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CWM Chemical Services, LLC

Leachate Level Compliance Plan for Residuals Management Unit 1, Final Sequence Phase 2

Residuals Management Unit 1

Model City, New York

March 2009
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1. Introduction

1.1 Purpose of Plan

In February 1997, CWM Chemical Services, LLC (CWM) submitted a Leachate Level Compliance Plan (LLCP) for Residuals Management Unit 1 (RMU-1) in accordance with Order on Consent No. 95-19, 96-11, and 96-12 entered into with the New York State Department of Environmental Conservation (NYSDEC). The February 1997 LLCP, which was prepared by Golder Associates, evaluated the existing removal, storage, transfer, and treatment system for management of RMU-1 leachate associated with Cells 1 through 8, and recommended modifications to the system to remain in compliance with various components of the RMU-1 Part 373 Permit, specifically Condition I.E.2 (a) (Module I). Subsequent to the NYSDEC approval, CWM completed the recommended system upgrades.

In May 1999, Addendum #1 to the February 1997 LLCP was prepared by Earth Tech, Inc. (formerly Rust Environment & Infrastructure) and EMCON to evaluate RMU-1 leachate management for Cells 1 through 10. In Addendum #1, relevant appendices of the LLCP were evaluated and revised to reflect cap progression (i.e., construction of Phases I, II, and III final cover) and baseliner construction activities in Cell 9/10. Additional modifications to the leachate removal, storage, transfer, and treatment system were also performed as a result of a November 5, 1999 letter from the NYSDEC to CWM regarding assumptions made in the May 1999 Addendum #1 to the LLCP. In a subsequent correspondence relating to the November 5, 1999 letter, the NYSDEC approved various modifications to the system. These modifications included specific operational adjustments to be maintained during design storm events, including an upgrade of pump P-3002A to 200 gallons per minute (gpm) at the aqueous wastewater treatment system (AWTS) facility, which has been implemented by CWM. The leachate tank farm (LTF) storage capacity was re-evaluated based on the approved modifications and accepted as a replacement of the previous evaluation presented in Appendix G of Addendum #1.

In June 2001, CWM submitted an LLCP prepared by Blasland, Bouck & Lee, Inc. (BBL) associated with the opening of Cell 12/14 and completion of the Phase IV final cover that included recommendations for further upgrades to the existing leachate management system. The NYSDEC approved the June 2001 LLCP on September 19, 2001. According to CWM, all upgrades specified in the June 2001 LLCP have been completed. On May 3, 2002, CWM submitted an LLCP for Cells 1 through 10 and 12/14 (BBL, April 2002) to revise the grading plan depicted in the June 2001 LLCP and reflect completion of the Phase V final cover. The NYSDEC approved the April 2002

LLCP on June 4, 2002. On September 9, 2002, the NYSDEC approved a minor revision to the April 2002 LLCP, which was submitted by CWM on July 17, 2002. On November 22, 2002, CWM submitted an LLCP (BBL, November 2002) to reflect the opening of Cell 11/13. The NYSDEC approved the November 2002 LLCP on December 23, 2002, but required minor revisions to the document, which were subsequently incorporated and submitted to the NYSDEC on January 21, 2003. Final approval was issued by the NYSDEC on March 6, 2003. On December 18, 2007, CWM submitted an LLCP for Cells 1 through 14 (ARCADIS BBL, December 2007) to revise the grading plan depicted in the November 2002 LLCP and reflect completion of the Phase VI final cover. The NYSDEC approved the December 2007 LLCP on January 10, 2008.

On March 20, 2009, CWM submitted an updated LLCP to evaluate the RMU-1 leachate removal, storage, transfer, and treatment system based on a later stage of waste filling in Cells 1 through 14. NYSDEC provided comments for that submission on September 2, 2009. CWM submitted an updated LLCP on October 14, 2009, to address these comments. NYSDEC issued a conditional approval on November 25, 2009. The December 2009 LLCP revision updated the March/October 2009 LLCP to satisfy the NYSDEC approval conditions and to present a grading configuration and leachate collection, transfer, and storage analysis that effectively manages leachate resulting from a 25-year, 24-hour storm event for RMU-1 Cells 1 through 14. For the purposes of this evaluation, it is assumed that all of the necessary modifications and conditions presented in this document have been implemented. The installation of approximately 7.1 acres of new final cover (Phase VII) is assumed only for the detention basin transition period (discussed in greater detail in Section 3.7 and in Attachment 6 of Appendix A). The remaining calculations contained in this LLCP do not assume the installation of any new final cover. Use of proposed new Tank T-165 during the detention basin transition period and beyond is discussed in Section 3.8 and in Attachment 7 of Appendix A (March 2010 revision).

1.2 Facility Description

CWM owns and operates the Model City Treatment, Storage, and Disposal Facility located in Model City, Niagara County, New York. The facility occupies approximately 710 acres in the Towns of Lewiston and Porter, of which, about 630 acres are available for permitting of waste management operations. The current active hazardous waste landfill (RMU-1) was permitted by the NYSDEC on November 16, 1993, under 6 New York Codes, Rules, and Regulations Part 373 (Part 373 Permit #9-2934-00022/00036). The RMU-1 Permit was renewed by the NYSDEC as part of the Sitewide Part 373 Permit #9-2934-00022/00097 on August 5, 2005.

1.3 Residuals Management Unit 1 Description

RMU-1 covers approximately 47.1 acres as measured to the outside of the perimeter berms, including 39.4 acres of lined disposal area. The design waste volume is 3,482,400 bank cubic yards (cy) resulting from a gross airspace of 3,601,900 cy less operational cover, roads, and berms.

RMU-1 is designed with 14 cells, numbered 1 through 14. The construction of RMU-1 has been performed in phases to match the operational requirements of the facility. To date, all 14 cells have been constructed and are currently in operation. In general, construction of the RMU-1 final cover is completed as final waste grades are achieved. Phases I, II, III, IV, V, and VI of the final cover were previously completed. The approximate limits of the next planned phase of final cover construction (Phase VII) are indicated on Figure 1. In general, stormwater falling on capped portions of RMU-1 is directed off the landfill and into designated stormwater retention areas located at the facility. Stormwater falling on uncapped portions of RMU-1 is directed into infiltration channels and detention basins located within the landfill and treated as leachate.

1.4 Leachate Management Description

The RMU-1 leachate management system consists of primary and secondary leachate collection and pumping systems, a leachate removal and transfer system, and an RMU-1 lift station. The leachate collection system (LCS) is designed to drain leachate to a collection sump at the low point of each cell. Leachate is removed from the primary and secondary sumps by submersible pumps installed in a perforated section of the sideslope riser pipe located at the bottom of each sump. Leachate is discharged to double-walled force mains located in the RMU-1 perimeter berm and transferred to the RMU-1 lift station at the western edge of RMU-1.

The lift station pumps leachate through underground force mains to tank T-157 located in the former oil/water separator (OWS) building. Aqueous phase leachate is then pumped from tank T-157 through an aboveground 8-inch-diameter steel pipe to the LTF. The LTF stores leachate from all active and closed landfills, as well as miscellaneous site waters. Aqueous phase leachate is then transferred from the LTF to the AWTS. Treated effluent from the AWTS is transferred to final effluent holding tanks T-58 and T-125, which have operating volumes of 488,529 gallons and 394,271 gallons, respectively.

The AWTS consists of Aqueous Treatment (A/T) and Water Treatment (W/T) systems. The A/T system provides treatment of leachate from all landfills, other than SLF 12 and

RMU-1 for metals, and includes a filter press for separation of the suspended solids from the wastewater stream, followed by treatment through the W/T system. The W/T system consists of pH adjustment, biological treatment, multi-media sand filters, and carbon adsorption. SLF 12 and RMU-1 leachate is treated only through the W/T system where it is pumped directly to the multi-media sand filters or the bypass line to tank T-3003. Tank T-3003 temporarily stores the liquid before pumping it to the carbon adsorption system. The treated effluent from the carbon adsorption system is transferred to final effluent holding tanks T-58 and T-125, and ultimately discharged to the facultative ponds.

1.5 Report Organization

This LLCP has been organized into five sections. Section 2, which follows this introductory section, presents a description of and design basis for the fill progression configuration for RMU-1 Cells 1 through 14. Section 3 presents an evaluation of the stormwater runoff conditions for each of the cells with open infiltration channels and Detention Basins H and I. Section 4 presents an evaluation of the leachate removal, storage, transfer, and treatment system. Section 5 presents conclusions and recommended modifications to the system in order to manage stormwater and leachate resulting from the 25-year, 24-hour storm event.

In addition, three appendices have been included with this LLCP. Appendix A presents RMU-1 hydrologic and stormwater routing calculations, including the following analyses: detention basin storage capacity, infiltration channel routing calculations, leachate elevation and time of exceedance calculations, culvert design calculations, interim drainage feature design calculations, detention basin transition analysis, and Tank T-165 calculations. Appendix B presents RMU-1 leachate removal, storage, and transfer calculations, including the following evaluations: RMU-1 landfill cells through the lift station to the OWS, detention basin pump through the lift station to the OWS, tank T-157 flow capacity demonstration, tank farm to AWTS at carbon feed tank (T-3003), carbon feed tank (T-3003) to leachate tank T-58, carbon feed tank (T-3003) to leachate tank T-125, an LTF storage capacity analysis, and a secondary containment area tanker transfer analysis. Appendix C presents slope stability analyses for the fill progression design.

2. Fill Progression Design

2.1 General

The fill progression design proposed for RMU-1 Cells 1 through 14 is presented on Drawing 1. The proposed design was prepared in general conformance with the approved Sitewide Part 373 Permit and the *RMU-1 Operations and Maintenance Manual* (O&M Manual), and presents permitted top of final waste grades within capped portions of RMU-1, final and interim waste grades in uncapped portions, surface-water management controls, and general truck access routes. A further description of the proposed fill progression and basis of design is provided in the following subsections.

2.2 Fill Progression Configuration for Cells 1 through 14

In developing the fill progression design for Cells 1 through 14, several factors were considered, including achieving final waste grades, where possible; waste grade transition from the December 2007 fill plan; surface-water and leachate management; fill area accessibility; slope stability; and future final cover construction. Where possible, the proposed design integrates existing features within RMU-1, such as capped areas, access routes, and surface-water management controls, and builds upon the December 2007 fill plan.

Waste grades for the proposed fill progression design generally ranges from 5 percent on plateau areas to 33 percent on constructed side slopes. It should be noted that 50 percent slope gradients will be constructed on slopes adjacent to infiltration channels, as specified in the O&M Manual and in other select locations (e.g., access road side slopes and some basin side slopes), in accordance with the provisions of the interim waste height stability analysis presented in the RMU-1 Engineering Report. Consistent with previous fill progression designs, setbacks have been established on the proposed waste slopes based on allowable fill placement criteria contained within the O&M Manual and RMU-1 Engineering Report, and provides for the minimum slope stability factors of safety. Slope stability analyses for the fill progression design are provided in Appendix C.

The proposed fill progression plan includes a 2.5-foot increase in areas that were previously designed to final permitted waste grades in the December 2007 fill plan. This increase is based on the July 1, 2009 acceptance of the final cover permit modification by the NYSDEC. In addition to this change, the existing Detention Basin G is subdivided into two separate basins (identified as Detention Basins H and I). Detention Basin I is the larger of the two basins and is intended to receive the majority

of runoff from uncapped areas of RMU-1. This basin is established at a higher elevation than the existing Detention Basin G to allow for waste placement within the basin footprint and beneath Detention Basin I. Detention Basin H is significantly smaller than Detention Basin I and is primarily intended to manage stormwater that will otherwise not be manageable in the south and east perimeter channels. In order to receive inflow from these perimeter channels, Detention Basin H is established at a lower elevation than Detention Basin I. Detention Basin H is essentially a remainder of the existing Detention Basin G and is located within the planimetric limit of the RMU-1 liner system.

2.3 Stormwater Management

As in the past, surface-water runoff from the majority of the final cover areas is conveyed off the landfill and directed to on-site stormwater retention basins. Runoff from Phases I, II, III, and V final cover areas and portions of the Phases IV and VI final cover areas is directed to Retention Basin V01, which is located to the north of RMU-1. Runoff from the remainder of the Phases IV and VI final cover areas is directed into Retention Basin V02, which is located to the east of RMU-1.

Consistent with the December 2007 fill plan, under the proposed fill progression design, the majority of surface-water runoff occurring on active portions of the landfill will be directed to detention basins (in this case, Detention Basins H and I). Remaining runoff from active areas of the landfill will drain into infiltration channels at the landfill perimeter. As depicted on Drawing 1, surface-water diversion berms (stormwater benches) and temporary diversion ditches are constructed along the waste side slopes, where possible, to intercept and convey runoff resulting from upgradient slope areas to the detention basins. Temporary downchute pipes are used to convey runoff down the eastern waste face and into the east perimeter channel, where it is then routed to Detention Basin H. Typical dimensions for the temporary diversion ditches and surface-water diversion berms are provided on Figures 6 and 11, respectively, of the O&M Manual. Details for the temporary downchute pipes are provided on Figure 14 of the O&M Manual.

Detention Basins H and I provide sufficient volume to contain stormwater runoff from their tributary drainage area and provide the minimum required freeboard of 1 foot. This condition is based on a 1 foot depth of liquid above the low point of the basins at the start of the storm event. Runoff contained within Detention Basin H either infiltrates into the operations layer and into the primary LCS of Cells 11/13 and 12/14 via the south perimeter channel (when the basin liquid elevation rises sufficiently to allow the liquid to backflow into the south perimeter channel) or is removed via pumping to the

secondary leachate forcemain at the Cell 11/13 leachate riser vault and, under certain circumstances, to Detention Basin I. Runoff contained within Detention Basin I is removed via pumping to the primary leachate forcemain at the Cell 11/13 leachate riser vault. Detention basin capacity calculations are discussed in greater detail in Section 3.

Stormwater runoff from portions of RMU-1 that are physically unable to drain into the detention basins (due to elevation constraints) is managed via infiltration channels at the landfill perimeter. Runoff flowing into these channels will either infiltrate into the underlying operations stone (and into the cell primary LCS) or flow into Detention Basin H. Stormwater routing calculations for the infiltration channels are discussed in greater detail in Section 3. The proposed fill progression plan preserves several check dams depicted at various points along the infiltration channels in the December 2007 fill plan. The purpose of the check dams is to provide separate areas for stormwater management and to promote infiltration into the operations layer material by retaining stormwater upgradient of the check dams. Typical dimensions for the check dams are provided on Figure 12 of the O&M Manual.

2.4 Truck Traffic Pattern

The proposed fill progression design retains the same truck traffic patterns and road geometry as the December 2007 fill plan. This arrangement provides for two-way truck traffic into and out of RMU-1 at the southeastern corner of the landfill. The ingress/egress road incorporates a high point just inside the permitted limit of waste to minimize the potential migration of contact stormwater beyond the limits of RMU-1. Truck traffic will be directed to waste filling areas within RMU-1 along internal truck routes.

The equipment/vehicle decontamination area will be retained in its current location at the low point of the ingress/egress route at the northern end of Detention Basin H in Cell 11. At this location, the road is paved and sloped in towards Detention Basin H. Washwater from decontamination activities will continue to be directed to the western edge of the road and into a washwater sediment trap located on the sideslope of Detention Basin H. Washwater overflow from the sediment trap will drain into Detention Basin H.

3. Hydrologic Evaluation and Stormwater Routing

3.1 General

In general, stormwater runoff from the capped areas of RMU-1 is managed in accordance with the *Surface-Water Sampling and Analysis Plan* (Attachment M of the Sitewide Part 373 Permit), while runoff from uncapped areas within RMU-1 is collected and treated as leachate. The majority of stormwater runoff from the uncapped area of RMU-1 is intercepted and conveyed to Detention Basins H and I via surface water diversion berms, culverts, and other temporary drainage features, such as diversion ditches and downchute pipes. The remainder of stormwater runoff from uncapped portions of RMU-1 flows into infiltration channels, where it either infiltrates through the operations layer into the cells or flows into Detention Basin H via culverts or open channel flow. Stormwater that infiltrates into the cells migrates to the primary LCS sumps where it is collected and pumped into the leachate transfer piping system.

The following sections present the methodology used to determine the stormwater runoff conditions into the detention basins, infiltration channels, and the primary LCS sumps. Also presented is a summary description of the results of the analyses, including stormwater routing results for the detention basins, stormwater routing results for the infiltration channels and the primary LCS sumps, times of exceedance for the primary LCS sumps, culvert design calculations, interim drainage feature design calculations, and the detention basin transition analysis. Hydrologic calculations were performed using HydroCAD Version 8.5 (HydroCAD Software Solutions, LLC) and PondPack Version 7.5 (Haestad Methods, Inc.), which are hydrologic and hydraulic modeling software packages that are based on the TR 20 methodology. All stormwater runoff and routing calculations are based on the 25-year, 24-hour storm event, which produces 4.0 inches of rainfall at the site.

3.2 Stormwater Routing through Detention Basins H and I

The fill progression configuration depicted on Drawing 1 results in a 1.76-acre watershed that drains directly into Detention Basin H and a 14.86-acre (10.82-acre following Phase VII Final Cover installation) watershed that drains directly into Detention Basin I. These watershed areas do not include partial stormwater contributions from other sources, such as inflow from the south and east perimeter infiltration channels in the case of Detention Basin H, and pump inflow from Detention Basin H in the case of Detention Basin I. The contribution from these sources is determined via routing calculations performed using HydroCAD as discussed in Attachments 1 and 2 of Appendix A.

Both proposed detention basins will be lined, similar to past basins. This liner greatly reduces leakage from the basins and so no outflow due to infiltration through the basin interior surfaces is considered in Appendix A. Outflow from Detention Basin H includes the following mechanisms that are assumed to function during the design storm event:

- Outflow to the south perimeter channel once the basin liquid elevation exceeds 328.00 feet, which is the elevation at which the liquid can backflow into the south perimeter channel. Above this elevation, liquid within the basin is subject to infiltration into the operations layer and into the Cell 11/13 and 12/14 primary LCS. For this reason, the detention basin and the south perimeter channel are modeled as a combined system.

- Outflow to the primary leachate forcemain via a submersible pump. This pump (identified in the calculations as Pump 1) is assumed to be operated automatically with level controls and will pump at approximately 33 gpm whenever the depth of liquid in the basin is greater than 1 foot.

- Outflow to Detention Basin I via a submersible pump. The pump (identified in the calculations as Pump 2) is assumed to be operated automatically with level controls and will pump at approximately 67 gpm whenever the liquid elevation in the basin exceeds 328.00.

Outflow from Detention Basin I occurs via pumping to the primary leachate forcemain with a portable Godwin diesel pump. Consistent with past LLCPs, pumping from this basin is assumed to begin only after the stormwater volumes within the active RMU-1 cells has been conveyed to the LTF.

Attachment 1 of Appendix A contains the stormwater routing calculations for both proposed basins and demonstrates the adequacy of the basins to manage the estimated stormwater runoff while meeting the minimum required freeboard. The following table presents a summary of the routing calculations for the two proposed basins. Also presented in this table and all other tables in Section 3 (in parentheses) are predicted conditions following installation of 7.1 acres of Phase VII final cover area for comparison. Note that these post-Phase VII final cover conditions are not presented in the attachments to this report.

Detention Basin	Starting Liquid El. (ft)	Peak Inflow[1] (cfs)	Peak Outflow[1] (cfs)	Peak Liquid El. (ft)	Lowest Lined Crest El. (ft)	Freeboard (ft)
H	322.31 (Basin Floor)	22.50 (17.74)	1.15 (0.22)	328.36 (328.00)	330.09[2]	1.73 (2.09)
	323.31 (1 Foot Above Basin Floor)	22.50 (17.74)	1.16 (0.22)	328.36 (328.00)		1.73 (2.09)
I	334.10 (Basin Floor)	73.53 (53.54)	0.00 (0.00)	349.30 (347.04)	351.62	2.32 (4.58)
	335.10 (1 Foot Above Basin Floor)	73.53 (53.54)	0.00 (0.00)	349.35 (347.10)		2.27 (4.52)

El. – elevation
cfs – cubic feet per second
ft - feet

Notes:
1. Peak inflow and outflow values are composited considering all active inflow and outflow mechanisms.
2. The lowest lined crest elevation for Basin H is based on that of the south perimeter channel, to which the basin is hydraulically connected.
3. Parenthetical values represent conditions that would exist following construction of the Phase VII final cover area.

As indicated in the table above, two different starting liquid elevations are considered for the basins to maintain consistency with previous LLCP evaluations. The first elevation assumes that the basins are completely dry at the beginning of the design storm event, while the second assumes that 1 foot of liquid is present above the low point of the basins at the beginning of the storm. Both basins provide the minimum required 1 foot of freeboard for both scenarios.

