 inches to fragipan
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 14 to 27 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Varysburg

Percent of map unit: 4 percent
Hydric soil rating: No

Hudson

Percent of map unit: 4 percent
Hydric soil rating: No

Erie

Percent of map unit: 4 percent
Hydric soil rating: No

Rhinebeck

Percent of map unit: 4 percent
Hydric soil rating: No

Darien

Percent of map unit: 4 percent
Hydric soil rating: No

Pa—Palms muck

Map Unit Setting

National map unit symbol: 9rp2
Elevation: 250 to 1,500 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

Palms and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Palms

Setting

Landform: Swamps, marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Organic material over loamy glacial drift

Typical profile

H1 - 0 to 38 inches: muck
H2 - 38 to 60 inches: loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Very high (about 19.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Canandaigua
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Unnamed soils
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Lamson
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Edwards
Percent of map unit: 5 percent
Landform: Marshes, swamps
Hydric soil rating: Yes

Halsey
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Re—Red Hook silt loam

Map Unit Setting
National map unit symbol: 9rpf
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Prime farmland if drained

Map Unit Composition
Red hook and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Red Hook

Setting
Landform: Valley trains, terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy glaciofluvial deposits

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 23 inches: loam
H3 - 23 to 60 inches: stratified channery loam to sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Hydric soil rating: No

Minor Components

Halsey

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Farnham

Percent of map unit: 5 percent
Hydric soil rating: No

Castile

Percent of map unit: 5 percent
Hydric soil rating: No

Rhinebeck

Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed soils

Percent of map unit: 5 percent
Hydric soil rating: No

RgA—Rhinebeck silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9rpk
Elevation: 80 to 1,000 feet
Mean annual precipitation: 36 to 48 inches

Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Rhinebeck and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rhinebeck

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 37 inches: silty clay
H3 - 37 to 70 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Churchville

Percent of map unit: 5 percent
Hydric soil rating: No

Odessa

Percent of map unit: 5 percent
Hydric soil rating: No

Hudson

Percent of map unit: 5 percent
Hydric soil rating: No

Niagara

Percent of map unit: 5 percent

Hydric soil rating: No

Canadice

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

RgB—Rhinebeck silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9rpl
Elevation: 80 to 1,000 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Rhinebeck and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rhinebeck

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 37 inches: silty clay
H3 - 37 to 70 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Churchville
Percent of map unit: 5 percent
Hydric soil rating: No

Niagara
Percent of map unit: 5 percent
Hydric soil rating: No

Hudson
Percent of map unit: 5 percent
Hydric soil rating: No

Canadice
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Odessa
Percent of map unit: 5 percent
Hydric soil rating: No

RhC3—Rhinebeck silty clay loam, 8 to 15 percent slopes, seve relyeroded

Map Unit Setting
National map unit symbol: 9rpm
Elevation: 80 to 1,000 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition
Rhinebeck, severely eroded, and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rhinebeck, Severely Eroded

Setting
Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: silty clay loam
H2 - 9 to 37 inches: silty clay
H3 - 37 to 70 inches: silty clay

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Churchville

Percent of map unit: 5 percent
Hydric soil rating: No

Varysburg

Percent of map unit: 5 percent
Hydric soil rating: No

Hudson

Percent of map unit: 5 percent
Hydric soil rating: No

Canadice

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Collamer

Percent of map unit: 5 percent
Hydric soil rating: No

RkB—Rhinebeck gravelly loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9rpp
Elevation: 80 to 1,000 feet
Mean annual precipitation: 36 to 48 inches

Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Rhinebeck and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rhinebeck

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: gravelly loam
H2 - 9 to 37 inches: silty clay
H3 - 37 to 70 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Canadice