The predicted peak liquid elevation in Detention Basin H for both starting liquid elevations is above the invert elevation of 328.00 feet for the connecting south perimeter channel; therefore, liquid from the basin will backflow into the south perimeter channel and infiltrate into the operations layer and into the primary LCS of Cells 11/13 and 12/14. As discussed earlier in this section, this infiltration will continue until the basin liquid elevation subsides to 328.00 feet (due to a combination of infiltration into the primary LCS of Cells 11/13 and 12/14 and pumping to Basin I via Pump 2). The liquid remaining in the basin below elevation 328.00 feet will then be managed with Pump 1, an automated submersible pump within the basin. The following table presents the post-infiltration liquid elevations and volumes.

Starting Liquid Elevation (ft)	Peak Liquid El. (ft)	Post-Infiltration Basin Liquid El. (ft)	Post-Infiltration Liquid Volume in Basin (Excluding Liquid 1 Foot Above Floor) (cu. ft)
322.31 (Basin Floor)	328.36 (328.00)	328.00	24,394
323.31 (1 Foot Above Basin Floor)	328.36 (328.00)	328.00	24,394

El. – elevation
ft – feet
cu. ft – cubic feet

Note:
1. Parenthetical values represent conditions that would exist following construction of the Phase VII final cover area.

Because Detention Basin I is a self contained detention basin and is not directly connected to any infiltration channels, all liquid that enters the basin is assumed to remain in the basin until it is removed using the basin pump. Thus, there is no need to quantify the post-infiltration basin liquid elevation and volume because the post-infiltration values are the same as the peak values experienced during the design storm.

An additional analysis to assess stormwater containment during, and subsequent to, the transition from Detention Basin G to Detention Basins H and I is presented in Attachments 6 and 7 of Appendix A. This additional analysis is discussed separately in Sections 3.7 and 3.8.

3.3 Stormwater Routing through the Infiltration Channels

Attachment 2 of Appendix A contains the calculations for the stormwater runoff hydrographs associated with the watersheds draining to the infiltration channels of Cells 7/8, 9/10, 11/13, and 12/14. Also included in Attachment 2 are the routed hydrographs through the channels. The stormwater routing methodology used in this LLCP is consistent with that used in the December 2007 LLCP, in that any longitudinal slope of the infiltration channels and, therefore, the tendency of stormwater to pool at the low end of the channels is considered.

As discussed in Section 2.3, the construction of check dams at various locations in the infiltration channels creates multiple independent infiltration channels. As such, a separate watershed area is delineated for each infiltration area created by the check dams. The watershed boundaries for each infiltration channel in the uncapped portions of RMU-1 are delineated based on the grading depicted on Drawing 1. The following table presents a summary of the individual watershed characteristics, including

acreages, runoff curve numbers (CN), times of concentration (Tc), and estimated peak discharges. (Note that, for the east perimeter channel, conditions are summarized for each channel reach, as described in Attachment 2 of Appendix A.)

Channel	Watershed Area (ac)	CN	Tc (hr)	Estimated Peak Discharge into Channel (cfs)
Cell 10 Perimeter	1.27(0.00)	90	0.1	6.26 (0.00)
Cell 12 Perimeter	0.59 (0.26)	90	0.1	2.90 (1.29)
Cell 14 West Perimeter	0.62	90	0.1	3.07
South Perimeter	1.70	90	0.1	8.41
East Perimeter – Reach 1 (Upstream)	1.03 (0.44)	90	0.1	5.11 (2.18)
East Perimeter – Reach 2	0.12 (0.12)	90	0.1	0.60 (0.59)
East Perimeter – Reach 3	0.12 (0.11)	90	0.1	0.60 (0.54)
East Perimeter – Reach 4	0.14 (0.08)	90	0.1	0.68 (0.40)
East Perimeter – Reach 5	0.14 (0.12)	90	0.1	0.71 (0.59)
East Perimeter – Reach 6	0.16	90	0.1	0.78
East Perimeter – Reach 7	0.14	90	0.1	0.71
East Perimeter – Reach 8	0.14	90	0.1	0.71
East Perimeter – Reach 9	0.12	90	0.1	0.59
East Perimeter – Reach 10	0.09	90	0.1	0.46
East Perimeter – Reach 11 (Downstream)	0.11	90	0.1	0.53

ac – acres
cfs – cubic feet per second
hr – hour

Note:
1. Parenthetical values represent conditions that would exist following construction of the Phase VII final cover area. Because the Phase VII final cover area extends across a portion of the east perimeter channel, the number, length, and location of the reaches following Phase VII final cover area construction differ than those that exist prior to Phase VII final cover area construction.

The stormwater runoff hydrographs for the drainage areas were routed through their respective channels using channel rating curves (stage/storage/discharge relationships) that were developed based on Darcy's law and the geometry presented on Drawing 1. The routed channel outflow hydrographs were used as inflow hydrographs to the primary LCS sumps (described in Section 3.4). The channel routing procedure also provides estimated peak elevations in the channels, from which freeboards are calculated. Additionally, in the case of the south and east perimeter channels, the routing procedure was also used to determine the volume of stormwater flowing into Detention Basin H from the channels. As indicated in Section 3.2, the south perimeter channel is modeled as a combined system with Detention Basin H. In this way, the model accounts for not only the flow from the channel into the basin but also

for bidirectional flow between the two features once the basin liquid elevation exceeds 328.00 feet. The following table presents a summary of the channel routing procedure.

Channel	Estimated Peak Inflow into Channel (cfs)	Estimated Peak Outflow from Channel (cfs)	Peak Liquid Elevation [Depth][1] (ft)	Lowest Lined Elevation[2] (ft)	Resulting Freeboard[3] (ft)
Cell 10 Perimeter	6.26 (0.00)	4.42 (0.00)	329.56 [2.63], (326.93 [0.00])	330.62	1.06 (3.62)
Cell 12 Perimeter	2.90 (1.29)	1.82 (0.56)	331.11 [1.44], (330.78 [1.11])	332.32	1.21 (1.54)
Cell 14 West Perimeter	3.07	2.22	332.18 [2.45]	333.23	1.05
South Perimeter	8.41	7.69	328.74 [1.26]	330.09	1.35
East Perimeter – Reach 1 (Upstream)	5.11 (2.18)	5.09 (2.18)	0.72 (0.46)	2.30	1.58 (1.84)
East Perimeter – Reach 2	5.59 (2.74)	5.58 (2.74)	0.76 (0.53)	2.30	1.54 (1.77)
East Perimeter – Reach 3	6.08 (3.23)	6.06 (3.25)	0.79 (0.57)	2.30	1.51 (1.73)
East Perimeter – Reach 4	6.62 (3.59)	6.61(3.62)	0.82 (0.63)	2.30	1.48 (1.67)
East Perimeter – Reach 5	7.17	7.16	0.85 (0.86)	2.30	1.45 (1.44)
East Perimeter – Reach 6	7.78	7.76	0.88	2.30	1.42
East Perimeter – Reach 7	8.29	8.28	0.91	2.30	1.39
East Perimeter – Reach 8	8.79	8.77	0.94	2.30	1.36
East Perimeter – Reach 9	9.17	9.15	0.96	2.30	1.34
East Perimeter – Reach 10	9.40	9.38	0.98	2.30	1.32

Channel	Estimated Peak Inflow into Channel (cfs)	Estimated Peak Outflow from Channel (cfs)	Peak Liquid Elevation [Depth][1] (ft)	Lowest Lined Elevation[2] (ft)	Resulting Freeboard[3] (ft)
East Perimeter – Reach 11 (Downstream)	9.69	9.67	0.96	2.30	1.34

cfs – cubic feet per second
ft – feet

Notes:

1. The peak depths for channels, other than the east perimeter channel, are obtained by subtracting the low point of the channel inverts from the peak liquid elevations. Because of the different routing methodology used for the east perimeter channel, peak depths are calculated directly.
2. The lowest lined elevations for channels, other than the east perimeter channel, are determined from as-built top of secondary clay drawings. Because of the different routing methodology used for the east perimeter channel, the lowest lined elevation is presented in terms of lined channel depth.
3. The resulting freeboards are obtained by subtracting the peak liquid elevations from the lowest lined elevations, or in the case of the east perimeter channel, the lined channel depth minus the peak liquid depth.
4. Parenthetical values represent conditions that would exist following construction of the Phase VII final cover area. Because the Phase VII final cover area extends across a portion of the east perimeter channel, the number, length, and location of the reaches following Phase VII final cover area construction differ than those that exist prior to Phase VII final cover area construction.

As indicated in the above table, each infiltration channel provides sufficient capacity to manage stormwater runoff from the 25-year, 24-hour storm event and provide the minimum required 1 foot of freeboard.

3.4 Stormwater Routing through Primary LCS Sumps and Time of Exceedance

Attachment 3 of Appendix A contains the calculations for routing of the channel outflow hydrographs (discussed in Section 3.3) through the primary LCS sumps of Cells 7/8, 9/10, 11/13, and 12/14. Stage/storage relationships for the LCS sumps in these cells are from the December 2007 LLCP and based on constructed cell floor grades. The sump outflow rate for each cell is the estimated pumping rate for the primary leachate collection pump. The estimated pumping rate was determined from a WaterCAD (piping system modeling software developed by Haestad Methods, Inc.) model of the leachate removal, storage, and transfer system, as discussed in Section 4.

The sump routing procedure is used to estimate the peak liquid elevation and the time of exceedance within each cell. The time of exceedance is the time during which the liquid elevation within a given cell exceeds the allowable liquid elevation. Consistent with the Sitewide Part 373 Permit and previous LLCP evaluations, the allowable liquid elevation for each cell is 1 foot above the primary geomembrane at the lowest crest

elevation of the cell sump. The following table presents a summary of the sump routing procedure.

Cell	Estimated Peak Inflow to Cell (cfs)	Estimated Peak Outflow from Cell (cfs)	Allowable Leachate El. (ft)	Peak Leachate El. (ft)	Time of Exceedance (hr)
7/8	0.31(0.00)	0.13 (pump limited)	313.43	312.48 (312.43)	0.00 (0.00)
9/10	5.22 (0.14)	0.34 (pump limited)	314.82	316.27 (313.85)	9.35 (0.00)
11/13	1.62 (1.40)	0.30 (pump limited)	311.59	311.43 (311.00)	0.00 (0.00)
12/14	5.61 (4.33)	0.30 (pump limited)	311.75	313.00 (312.43)	18.80 (10.75)

cfs – cubic feet per second
ft – feet
El. – elevation

Note:
1. Parenthetical values represent conditions that would exist following construction of the Phase VII final cover area.

As indicated in the table above, the time of exceedance for each cell is less than the maximum allowable time of 24 hours, as stated in the Sitewide Part 373 Permit.

3.5 Stormwater Routing through Culverts

Attachment 4 of Appendix A contains the calculations for the design of the culverts depicted on Drawing 1. The two culverts depicted on Drawing 1 and analyzed in Attachment 4 were originally proposed for the December 2007 fill plan and are to be retained for the proposed fill plan. The following table presents a summary of the estimated peak discharge to each culvert during the 25-year, 24-hour storm, the culvert configuration and the resulting capacity.

Culvert ID	25-Year, 24-Hour Estimated Peak Discharge[1] (cfs)	Culvert Configuration	Culvert Capacity (cfs)
CV-1	13.14	Two 18-inch HDPE@ 0.25%	15.73[2]
CV-2	9.35 (2.85)	Three 18-inch CMP @ 1.5%	14.96[3]

cfs – cubic feet per second
HDPE – high-density polyethylene
CMP – corrugated metal pipe

Notes:
1. Estimated peak discharges are based on December 2007 LLCP. As indicated in Appendix A-4, the proposed fill progression plan does not substantially affect the original predicted peak flowrates.

2. Culvert capacity for culvert CV-1 is determined based on a headwater depth equal to the channel depth (i.e., 2.46 feet).
3. Culvert capacity of culvert CV-2 is determined based on a headwater depth of 1.3 feet, which is 1 foot less than the minimum channel depth for the east perimeter channel.
4. Parenthetical values represent conditions that would exist following construction of the Phase VII final cover area.

As shown in the table above, each culvert provides sufficient capacity to manage stormwater runoff from the 25-year, 24-hour storm event.

3.6 Interim Drainage Features

Attachment 5 of Appendix A contains calculations for the design of interim drainage features (other than culverts) depicted on Drawing 1. These features include two temporary diversion ditches on the western face of RMU-1 and a temporary downchute pipe system and a downchute header pipe on the eastern face of RMU-1. The geometries of these features are depicted on Figures 6 and 14 of the O&M Manual. These features were originally proposed for the December 2007 fill plan and are to be retained for use with the proposed fill plan. Two other interim drainage features (a partial bench and south downchute pipe) were also originally proposed for the December 2007 fill plan but, due to the advancing waste grades, are no longer necessary for the proposed fill plan. An additional temporary diversion berm associated with Phase VII final cover installation is also necessary as depicted on Figure 15 of the O&M Manual. Watersheds to these features were originally designed based on the December 2007 fill progression plan but have been recalculated based on the December 2009 fill progression plan to determine a worst-case peak discharge. The following table presents a summary of the worst-case 25-year, 24-hour event estimated peak discharge to each of the interim drainage features to be retained for the proposed fill plan and their respective hydraulic capacity.

Interim Drainage Feature	Worst Case 25-Year, 24-Hour Estimated Peak Discharge[1] (cfs)	Hydraulic Capacity (cfs)
Upper Diversion Ditch	23.26	49.43
Lower Diversion Ditch	6.38	7.78
North Downchute Pipe (Draining Uppermost Stormwater Bench)	1.39	2.67
North Downchute Pipe (Draining Middle Stormwater Bench)	4.51	5.35
North Downchute Header Pipe	5.90	6.68
Diversion Berm	10.75	13.94

cfs – cubic feet per second

Notes:
1. Estimated peak discharges are based on the worst-case watershed from either the December 2007 or December 2009 fill progression plans.

As shown in the table above, each interim drainage feature provides sufficient capacity to manage stormwater runoff from the 25-year, 24-hour storm event.

3.7 Detention Basin Transition

Attachment 6 of Appendix A contains stormwater routing calculations for proposed Detention Basins H and I at a critical period during the transition from existing Detention Basin G. These basin transition calculations are based on predicted watershed areas that will exist at the critical period and not on the watershed areas depicted on the fill progression plan. The basin transition watersheds reflect the planned construction of Phase VII final cover and the interim grades for the berm dividing Detention Basins H and I that will exist during the critical period. A figure showing the basin transition watersheds is included as part of the basin transition calculations.

In addition to the construction of Phase VII final cover, it will be necessary to construct a temporary retention area within RMU-1 and upgradient of Detention Basin I to mitigate the temporary loss of basin capacity associated with the construction of the berm dividing Detention Basins H and I. This temporary retention area will be constructed on an existing 25-foot-wide bench located upgradient of existing Detention Basin G. The temporary retention area will employ precast concrete retaining wall blocks to form a containment berm along the outside edge of the bench and at the ends of the bench. A low-permeability geosynthetic layer will be installed to line the interior surfaces of the temporary retention area. The majority of the stormwater runoff from the Detention Basin I watershed will be routed into the temporary retention area. Liquids collected in the temporary retention area will normally be removed by pumping into the primary leachate forcemain, similar to the detention basins. If necessary, runoff in excess of the storage capacity of the temporary retention area will overflow via a weir at the north end of the temporary retention area. The basin transition calculations in Attachment 6 of Appendix A include the storage capacity provided by this temporary retention area. As indicated in Attachment 6, the minimum required storage capacity for the temporary retention area is 9,757 cu. ft, excluding the volume occupied by liquid in the lowermost 1 ft of the retention area.

The following table presents a summary of the routing calculations for the two proposed basins at the critical period during the basin transition process.

Detention Basin	Starting Liquid El. (ft)	Peak Inflow[1] (cfs)	Peak Outflow[1] (cfs)	Peak Liquid El. (ft)	Lowest Lined Crest El. (ft)	Freeboard (ft)
H	322.31 (Basin Floor)	13.89	0.07	327.42	330.09[2]	2.67
	323.31 (1 Foot Above Basin Floor)	13.89	0.07	327.42		2.67
I	319.00 (Basin Floor)	53.86	0.00	328.55	330.09[2]	1.54
	320.00 (1 Foot Above Basin Floor)	53.86	0.00	328.75		1.34

Notes:
1. Peak inflow and outflow values are composited considering all active inflow and outflow mechanisms.
2. The lowest lined crest elevation for Basins H and I are based on that of the south perimeter channel, to which the basins are hydraulically connected during the basin transition period.

El. – elevation
cfs – cubic feet per second
ft - feet

Prior to commencing construction of the berm dividing Detention Basins H and I, the Phase VII final cover area must be constructed, certified, and approved by the NYSDEC. Also, the temporary retention area must be constructed and an as-built survey performed to confirm that the constructed feature provides at least the aforementioned minimum usable storage volume of 9,757 cu. ft.

In lieu of constructing Phase VII final cover and the temporary retention area, proposed new Tank T-165 may be utilized during the basin transition period as described in Section 3.8.

3.8 Tank T-165

Tank T-165 is an 876,800 gallon storage tank located outside the southeast corner of RMU-1. This tank will provide temporary storage of contact stormwater from RMU-1 to replace capacity lost in Detention Basin G while it is being converted to Detention Basins H and I. After construction of Detention Basins H and I is completed, tank T-165 will remain in operation to provide additional storage capacity which may be needed as RMU-1 reaches final waste grades and future detention basins in the landfill are decreased and eventually eliminated.

During the transition of Detention Basin G, it has been determined that the required tank capacity is 763,742 gallons, not including an allowance for standing liquid in the bottom of the tank or freeboard, based on the worst-case basin transition period and

assuming that no Phase VII final cover nor the temporary retention area (see Section 3.7) have been constructed. Tank T-165 capacity calculations are presented in Attachment 7 of Appendix A.

Two pumps (P-165A and P-165B) will be installed into Detention Basin G. The pumps are designed to discharge a minimum of 1,032 gpm (516 gpm each) to tank T-165. Level control will be installed to automatically start and stop these pumps upon reaching elevation 326.5 feet which is approximately 8 feet above the initial bottom invert elevation of Detention Basin G. As Detention Basin G is filled in, the pumping level will be adjusted and eventually the pumps will be repositioned into Detention Basin I. Normal operation will be to pump out the basin to the primary leachate forcemain using the Godwin diesel pump as described in Section 4.3. For larger basin inflows resulting in a level above 326.5 feet, pumps P-165A and P-165B will automatically pump liquids to tank T-165 until the basin level is reduced to 326.5 feet at which time the Godwin pump will again be used to pump the liquids directly to the primary leachate forcemain.

As liquids accumulate inside tank T-165, submersible pump P-165C, located inside the tank, will be used to discharge from the tank to the RMU-1 primary leachate forcemain. The discharge rate will be set at 160 gpm, the same as the Godwin diesel pump in the detention basin. For the 25-year, 24-hour, storm event, the RMU-1 primary sumps will first be pumped down, after which either Detention Basin G (or Detention Basin I later) will be pumped down using the Godwin diesel pump, or tank T-165 will be pumped down using pump P-165C. Because the tank is essentially an extension of the detention basin and is pumped down using the same pumping rate, the order in which the two features are pumped down is unimportant. This operating philosophy and discharge rate for tank T-165 is analogous to that used for the RMU-1 detention basins. In this way, all downstream systems will not be affected since flow volumes will be the same, whether coming from the RMU-1 detention basin or tank T-165.

4. Residuals Management Unit 1 Leachate Removal, Storage, and Transfer System Evaluation

4.1 General

The RMU-1 leachate management system consists of primary and secondary leachate collection and pumping systems, a leachate removal and transfer system, and an RMU-1 lift station. The LCS is designed to drain leachate to a collection sump at the low point of each cell. Leachate is removed from the primary and secondary sumps by submersible pumps installed in a perforated section of each side slope riser pipe located at the bottom of each sump. Leachate is discharged to double-walled forcemains located in the RMU-1 perimeter berm and transferred to the RMU-1 lift station at the western edge of RMU-1.

The lift station pumps leachate through underground force mains to tank T-157, located in the former OWS building. Leachate is then pumped from tank T-157 through an aboveground 8-inch-diameter steel pipe to the LTF. The LTF stores leachate from all active and closed landfills, as well as miscellaneous site waters. Leachate is then transferred from the LTF to the AWTS as the AWTS capacity allows. Treated effluent from the AWTS is transferred to final effluent holding tanks T-58 and T-125, which have operating volumes of 488,529 gallons and 394,271 gallons, respectively.

The following analyses of the leachate removal, storage, and transfer system are discussed in this section:

- RMU-1 landfill primary sumps, through the RMU-1 lift station (tank T-160) and into tank T-157.
- RMU-1 detention basins through the RMU-1 leachate transfer system to tank T-157.
- RMU-1 lift station capacity.
- LTF storage capacity.
- LTF through AWTS to effluent holding tanks T-58 and T-125.
- Secondary containment area tanker transfer to tank T-100.