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Niagara

Percent of map unit: 5 percent
Hydric soil rating: No

Churchville

Percent of map unit: 5 percent
Hydric soil rating: No

Varysburg
Percent of map unit: 5 percent
Hydric soil rating: No

Red hook
Percent of map unit: 5 percent
Hydric soil rating: No

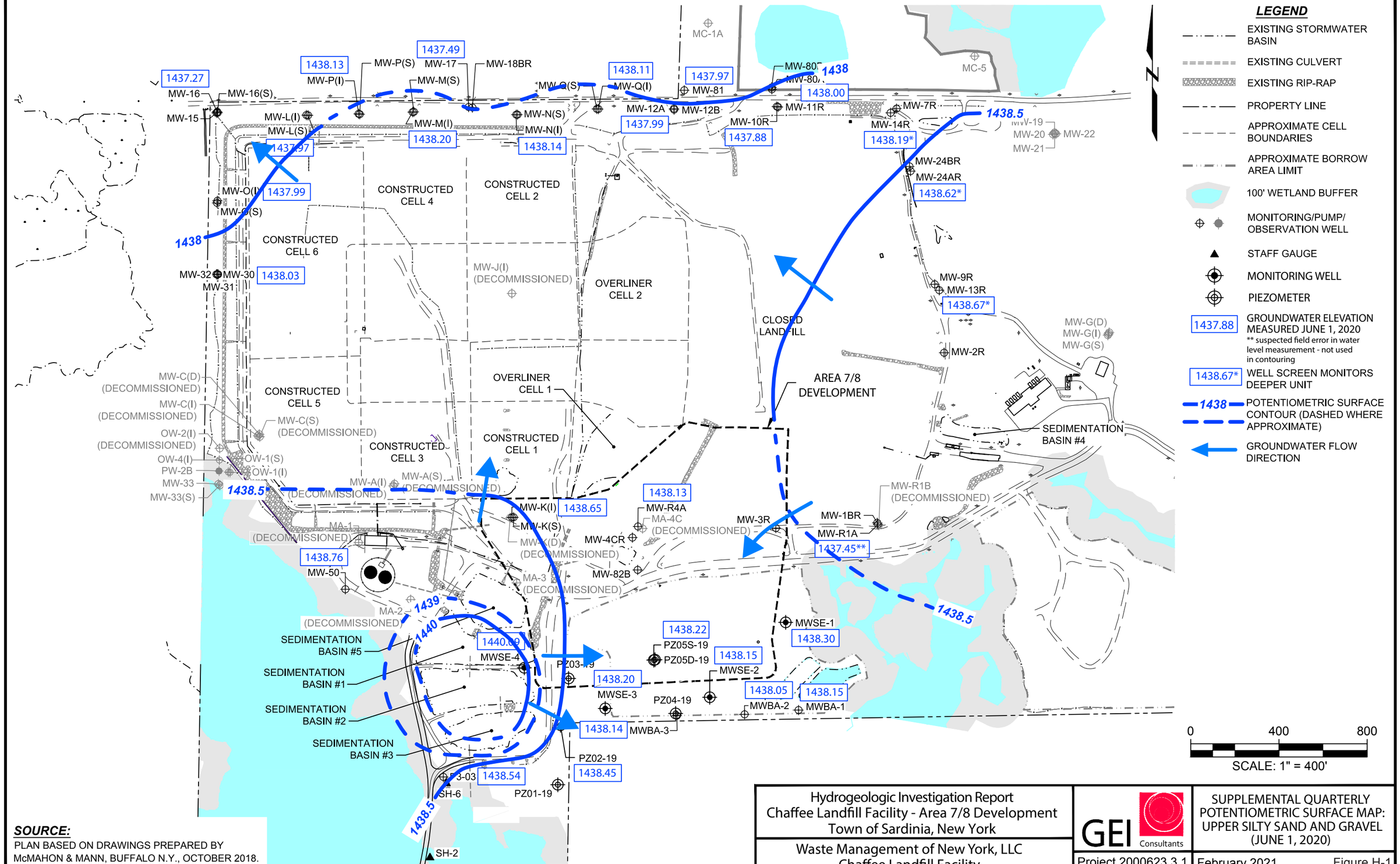
W—Water

Map Unit Setting
National map unit symbol: 9rr2
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition
Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