4.2 Residuals Management Unit 1 Landfill Cell 1 through 14 Lift Station to OWS Building

WaterCAD 5.0 by Haestad Methods, Inc. was used to model the hydraulics of the leachate transfer system from RMU-1 Cells 1 through 14 and Detention Basin H (Pump 1) through the RMU-1 lift station to tank T-157 in the OWS building. Hydraulic model data and system evaluation results are presented in Attachment 1 to Appendix B.

The following assumptions were used during the evaluation:

- Landfill cell primary sumps are modeled as constant head reservoirs with constant head at approximately 1 foot above the low point of primary liner (i.e., allowable leachate elevation).
- Head at landfill cell primary pumps is constant and sufficient for pump operation (net positive suction head).
- Primary leachate pumps in Cells 7/8, 9/10, 11/13, and 12/14 run simultaneously in response to a storm event based on the stormwater routing evaluation discussed in Section 3 and presented in Appendix A.
- Cells 1, 2, 3, 4, 5, and 6 are capped and, therefore, do not respond to storm events. The pumps in these cells are rated at 40 gpm at 35 feet of total dynamic head (TDH).
- The RMU-1 lift station discharges into tank T-157 in the OWS building, which is modeled as a constant-head reservoir at the incoming pipe elevation.

The results of the hydraulic evaluation using the above assumptions are presented below:

RMU-1 Cell	Pump Type	Nominal Flow Rate (gpm) [1,2]	Evaluation Flow Rate (gpm)	Head at Pump (ft)	Pump Condition (On/Off)	Total Evaluated Flow to Lift Station (gpm)
Cell 1	WE05HH	40	0	0	Off	513
Cell 2	WE05HH	40	0	0	Off	
Cell 3	WE05HH	40	0	0	Off	
Cell 4	WE05HH	40	0	0	Off	

RMU-1 Cell	Pump Type	Nominal Flow Rate (gpm) [1,2]	Evaluation Flow Rate (gpm)	Head at Pump (ft)	Pump Condition (On/Off)	Total Evaluated Flow to Lift Station (gpm)
Cell 5	WE05HH	40	0	0	Off	
Cell 6	WE05HH	40	0	0	Off	
Cell 7/8	WE05HH	40	60	8	On	
Cell 9/10	JUMBO 30HH	100	152	44	On	
Cell 11/13	JUMBO 30HH	100	133	57	On	
Cell 12/14	JUMBO 30HH	100	135	55	On	
Basin H (Pump 1)[3]	WE05HH	40	33	34	On	

Notes:

1. Goulds WE05HH is rated at 40 gpm at 35 feet TDH.
2. ABS JUMBO 30 HH is rated at 100 gpm at 80 feet TDH.
3. Pump 1 in Basin H is included in this table because the pump delivers flow to the RMU-1 lift station via the primary forcemain in parallel with the RMU-1 cells. The actual modeling of this pump is discussed in Section 4.3, along with other detention basin pumps.

ft – feet
gpm – gallons per minute

Flow from the RMU-1 lift station to the OWS is discussed in Section 4.4. The capacity of the OWS is reported to be 915 gpm based on the August 12, 1999 letter from CWM to the NYSDEC, which presents the hydraulic analysis of the OWS to LTF transfer system. Based on this information, the OWS is not considered to be a limiting factor in determining the capacity of the entire system.

4.3 Detention Basin Pumps

WaterCAD was also used to model the hydraulics associated with removal of stormwater runoff from Detention Basins H and I through the RMU-1 lift station to tank T-157 in the OWS building using the following pumps:

- Detention Basin H Pump 1 (Goulds WE05HH) delivering flow to the primary leachate transfer forcemain via Cell 11/13 leachate riser vault.

- Detention Basin I pump (Godwin TS2 portable diesel pump) delivering flow to the primary leachate transfer forcemain via Cell 11/13 leachate riser vault.

Additionally, a second pump in Detention Basin H (Pump 2) that transfers liquid from Detention Basin H to Detention Basin I was modeled. Hydraulic model data and system evaluation results for the Detention Basin H pumps (Pump 1 and Pump 2) are presented in Attachment 1 to Appendix B. Hydraulic model data and system evaluation results for the Detention Basin I pump is presented in Attachment 2 to Appendix B.

In terms of basin dewatering times following the 25-year, 24-hour storm event, Pump 1 in Detention Basin H is estimated to remove the accumulated liquid in the basin that is between elevation 328.00 and 323.31 (1 foot above the basin floor) within approximately 92.2 hours (approximately 3.8 days) based on 24,394 cubic feet of liquid at 33 gpm. This timeframe is assumed to begin at hour 11, concurrent with the commencement of flows from RMU-1 cells. The Godwin diesel pump in Detention Basin I is estimated to remove the accumulated liquid in that basin within approximately 127.5 hours (approximately 5.3 days) based on 163,611 cubic feet of liquid at 160 gpm. This timeframe is assumed to begin once the accumulated leachate in the affected RMU-1 cells is completely removed (approximately 34.9 hours after the start of the storm for this evaluation). According to information provided by CWM, the pump is capable of handling approximately 400 gpm and will, therefore, need to be run in a throttled condition to deliver the design flow rate of 160 gpm.

4.4 Residuals Management Unit 1 Lift Station Capacity

The RMU-1 lift station consists of a 9-foot-diameter, 3,000-gallon steel tank located in a concrete containment area measuring 18 feet by 15 feet by 3.75 feet deep. The existing submersible pump is a Godwin GSP300HV, which delivers flow to the OWS building. The worst-case inflow to the lift station occurs when the affected cells are pumping down simultaneously with the operation of Pump 1 in Detention Basin H. As shown in the table below and in Attachment 1 to Appendix B, the combined outflow from RMU-1 Cells 7/8, 9/10, 11/13, and 12/14 and Pump 1 in Detention Basin H is 513 gpm. As shown in Attachment 1 to Appendix B, the existing Godwin GSP300HV submersible pump in the RMU-1 lift station operates at a reduced speed to provide this flowrate and therefore has a pumping capacity in excess of the combined RMU-1 lift station inflow of 513 gpm. It is noted that additional flow capacity at the RMU-1 lift station may be provided by a second pump (ABS Jumbo 200HH), which is not considered in this analysis. Therefore, the capacity of the RMU-1 lift station is adequate to collect and transfer leachate resulting from a 25-year, 24-hour storm event.

RMU-1	Pump Type	Nominal Flow Rate (gpm) [1]	Evaluation Flow Rate (gpm)	Pump Condition (On/Off)	Head at Pump (ft)	Total Evaluation Flow to Lift Station [gpm]
Lift Station	Godwin GSP300 HV	600	513	On	51	513

Notes:
1. Godwin GSP300HV is rated at 600 gpm at 120 feet TDH.
ft – feet
gpm – gallons per minute

4.5 Tank Farm Storage Capacity Analysis

The LTF consists of three 350,000-gallon carbon steel tanks located inside a secondary containment area lined with a polyurethane coating system. The LTF stores leachate from all active and closed landfills, as well as miscellaneous site waters. As stated in the AWTS Report (CWM, 1996), CWM has historically segregated leachate from SLF 1 through 6, 7, 10, 11, and 12, which typically has higher organic, metal, polychlorinated biphenyl ,and iron-complexed cyanide concentrations into tank T-101. This segregation strategy was accepted by the NYSDEC in a letter to CWM, dated April 2, 1996. Based on recent analytical data and the degree of treatment needed, leachate from SLF 12 is currently discharged into tanks T-102 and T-103, as well as with leachate from RMU-1 and miscellaneous site waters, including the LTF secondary containment areas.

The LTF storage capacity analysis is based on estimated flows resulting from the 25-year, 24-hour storm event. For the purposes of this evaluation, flow sources include the RMU-1 cells, Detention Basins H and I, the LTF secondary containment area, site groundwater extraction systems, and average flows from SLF 1 through 12. The detention basin pumping rates and flow rates from appropriate cells are depicted in the tables above.

According to the Sitewide Part 373 Permit, if the available capacity in the leachate storage tanks (T-101, T-102, T-103) is less than 625,000 gallons, CWM must treat or ship off site for treatment no less than 200,000 gallons per day (equivalent to 139 gpm) until the available capacity returns to 625,000 gallons. Based on information presented in Attachment 4 of Appendix B, the tank farm pump P-105 (an Ingersoll-Dresser HOC3+ variable speed pump rated at 250 gpm at 305 feet of total dynamic head) can discharge at a rate of 176 gpm, which exceeds the permit requirement of 139 gpm. According to information presented in Attachments 5 and 6 of Appendix B, the AWTS can process 227 gpm using Ingersoll-Dresser HOC3+ pump P-3002A to discharge from tank T-3003 to the effluent holding tanks T-58 and T-125. Assuming 2 hours of

downtime, this results in an equivalent process rate of 208 gpm, which exceeds the permit-required treatment rate of 139 gpm discussed above. CWM performed flow rate pump tests for pump P-105 and pump P-3002A in order to verify the model-predicted flow rates. The results of the flow rate pump test are contained in a report prepared by CWM entitled *Leachate Level Compliance Plan Pump Flow Rate Verification Report for Pumps P-105 and P-3002A*, dated October 2001.

A liquid mass balance, including a table depicting outflow conditions at the LTF is presented in Attachment 7 of Appendix B. Individual tank storage volumes and liquid heights are calculated and tabulated based on the following assumptions:

- In accordance with the site-specific CWM permit condition, liquid elevations in the tanks are such that only 625,000 gallons of storage capacity is available at the beginning of the analysis.
- Each tank has approximately the same liquid level at the start of the analysis.
- Flows from SLF 1 through 11 and groundwater extraction systems may be directed to tank T-101 or to the A/T system.
- Flows from SLF 12, RMU-1 landfill cells, and Detention Basins H and I are directed to tanks T-102 and T-103.
- Pump run times for each pump (Cells 7/8, 9/10, 11/13, 12/14, and Detention Basins H and I) are determined by dividing the total stormwater runoff volume into each cell or basin (provided in Appendix A) by the calculated pumping rate.
- RMU-1 cells begin pumping 11 hours after the start of the 25-year, 24-hour storm event to maintain consistency with previous LLCP analyses.
- Flow from secondary containment areas, other than the LTF, is directed to tank T-100 for 24 hours as shown in Attachment 8 of Appendix B.
- Flow from Detention Basin H (Pump 1) commences 11 hours after the start of the storm event, concurrent with the RMU-1 cells.
- Flow from Detention Basin I commences after the RMU-1 cells are completely pumped down.

- Based on information presented in Attachment 4 of Appendix B, the maximum outflow from the LTF via pump P-105 is 176 gpm.

- The AWTS capacity is 208 gpm (227 gpm with an average downtime of 2 hours per day).

This transient mass balance verifies that the volume available in tanks T-102 and T-103 is sufficient to temporarily store peak flows from the RMU-1 cells, Detention Basins H and I, and other sources during the 25-year, 24-hour storm event. As discussed in previous analyses, non-stormwater flow rates from RMU-1 landfill cells during storm events (i.e., base flow) are considered negligible in comparison with storm-related flows and have, therefore, not been included in this evaluation. Non-stormwater flow rates are addressed following management of the 25-year, 24-hour storm event volume.

4.6 Tank Farm through AWTS Facility to Tanks T-58 and T-125

According to CWM, the piping and pumps at AWTS have been upgraded in accordance with recommendations in previous LLCP evaluations. Based on information presented in Attachments 5 and 6 of Appendix B, as well as with the pump verification report prepared by CWM, the system is capable of treating 227 gpm through the AWTS to effluent holding tanks T-58 and T-125. An effective flow rate of 208 gpm is used for this system, based on an average downtime of 2 hours per day for maintenance purposes (e.g., carbon replacement). Hydraulic models showing the system flowrate from tank T-3003 to leachate tanks T-58 and T-125 are presented in Attachments 5 and 6 of Appendix B.

The evaluation presented in Attachment 7 of Appendix B includes inflow to the AWTS from two sources: the LTF and tank T-100. For the first 24 hours of the analysis (hours 11 to 35), the LTF discharges 131 gpm to the AWTS through pump P-105, and tank T-100 discharges 77 gpm to the AWTS. After the 24-hour period, outflow from tank T-100 ceases, and the LTF discharges 176 gpm through pump P-105 to the AWTS. The treated effluent from the AWTS is transferred to final effluent holding tanks T-58 and T-125. These tanks serve as a monitoring point and buffer prior to discharge to the facultative ponds.

4.7 Secondary Containment Area Tanker Transfer Analysis

In accordance with previous LLCPs and as required by the Sitewide Part 373 Permit, secondary containment areas are required to be dewatered within a 24-hour period.

Attachment 8 of Appendix B presents an analysis of the transfer of secondary containment area waters to tank T-100 via tanker trucks. The calculations demonstrate that the tanker trucks CWM proposes to use to dewater secondary containment areas can transfer the required 64,836 gallons of water within a 24-hour period.

It should be noted that the table presenting the summary of secondary containment stormwater volumes (included in Attachment 8 of Appendix B) is based on an in-depth field investigation of the secondary containment areas. This information is consistent with the volumes listed in the Sitewide Part 373 Permit. The table includes a column for stormwater volumes transferred to tank T-100 following the LLCP evaluation period and indicates inflows to tank T-100 received from secondary containment areas via direct pumping and by tanker transfer.

5. Conclusions and Recommendations

Evaluations of the stormwater and leachate management systems for RMU-1 demonstrate that the RMU-1 leachate removal, storage, transfer, and treatment system can manage stormwater and leachate associated with a 25-year, 24-hour storm event provided the following recommendations are implemented:

- Maintain check dams at specific locations within the RMU-1 perimeter infiltration channels, as described in Section 2.3 and as shown on Drawing 1, unless such check dams need to be removed for Phase VII final cover area construction.

- Maintain the current pump configurations in the various cells of RMU-1 (i.e., make no changes from the December 2007 LLCP).

- Decrease the flow rate of the existing Detention Basin G pump (a variable speed Godwin diesel pump) from 190 gpm to 160 gpm for use in dewatering Detention Basin I.

- Install new pump (Pump 1) in Detention Basin H to provide a 33 gpm flow from the basin to the primary leachate forcemain via the Cell 11/13 leachate riser vault whenever there is more than 1 foot of liquid above the low point of the basin floor.

- Install new pump (Pump 2) in Detention Basin H and associated piping to provide a 67 gpm flow from the basin to Detention Basin I whenever the liquid elevation in Detention Basin H rises above 328.00 feet.

- Transfer 64,836 gallons from the secondary containment areas to tank T-100 via tanker trucks within 24 hours. An additional 35,370 gallons from the secondary containment areas will be conveyed directly to tank T-100 through piping systems. The total volume of water (100,206 gallons) into tank T-100 from the secondary containment areas will result in an average inflow of approximately 70 gpm. Assuming tank T-100 discharges to AWTS at 77 gpm, zero storage capacity within tank T-100 is required.

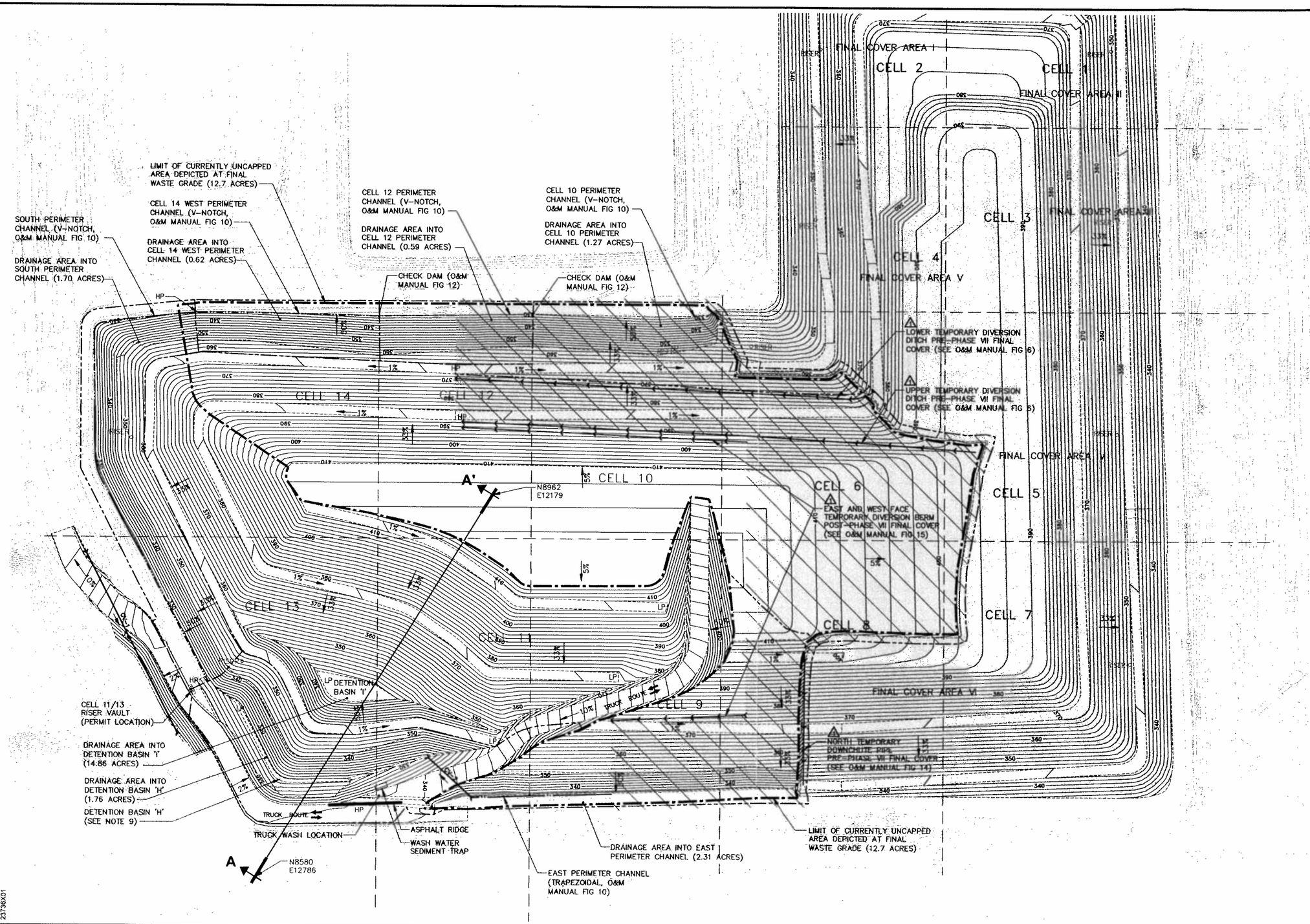
Additionally, prior to subdividing Detention Basin G to form Detention Basins H and I, either:

- Construct the Phase VII final cover area, consisting of approximately 7.1 acres of final cover as shown on Drawing 1, and

- Construct a lined temporary retention area on an existing bench upgradient of Detention Basin G. A majority of the runoff from the detention basin watershed should be routed into the temporary retention area. Install a pump to remove collected liquids during normal conditions. Controlled emergency outflow from the temporary retention area to Detention Basin I will occur via an overflow weir. The minimum required usable storage capacity of the temporary retention area is 9,757 cu. ft as measured to the invert of the overflow weir and excluding the volume within the lowermost 1 ft of the retention area. This temporary retention area can be removed once Detention Basin I is fully constructed, or

- Initiate operation of Tank T-165. Install pumps P-165A and P-165B into Detention Basin G to remove accumulated liquids during high level conditions. These pumps will discharge into Tank T-165 to provide temporary storage capacity. Use pump P-165C installed in Tank T-165 to discharge from the tank to the RMU-1 primary leachate forcemain at a rate of 160 gpm.

For the purpose of this evaluation, it is assumed that all of the necessary modifications and conditions presented in this document have been implemented.