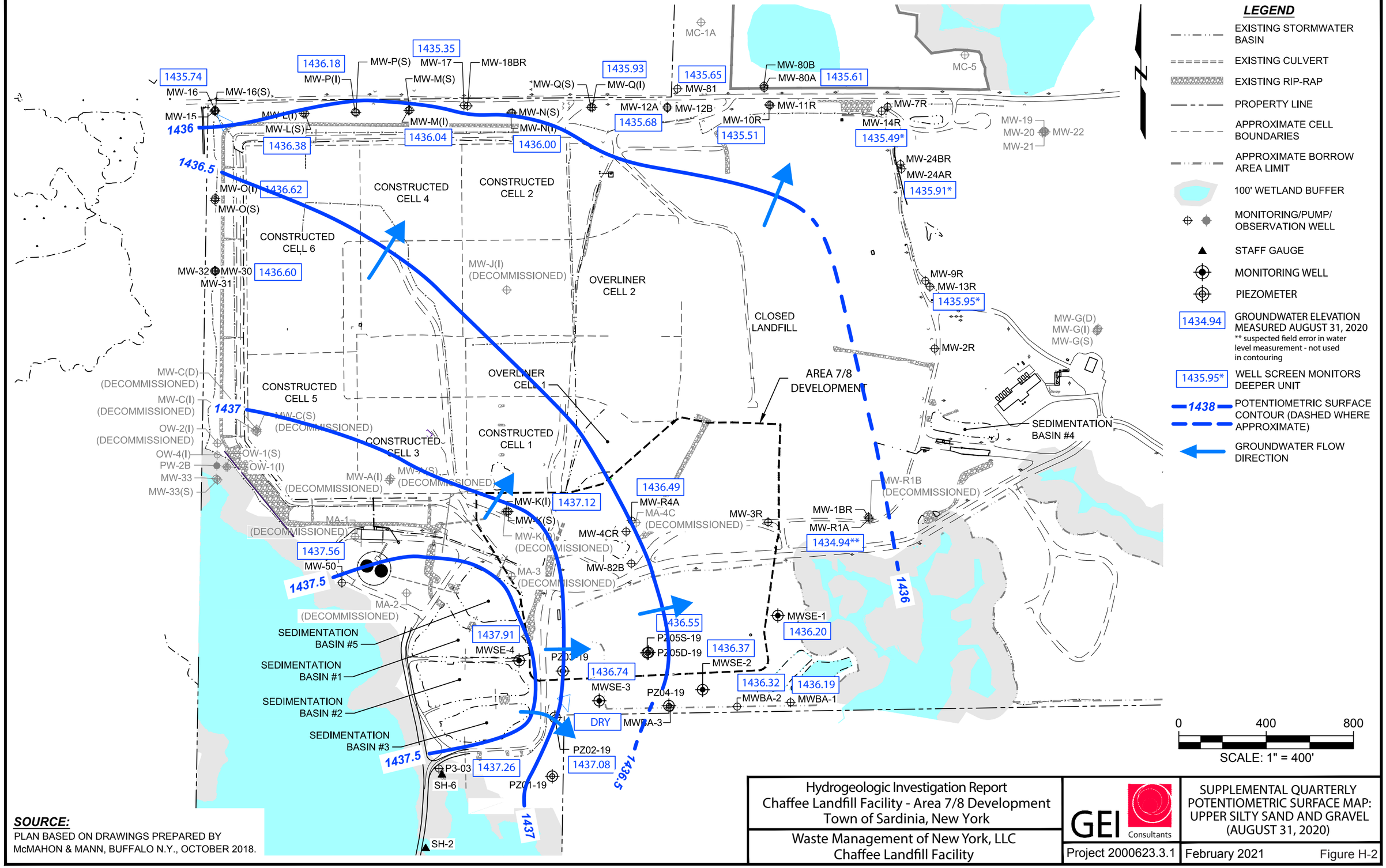
Appendix H

Supplemental Upper Silty Sand and Gravel Groundwater Contour Maps (June 2020, August 2020, November 2020 and March 2021)



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report Chaffee Landfill Facility - Area 7/8 Development Town of Sardinia, New York	GEI Consultants	SUPPLEMENTAL QUARTERLY POTENTIOMETRIC SURFACE MAP: UPPER SILTY SAND AND GRAVEL (JUNE 1, 2020)
Waste Management of New York, LLC Chaffee Landfill Facility	Project 2000623.3.1	February 2021 Figure H-1



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

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Town of Sardinia, New York

Waste Management of New York, LLC
Chaffee Landfill Facility

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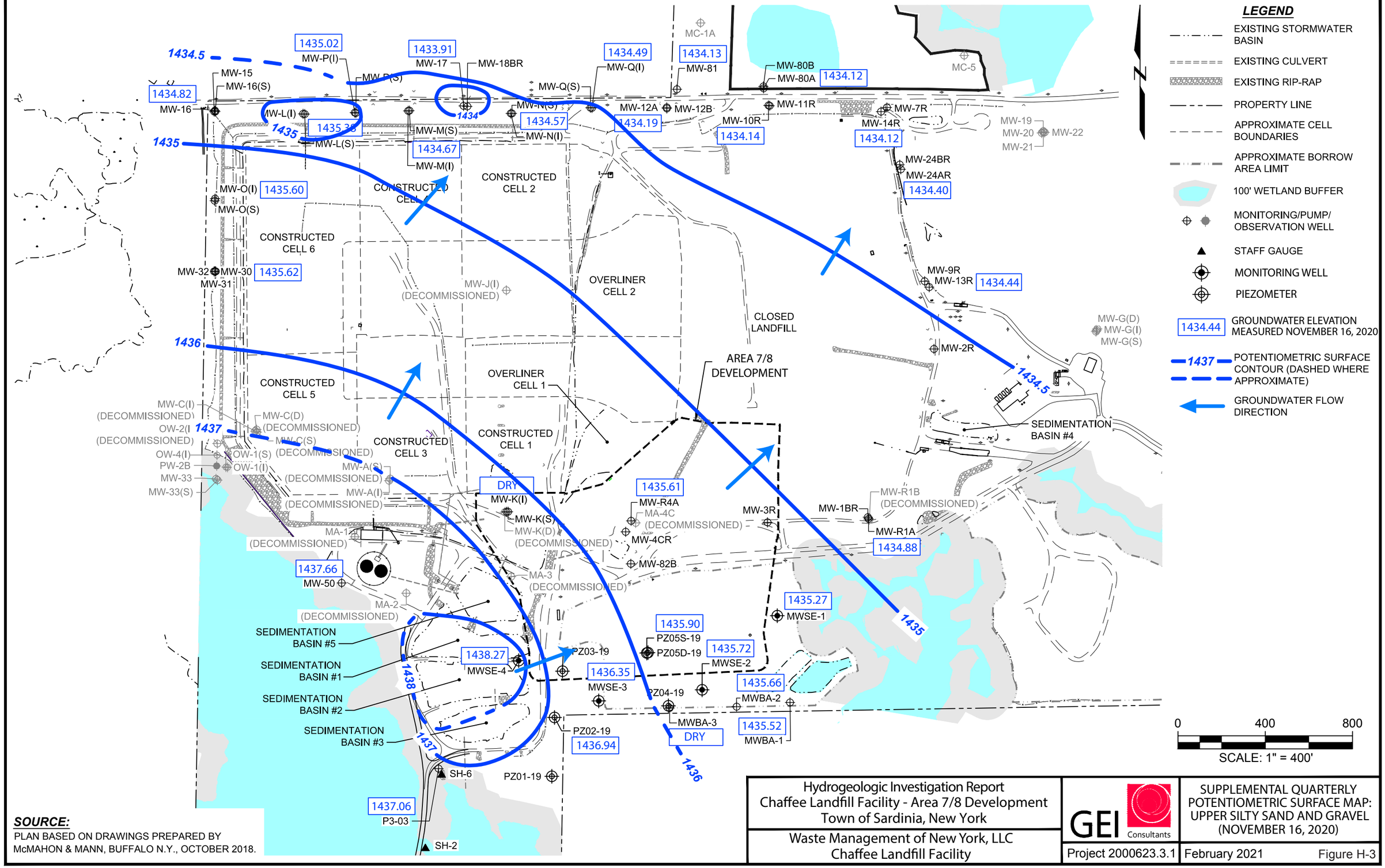
SUPPLEMENTAL QUARTERLY POTENTIOMETRIC SURFACE MAP: UPPER SILTY SAND AND GRAVEL (AUGUST 31, 2020)