LEGEND

- EXISTING FINAL COVER AREA (SEE NOTE 4)
- PROPOSED PHASE VII FINAL COVER AREA (SEE NOTE 5)
- 340 — INDEX ELEVATION CONTOUR
- INTERMEDIATE ELEVATION CONTOUR
- GRADE BREAK
- PERIMETER INFILTRATION CHANNEL
- LIMIT OF DRAINAGE AREA
- LIMIT OF FINAL WASTE GRADE
- CELL DIVIDE
- COORDINATE GRID (SEE NOTE 2)
- INTERIM DRAINAGE FEATURE AND FLOW DIRECTION
- CV-1 — EXISTING TEMPORARY CULVERT TO BE RETAINED (SEE CULVERT TABLE AND NOTES 7 AND 8)
- N8962 E12179 — SLOPE STABILITY CROSS SECTION
- HP — HIGH POINT
- LP — LOW POINT

NOTES:

1. BASE MAP FEATURES OUTSIDE PERMITTED LIMIT OF WASTE COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY DATED 5/31/01 (AIR SURVEY CORP. PROJECT NO. 71010503)
2. COORDINATES REFER TO CWM PLANT SITE GRID.
3. CONTOUR INTERVAL EQUALS 2 FEET.
4. GRADES WITHIN EXISTING FINAL COVER AREAS REPRESENT PERMITTED TOP OF WASTE. FINAL COVER LIMIT REPRESENTS APPROXIMATE EDGE OF FULL COVER THICKNESS BASED ON QUARTERLY WASTE SURVEYS.
5. GRADES WITHIN PROPOSED PHASE VII FINAL COVER AREA REPRESENT PERMITTED TOP OF WASTE, EXCEPT ALONG LANDFILL PERIMETER WHERE THE NEED FOR INFILTRATION CHANNELS DOES NOT ALLOW FOR CONSTRUCTION OF PERMITTED TOP OF WASTE GRADES UNTIL FINAL COVER. PHASE VII FINAL COVER AREA INCLUDES APPROXIMATELY 7.1 ACRES.
6. PROPOSED WASTE GRADES AND INTERIM DRAINAGE FEATURES TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE RMU-1 OPERATIONS & MAINTENANCE MANUAL WHERE APPLICABLE.
7. THE CULVERT TABLE INDICATES REQUIRED CONFIGURATIONS FOR EXISTING CULVERT LOCATIONS. THE CONFIGURATIONS INDICATED IN THE CULVERT TABLE ARE BASED ON THE ANTICIPATED PEAK FLOWRATES ASSOCIATED WITH THIS GRADING PLAN. ALTERNATIVE CULVERT CONFIGURATIONS MAY BE SUBSTITUTED FOR THOSE INDICATED IN THE TABLE ASSUMING THEY PROVIDE EQUAL OR GREATER HYDRAULIC CAPACITY. ALTERNATIVE CULVERT CONFIGURATIONS WILL BE SUBMITTED TO THE NYSDEC FOR APPROVAL PRIOR TO CONSTRUCTION.
8. CULVERTS MAY BE EITHER CORRUGATED METAL PIPE OR CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE).
9. DETENTION BASIN H IS LOCATED WITHIN THE LIMITS OF THE RMU-1 LINER SYSTEM.

CULVERT TABLE		
CULVERT ID	NUMBER/SIZE (IN.)	MIN. SLOPE (%)
CV-1	2/18	0.25%
CV-2	3/18	1.5%

80' 0 80' 160'

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING. USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
1	12/09	ADDED TEMPORARY DIVERSION BERM CALLOUTS	PHB	

THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.

Professional Engineer's Name: JOSEPH MOLINA III
Professional Engineer's No.: NY 072644

State	Date Signed	Project Mgr
NY		BMS
Designed by	Drawn by	Checked by
BMS	GMS	PHB

ARCADIS U.S., INC.

CWM CHEMICAL SERVICES, LLC • MODEL CITY, NEW YORK
RESIDUALS MANAGEMENT UNIT 1

FILL PROGRESSION AND TRUCK ROUTES CELLS 1 THRU 14 - FINAL SEQUENCE PHASE 2

GENERAL

ARCADIS Project No.: B0023726.0000.00003
Date: OCTOBER 2009

ARCADIS
6723 TOWPATH ROAD
SYRACUSE, NEW YORK
315-446-9120

1

CITY: SYRACUSE GROUP: 141 DB: JHR GMS LD: PIC: PM: TM: LYR:ON=*;OFF=REF
G:\ENVCAD\SYRACUSE\ACT\B0023726\0000\0000003\DWG\23726G01.DWG LAYOUT: 1 SAVED: 12/8/2009 3:28 PM ACADVER: 17.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTCONT1.CTB PLOTTED: 12/29/2009 10:47 AM BY: GETTS, BRIAN
XREFS: IMAGES: PROJECTNAME: ---
23736X01

Appendix A

RMU-1 Cell 1 Through 14
Hydrologic and Stormwater
Routing Calculations

ARCADIS

Attachment 1

Detention Basins H and I
Storage Capacity

ARCADIS
Infrastructure, environment, buildings

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B0023726

Subject: Detention Basins H and I Storage Capacity

Prepared By: BMS/PTO **Date:** October 2009

Reviewed By: BMS **Date:** October 2009

Checked By: PHB **Date:** October 2009

TASK:

Calculate the stormwater runoff (leachate) conditions into Detention Basin I and Detention Basin H from upgradient landfill areas for the 25-year, 24-hour design storm. Compare the peak liquid elevation in each basin with the lowest lined basin crest elevations to determine if the basins provide sufficient storage to contain the estimated stormwater runoff volume and provide for the minimum required freeboard.

REFERENCES

1. *Operations and Maintenance Manual For Residuals Management Unit-1*, dated September, 1997 (latest revised date October 2009).

2. Proposed grading design for waste fill progression and capping for Cells 1 through 14 presented on Figure 1 entitled *Residuals Management Unit-1, Fill Progression and Truck Routes, Cells 1 Through 14 – Final Sequence Phase 2*, prepared by ARCADIS, dated October, 2009.

3. HydroCAD Software Solutions LLC. HydroCAD. Vers. 8.5. Computer Software. 2006. (Output attached).

4. Calculation sheet entitled *Infiltration Channel Routing Calculations (Cells 7/8, 9/10, 11/13, and 12/14)* prepared by ARCADIS, dated March, 2009.

5. Calculation sheet entitled *RMU-1 Landfill Cells 1 through 14 Through Lift Station to T-157 in OWS Building* prepared by ARCADIS, dated October, 2009.

ASSUMPTIONS

1. Basin H receives inflow from its tributary watershed, as well as through open channel flow from the south perimeter channel and through culvert flow (via culvert CV-2) from the east perimeter channel. Stormwater outflow from Detention Basin H occurs via pumping and gravity drainage, depending on liquid levels. Two pumps are located in Detention Basin H. Pump 1 is a Goulds Model 3885 WE05H (or equivalent) and Pump 2 is a Goulds Model 3885 WE15H (or equivalent). Both pumps are operated by level controls. Pump 1 discharges at a rate of 33.0 gallons per minute (gpm) (based on Reference 5) to the primary forcemain which directs stormwater to the RMU-1 Lift Station. This pump is assumed to turn on once the liquid elevation in Basin H is greater than or equal to 323.31 feet (i.e., 1 foot above basin low point). Pump 2 discharges stormwater from Basin H to upgradient Basin I at a rate of 68.8 gpm (based on Reference 5) and is assumed to turn on once the liquid level in Basin H is greater than or equal to 328.00 feet.

Calculation Sheet

For basin liquid elevations up to 328.00 feet, there is no gravity outflow from Basin H. Once the Basin H liquid elevation exceeds 328.00 feet, the basin is assumed to exchange liquid with the south perimeter channel because this is the invert elevation of the channel at the point of its connection with the basin. Gravity outflow from Basin H is assumed to occur for liquid elevations exceeding 328.00 feet due to this exchange and the subsequent infiltration into the operations layer along the length of the south perimeter channel. In cases where the peak basin liquid elevation rises above 328.00 feet, outflow from the basin will continue until the liquid elevation decreases to 328.00 feet, at which point, gravity outflow from the basin ceases. Reference 3 is used to model the combined basin-south perimeter channel system. Infiltration volumes are calculated in Reference 4.

2. Basin I receives inflow from its tributary watershed as well as from Pump 2 as described in Assumption 1. Stormwater outflow from Detention Basin I is zero for the duration of the design storm.

3. A minimum 1 foot freeboard (vertical distance between the estimated peak liquid elevations within the basins and the lowest lined crest elevations of the basins' berms and/or those of hydraulically connected perimeter channels) must be provided for the design storm.

4. Detention basin volumes are determined based on two initial conditions:

   - No liquid in the basins prior to the beginning of the design storm.
   - 1 foot of liquid in the basins above the basin low points prior to the beginning of the design storm.

5. Detention Basin H is lined to an elevation of 331.05, consistent with former Detention Basin G. Detention Basin I is lined to an elevation of 351.62 based on the lowest perimeter elevation depicted in Reference 2.

METHODOLOGY

In general, the methodology used to determine the stormwater runoff (leachate) conditions into Basins H and I in this evaluation is based on that presented in Reference 1. The revised methodology is as follows:

1. Develop the runoff hydrograph for the watersheds that are tributary to the detention basins. These are the portions of RMU-1 that drain into each basin without passing through perimeter infiltration channels. The runoff hydrograph is based on the following:

   - Runoff curve number (CN) = 90 (based on Reference 1)
   - Rainfall = 4.00 inches for the 25-year, 24-hour design storm (based on Reference 1)
   - Watershed area:
     - Detention Basin H = 1.76[1] acres (delineated based on Reference 2)
     - Detention Basin I = 14.86 acres (delineated based on Reference 2)
   - Time of concentration (Tc) = 0.1 hour (assumed based on Reference 1)

1 Watershed area of 1.76 acres does not include partial stormwater contributions from the south and east perimeter channels that discharge to Detention Basin H. Contributions from these channels are determined in Reference 4 and reported herein.

Calculation Sheet

2. Use Reference 3 to account for the following inflows to and outflows from the combined Detention Basin H-south perimeter channel system:

   - Inflow from the east perimeter channel from routing calculations (described in Reference 4).
   - Inflow/outflow due to hydraulic connection with the south perimeter channel (described in Assumption 1).
   - Inflow from the Detention Basin H watershed (described above).
   - Outflow via Pump 1 and Pump 2 based on the conditions outlined in Assumption 1.

   The routing procedure requires the development of a rating curve (stage/storage/discharge relationship) for the combined Detention Basin H-south perimeter channel system. The result of the routing procedure is a peak liquid elevation in the basin and, if the peak elevation exceeds 328.00 feet, a basin outflow hydrograph that is used to derive inflow hydrographs for the sumps of Cells 11/13 and 12/14.

3. Use Reference 3 to account for the following inflows to Detention Basin I and the peak water surface elevation in the basin:

   - Inflow from the Detention Basin I watershed (described above).
   - Inflow from Pump 2(described above).

CALCULATIONS

1. Stormwater Runoff Hydrograph for Detention Basin Watershed

Table 1 below summarizes the hydrologic parameters for the tributary watershed that drains directly to Detention Basin H and the resulting stormwater runoff conditions into the basin from the tributary watershed.

Table 1

Watershed Area (acres)	Runoff Curve Number	Time of Concentration (hr)	Runoff (in)	Estimated Peak Discharge into Basin (cfs)	Total Stormwater Runoff Volume (cu. ft.)
1.76	90	0.1	2.92	8.71	18, 644

Table 2 below summarizes the hydrologic parameters for the tributary watershed that drains directly to Detention Basin I and the resulting stormwater runoff conditions into the basin from the tributary watershed.

Table 2

Watershed Area (acres)	Runoff Curve Number	Time of Concentration (hr)	Runoff (in)	Estimated Peak Discharge into Basin (cfs)	Total Stormwater Runoff Volume (cu. ft.)
14.86	90	0.1	2.92	73.53	157, 469

It should be noted that the watershed times of concentration and estimated peak discharges for the tributary areas to Detention Basins H and I are presented to maintain consistency with previous LLCP evaluations. The total stormwater runoff volume for each watershed is dependent only on the amount of precipitation, watershed acreage and runoff curve number and is independent of the watershed time of

concentration. The runoff hydrograph for the tributary area to Detention Basins H and I are included as an attachment to this calculation.

2. Detention Basin H Routing and Peak Liquid Elevations

A rating curve is used to route the various inflows and outflows through the combined Detention Basin H-south perimeter channel system. The rating curve is based on the design grades depicted on the fill progression figure (Reference 2) and the characteristics of the outflow devices. The results of the routing procedure, including peak liquid elevations, for each initial condition are presented in Table 3 below.

Table 3

Starting Liquid El. (ft)	Peak Inflow[1] (cfs)	Peak Outflow[2] (cfs)	Peak Liquid El. (ft)	Lowest Lined Crest El. (ft)	Freeboard (ft)
322.31 (Basin Floor)	22.50	1.15	328.36	330.09	1.73
323.31 (1 Foot Above Basin Floor)	22.50	1.16	328.36		1.73

Notes:
1. Peak inflow is a composite value including direct contribution from the tributary watershed and gravity drainage from the south perimeter channel.
2. Peak outflow is a composite value including gravity drainage to the south perimeter channel, outflow to the primary forcemain via Pump 1, and outflow to Basin I via Pump 2.

Although Basin H is lined to an elevation of 331.05 feet, basin freeboards are calculated based on the lowest lined elevation in the south perimeter channel (330.09 feet) due to the flow exchange that occurs when the basin liquid elevation exceeds 328.00 feet. While Basin H is also hydraulically connected to the east perimeter channel, liquid in the basin would not backflow into that channel without first exceeding the lowest lined elevations of the south perimeter channel and the basin itself. Consequently, the liner elevation in the east perimeter channel is not a governing condition in this analysis.

3. Detention Basin I Routing and Peak Liquid Elevations

Routing to Basin I is based on the direct watershed contribution, and the stormwater contribution from Pump 2 when liquid elevations in Basin H exceed 328 feet. The rating curve is based on the design grades depicted on the fill progression figure (Reference 2) and the characteristics of the inflow from Pump 2. The results of the routing procedure, including peak liquid elevations, for each initial condition are presented in Table 4 below.

Table 4

Starting Liquid El. (ft)	Peak Inflow (cfs)	Peak Liquid El. (ft)	Lowest Lined Crest El. (ft)	Freeboard (ft)
334.10 (Basin Floor)	73.53	349.30	351.62	2.32
335.10 (1 Foot Above Basin Floor)	73.53	349.35		2.27

Calculation Sheet

4. Detention Basin H Post-Infiltration Basin Liquid Volumes

As indicated in Assumption 1, liquid elevations in Detention Basin H will decrease to and eventually below the elevation of the south perimeter channel invert elevation (328.00 feet) due to infiltration into Cells 11/13 and 12/14 via the south perimeter channel as well as pumping via Pump 1. Once the liquid level reaches 328.00, the remaining volume will be dewatered by means of Pump 1 only. This post-infiltration volume represents the volume of stormwater than must be removed by Pump 1 in accordance with permitted time constraints in Reference 1. The post-infiltration basin liquid elevations and volumes are presented in Table 5 below.

Table 5

Starting Liquid Elevation (ft)	Peak Liquid El. (ft)	Post-Infiltration Basin Liquid El. (ft)	Post-Infiltration Liquid Volume in Basin (Excluding Liquid 1 Foot Above Floor) (cu. ft.)
322.31 (Basin Floor)	328.36	328.00	24,394
323.31 (1 Foot Above Basin Floor)	328.36	328.00	24,394

5. Detention Basin I Post-Infiltration Basin Liquid Volumes

As indicated in Assumption 2, zero outflow occurs from Basin I during the storm event. Therefore the stormwater volume in the basin after the design storm represents the volume that must be actively pumped following the storm event. The post-storm event liquid elevations and volumes are shown in Table 6 below.

Table 6

Starting Liquid Elevation (ft)	Peak Liquid El. (ft)	Post-Storm Event Basin Liquid El. (ft)	Post-Infiltration Liquid Volume in Basin (Excluding Liquid 1 Foot Above Floor) (cu. ft.)
334.10 (Basin Floor)	349.30	349.30	163,611
334.10 (1 Foot Above Basin Floor)	349.35	349.35	163,611

SUMMARY

Based on the assumptions and calculations presented above, Detention Basin H and Detention Basin I provide sufficient storage to contain stormwater runoff from the 25-year, 24-hour storm event while maintaining a minimum 1 foot of freeboard with respect to the lowest lined crest elevations of the basins and hydraulically connected perimeter channels. The basin rating curves and peak liquid level data (for each starting liquid elevation) for the basins are included as an attachment to this calculation.

ARCADIS

Stormwater Runoff Hydrographs

Basin H

Summary for Subcatchment 30S: Direct flow to Basin H

Runoff = 8.71 cfs @ 11.97 hrs, Volume= 0.428 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	1.760	90	
	1.760		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Hydrograph for Subcatchment 30S: Direct flow to Basin H

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	5.20	0.26	0.00	0.01
0.10	0.00	0.00	0.00	5.30	0.27	0.00	0.01
0.20	0.01	0.00	0.00	5.40	0.28	0.00	0.01
0.30	0.01	0.00	0.00	5.50	0.28	0.00	0.01
0.40	0.02	0.00	0.00	5.60	0.29	0.00	0.01
0.50	0.02	0.00	0.00	5.70	0.30	0.00	0.01
0.60	0.02	0.00	0.00	5.80	0.31	0.01	0.02
0.70	0.03	0.00	0.00	5.90	0.31	0.01	0.02
0.80	0.03	0.00	0.00	6.00	0.32	0.01	0.02
0.90	0.04	0.00	0.00	6.10	0.33	0.01	0.02
1.00	0.04	0.00	0.00	6.20	0.33	0.01	0.02
1.10	0.05	0.00	0.00	6.30	0.34	0.01	0.02
1.20	0.05	0.00	0.00	6.40	0.35	0.01	0.02
1.30	0.06	0.00	0.00	6.50	0.36	0.01	0.03
1.40	0.06	0.00	0.00	6.60	0.36	0.02	0.03
1.50	0.06	0.00	0.00	6.70	0.37	0.02	0.03
1.60	0.07	0.00	0.00	6.80	0.38	0.02	0.03
1.70	0.07	0.00	0.00	6.90	0.39	0.02	0.03
1.80	0.08	0.00	0.00	7.00	0.40	0.02	0.03
1.90	0.08	0.00	0.00	7.10	0.40	0.03	0.04
2.00	0.09	0.00	0.00	7.20	0.41	0.03	0.04
2.10	0.09	0.00	0.00	7.30	0.42	0.03	0.04
2.20	0.10	0.00	0.00	7.40	0.43	0.03	0.04
2.30	0.10	0.00	0.00	7.50	0.44	0.03	0.04
2.40	0.11	0.00	0.00	7.60	0.45	0.04	0.04
2.50	0.11	0.00	0.00	7.70	0.45	0.04	0.05
2.60	0.12	0.00	0.00	7.80	0.46	0.04	0.05
2.70	0.12	0.00	0.00	7.90	0.47	0.05	0.05
2.80	0.13	0.00	0.00	8.00	0.48	0.05	0.05
2.90	0.13	0.00	0.00	8.10	0.49	0.05	0.05
3.00	0.14	0.00	0.00	8.20	0.50	0.05	0.06
3.10	0.14	0.00	0.00	8.30	0.51	0.06	0.06
3.20	0.15	0.00	0.00	8.40	0.52	0.06	0.07
3.30	0.15	0.00	0.00	8.50	0.53	0.07	0.07
3.40	0.16	0.00	0.00	8.60	0.54	0.07	0.07
3.50	0.16	0.00	0.00	8.70	0.55	0.08	0.08
3.60	0.17	0.00	0.00	8.80	0.56	0.08	0.08
3.70	0.18	0.00	0.00	8.90	0.58	0.09	0.09
3.80	0.18	0.00	0.00	9.00	0.59	0.09	0.09
3.90	0.19	0.00	0.00	9.10	0.60	0.10	0.10
4.00	0.19	0.00	0.00	9.20	0.61	0.10	0.10
4.10	0.20	0.00	0.00	9.30	0.63	0.11	0.10
4.20	0.20	0.00	0.00	9.40	0.64	0.11	0.11
4.30	0.21	0.00	0.00	9.50	0.65	0.12	0.11
4.40	0.22	0.00	0.00	9.60	0.67	0.13	0.11
4.50	0.22	0.00	0.00	9.70	0.68	0.13	0.12
4.60	0.23	0.00	0.00	9.80	0.69	0.14	0.12
4.70	0.23	0.00	0.00	9.90	0.71	0.15	0.13
4.80	0.24	0.00	0.00	10.00	0.72	0.16	0.14
4.90	0.25	0.00	0.00	10.10	0.74	0.16	0.15
5.00	0.25	0.00	0.00	10.20	0.76	0.17	0.16
5.10	0.26	0.00	0.01	10.30	0.78	0.18	0.17