Project 2000623.3.1 | February 2021 | Figure H-2



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

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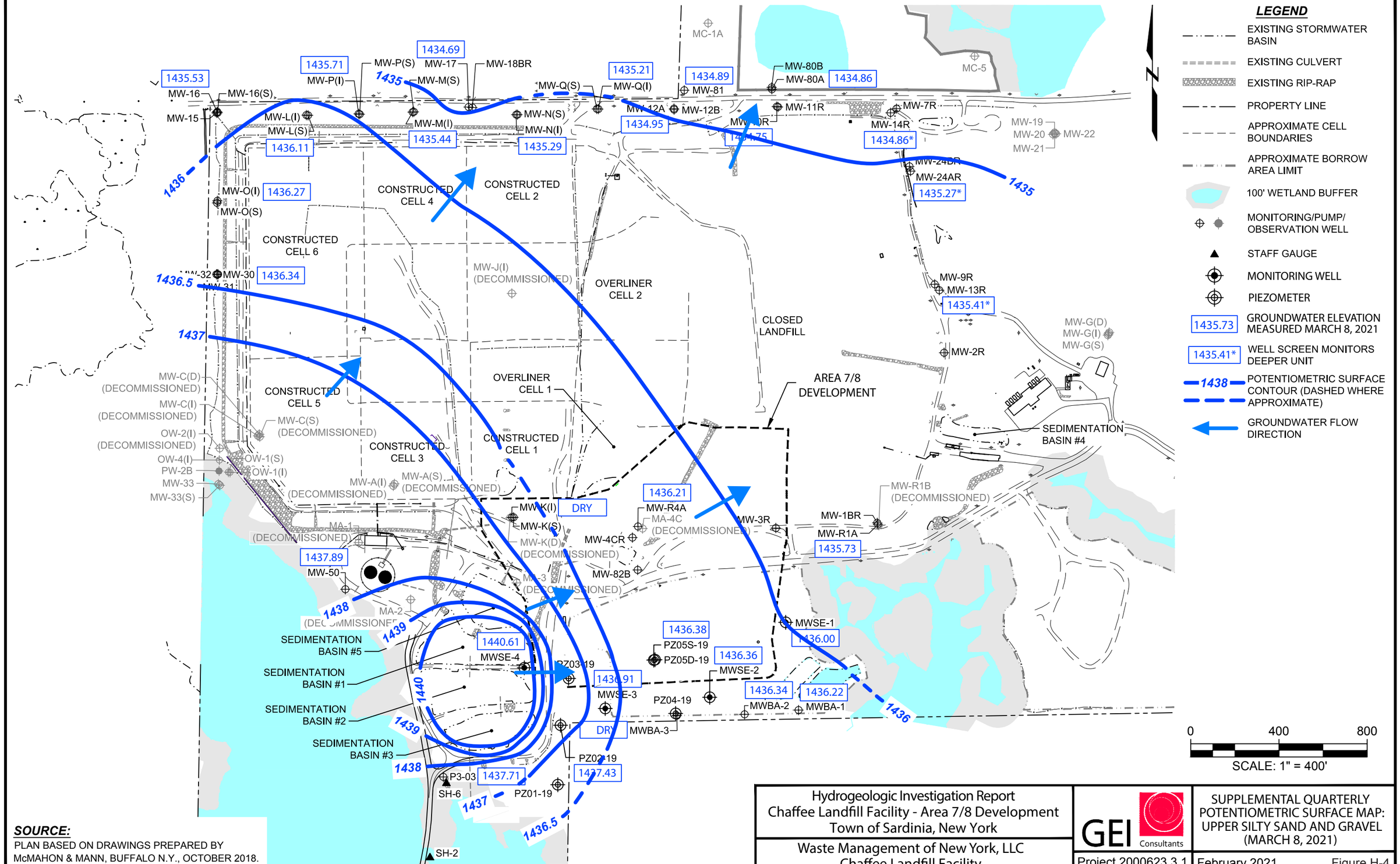
Town of Sardinia, New York

Waste Management of New York, LLC
Chaffee Landfill Facility

GEI Consultants

SUPPLEMENTAL QUARTERLY POTENTIOMETRIC SURFACE MAP: UPPER SILTY SAND AND GRAVEL (NOVEMBER 16, 2020)

Project 2000623.3.1 | February 2021 | Figure H-3



SOURCE:
PLAN BASED ON DRAWINGS PREPARED BY McMAHON & MANN, BUFFALO N.Y., OCTOBER 2018.

Hydrogeologic Investigation Report
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Town of Sardinia, New York

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Chaffee Landfill Facility

GEI Consultants

SUPPLEMENTAL QUARTERLY POTENTIOMETRIC SURFACE MAP: UPPER SILTY SAND AND GRAVEL (MARCH 8, 2021)

Project 2000623.3.1 | February 2021 | Figure H-4

Appendix I

Seepage Velocity Calculations

Appendix I - Seepage Velocity Calculations
Area 7/8 Groundwater Seepage Velocity in the Upper Silty Sand and Gravel Unit

Calcs by: RHF Date: 3/30/2021
Checked by: MAC Date: 3/31/2021

The hydraulic gradient and groundwater seepage velocities were determined for the June and December 2019 and June and November 2020 groundwater gauging events as follows:

seepage velocity = v = K *i /η_e

where:

K = hydraulic conductivity*

i = hydraulic gradient = ((h_1-h_2))/L

η_e=effective porosity**

h_1 and h_2 = Δ groundwater elevation

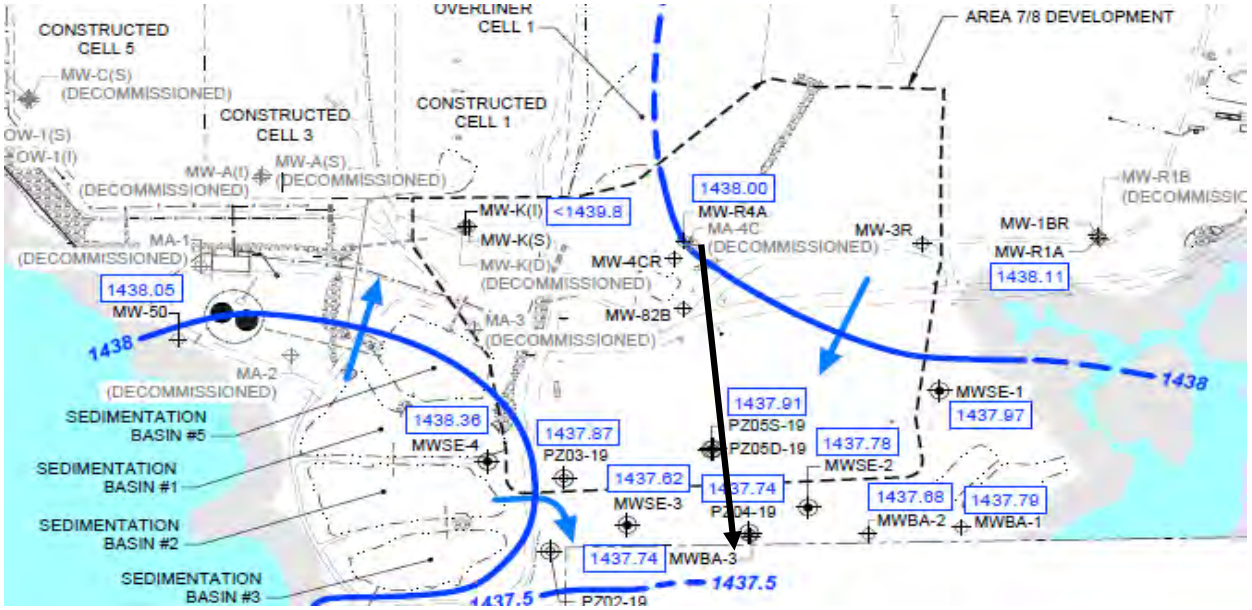
L = horizontal distance

*Value for hydraulic conductivity from HIR Table 2.

Unit conversion is 1 cm/s = 2835 ft/day

**Value for effective porosity gravelly sand from Fetter, 1994.

Year 2019 **Source Map: June 2019 South Flow Vector - Figure 16**



(South Groundwater Flow Vector Direction
Wells MW-R4A to PZ04-19)