Hydrograph for Subcatchment 30S: Direct flow to Basin H (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
10.40	0.80	0.20	0.19	15.60	3.48	2.43	0.18
10.50	0.82	0.21	0.20	15.70	3.49	2.44	0.17
10.60	0.84	0.22	0.21	15.80	3.50	2.45	0.17
10.70	0.86	0.23	0.23	15.90	3.51	2.46	0.16
10.80	0.89	0.25	0.26	16.00	3.52	2.47	0.16
10.90	0.91	0.26	0.28	16.10	3.53	2.48	0.15
11.00	0.94	0.28	0.30	16.20	3.54	2.48	0.15
11.10	0.97	0.30	0.33	16.30	3.55	2.49	0.15
11.20	1.01	0.32	0.38	16.40	3.56	2.50	0.15
11.30	1.04	0.35	0.43	16.50	3.56	2.51	0.15
11.40	1.09	0.38	0.48	16.60	3.57	2.52	0.14
11.50	1.13	0.41	0.54	16.70	3.58	2.52	0.14
11.60	1.23	0.48	0.84	16.80	3.59	2.53	0.14
11.70	1.42	0.62	1.96	16.90	3.60	2.54	0.14
11.80	1.72	0.86	3.40	17.00	3.61	2.55	0.14
11.90	2.27	1.33	**6.51**	17.10	3.62	2.56	0.14
12.00	2.65	1.67	**8.02**	17.20	3.62	2.56	0.13
12.10	2.73	1.74	2.43	17.30	3.63	2.57	0.13
12.20	2.79	1.80	1.23	17.40	3.64	2.58	0.13
12.30	2.85	1.85	0.99	17.50	3.65	2.59	0.13
12.40	2.90	1.89	0.85	17.60	3.65	2.59	0.13
12.50	2.94	1.93	0.70	17.70	3.66	2.60	0.13
12.60	2.97	1.96	0.58	17.80	3.67	2.61	0.13
12.70	3.01	1.99	0.53	17.90	3.68	2.61	0.12
12.80	3.04	2.02	0.50	18.00	3.68	2.62	0.12
12.90	3.06	2.04	0.46	18.10	3.69	2.63	0.12
13.00	3.09	2.07	0.43	18.20	3.70	2.63	0.12
13.10	3.11	2.09	0.40	18.30	3.71	2.64	0.12
13.20	3.13	2.11	0.38	18.40	3.71	2.65	0.12
13.30	3.16	2.13	0.36	18.50	3.72	2.65	0.11
13.40	3.18	2.15	0.34	18.60	3.73	2.66	0.11
13.50	3.20	2.16	0.33	18.70	3.73	2.67	0.11
13.60	3.21	2.18	0.31	18.80	3.74	2.67	0.11
13.70	3.23	2.20	0.30	18.90	3.74	2.68	0.11
13.80	3.25	2.21	0.28	19.00	3.75	2.68	0.11
13.90	3.26	2.23	0.27	19.10	3.76	2.69	0.10
14.00	3.28	2.24	0.26	19.20	3.76	2.70	0.10
14.10	3.29	2.26	0.24	19.30	3.77	2.70	0.10
14.20	3.31	2.27	0.24	19.40	3.77	2.71	0.10
14.30	3.32	2.28	0.23	19.50	3.78	2.71	0.10
14.40	3.34	2.30	0.23	19.60	3.79	2.72	0.10
14.50	3.35	2.31	0.23	19.70	3.79	2.72	0.09
14.60	3.36	2.32	0.22	19.80	3.80	2.73	0.09
14.70	3.38	2.33	0.22	19.90	3.80	2.73	0.09
14.80	3.39	2.34	0.21	20.00	3.81	2.74	0.09
14.90	3.40	2.36	0.21	20.10	3.81	2.74	0.09
15.00	3.41	2.37	0.20	20.20	3.82	2.75	0.09
15.10	3.43	2.38	0.20	20.30	3.82	2.75	0.09
15.20	3.44	2.39	0.19	20.40	3.83	2.76	0.09
15.30	3.45	2.40	0.19	20.50	3.83	2.76	0.09
15.40	3.46	2.41	0.18	20.60	3.84	2.77	0.09
15.50	3.47	2.42	0.18	20.70	3.84	2.77	0.09

Hydrograph for Subcatchment 30S: Direct flow to Basin H (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
20.80	3.85	2.78	0.08	26.00	4.00	2.92	0.00
20.90	3.85	2.78	0.08	26.10	4.00	2.92	0.00
21.00	3.86	2.79	0.08	26.20	4.00	2.92	0.00
21.10	3.86	2.79	0.08	26.30	4.00	2.92	0.00
21.20	3.87	2.80	0.08	26.40	4.00	2.92	0.00
21.30	3.87	2.80	0.08	26.50	4.00	2.92	0.00
21.40	3.88	2.80	0.08	26.60	4.00	2.92	0.00
21.50	3.88	2.81	0.08	26.70	4.00	2.92	0.00
21.60	3.89	2.81	0.08	26.80	4.00	2.92	0.00
21.70	3.89	2.82	0.08	26.90	4.00	2.92	0.00
21.80	3.90	2.82	0.08	27.00	4.00	2.92	0.00
21.90	3.90	2.83	0.08	27.10	4.00	2.92	0.00
22.00	3.91	2.83	0.08	27.20	4.00	2.92	0.00
22.10	3.91	2.84	0.08	27.30	4.00	2.92	0.00
22.20	3.92	2.84	0.08	27.40	4.00	2.92	0.00
22.30	3.92	2.85	0.08	27.50	4.00	2.92	0.00
22.40	3.93	2.85	0.08	27.60	4.00	2.92	0.00
22.50	3.93	2.85	0.08	27.70	4.00	2.92	0.00
22.60	3.94	2.86	0.08	27.80	4.00	2.92	0.00
22.70	3.94	2.86	0.08	27.90	4.00	2.92	0.00
22.80	3.95	2.87	0.08	28.00	4.00	2.92	0.00
22.90	3.95	2.87	0.08	28.10	4.00	2.92	0.00
23.00	3.95	2.88	0.08	28.20	4.00	2.92	0.00
23.10	3.96	2.88	0.08	28.30	4.00	2.92	0.00
23.20	3.96	2.89	0.08	28.40	4.00	2.92	0.00
23.30	3.97	2.89	0.08	28.50	4.00	2.92	0.00
23.40	3.97	2.89	0.08	28.60	4.00	2.92	0.00
23.50	3.98	2.90	0.08	28.70	4.00	2.92	0.00
23.60	3.98	2.90	0.08	28.80	4.00	2.92	0.00
23.70	3.99	2.91	0.08	28.90	4.00	2.92	0.00
23.80	3.99	2.91	0.08	29.00	4.00	2.92	0.00
23.90	4.00	2.92	0.07	29.10	4.00	2.92	0.00
24.00	**4.00**	**2.92**	0.07	29.20	4.00	2.92	0.00
24.10	4.00	2.92	0.03	29.30	4.00	2.92	0.00
24.20	4.00	2.92	0.00	29.40	4.00	2.92	0.00
24.30	4.00	2.92	0.00	29.50	4.00	2.92	0.00
24.40	4.00	2.92	0.00	29.60	4.00	2.92	0.00
24.50	4.00	2.92	0.00	29.70	4.00	2.92	0.00
24.60	4.00	2.92	0.00	29.80	4.00	2.92	0.00
24.70	4.00	2.92	0.00	29.90	4.00	2.92	0.00
24.80	4.00	2.92	0.00	30.00	4.00	2.92	0.00
24.90	4.00	2.92	0.00	30.10	4.00	2.92	0.00
25.00	4.00	2.92	0.00	30.20	4.00	2.92	0.00
25.10	4.00	2.92	0.00	30.30	4.00	2.92	0.00
25.20	4.00	2.92	0.00	30.40	4.00	2.92	0.00
25.30	4.00	2.92	0.00	30.50	4.00	2.92	0.00
25.40	4.00	2.92	0.00	30.60	4.00	2.92	0.00
25.50	4.00	2.92	0.00	30.70	4.00	2.92	0.00
25.60	4.00	2.92	0.00	30.80	4.00	2.92	0.00
25.70	4.00	2.92	0.00	30.90	4.00	2.92	0.00
25.80	4.00	2.92	0.00	31.00	4.00	2.92	0.00
25.90	4.00	2.92	0.00	31.10	4.00	2.92	0.00

Hydrograph for Subcatchment 30S: Direct flow to Basin H (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
31.20	4.00	2.92	0.00	36.40	4.00	2.92	0.00
31.30	4.00	2.92	0.00	36.50	4.00	2.92	0.00
31.40	4.00	2.92	0.00	36.60	4.00	2.92	0.00
31.50	4.00	2.92	0.00	36.70	4.00	2.92	0.00
31.60	4.00	2.92	0.00	36.80	4.00	2.92	0.00
31.70	4.00	2.92	0.00	36.90	4.00	2.92	0.00
31.80	4.00	2.92	0.00	37.00	4.00	2.92	0.00
31.90	4.00	2.92	0.00	37.10	4.00	2.92	0.00
32.00	4.00	2.92	0.00	37.20	4.00	2.92	0.00
32.10	4.00	2.92	0.00	37.30	4.00	2.92	0.00
32.20	4.00	2.92	0.00	37.40	4.00	2.92	0.00
32.30	4.00	2.92	0.00	37.50	4.00	2.92	0.00
32.40	4.00	2.92	0.00	37.60	4.00	2.92	0.00
32.50	4.00	2.92	0.00	37.70	4.00	2.92	0.00
32.60	4.00	2.92	0.00	37.80	4.00	2.92	0.00
32.70	4.00	2.92	0.00	37.90	4.00	2.92	0.00
32.80	4.00	2.92	0.00	38.00	4.00	2.92	0.00
32.90	4.00	2.92	0.00	38.10	4.00	2.92	0.00
33.00	4.00	2.92	0.00	38.20	4.00	2.92	0.00
33.10	4.00	2.92	0.00	38.30	4.00	2.92	0.00
33.20	4.00	2.92	0.00	38.40	4.00	2.92	0.00
33.30	4.00	2.92	0.00	38.50	4.00	2.92	0.00
33.40	4.00	2.92	0.00	38.60	4.00	2.92	0.00
33.50	4.00	2.92	0.00	38.70	4.00	2.92	0.00
33.60	4.00	2.92	0.00	38.80	4.00	2.92	0.00
33.70	4.00	2.92	0.00	38.90	4.00	2.92	0.00
33.80	4.00	2.92	0.00	39.00	4.00	2.92	0.00
33.90	4.00	2.92	0.00	39.10	4.00	2.92	0.00
34.00	4.00	2.92	0.00	39.20	4.00	2.92	0.00
34.10	4.00	2.92	0.00	39.30	4.00	2.92	0.00
34.20	4.00	2.92	0.00	39.40	4.00	2.92	0.00
34.30	4.00	2.92	0.00	39.50	4.00	2.92	0.00
34.40	4.00	2.92	0.00	39.60	4.00	2.92	0.00
34.50	4.00	2.92	0.00	39.70	4.00	2.92	0.00
34.60	4.00	2.92	0.00	39.80	4.00	2.92	0.00
34.70	4.00	2.92	0.00	39.90	4.00	2.92	0.00
34.80	4.00	2.92	0.00	40.00	4.00	2.92	0.00
34.90	4.00	2.92	0.00	40.10	4.00	2.92	0.00
35.00	4.00	2.92	0.00	40.20	4.00	2.92	0.00
35.10	4.00	2.92	0.00	40.30	4.00	2.92	0.00
35.20	4.00	2.92	0.00	40.40	4.00	2.92	0.00
35.30	4.00	2.92	0.00	40.50	4.00	2.92	0.00
35.40	4.00	2.92	0.00	40.60	4.00	2.92	0.00
35.50	4.00	2.92	0.00	40.70	4.00	2.92	0.00
35.60	4.00	2.92	0.00	40.80	4.00	2.92	0.00
35.70	4.00	2.92	0.00	40.90	4.00	2.92	0.00
35.80	4.00	2.92	0.00	41.00	4.00	2.92	0.00
35.90	4.00	2.92	0.00	41.10	4.00	2.92	0.00
36.00	4.00	2.92	0.00	41.20	4.00	2.92	0.00
36.10	4.00	2.92	0.00	41.30	4.00	2.92	0.00
36.20	4.00	2.92	0.00	41.40	4.00	2.92	0.00
36.30	4.00	2.92	0.00	41.50	4.00	2.92	0.00

Hydrograph for Subcatchment 30S: Direct flow to Basin H (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
41.60	4.00	2.92	0.00	46.80	4.00	2.92	0.00
41.70	4.00	2.92	0.00	46.90	4.00	2.92	0.00
41.80	4.00	2.92	0.00	47.00	4.00	2.92	0.00
41.90	4.00	2.92	0.00	47.10	4.00	2.92	0.00
42.00	4.00	2.92	0.00	47.20	4.00	2.92	0.00
42.10	4.00	2.92	0.00	47.30	4.00	2.92	0.00
42.20	4.00	2.92	0.00	47.40	4.00	2.92	0.00
42.30	4.00	2.92	0.00	47.50	4.00	2.92	0.00
42.40	4.00	2.92	0.00	47.60	4.00	2.92	0.00
42.50	4.00	2.92	0.00	47.70	4.00	2.92	0.00
42.60	4.00	2.92	0.00	47.80	4.00	2.92	0.00
42.70	4.00	2.92	0.00	47.90	4.00	2.92	0.00
42.80	4.00	2.92	0.00	48.00	4.00	2.92	0.00
42.90	4.00	2.92	0.00	48.10	4.00	2.92	0.00
43.00	4.00	2.92	0.00	48.20	4.00	2.92	0.00
43.10	4.00	2.92	0.00	48.30	4.00	2.92	0.00
43.20	4.00	2.92	0.00	48.40	4.00	2.92	0.00
43.30	4.00	2.92	0.00	48.50	4.00	2.92	0.00
43.40	4.00	2.92	0.00	48.60	4.00	2.92	0.00
43.50	4.00	2.92	0.00	48.70	4.00	2.92	0.00
43.60	4.00	2.92	0.00	48.80	4.00	2.92	0.00
43.70	4.00	2.92	0.00	48.90	4.00	2.92	0.00
43.80	4.00	2.92	0.00	49.00	4.00	2.92	0.00
43.90	4.00	2.92	0.00	49.10	4.00	2.92	0.00
44.00	4.00	2.92	0.00	49.20	4.00	2.92	0.00
44.10	4.00	2.92	0.00	49.30	4.00	2.92	0.00
44.20	4.00	2.92	0.00	49.40	4.00	2.92	0.00
44.30	4.00	2.92	0.00	49.50	4.00	2.92	0.00
44.40	4.00	2.92	0.00	49.60	4.00	2.92	0.00
44.50	4.00	2.92	0.00	49.70	4.00	2.92	0.00
44.60	4.00	2.92	0.00	49.80	4.00	2.92	0.00
44.70	4.00	2.92	0.00	49.90	4.00	2.92	0.00
44.80	4.00	2.92	0.00	50.00	4.00	2.92	0.00
44.90	4.00	2.92	0.00	50.10	4.00	2.92	0.00
45.00	4.00	2.92	0.00	50.20	4.00	2.92	0.00
45.10	4.00	2.92	0.00	50.30	4.00	2.92	0.00
45.20	4.00	2.92	0.00	50.40	4.00	2.92	0.00
45.30	4.00	2.92	0.00	50.50	4.00	2.92	0.00
45.40	4.00	2.92	0.00	50.60	4.00	2.92	0.00
45.50	4.00	2.92	0.00	50.70	4.00	2.92	0.00
45.60	4.00	2.92	0.00	50.80	4.00	2.92	0.00
45.70	4.00	2.92	0.00	50.90	4.00	2.92	0.00
45.80	4.00	2.92	0.00	51.00	4.00	2.92	0.00
45.90	4.00	2.92	0.00	51.10	4.00	2.92	0.00
46.00	4.00	2.92	0.00	51.20	4.00	2.92	0.00
46.10	4.00	2.92	0.00	51.30	4.00	2.92	0.00
46.20	4.00	2.92	0.00	51.40	4.00	2.92	0.00
46.30	4.00	2.92	0.00	51.50	4.00	2.92	0.00
46.40	4.00	2.92	0.00	51.60	4.00	2.92	0.00
46.50	4.00	2.92	0.00	51.70	4.00	2.92	0.00
46.60	4.00	2.92	0.00	51.80	4.00	2.92	0.00
46.70	4.00	2.92	0.00	51.90	4.00	2.92	0.00

Hydrograph for Subcatchment 30S: Direct flow to Basin H (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
52.00	4.00	2.92	0.00
52.10	4.00	2.92	0.00
52.20	4.00	2.92	0.00
52.30	4.00	2.92	0.00
52.40	4.00	2.92	0.00
52.50	4.00	2.92	0.00
52.60	4.00	2.92	0.00
52.70	4.00	2.92	0.00
52.80	4.00	2.92	0.00
52.90	4.00	2.92	0.00
53.00	4.00	2.92	0.00
53.10	4.00	2.92	0.00
53.20	4.00	2.92	0.00
53.30	4.00	2.92	0.00
53.40	4.00	2.92	0.00
53.50	4.00	2.92	0.00
53.60	4.00	2.92	0.00
53.70	4.00	2.92	0.00
53.80	4.00	2.92	0.00
53.90	4.00	2.92	0.00
54.00	4.00	2.92	0.00
54.10	4.00	2.92	0.00
54.20	4.00	2.92	0.00
54.30	4.00	2.92	0.00
54.40	4.00	2.92	0.00
54.50	4.00	2.92	0.00
54.60	4.00	2.92	0.00
54.70	4.00	2.92	0.00
54.80	4.00	2.92	0.00
54.90	4.00	2.92	0.00
55.00	4.00	2.92	0.00
55.10	4.00	2.92	0.00
55.20	4.00	2.92	0.00
55.30	4.00	2.92	0.00
55.40	4.00	2.92	0.00
55.50	4.00	2.92	0.00
55.60	4.00	2.92	0.00
55.70	4.00	2.92	0.00
55.80	4.00	2.92	0.00
55.90	4.00	2.92	0.00
56.00	4.00	2.92	0.00
56.10	4.00	2.92	0.00
56.20	4.00	2.92	0.00
56.30	4.00	2.92	0.00
56.40	4.00	2.92	0.00
56.50	4.00	2.92	0.00
56.60	4.00	2.92	0.00
56.70	4.00	2.92	0.00
56.80	4.00	2.92	0.00
56.90	4.00	2.92	0.00
57.00	4.00	2.92	0.00
57.10	4.00	2.92	0.00
57.20	4.00	2.92	0.00
57.30	4.00	2.92	0.00
57.40	4.00	2.92	0.00
57.50	4.00	2.92	0.00
57.60	4.00	2.92	0.00
57.70	4.00	2.92	0.00
57.80	4.00	2.92	0.00
57.90	4.00	2.92	0.00
58.00	4.00	2.92	0.00
58.10	4.00	2.92	0.00
58.20	4.00	2.92	0.00
58.30	4.00	2.92	0.00
58.40	4.00	2.92	0.00
58.50	4.00	2.92	0.00
58.60	4.00	2.92	0.00
58.70	4.00	2.92	0.00
58.80	4.00	2.92	0.00
58.90	4.00	2.92	0.00
59.00	4.00	2.92	0.00
59.10	4.00	2.92	0.00
59.20	4.00	2.92	0.00
59.30	4.00	2.92	0.00
59.40	4.00	2.92	0.00
59.50	4.00	2.92	0.00
59.60	4.00	2.92	0.00
59.70	4.00	2.92	0.00
59.80	4.00	2.92	0.00
59.90	4.00	2.92	0.00
60.00	4.00	2.92	0.00

Basin I

Summary for Subcatchment 76S: Direct Contribution to Basin I

Runoff = 73.53 cfs @ 11.97 hrs, Volume= 3.615 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	14.860	90	
	14.860		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Hydrograph for Subcatchment 76S: Direct Contribution to Basin I

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	5.20	0.26	0.00	0.06
0.10	0.00	0.00	0.00	5.30	0.27	0.00	0.07
0.20	0.01	0.00	0.00	5.40	0.28	0.00	0.08
0.30	0.01	0.00	0.00	5.50	0.28	0.00	0.10
0.40	0.02	0.00	0.00	5.60	0.29	0.00	0.11
0.50	0.02	0.00	0.00	5.70	0.30	0.00	0.12
0.60	0.02	0.00	0.00	5.80	0.31	0.01	0.13
0.70	0.03	0.00	0.00	5.90	0.31	0.01	0.14
0.80	0.03	0.00	0.00	6.00	0.32	0.01	0.16
0.90	0.04	0.00	0.00	6.10	0.33	0.01	0.17
1.00	0.04	0.00	0.00	6.20	0.33	0.01	0.18
1.10	0.05	0.00	0.00	6.30	0.34	0.01	0.19
1.20	0.05	0.00	0.00	6.40	0.35	0.01	0.21
1.30	0.06	0.00	0.00	6.50	0.36	0.01	0.22
1.40	0.06	0.00	0.00	6.60	0.36	0.02	0.23
1.50	0.06	0.00	0.00	6.70	0.37	0.02	0.25
1.60	0.07	0.00	0.00	6.80	0.38	0.02	0.26
1.70	0.07	0.00	0.00	6.90	0.39	0.02	0.28
1.80	0.08	0.00	0.00	7.00	0.40	0.02	0.29
1.90	0.08	0.00	0.00	7.10	0.40	0.03	0.30
2.00	0.09	0.00	0.00	7.20	0.41	0.03	0.32
2.10	0.09	0.00	0.00	7.30	0.42	0.03	0.33
2.20	0.10	0.00	0.00	7.40	0.43	0.03	0.35
2.30	0.10	0.00	0.00	7.50	0.44	0.03	0.36
2.40	0.11	0.00	0.00	7.60	0.45	0.04	0.38
2.50	0.11	0.00	0.00	7.70	0.45	0.04	0.39
2.60	0.12	0.00	0.00	7.80	0.46	0.04	0.41
2.70	0.12	0.00	0.00	7.90	0.47	0.05	0.42
2.80	0.13	0.00	0.00	8.00	0.48	0.05	0.44
2.90	0.13	0.00	0.00	8.10	0.49	0.05	0.45
3.00	0.14	0.00	0.00	8.20	0.50	0.05	0.48
3.10	0.14	0.00	0.00	8.30	0.51	0.06	0.52
3.20	0.15	0.00	0.00	8.40	0.52	0.06	0.55
3.30	0.15	0.00	0.00	8.50	0.53	0.07	0.59
3.40	0.16	0.00	0.00	8.60	0.54	0.07	0.63
3.50	0.16	0.00	0.00	8.70	0.55	0.08	0.67
3.60	0.17	0.00	0.00	8.80	0.56	0.08	0.71
3.70	0.18	0.00	0.00	8.90	0.58	0.09	0.75
3.80	0.18	0.00	0.00	9.00	0.59	0.09	0.79
3.90	0.19	0.00	0.00	9.10	0.60	0.10	0.83
4.00	0.19	0.00	0.00	9.20	0.61	0.10	0.85
4.10	0.20	0.00	0.00	9.30	0.63	0.11	0.87
4.20	0.20	0.00	0.00	9.40	0.64	0.11	0.89
4.30	0.21	0.00	0.00	9.50	0.65	0.12	0.91
4.40	0.22	0.00	0.00	9.60	0.67	0.13	0.93
4.50	0.22	0.00	0.00	9.70	0.68	0.13	0.99
4.60	0.23	0.00	0.00	9.80	0.69	0.14	1.05
4.70	0.23	0.00	0.01	9.90	0.71	0.15	1.12
4.80	0.24	0.00	0.02	10.00	0.72	0.16	1.19
4.90	0.25	0.00	0.03	10.10	0.74	0.16	1.27
5.00	0.25	0.00	0.04	10.20	0.76	0.17	1.37
5.10	0.26	0.00	0.05	10.30	0.78	0.18	1.47