v =K *i /η_e k = 4.53x10-4 cm/S or 1.28 ft/day

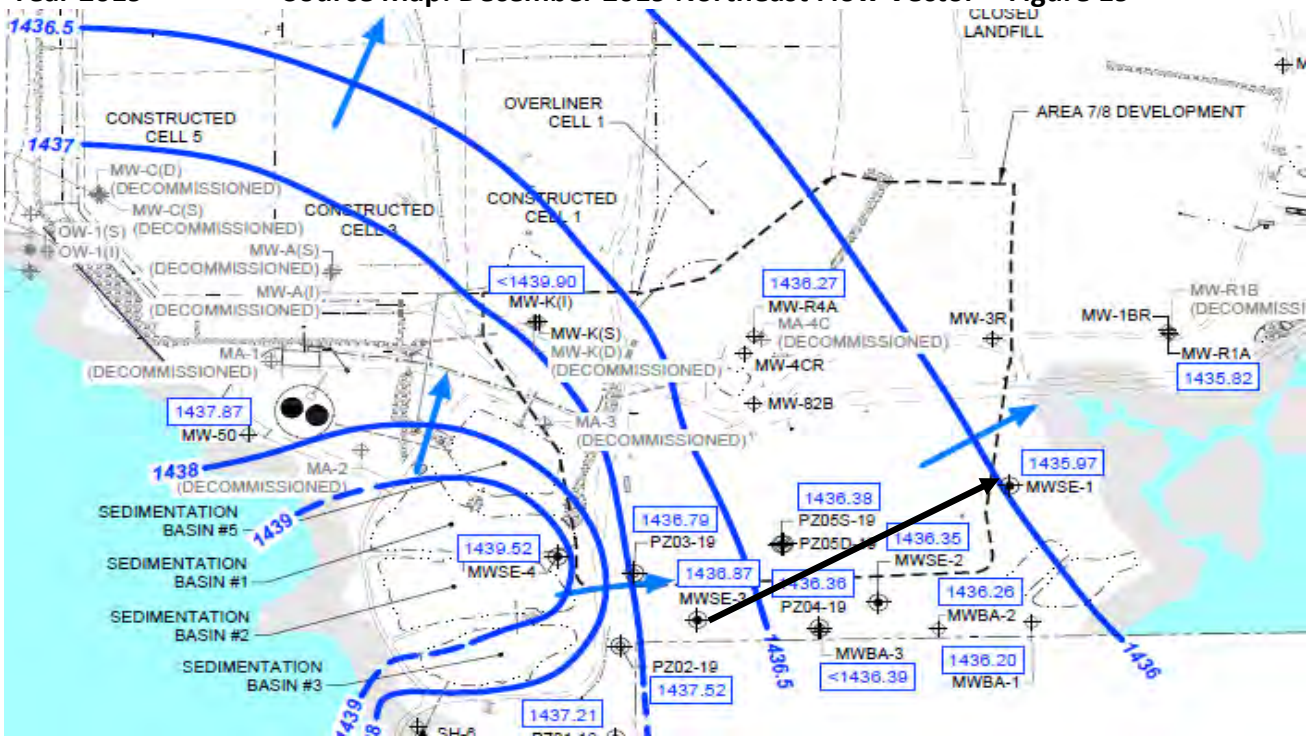
Δh = 0.26 / 840 ft

i= 0.00031

η_e = 0.25

v = 0.00159 ft/day or 0.58 ft/yr

Year 2019 **Source Map: December 2019 Northeast Flow Vector - Figure 19**



(Northeast Groundwater Flow Vector Direction Wells MWSE-3 to MWSE-1)

v =K *i /η_e k = 4.53x10-4 cm/S or 1.28 ft/day

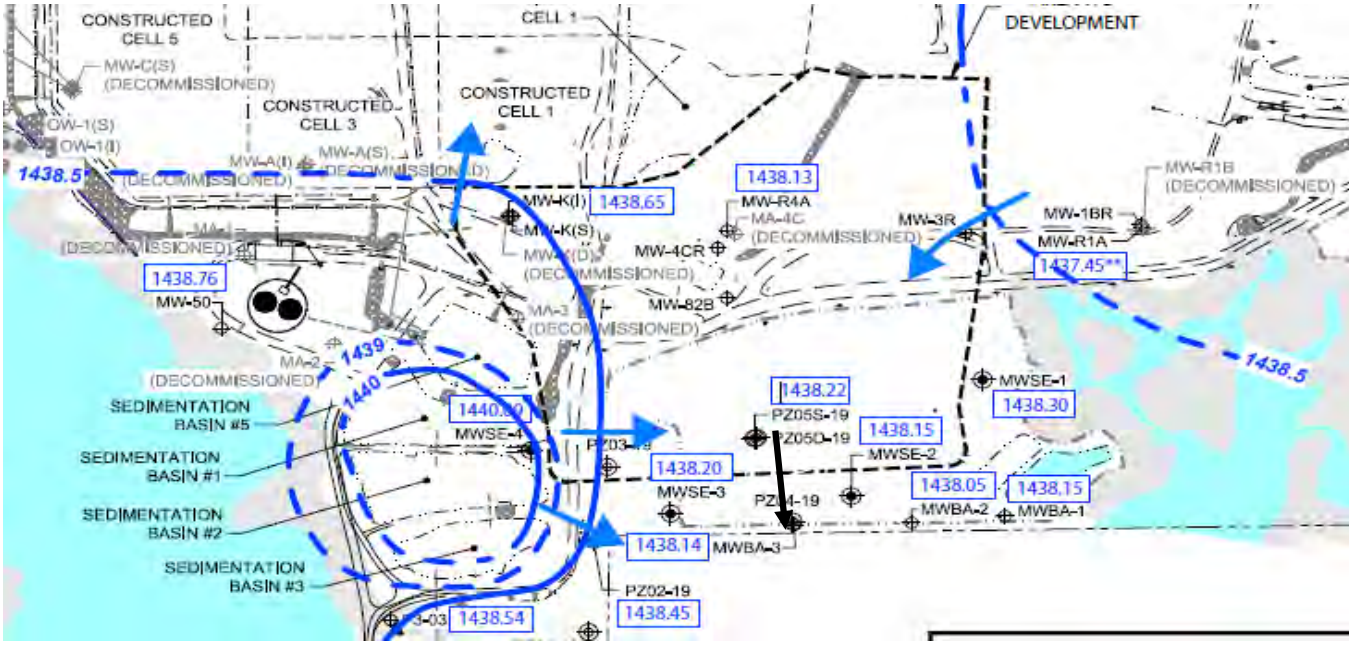
Δh = 0.90 / 896 ft

i= 0.00100

η_e = 0.25

v = 0.00516 ft/day or 1.88 ft/yr

Year 2020 **Source: June 2020 South Flow Vector - Figure H-1**



(South Groundwater Flow Vector Direction Piezometers PZ05S-19 to PZ04-19)