Hydrograph for Subcatchment 76S: Direct Contribution to Basin I (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
10.40	0.80	0.20	1.58	15.60	3.48	2.43	1.48
10.50	0.82	0.21	1.69	15.70	3.49	2.44	1.44
10.60	0.84	0.22	1.81	15.80	3.50	2.45	1.40
10.70	0.86	0.23	1.98	15.90	3.51	2.46	1.37
10.80	0.89	0.25	2.16	16.00	3.52	2.47	1.33
10.90	0.91	0.26	2.35	16.10	3.53	2.48	1.29
11.00	0.94	0.28	2.54	16.20	3.54	2.48	1.28
11.10	0.97	0.30	2.78	16.30	3.55	2.49	1.26
11.20	1.01	0.32	3.18	16.40	3.56	2.50	1.25
11.30	1.04	0.35	3.62	16.50	3.56	2.51	1.24
11.40	1.09	0.38	4.08	16.60	3.57	2.52	1.22
11.50	1.13	0.41	4.56	16.70	3.58	2.52	1.21
11.60	1.23	0.48	7.11	16.80	3.59	2.53	1.19
11.70	1.42	0.62	16.53	16.90	3.60	2.54	1.18
11.80	1.72	0.86	28.71	17.00	3.61	2.55	1.17
11.90	2.27	1.33	**54.98**	17.10	3.62	2.56	1.15
12.00	2.65	1.67	**67.73**	17.20	3.62	2.56	1.14
12.10	2.73	1.74	20.55	17.30	3.63	2.57	1.13
12.20	2.79	1.80	10.37	17.40	3.64	2.58	1.11
12.30	2.85	1.85	8.39	17.50	3.65	2.59	1.10
12.40	2.90	1.89	7.15	17.60	3.65	2.59	1.08
12.50	2.94	1.93	5.93	17.70	3.66	2.60	1.07
12.60	2.97	1.96	4.89	17.80	3.67	2.61	1.06
12.70	3.01	1.99	4.49	17.90	3.68	2.61	1.04
12.80	3.04	2.02	4.20	18.00	3.68	2.62	1.03
12.90	3.06	2.04	3.92	18.10	3.69	2.63	1.01
13.00	3.09	2.07	3.63	18.20	3.70	2.63	1.00
13.10	3.11	2.09	3.38	18.30	3.71	2.64	0.99
13.20	3.13	2.11	3.21	18.40	3.71	2.65	0.97
13.30	3.16	2.13	3.06	18.50	3.72	2.65	0.96
13.40	3.18	2.15	2.90	18.60	3.73	2.66	0.94
13.50	3.20	2.16	2.75	18.70	3.73	2.67	0.93
13.60	3.21	2.18	2.61	18.80	3.74	2.67	0.92
13.70	3.23	2.20	2.49	18.90	3.74	2.68	0.90
13.80	3.25	2.21	2.38	19.00	3.75	2.68	0.89
13.90	3.26	2.23	2.27	19.10	3.76	2.69	0.87
14.00	3.28	2.24	2.16	19.20	3.76	2.70	0.86
14.10	3.29	2.26	2.07	19.30	3.77	2.70	0.85
14.20	3.31	2.27	2.02	19.40	3.77	2.71	0.83
14.30	3.32	2.28	1.98	19.50	3.78	2.71	0.82
14.40	3.34	2.30	1.94	19.60	3.79	2.72	0.80
14.50	3.35	2.31	1.91	19.70	3.79	2.72	0.79
14.60	3.36	2.32	1.87	19.80	3.80	2.73	0.78
14.70	3.38	2.33	1.83	19.90	3.80	2.73	0.76
14.80	3.39	2.34	1.79	20.00	3.81	2.74	0.75
14.90	3.40	2.36	1.75	20.10	3.81	2.74	0.74
15.00	3.41	2.37	1.71	20.20	3.82	2.75	0.73
15.10	3.43	2.38	1.68	20.30	3.82	2.75	0.73
15.20	3.44	2.39	1.64	20.40	3.83	2.76	0.73
15.30	3.45	2.40	1.60	20.50	3.83	2.76	0.72
15.40	3.46	2.41	1.56	20.60	3.84	2.77	0.72
15.50	3.47	2.42	1.52	20.70	3.84	2.77	0.72

Hydrograph for Subcatchment 76S: Direct Contribution to Basin I (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
20.80	3.85	2.78	0.72	26.00	4.00	2.92	0.00
20.90	3.85	2.78	0.71	26.10	4.00	2.92	0.00
21.00	3.86	2.79	0.71	26.20	4.00	2.92	0.00
21.10	3.86	2.79	0.71	26.30	4.00	2.92	0.00
21.20	3.87	2.80	0.71	26.40	4.00	2.92	0.00
21.30	3.87	2.80	0.70	26.50	4.00	2.92	0.00
21.40	3.88	2.80	0.70	26.60	4.00	2.92	0.00
21.50	3.88	2.81	0.70	26.70	4.00	2.92	0.00
21.60	3.89	2.81	0.69	26.80	4.00	2.92	0.00
21.70	3.89	2.82	0.69	26.90	4.00	2.92	0.00
21.80	3.90	2.82	0.69	27.00	4.00	2.92	0.00
21.90	3.90	2.83	0.69	27.10	4.00	2.92	0.00
22.00	3.91	2.83	0.68	27.20	4.00	2.92	0.00
22.10	3.91	2.84	0.68	27.30	4.00	2.92	0.00
22.20	3.92	2.84	0.68	27.40	4.00	2.92	0.00
22.30	3.92	2.85	0.68	27.50	4.00	2.92	0.00
22.40	3.93	2.85	0.67	27.60	4.00	2.92	0.00
22.50	3.93	2.85	0.67	27.70	4.00	2.92	0.00
22.60	3.94	2.86	0.67	27.80	4.00	2.92	0.00
22.70	3.94	2.86	0.66	27.90	4.00	2.92	0.00
22.80	3.95	2.87	0.66	28.00	4.00	2.92	0.00
22.90	3.95	2.87	0.66	28.10	4.00	2.92	0.00
23.00	3.95	2.88	0.66	28.20	4.00	2.92	0.00
23.10	3.96	2.88	0.65	28.30	4.00	2.92	0.00
23.20	3.96	2.89	0.65	28.40	4.00	2.92	0.00
23.30	3.97	2.89	0.65	28.50	4.00	2.92	0.00
23.40	3.97	2.89	0.64	28.60	4.00	2.92	0.00
23.50	3.98	2.90	0.64	28.70	4.00	2.92	0.00
23.60	3.98	2.90	0.64	28.80	4.00	2.92	0.00
23.70	3.99	2.91	0.64	28.90	4.00	2.92	0.00
23.80	3.99	2.91	0.63	29.00	4.00	2.92	0.00
23.90	4.00	2.92	0.63	29.10	4.00	2.92	0.00
24.00	**4.00**	**2.92**	0.63	29.20	4.00	2.92	0.00
24.10	4.00	2.92	0.22	29.30	4.00	2.92	0.00
24.20	4.00	2.92	0.02	29.40	4.00	2.92	0.00
24.30	4.00	2.92	0.00	29.50	4.00	2.92	0.00
24.40	4.00	2.92	0.00	29.60	4.00	2.92	0.00
24.50	4.00	2.92	0.00	29.70	4.00	2.92	0.00
24.60	4.00	2.92	0.00	29.80	4.00	2.92	0.00
24.70	4.00	2.92	0.00	29.90	4.00	2.92	0.00
24.80	4.00	2.92	0.00	30.00	4.00	2.92	0.00
24.90	4.00	2.92	0.00	30.10	4.00	2.92	0.00
25.00	4.00	2.92	0.00	30.20	4.00	2.92	0.00
25.10	4.00	2.92	0.00	30.30	4.00	2.92	0.00
25.20	4.00	2.92	0.00	30.40	4.00	2.92	0.00
25.30	4.00	2.92	0.00	30.50	4.00	2.92	0.00
25.40	4.00	2.92	0.00	30.60	4.00	2.92	0.00
25.50	4.00	2.92	0.00	30.70	4.00	2.92	0.00
25.60	4.00	2.92	0.00	30.80	4.00	2.92	0.00
25.70	4.00	2.92	0.00	30.90	4.00	2.92	0.00
25.80	4.00	2.92	0.00	31.00	4.00	2.92	0.00
25.90	4.00	2.92	0.00	31.10	4.00	2.92	0.00

Hydrograph for Subcatchment 76S: Direct Contribution to Basin I (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
31.20	4.00	2.92	0.00	36.40	4.00	2.92	0.00
31.30	4.00	2.92	0.00	36.50	4.00	2.92	0.00
31.40	4.00	2.92	0.00	36.60	4.00	2.92	0.00
31.50	4.00	2.92	0.00	36.70	4.00	2.92	0.00
31.60	4.00	2.92	0.00	36.80	4.00	2.92	0.00
31.70	4.00	2.92	0.00	36.90	4.00	2.92	0.00
31.80	4.00	2.92	0.00	37.00	4.00	2.92	0.00
31.90	4.00	2.92	0.00	37.10	4.00	2.92	0.00
32.00	4.00	2.92	0.00	37.20	4.00	2.92	0.00
32.10	4.00	2.92	0.00	37.30	4.00	2.92	0.00
32.20	4.00	2.92	0.00	37.40	4.00	2.92	0.00
32.30	4.00	2.92	0.00	37.50	4.00	2.92	0.00
32.40	4.00	2.92	0.00	37.60	4.00	2.92	0.00
32.50	4.00	2.92	0.00	37.70	4.00	2.92	0.00
32.60	4.00	2.92	0.00	37.80	4.00	2.92	0.00
32.70	4.00	2.92	0.00	37.90	4.00	2.92	0.00
32.80	4.00	2.92	0.00	38.00	4.00	2.92	0.00
32.90	4.00	2.92	0.00	38.10	4.00	2.92	0.00
33.00	4.00	2.92	0.00	38.20	4.00	2.92	0.00
33.10	4.00	2.92	0.00	38.30	4.00	2.92	0.00
33.20	4.00	2.92	0.00	38.40	4.00	2.92	0.00
33.30	4.00	2.92	0.00	38.50	4.00	2.92	0.00
33.40	4.00	2.92	0.00	38.60	4.00	2.92	0.00
33.50	4.00	2.92	0.00	38.70	4.00	2.92	0.00
33.60	4.00	2.92	0.00	38.80	4.00	2.92	0.00
33.70	4.00	2.92	0.00	38.90	4.00	2.92	0.00
33.80	4.00	2.92	0.00	39.00	4.00	2.92	0.00
33.90	4.00	2.92	0.00	39.10	4.00	2.92	0.00
34.00	4.00	2.92	0.00	39.20	4.00	2.92	0.00
34.10	4.00	2.92	0.00	39.30	4.00	2.92	0.00
34.20	4.00	2.92	0.00	39.40	4.00	2.92	0.00
34.30	4.00	2.92	0.00	39.50	4.00	2.92	0.00
34.40	4.00	2.92	0.00	39.60	4.00	2.92	0.00
34.50	4.00	2.92	0.00	39.70	4.00	2.92	0.00
34.60	4.00	2.92	0.00	39.80	4.00	2.92	0.00
34.70	4.00	2.92	0.00	39.90	4.00	2.92	0.00
34.80	4.00	2.92	0.00	40.00	4.00	2.92	0.00
34.90	4.00	2.92	0.00	40.10	4.00	2.92	0.00
35.00	4.00	2.92	0.00	40.20	4.00	2.92	0.00
35.10	4.00	2.92	0.00	40.30	4.00	2.92	0.00
35.20	4.00	2.92	0.00	40.40	4.00	2.92	0.00
35.30	4.00	2.92	0.00	40.50	4.00	2.92	0.00
35.40	4.00	2.92	0.00	40.60	4.00	2.92	0.00
35.50	4.00	2.92	0.00	40.70	4.00	2.92	0.00
35.60	4.00	2.92	0.00	40.80	4.00	2.92	0.00
35.70	4.00	2.92	0.00	40.90	4.00	2.92	0.00
35.80	4.00	2.92	0.00	41.00	4.00	2.92	0.00
35.90	4.00	2.92	0.00	41.10	4.00	2.92	0.00
36.00	4.00	2.92	0.00	41.20	4.00	2.92	0.00
36.10	4.00	2.92	0.00	41.30	4.00	2.92	0.00
36.20	4.00	2.92	0.00	41.40	4.00	2.92	0.00
36.30	4.00	2.92	0.00	41.50	4.00	2.92	0.00

Hydrograph for Subcatchment 76S: Direct Contribution to Basin I (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
41.60	4.00	2.92	0.00	46.80	4.00	2.92	0.00
41.70	4.00	2.92	0.00	46.90	4.00	2.92	0.00
41.80	4.00	2.92	0.00	47.00	4.00	2.92	0.00
41.90	4.00	2.92	0.00	47.10	4.00	2.92	0.00
42.00	4.00	2.92	0.00	47.20	4.00	2.92	0.00
42.10	4.00	2.92	0.00	47.30	4.00	2.92	0.00
42.20	4.00	2.92	0.00	47.40	4.00	2.92	0.00
42.30	4.00	2.92	0.00	47.50	4.00	2.92	0.00
42.40	4.00	2.92	0.00	47.60	4.00	2.92	0.00
42.50	4.00	2.92	0.00	47.70	4.00	2.92	0.00
42.60	4.00	2.92	0.00	47.80	4.00	2.92	0.00
42.70	4.00	2.92	0.00	47.90	4.00	2.92	0.00
42.80	4.00	2.92	0.00	48.00	4.00	2.92	0.00
42.90	4.00	2.92	0.00	48.10	4.00	2.92	0.00
43.00	4.00	2.92	0.00	48.20	4.00	2.92	0.00
43.10	4.00	2.92	0.00	48.30	4.00	2.92	0.00
43.20	4.00	2.92	0.00	48.40	4.00	2.92	0.00
43.30	4.00	2.92	0.00	48.50	4.00	2.92	0.00
43.40	4.00	2.92	0.00	48.60	4.00	2.92	0.00
43.50	4.00	2.92	0.00	48.70	4.00	2.92	0.00
43.60	4.00	2.92	0.00	48.80	4.00	2.92	0.00
43.70	4.00	2.92	0.00	48.90	4.00	2.92	0.00
43.80	4.00	2.92	0.00	49.00	4.00	2.92	0.00
43.90	4.00	2.92	0.00	49.10	4.00	2.92	0.00
44.00	4.00	2.92	0.00	49.20	4.00	2.92	0.00
44.10	4.00	2.92	0.00	49.30	4.00	2.92	0.00
44.20	4.00	2.92	0.00	49.40	4.00	2.92	0.00
44.30	4.00	2.92	0.00	49.50	4.00	2.92	0.00
44.40	4.00	2.92	0.00	49.60	4.00	2.92	0.00
44.50	4.00	2.92	0.00	49.70	4.00	2.92	0.00
44.60	4.00	2.92	0.00	49.80	4.00	2.92	0.00
44.70	4.00	2.92	0.00	49.90	4.00	2.92	0.00
44.80	4.00	2.92	0.00	50.00	4.00	2.92	0.00
44.90	4.00	2.92	0.00	50.10	4.00	2.92	0.00
45.00	4.00	2.92	0.00	50.20	4.00	2.92	0.00
45.10	4.00	2.92	0.00	50.30	4.00	2.92	0.00
45.20	4.00	2.92	0.00	50.40	4.00	2.92	0.00
45.30	4.00	2.92	0.00	50.50	4.00	2.92	0.00
45.40	4.00	2.92	0.00	50.60	4.00	2.92	0.00
45.50	4.00	2.92	0.00	50.70	4.00	2.92	0.00
45.60	4.00	2.92	0.00	50.80	4.00	2.92	0.00
45.70	4.00	2.92	0.00	50.90	4.00	2.92	0.00
45.80	4.00	2.92	0.00	51.00	4.00	2.92	0.00
45.90	4.00	2.92	0.00	51.10	4.00	2.92	0.00
46.00	4.00	2.92	0.00	51.20	4.00	2.92	0.00
46.10	4.00	2.92	0.00	51.30	4.00	2.92	0.00
46.20	4.00	2.92	0.00	51.40	4.00	2.92	0.00
46.30	4.00	2.92	0.00	51.50	4.00	2.92	0.00
46.40	4.00	2.92	0.00	51.60	4.00	2.92	0.00
46.50	4.00	2.92	0.00	51.70	4.00	2.92	0.00
46.60	4.00	2.92	0.00	51.80	4.00	2.92	0.00
46.70	4.00	2.92	0.00	51.90	4.00	2.92	0.00

Hydrograph for Subcatchment 76S: Direct Contribution to Basin I (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
52.00	4.00	2.92	0.00
52.10	4.00	2.92	0.00
52.20	4.00	2.92	0.00
52.30	4.00	2.92	0.00
52.40	4.00	2.92	0.00
52.50	4.00	2.92	0.00
52.60	4.00	2.92	0.00
52.70	4.00	2.92	0.00
52.80	4.00	2.92	0.00
52.90	4.00	2.92	0.00
53.00	4.00	2.92	0.00
53.10	4.00	2.92	0.00
53.20	4.00	2.92	0.00
53.30	4.00	2.92	0.00
53.40	4.00	2.92	0.00
53.50	4.00	2.92	0.00
53.60	4.00	2.92	0.00
53.70	4.00	2.92	0.00
53.80	4.00	2.92	0.00
53.90	4.00	2.92	0.00
54.00	4.00	2.92	0.00
54.10	4.00	2.92	0.00
54.20	4.00	2.92	0.00
54.30	4.00	2.92	0.00
54.40	4.00	2.92	0.00
54.50	4.00	2.92	0.00
54.60	4.00	2.92	0.00
54.70	4.00	2.92	0.00
54.80	4.00	2.92	0.00
54.90	4.00	2.92	0.00
55.00	4.00	2.92	0.00
55.10	4.00	2.92	0.00
55.20	4.00	2.92	0.00
55.30	4.00	2.92	0.00
55.40	4.00	2.92	0.00
55.50	4.00	2.92	0.00
55.60	4.00	2.92	0.00
55.70	4.00	2.92	0.00
55.80	4.00	2.92	0.00
55.90	4.00	2.92	0.00
56.00	4.00	2.92	0.00
56.10	4.00	2.92	0.00
56.20	4.00	2.92	0.00
56.30	4.00	2.92	0.00
56.40	4.00	2.92	0.00
56.50	4.00	2.92	0.00
56.60	4.00	2.92	0.00
56.70	4.00	2.92	0.00
56.80	4.00	2.92	0.00
56.90	4.00	2.92	0.00
57.00	4.00	2.92	0.00
57.10	4.00	2.92	0.00
57.20	4.00	2.92	0.00
57.30	4.00	2.92	0.00
57.40	4.00	2.92	0.00
57.50	4.00	2.92	0.00
57.60	4.00	2.92	0.00
57.70	4.00	2.92	0.00
57.80	4.00	2.92	0.00
57.90	4.00	2.92	0.00
58.00	4.00	2.92	0.00
58.10	4.00	2.92	0.00
58.20	4.00	2.92	0.00
58.30	4.00	2.92	0.00
58.40	4.00	2.92	0.00
58.50	4.00	2.92	0.00
58.60	4.00	2.92	0.00
58.70	4.00	2.92	0.00
58.80	4.00	2.92	0.00
58.90	4.00	2.92	0.00
59.00	4.00	2.92	0.00
59.10	4.00	2.92	0.00
59.20	4.00	2.92	0.00
59.30	4.00	2.92	0.00
59.40	4.00	2.92	0.00
59.50	4.00	2.92	0.00
59.60	4.00	2.92	0.00
59.70	4.00	2.92	0.00
59.80	4.00	2.92	0.00
59.90	4.00	2.92	0.00
60.00	4.00	2.92	0.00

Initial Condition #1:
No Liquid in Basin at Beginning of Storm Event

Basin H

Summary for Pond 94P: Basin H

[78] Warning: Submerged Pond 13P Primary device # 1 by 0.88'

Inflow	=	22.50 cfs @	12.00 hrs, Volume=	1.037 af
Outflow	=	1.15 cfs @	13.05 hrs, Volume=	0.685 af, Atten= 95%, Lag= 63.3 min
Discarded	=	0.07 cfs @	7.86 hrs, Volume=	0.319 af
Primary	=	0.92 cfs @	13.05 hrs, Volume=	0.226 af
Secondary	=	0.15 cfs @	12.15 hrs, Volume=	0.140 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 328.36' @ 13.05 hrs Surf.Area= 0.264 ac Storage= 0.660 af

Plug-Flow detention time= 761.0 min calculated for 0.685 af (66% of inflow)
Center-of-Mass det. time= 669.1 min (1,460.1 - 791.0)

Volume	Invert	Avail.Storage	Storage Description
#1	322.31'	0.866 af	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
322.31	0.000	0.000	0.000
322.50	0.001	0.000	0.000
323.00	0.015	0.004	0.004
323.50	0.036	0.013	0.017
324.00	0.058	0.024	0.040
324.50	0.076	0.033	0.074
325.00	0.094	0.042	0.116
325.50	0.112	0.052	0.168
326.00	0.131	0.061	0.229
326.50	0.151	0.070	0.299
327.00	0.171	0.080	0.380
327.50	0.192	0.091	0.470
328.00	0.214	0.101	0.572
328.50	0.284	0.125	0.696
329.00	0.396	0.170	0.866

Device	Routing	Invert	Outlet Devices
#1	Primary	327.48'	**Outflow to South Channel** Elev. (feet) 327.48 328.00 328.25 328.50 328.75 329.00 329.25 329.50 329.75 330.00 Disch. (cfs) 0.000 0.000 0.310 1.770 4.890 10.030 17.520 27.640 40.640 56.750
#2	Discarded	322.31'	**Pump 1** Elev. (feet) 322.31 323.30 323.31 324.00 325.00 326.00 327.00 328.00 329.00 Disch. (cfs) 0.000 0.000 0.074 0.074 0.074 0.074 0.074 0.074 0.074
#3	Secondary	322.31'	**Pump 2** Elev. (feet) 322.31 327.99 328.00 329.00 330.00 Disch. (cfs) 0.000 0.000 0.149 0.149 0.149

Discarded OutFlow Max=0.07 cfs @ 7.86 hrs HW=323.31' (Free Discharge)
└**2=Pump 1** (Custom Controls 0.07 cfs)

Primary OutFlow Max=0.92 cfs @ 13.05 hrs HW=328.36' TW=328.17' (Dynamic Tailwater)
└**1=Outflow to South Channel** (Custom Controls 0.92 cfs)

Secondary OutFlow Max=0.15 cfs @ 12.15 hrs HW=328.02' TW=345.50' (Dynamic Tailwater)
└**3=Pump 2** (Custom Controls 0.15 cfs)

Hydrograph for Pond 94P: Basin H

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	322.31	0.00	0.00	0.00	0.00
0.20	0.00	0.000	322.31	0.00	0.00	0.00	0.00
0.40	0.00	0.000	322.31	0.00	0.00	0.00	0.00
0.60	0.00	0.000	322.31	0.00	0.00	0.00	0.00
0.80	0.00	0.000	322.31	0.00	0.00	0.00	0.00
1.00	0.00	0.000	322.31	0.00	0.00	0.00	0.00
1.20	0.00	0.000	322.31	0.00	0.00	0.00	0.00
1.40	0.00	0.000	322.31	0.00	0.00	0.00	0.00
1.60	0.00	0.000	322.31	0.00	0.00	0.00	0.00
1.80	0.00	0.000	322.31	0.00	0.00	0.00	0.00
2.00	0.00	0.000	322.31	0.00	0.00	0.00	0.00
2.20	0.00	0.000	322.31	0.00	0.00	0.00	0.00
2.40	0.00	0.000	322.31	0.00	0.00	0.00	0.00
2.60	0.00	0.000	322.31	0.00	0.00	0.00	0.00
2.80	0.00	0.000	322.31	0.00	0.00	0.00	0.00
3.00	0.00	0.000	322.31	0.00	0.00	0.00	0.00
3.20	0.00	0.000	322.31	0.00	0.00	0.00	0.00
3.40	0.00	0.000	322.31	0.00	0.00	0.00	0.00
3.60	0.00	0.000	322.31	0.00	0.00	0.00	0.00
3.80	0.00	0.000	322.31	0.00	0.00	0.00	0.00
4.00	0.00	0.000	322.31	0.00	0.00	0.00	0.00
4.20	0.00	0.000	322.31	0.00	0.00	0.00	0.00
4.40	0.00	0.000	322.31	0.00	0.00	0.00	0.00
4.60	0.00	0.000	322.31	0.00	0.00	0.00	0.00
4.80	0.00	0.000	322.34	0.00	0.00	0.00	0.00
5.00	0.00	0.000	322.46	0.00	0.00	0.00	0.00
5.20	0.01	0.000	322.51	0.00	0.00	0.00	0.00
5.40	0.02	0.000	322.55	0.00	0.00	0.00	0.00
5.60	0.02	0.001	322.59	0.00	0.00	0.00	0.00
5.80	0.03	0.001	322.64	0.00	0.00	0.00	0.00
6.00	0.04	0.002	322.71	0.00	0.00	0.00	0.00
6.20	0.04	0.002	322.79	0.00	0.00	0.00	0.00
6.40	0.05	0.003	322.88	0.00	0.00	0.00	0.00
6.60	0.06	0.004	322.99	0.00	0.00	0.00	0.00
6.80	0.06	0.005	323.04	0.00	0.00	0.00	0.00
7.00	0.07	0.006	323.08	0.00	0.00	0.00	0.00
7.20	0.08	0.007	323.13	0.00	0.00	0.00	0.00
7.40	0.08	0.009	323.18	0.00	0.00	0.00	0.00
7.60	0.09	0.010	323.23	0.00	0.00	0.00	0.00
7.80	0.10	0.012	323.30	0.00	**0.00**	0.00	0.00
8.00	0.10	0.012	323.32	0.07	**0.07**	0.00	0.00
8.20	0.12	0.013	323.35	0.07	0.07	0.00	0.00
8.40	0.14	0.014	323.38	0.07	0.07	0.00	0.00
8.60	0.15	0.015	323.43	0.07	0.07	0.00	0.00
8.80	0.17	0.016	323.48	0.07	0.07	0.00	0.00
9.00	0.19	0.018	323.53	0.07	0.07	0.00	0.00
9.20	0.22	0.020	323.57	0.07	0.07	0.00	0.00
9.40	0.22	0.023	323.63	0.07	0.07	0.00	0.00
9.60	0.24	0.025	323.68	0.07	0.07	0.00	0.00
9.80	0.26	0.028	323.74	0.07	0.07	0.00	0.00
10.00	0.29	0.031	323.81	0.07	0.07	0.00	0.00
10.20	0.34	0.035	323.89	0.07	0.07	0.00	0.00

Hydrograph for Pond 94P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
10.40	0.38	0.040	323.99	0.07	0.07	0.00	0.00
10.60	0.44	0.046	324.08	0.07	0.07	0.00	0.00
10.80	0.53	0.052	324.18	0.07	0.07	0.00	0.00
11.00	0.62	0.061	324.30	0.07	0.07	0.00	0.00
11.20	0.76	0.071	324.45	0.07	0.07	0.00	0.00
11.40	0.97	0.084	324.61	0.07	0.07	0.00	0.00
11.60	1.50	0.101	324.82	0.07	0.07	0.00	0.00
11.80	7.14	0.157	325.39	0.07	0.07	0.00	0.00
12.00	**22.48**	0.394	327.08	0.07	0.07	0.00	**0.00**
12.20	3.63	0.596	328.10	0.34	0.07	0.12	**0.15**
12.40	2.13	0.633	328.25	0.53	0.07	0.31	0.15
12.60	1.55	0.651	328.32	0.94	0.07	0.71	0.15
12.80	1.33	0.658	328.35	1.09	0.07	0.87	0.15
13.00	1.19	**0.660**	**328.35**	**1.15**	0.07	**0.92**	0.15
13.20	1.05	**0.660**	**328.35**	**1.14**	0.07	**0.91**	0.15
13.40	0.93	0.658	328.35	1.09	0.07	0.86	0.15
13.60	0.82	0.655	328.33	1.02	0.07	0.80	0.15
13.80	0.71	0.651	328.32	0.94	0.07	0.71	0.15
14.00	0.61	0.647	328.30	0.85	0.07	0.62	0.15
14.20	0.53	0.643	328.29	0.75	0.07	0.53	0.15
14.40	0.51	0.640	328.27	0.68	0.07	0.45	0.15
14.60	0.49	0.638	328.26	0.62	0.07	0.39	0.15
14.80	0.47	0.636	328.26	0.57	0.07	0.35	0.15
15.00	0.45	0.634	328.25	0.53	0.07	0.31	0.15
15.20	0.43	0.633	328.24	0.53	0.07	0.30	0.15
15.40	0.41	0.631	328.24	0.52	0.07	0.29	0.15
15.60	0.39	0.629	328.23	0.51	0.07	0.28	0.15
15.80	0.37	0.627	328.22	0.50	0.07	0.27	0.15
16.00	0.35	0.625	328.21	0.49	0.07	0.26	0.15
16.20	0.33	0.622	328.20	0.47	0.07	0.25	0.15
16.40	0.32	0.620	328.19	0.46	0.07	0.24	0.15
16.60	0.31	0.617	328.18	0.45	0.07	0.23	0.15
16.80	0.31	0.615	328.17	0.44	0.07	0.22	0.15
17.00	0.30	0.613	328.17	0.43	0.07	0.21	0.15
17.20	0.29	0.611	328.16	0.42	0.07	0.19	0.15
17.40	0.29	0.609	328.15	0.41	0.07	0.18	0.15
17.60	0.28	0.607	328.14	0.40	0.07	0.17	0.15
17.80	0.27	0.605	328.13	0.39	0.07	0.17	0.15
18.00	0.27	0.603	328.13	0.38	0.07	0.16	0.15
18.20	0.26	0.601	328.12	0.37	0.07	0.15	0.15
18.40	0.25	0.599	328.11	0.36	0.07	0.14	0.15
18.60	0.24	0.598	328.10	0.35	0.07	0.13	0.15
18.80	0.23	0.596	328.10	0.34	0.07	0.12	0.15
19.00	0.23	0.594	328.09	0.33	0.07	0.11	0.15
19.20	0.22	0.592	328.08	0.32	0.07	0.10	0.15
19.40	0.21	0.591	328.08	0.32	0.07	0.09	0.15
19.60	0.21	0.589	328.07	0.31	0.07	0.09	0.15
19.80	0.20	0.587	328.06	0.30	0.07	0.08	0.15
20.00	0.19	0.586	328.06	0.29	0.07	0.07	0.15
20.20	0.19	0.584	328.05	0.28	0.07	0.06	0.15
20.40	0.18	0.582	328.04	0.28	0.07	0.05	0.15
20.60	0.18	0.581	328.04	0.27	0.07	0.05	0.15

Hydrograph for Pond 94P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
20.80	0.18	0.580	328.03	0.26	0.07	0.04	0.15
21.00	0.18	0.578	328.03	0.25	0.07	0.03	0.15
21.20	0.18	0.577	328.02	0.25	0.07	0.03	0.15
21.40	0.18	0.576	328.02	0.24	0.07	0.02	0.15
21.60	0.18	0.575	328.01	0.24	0.07	0.01	0.15
21.80	0.18	0.574	328.01	0.23	0.07	0.01	0.15
22.00	0.17	0.573	328.00	0.23	0.07	0.01	0.15
22.20	0.17	0.572	328.00	0.22	0.07	0.00	0.15
22.40	0.17	0.571	328.00	0.19	0.07	0.00	0.12
22.60	0.17	0.571	328.00	0.18	0.07	0.00	0.10
22.80	0.17	0.571	328.00	0.17	0.07	0.00	0.10
23.00	0.17	0.571	328.00	0.17	0.07	0.00	0.10
23.20	0.16	0.571	328.00	0.16	0.07	0.00	0.09
23.40	0.16	0.571	328.00	0.16	0.07	0.00	0.09
23.60	0.16	0.571	328.00	0.16	0.07	0.00	0.09
23.80	0.16	0.571	328.00	0.16	0.07	0.00	0.09
24.00	0.16	0.571	328.00	0.16	0.07	0.00	0.08
24.20	0.05	0.570	327.99	0.11	0.07	0.00	0.04
24.40	0.00	0.569	327.99	0.07	0.07	0.00	0.00
24.60	0.00	0.568	327.98	0.07	0.07	0.00	0.00
24.80	0.00	0.567	327.98	0.07	0.07	0.00	0.00
25.00	0.00	0.566	327.97	0.07	0.07	0.00	0.00
25.20	0.00	0.564	327.96	0.07	0.07	0.00	0.00
25.40	0.00	0.563	327.96	0.07	0.07	0.00	0.00
25.60	0.00	0.562	327.95	0.07	0.07	0.00	0.00
25.80	0.00	0.561	327.95	0.07	0.07	0.00	0.00
26.00	0.00	0.560	327.94	0.07	0.07	0.00	0.00
26.20	0.00	0.558	327.93	0.07	0.07	0.00	0.00
26.40	0.00	0.557	327.93	0.07	0.07	0.00	0.00
26.60	0.00	0.556	327.92	0.07	0.07	0.00	0.00
26.80	0.00	0.555	327.92	0.07	0.07	0.00	0.00
27.00	0.00	0.553	327.91	0.07	0.07	0.00	0.00
27.20	0.00	0.552	327.90	0.07	0.07	0.00	0.00
27.40	0.00	0.551	327.90	0.07	0.07	0.00	0.00
27.60	0.00	0.550	327.89	0.07	0.07	0.00	0.00
27.80	0.00	0.549	327.89	0.07	0.07	0.00	0.00
28.00	0.00	0.547	327.88	0.07	0.07	0.00	0.00
28.20	0.00	0.546	327.87	0.07	0.07	0.00	0.00
28.40	0.00	0.545	327.87	0.07	0.07	0.00	0.00
28.60	0.00	0.544	327.86	0.07	0.07	0.00	0.00
28.80	0.00	0.542	327.85	0.07	0.07	0.00	0.00
29.00	0.00	0.541	327.85	0.07	0.07	0.00	0.00
29.20	0.00	0.540	327.84	0.07	0.07	0.00	0.00
29.40	0.00	0.539	327.84	0.07	0.07	0.00	0.00
29.60	0.00	0.537	327.83	0.07	0.07	0.00	0.00
29.80	0.00	0.536	327.82	0.07	0.07	0.00	0.00
30.00	0.00	0.535	327.82	0.07	0.07	0.00	0.00
30.20	0.00	0.534	327.81	0.07	0.07	0.00	0.00
30.40	0.00	0.533	327.81	0.07	0.07	0.00	0.00
30.60	0.00	0.531	327.80	0.07	0.07	0.00	0.00
30.80	0.00	0.530	327.79	0.07	0.07	0.00	0.00
31.00	0.00	0.529	327.79	0.07	0.07	0.00	0.00

Hydrograph for Pond 94P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
31.20	0.00	0.528	327.78	0.07	0.07	0.00	0.00
31.40	0.00	0.526	327.78	0.07	0.07	0.00	0.00
31.60	0.00	0.525	327.77	0.07	0.07	0.00	0.00
31.80	0.00	0.524	327.76	0.07	0.07	0.00	0.00
32.00	0.00	0.523	327.76	0.07	0.07	0.00	0.00
32.20	0.00	0.522	327.75	0.07	0.07	0.00	0.00
32.40	0.00	0.520	327.75	0.07	0.07	0.00	0.00
32.60	0.00	0.519	327.74	0.07	0.07	0.00	0.00
32.80	0.00	0.518	327.73	0.07	0.07	0.00	0.00
33.00	0.00	0.517	327.73	0.07	0.07	0.00	0.00
33.20	0.00	0.515	327.72	0.07	0.07	0.00	0.00
33.40	0.00	0.514	327.72	0.07	0.07	0.00	0.00
33.60	0.00	0.513	327.71	0.07	0.07	0.00	0.00
33.80	0.00	0.512	327.70	0.07	0.07	0.00	0.00
34.00	0.00	0.511	327.70	0.07	0.07	0.00	0.00
34.20	0.00	0.509	327.69	0.07	0.07	0.00	0.00
34.40	0.00	0.508	327.69	0.07	0.07	0.00	0.00
34.60	0.00	0.507	327.68	0.07	0.07	0.00	0.00
34.80	0.00	0.506	327.67	0.07	0.07	0.00	0.00
35.00	0.00	0.504	327.67	0.07	0.07	0.00	0.00
35.20	0.00	0.503	327.66	0.07	0.07	0.00	0.00
35.40	0.00	0.502	327.66	0.07	0.07	0.00	0.00
35.60	0.00	0.501	327.65	0.07	0.07	0.00	0.00
35.80	0.00	0.500	327.64	0.07	0.07	0.00	0.00
36.00	0.00	0.498	327.64	0.07	0.07	0.00	0.00
36.20	0.00	0.497	327.63	0.07	0.07	0.00	0.00
36.40	0.00	0.496	327.63	0.07	0.07	0.00	0.00
36.60	0.00	0.495	327.62	0.07	0.07	0.00	0.00
36.80	0.00	0.493	327.61	0.07	0.07	0.00	0.00
37.00	0.00	0.492	327.61	0.07	0.07	0.00	0.00
37.20	0.00	0.491	327.60	0.07	0.07	0.00	0.00
37.40	0.00	0.490	327.60	0.07	0.07	0.00	0.00
37.60	0.00	0.489	327.59	0.07	0.07	0.00	0.00
37.80	0.00	0.487	327.58	0.07	0.07	0.00	0.00
38.00	0.00	0.486	327.58	0.07	0.07	0.00	0.00
38.20	0.00	0.485	327.57	0.07	0.07	0.00	0.00
38.40	0.00	0.484	327.57	0.07	0.07	0.00	0.00
38.60	0.00	0.482	327.56	0.07	0.07	0.00	0.00
38.80	0.00	0.481	327.55	0.07	0.07	0.00	0.00
39.00	0.00	0.480	327.55	0.07	0.07	0.00	0.00
39.20	0.00	0.479	327.54	0.07	0.07	0.00	0.00
39.40	0.00	0.478	327.54	0.07	0.07	0.00	0.00
39.60	0.00	0.476	327.53	0.07	0.07	0.00	0.00
39.80	0.00	0.475	327.52	0.07	0.07	0.00	0.00
40.00	0.00	0.474	327.52	0.07	0.07	0.00	0.00
40.20	0.00	0.473	327.51	0.07	0.07	0.00	0.00
40.40	0.00	0.471	327.51	0.07	0.07	0.00	0.00
40.60	0.00	0.470	327.50	0.07	0.07	0.00	0.00
40.80	0.00	0.469	327.49	0.07	0.07	0.00	0.00
41.00	0.00	0.468	327.49	0.07	0.07	0.00	0.00
41.20	0.00	0.467	327.48	0.07	0.07	0.00	0.00
41.40	0.00	0.465	327.47	0.07	0.07	0.00	0.00