v =K *i /η_e

k = 4.53x10-4 cm/S or 1.28 ft/day

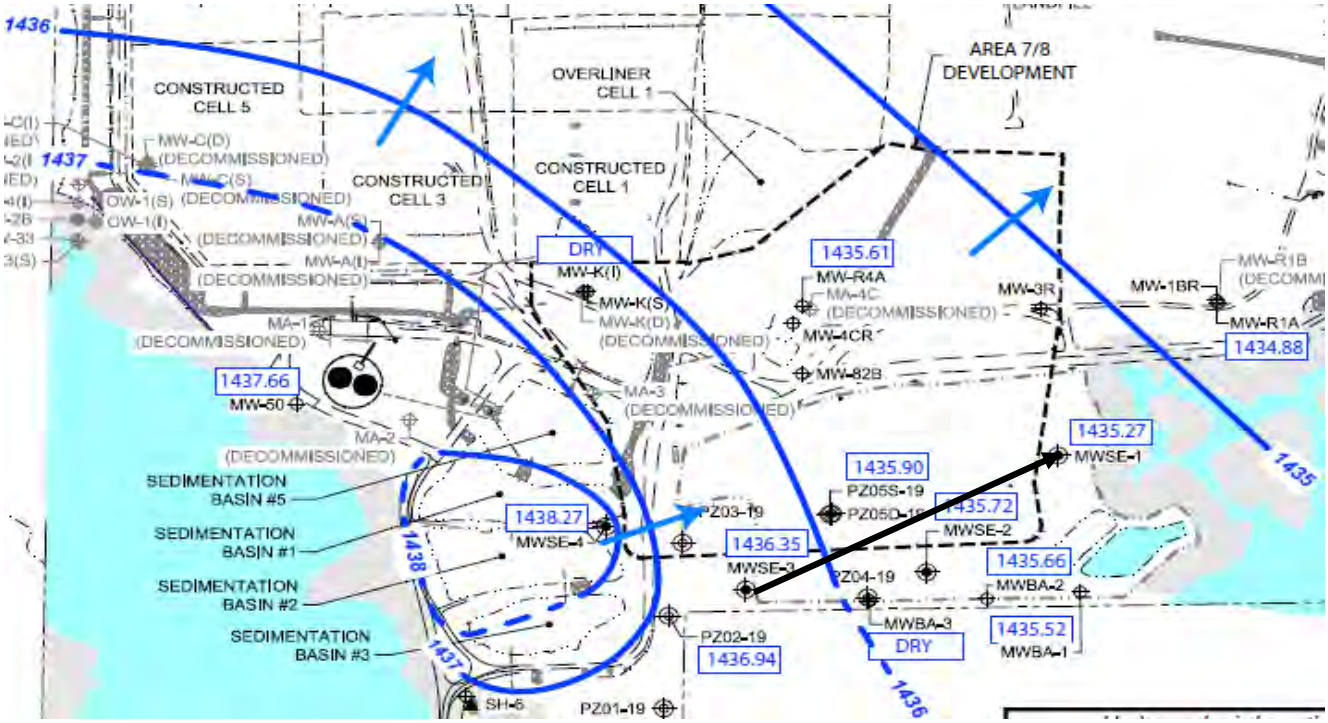
Δh = 0.08 / 252 ft

i= 0.00032

η_e = 0.25

v = 0.00163 ft/day or 0.6 ft/yr

Year 2020 **Source: November 2020 Northeast Flow Vector - Figure H-3**



(Northeast Groundwater Flow Vector Direction Wells MWSE-3 to MWSE-1)

v =K *i /η_e k = 4.53x10-4 cm/S or 1.28 ft/day

Δh = 0.90 / 896 ft

i= 0.00121

η_e = 0.25

v = 0.00619 ft/day or 2.26 ft/yr

Seepage Velocity Summary of South and Northeast Seasonal Flow Directions

Direction	Individual events (velocity)	Average	
South	2019 = 0.58 ft/yr 2020 = 0.60 ft/yr	0.59 ft/yr	
			Net Vector Sum = 1.33 ft/year NE
Northeast	2019 = 1.88 ft/yr 2020 = 2.26 ft/yr	2.07 ft/yr	