Hydrograph for Pond 94P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
41.60	0.00	0.464	327.47	0.07	0.07	0.00	0.00
41.80	0.00	0.463	327.46	0.07	0.07	0.00	0.00
42.00	0.00	0.462	327.45	0.07	0.07	0.00	0.00
42.20	0.00	0.460	327.45	0.07	0.07	0.00	0.00
42.40	0.00	0.459	327.44	0.07	0.07	0.00	0.00
42.60	0.00	0.458	327.43	0.07	0.07	0.00	0.00
42.80	0.00	0.457	327.43	0.07	0.07	0.00	0.00
43.00	0.00	0.456	327.42	0.07	0.07	0.00	0.00
43.20	0.00	0.454	327.41	0.07	0.07	0.00	0.00
43.40	0.00	0.453	327.41	0.07	0.07	0.00	0.00
43.60	0.00	0.452	327.40	0.07	0.07	0.00	0.00
43.80	0.00	0.451	327.39	0.07	0.07	0.00	0.00
44.00	0.00	0.449	327.38	0.07	0.07	0.00	0.00
44.20	0.00	0.448	327.38	0.07	0.07	0.00	0.00
44.40	0.00	0.447	327.37	0.07	0.07	0.00	0.00
44.60	0.00	0.446	327.36	0.07	0.07	0.00	0.00
44.80	0.00	0.445	327.36	0.07	0.07	0.00	0.00
45.00	0.00	0.443	327.35	0.07	0.07	0.00	0.00
45.20	0.00	0.442	327.34	0.07	0.07	0.00	0.00
45.40	0.00	0.441	327.34	0.07	0.07	0.00	0.00
45.60	0.00	0.440	327.33	0.07	0.07	0.00	0.00
45.80	0.00	0.438	327.32	0.07	0.07	0.00	0.00
46.00	0.00	0.437	327.32	0.07	0.07	0.00	0.00
46.20	0.00	0.436	327.31	0.07	0.07	0.00	0.00
46.40	0.00	0.435	327.30	0.07	0.07	0.00	0.00
46.60	0.00	0.434	327.30	0.07	0.07	0.00	0.00
46.80	0.00	0.432	327.29	0.07	0.07	0.00	0.00
47.00	0.00	0.431	327.28	0.07	0.07	0.00	0.00
47.20	0.00	0.430	327.28	0.07	0.07	0.00	0.00
47.40	0.00	0.429	327.27	0.07	0.07	0.00	0.00
47.60	0.00	0.427	327.26	0.07	0.07	0.00	0.00
47.80	0.00	0.426	327.26	0.07	0.07	0.00	0.00
48.00	0.00	0.425	327.25	0.07	0.07	0.00	0.00
48.20	0.00	0.424	327.24	0.07	0.07	0.00	0.00
48.40	0.00	0.423	327.24	0.07	0.07	0.00	0.00
48.60	0.00	0.421	327.23	0.07	0.07	0.00	0.00
48.80	0.00	0.420	327.22	0.07	0.07	0.00	0.00
49.00	0.00	0.419	327.22	0.07	0.07	0.00	0.00
49.20	0.00	0.418	327.21	0.07	0.07	0.00	0.00
49.40	0.00	0.416	327.20	0.07	0.07	0.00	0.00
49.60	0.00	0.415	327.20	0.07	0.07	0.00	0.00
49.80	0.00	0.414	327.19	0.07	0.07	0.00	0.00
50.00	0.00	0.413	327.18	0.07	0.07	0.00	0.00
50.20	0.00	0.412	327.18	0.07	0.07	0.00	0.00
50.40	0.00	0.410	327.17	0.07	0.07	0.00	0.00
50.60	0.00	0.409	327.16	0.07	0.07	0.00	0.00
50.80	0.00	0.408	327.16	0.07	0.07	0.00	0.00
51.00	0.00	0.407	327.15	0.07	0.07	0.00	0.00
51.20	0.00	0.405	327.14	0.07	0.07	0.00	0.00
51.40	0.00	0.404	327.14	0.07	0.07	0.00	0.00
51.60	0.00	0.403	327.13	0.07	0.07	0.00	0.00
51.80	0.00	0.402	327.12	0.07	0.07	0.00	0.00

Hydrograph for Pond 94P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
52.00	0.00	0.401	327.12	0.07	0.07	0.00	0.00
52.20	0.00	0.399	327.11	0.07	0.07	0.00	0.00
52.40	0.00	0.398	327.10	0.07	0.07	0.00	0.00
52.60	0.00	0.397	327.10	0.07	0.07	0.00	0.00
52.80	0.00	0.396	327.09	0.07	0.07	0.00	0.00
53.00	0.00	0.394	327.08	0.07	0.07	0.00	0.00
53.20	0.00	0.393	327.07	0.07	0.07	0.00	0.00
53.40	0.00	0.392	327.07	0.07	0.07	0.00	0.00
53.60	0.00	0.391	327.06	0.07	0.07	0.00	0.00
53.80	0.00	0.389	327.05	0.07	0.07	0.00	0.00
54.00	0.00	0.388	327.05	0.07	0.07	0.00	0.00
54.20	0.00	0.387	327.04	0.07	0.07	0.00	0.00
54.40	0.00	0.386	327.03	0.07	0.07	0.00	0.00
54.60	0.00	0.385	327.03	0.07	0.07	0.00	0.00
54.80	0.00	0.383	327.02	0.07	0.07	0.00	0.00
55.00	0.00	0.382	327.01	0.07	0.07	0.00	0.00
55.20	0.00	0.381	327.01	0.07	0.07	0.00	0.00
55.40	0.00	0.380	327.00	0.07	0.07	0.00	0.00
55.60	0.00	0.378	326.99	0.07	0.07	0.00	0.00
55.80	0.00	0.377	326.99	0.07	0.07	0.00	0.00
56.00	0.00	0.376	326.98	0.07	0.07	0.00	0.00
56.20	0.00	0.375	326.97	0.07	0.07	0.00	0.00
56.40	0.00	0.374	326.96	0.07	0.07	0.00	0.00
56.60	0.00	0.372	326.96	0.07	0.07	0.00	0.00
56.80	0.00	0.371	326.95	0.07	0.07	0.00	0.00
57.00	0.00	0.370	326.94	0.07	0.07	0.00	0.00
57.20	0.00	0.369	326.93	0.07	0.07	0.00	0.00
57.40	0.00	0.367	326.92	0.07	0.07	0.00	0.00
57.60	0.00	0.366	326.92	0.07	0.07	0.00	0.00
57.80	0.00	0.365	326.91	0.07	0.07	0.00	0.00
58.00	0.00	0.364	326.90	0.07	0.07	0.00	0.00
58.20	0.00	0.363	326.89	0.07	0.07	0.00	0.00
58.40	0.00	0.361	326.89	0.07	0.07	0.00	0.00
58.60	0.00	0.360	326.88	0.07	0.07	0.00	0.00
58.80	0.00	0.359	326.87	0.07	0.07	0.00	0.00
59.00	0.00	0.358	326.86	0.07	0.07	0.00	0.00
59.20	0.00	0.356	326.86	0.07	0.07	0.00	0.00
59.40	0.00	0.355	326.85	0.07	0.07	0.00	0.00
59.60	0.00	0.354	326.84	0.07	0.07	0.00	0.00
59.80	0.00	0.353	326.83	0.07	0.07	0.00	0.00
60.00	0.00	0.352	326.83	0.07	0.07	0.00	0.00

Basin I

Summary for Pond 75P: Basin I

[78] Warning: Submerged Pond 94P Secondary device # 3 by 26.99'
[80] Warning: Exceeded Pond 94P by 22.47' @ 59.99 hrs (0.15 cfs 0.739 af)

Inflow	=	73.53 cfs @	11.97 hrs,	Volume=	3.756 af
Outflow	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 349.30' @ 24.34 hrs Surf.Area= 0.531 ac Storage= 3.756 af

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	334.10'	5.057 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
334.10	0.000	0.000	0.000
334.50	0.016	0.003	0.003
335.00	0.054	0.018	0.021
335.50	0.086	0.035	0.056
336.00	0.098	0.046	0.102
336.50	0.107	0.051	0.153
337.00	0.117	0.056	0.209
337.50	0.128	0.061	0.270
338.00	0.138	0.067	0.337
338.50	0.149	0.072	0.408
339.00	0.160	0.077	0.486
339.50	0.172	0.083	0.569
340.00	0.184	0.089	0.658
340.50	0.196	0.095	0.753
341.00	0.209	0.101	0.854
341.50	0.222	0.108	0.962
342.00	0.236	0.115	1.076
342.50	0.250	0.122	1.198
343.00	0.264	0.129	1.326
343.50	0.280	0.136	1.462
344.00	0.296	0.144	1.606
344.50	0.331	0.157	1.763
345.00	0.331	0.166	1.928
345.50	0.350	0.170	2.099
346.00	0.370	0.180	2.279
346.50	0.392	0.191	2.469
347.00	0.415	0.202	2.671
347.50	0.439	0.214	2.884
348.00	0.464	0.226	3.110
348.50	0.490	0.239	3.349
349.00	0.515	0.251	3.600
349.50	0.542	0.264	3.864
350.00	0.569	0.278	4.142
350.50	0.596	0.291	4.433
351.00	0.624	0.305	4.738
351.50	0.652	0.319	5.057

Hydrograph for Pond 75P: Basin I

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
0.00	0.00	0.000	334.10	5.20	0.06	0.001	334.35
0.10	0.00	0.000	334.10	5.30	0.07	0.002	334.41
0.20	0.00	0.000	334.10	5.40	0.08	0.003	334.46
0.30	0.00	0.000	334.10	5.50	0.10	0.003	334.51
0.40	0.00	0.000	334.10	5.60	0.11	0.004	334.55
0.50	0.00	0.000	334.10	5.70	0.12	0.005	334.59
0.60	0.00	0.000	334.10	5.80	0.13	0.006	334.64
0.70	0.00	0.000	334.10	5.90	0.14	0.007	334.67
0.80	0.00	0.000	334.10	6.00	0.16	0.009	334.71
0.90	0.00	0.000	334.10	6.10	0.17	0.010	334.75
1.00	0.00	0.000	334.10	6.20	0.18	0.011	334.80
1.10	0.00	0.000	334.10	6.30	0.19	0.013	334.83
1.20	0.00	0.000	334.10	6.40	0.21	0.014	334.87
1.30	0.00	0.000	334.10	6.50	0.22	0.016	334.91
1.40	0.00	0.000	334.10	6.60	0.23	0.018	334.95
1.50	0.00	0.000	334.10	6.70	0.25	0.020	334.99
1.60	0.00	0.000	334.10	6.80	0.26	0.022	335.03
1.70	0.00	0.000	334.10	6.90	0.28	0.024	335.06
1.80	0.00	0.000	334.10	7.00	0.29	0.027	335.10
1.90	0.00	0.000	334.10	7.10	0.30	0.029	335.14
2.00	0.00	0.000	334.10	7.20	0.32	0.032	335.18
2.10	0.00	0.000	334.10	7.30	0.33	0.034	335.22
2.20	0.00	0.000	334.10	7.40	0.35	0.037	335.26
2.30	0.00	0.000	334.10	7.50	0.36	0.040	335.30
2.40	0.00	0.000	334.10	7.60	0.38	0.043	335.34
2.50	0.00	0.000	334.10	7.70	0.39	0.046	335.38
2.60	0.00	0.000	334.10	7.80	0.41	0.050	335.42
2.70	0.00	0.000	334.10	7.90	0.42	0.053	335.47
2.80	0.00	0.000	334.10	8.00	0.44	0.057	335.51
2.90	0.00	0.000	334.10	8.10	0.45	0.060	335.55
3.00	0.00	0.000	334.10	8.20	0.48	0.064	335.60
3.10	0.00	0.000	334.10	8.30	0.52	0.068	335.64
3.20	0.00	0.000	334.10	8.40	0.55	0.073	335.69
3.30	0.00	0.000	334.10	8.50	0.59	0.077	335.74
3.40	0.00	0.000	334.10	8.60	0.63	0.082	335.80
3.50	0.00	0.000	334.10	8.70	0.67	0.088	335.85
3.60	0.00	0.000	334.10	8.80	0.71	0.093	335.91
3.70	0.00	0.000	334.10	8.90	0.75	0.099	335.98
3.80	0.00	0.000	334.10	9.00	0.79	0.106	336.04
3.90	0.00	0.000	334.10	9.10	0.83	0.112	336.11
4.00	0.00	0.000	334.10	9.20	0.85	0.119	336.18
4.10	0.00	0.000	334.10	9.30	0.87	0.126	336.25
4.20	0.00	0.000	334.10	9.40	0.89	0.134	336.32
4.30	0.00	0.000	334.10	9.50	0.91	0.141	336.39
4.40	0.00	0.000	334.10	9.60	0.93	0.149	336.46
4.50	0.00	0.000	334.10	9.70	0.99	0.157	336.53
4.60	0.00	0.000	334.10	9.80	1.05	0.165	336.61
4.70	0.01	0.000	334.11	9.90	1.12	0.174	336.69
4.80	0.02	0.000	334.14	10.00	1.19	0.183	336.78
4.90	0.03	0.000	334.20	10.10	1.27	0.194	336.87
5.00	0.04	0.001	334.27	10.20	1.37	0.204	336.96
5.10	0.05	0.001	334.31	10.30	1.47	0.216	337.06

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
10.40	1.58	0.229	337.17	15.60	1.63	3.040	347.85
10.50	1.69	0.242	337.28	15.70	1.59	3.053	347.88
10.60	1.81	0.257	337.39	15.80	1.55	3.066	347.90
10.70	1.98	0.272	337.51	15.90	1.52	3.079	347.93
10.80	2.16	0.289	337.65	16.00	1.48	3.091	347.96
10.90	2.35	0.308	337.79	16.10	1.44	3.104	347.99
11.00	2.54	0.328	337.94	16.20	1.43	3.115	348.01
11.10	2.78	0.350	338.09	16.30	1.41	3.127	348.04
11.20	3.18	0.374	338.26	16.40	1.40	3.139	348.06
11.30	3.62	0.402	338.46	16.50	1.38	3.150	348.09
11.40	4.08	0.434	338.67	16.60	1.37	3.162	348.11
11.50	4.56	0.469	338.89	16.70	1.36	3.173	348.13
11.60	7.11	0.512	339.16	16.80	1.34	3.184	348.16
11.70	16.53	0.603	339.69	16.90	1.33	3.195	348.18
11.80	28.71	0.782	340.65	17.00	1.32	3.206	348.20
11.90	**54.98**	1.104	342.12	17.10	1.30	3.217	348.23
12.00	**67.73**	1.658	344.17	17.20	1.29	3.228	348.25
12.10	20.55	2.030	345.30	17.30	1.27	3.238	348.27
12.20	10.52	2.149	345.64	17.40	1.26	3.249	348.29
12.30	8.54	2.227	345.86	17.50	1.25	3.259	348.31
12.40	7.30	2.293	346.04	17.60	1.23	3.269	348.34
12.50	6.07	2.349	346.19	17.70	1.22	3.279	348.36
12.60	5.04	2.395	346.31	17.80	1.20	3.289	348.38
12.70	4.64	2.435	346.41	17.90	1.19	3.299	348.40
12.80	4.35	2.472	346.51	18.00	1.18	3.309	348.42
12.90	4.07	2.507	346.60	18.10	1.16	3.319	348.44
13.00	3.78	2.539	346.68	18.20	1.15	3.328	348.46
13.10	3.53	2.570	346.75	18.30	1.14	3.338	348.48
13.20	3.36	2.598	346.82	18.40	1.12	3.347	348.50
13.30	3.21	2.625	346.89	18.50	1.11	3.356	348.52
13.40	3.05	2.651	346.95	18.60	1.09	3.365	348.53
13.50	2.90	2.676	347.01	18.70	1.08	3.374	348.55
13.60	2.76	2.699	347.07	18.80	1.07	3.383	348.57
13.70	2.64	2.722	347.12	18.90	1.05	3.392	348.59
13.80	2.53	2.743	347.17	19.00	1.04	3.401	348.61
13.90	2.42	2.763	347.22	19.10	1.02	3.409	348.62
14.00	2.31	2.783	347.27	19.20	1.01	3.418	348.64
14.10	2.22	2.802	347.31	19.30	1.00	3.426	348.66
14.20	2.17	2.820	347.35	19.40	0.98	3.434	348.67
14.30	2.13	2.838	347.39	19.50	0.97	3.442	348.69
14.40	2.09	2.855	347.43	19.60	0.95	3.450	348.70
14.50	2.05	2.872	347.47	19.70	0.94	3.458	348.72
14.60	2.02	2.889	347.51	19.80	0.93	3.466	348.74
14.70	1.98	2.906	347.55	19.90	0.91	3.473	348.75
14.80	1.94	2.922	347.58	20.00	0.90	3.481	348.77
14.90	1.90	2.938	347.62	20.10	0.89	3.488	348.78
15.00	1.86	2.953	347.66	20.20	0.88	3.495	348.79
15.10	1.82	2.969	347.69	20.30	0.88	3.503	348.81
15.20	1.79	2.984	347.72	20.40	0.88	3.510	348.82
15.30	1.75	2.998	347.75	20.50	0.87	3.517	348.84
15.40	1.71	3.012	347.79	20.60	0.87	3.524	348.85
15.50	1.67	3.026	347.82	20.70	0.87	3.532	348.87

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
20.80	0.87	3.539	348.88	26.00	0.00	3.756	349.30
20.90	0.86	3.546	348.89	26.10	0.00	3.756	349.30
21.00	0.86	3.553	348.91	26.20	0.00	3.756	349.30
21.10	0.86	3.560	348.92	26.30	0.00	3.756	349.30
21.20	0.85	3.567	348.94	26.40	0.00	3.756	349.30
21.30	0.85	3.574	348.95	26.50	0.00	3.756	349.30
21.40	0.85	3.581	348.96	26.60	0.00	3.756	349.30
21.50	0.85	3.588	348.98	26.70	0.00	3.756	349.30
21.60	0.84	3.595	348.99	26.80	0.00	3.756	349.30
21.70	0.84	3.602	349.00	26.90	0.00	3.756	349.30
21.80	0.84	3.609	349.02	27.00	0.00	3.756	349.30
21.90	0.84	3.616	349.03	27.10	0.00	3.756	349.30
22.00	0.83	3.623	349.04	27.20	0.00	3.756	349.30
22.10	0.83	3.630	349.06	27.30	0.00	3.756	349.30
22.20	0.83	3.637	349.07	27.40	0.00	3.756	349.30
22.30	0.82	3.643	349.08	27.50	0.00	3.756	349.30
22.40	0.82	3.650	349.10	27.60	0.00	3.756	349.30
22.50	0.81	3.657	349.11	27.70	0.00	3.756	349.30
22.60	0.79	3.664	349.12	27.80	0.00	3.756	349.30
22.70	0.78	3.670	349.13	27.90	0.00	3.756	349.30
22.80	0.77	3.676	349.15	28.00	0.00	3.756	349.30
22.90	0.76	3.683	349.16	28.10	0.00	3.756	349.30
23.00	0.76	3.689	349.17	28.20	0.00	3.756	349.30
23.10	0.75	3.695	349.18	28.30	0.00	3.756	349.30
23.20	0.74	3.701	349.19	28.40	0.00	3.756	349.30
23.30	0.74	3.708	349.21	28.50	0.00	3.756	349.30
23.40	0.74	3.714	349.22	28.60	0.00	3.756	349.30
23.50	0.73	3.720	349.23	28.70	0.00	3.756	349.30
23.60	0.73	3.726	349.24	28.80	0.00	3.756	349.30
23.70	0.73	3.732	349.25	28.90	0.00	3.756	349.30
23.80	0.72	3.738	349.26	29.00	0.00	3.756	349.30
23.90	0.72	3.744	349.28	29.10	0.00	3.756	349.30
24.00	0.72	3.750	349.29	29.20	0.00	3.756	349.30
24.10	0.30	3.755	349.30	29.30	0.00	3.756	349.30
24.20	0.06	3.756	349.30	29.40	0.00	3.756	349.30
24.30	0.00	**3.756**	**349.30**	29.50	0.00	3.756	349.30
24.40	0.00	**3.756**	**349.30**	29.60	0.00	3.756	349.30
24.50	0.00	3.756	349.30	29.70	0.00	3.756	349.30
24.60	0.00	3.756	349.30	29.80	0.00	3.756	349.30
24.70	0.00	3.756	349.30	29.90	0.00	3.756	349.30
24.80	0.00	3.756	349.30	30.00	0.00	3.756	349.30
24.90	0.00	3.756	349.30	30.10	0.00	3.756	349.30
25.00	0.00	3.756	349.30	30.20	0.00	3.756	349.30
25.10	0.00	3.756	349.30	30.30	0.00	3.756	349.30
25.20	0.00	3.756	349.30	30.40	0.00	3.756	349.30
25.30	0.00	3.756	349.30	30.50	0.00	3.756	349.30
25.40	0.00	3.756	349.30	30.60	0.00	3.756	349.30
25.50	0.00	3.756	349.30	30.70	0.00	3.756	349.30
25.60	0.00	3.756	349.30	30.80	0.00	3.756	349.30
25.70	0.00	3.756	349.30	30.90	0.00	3.756	349.30
25.80	0.00	3.756	349.30	31.00	0.00	3.756	349.30
25.90	0.00	3.756	349.30	31.10	0.00	3.756	349.30

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
31.20	0.00	3.756	349.30	36.40	0.00	3.756	349.30
31.30	0.00	3.756	349.30	36.50	0.00	3.756	349.30
31.40	0.00	3.756	349.30	36.60	0.00	3.756	349.30
31.50	0.00	3.756	349.30	36.70	0.00	3.756	349.30
31.60	0.00	3.756	349.30	36.80	0.00	3.756	349.30
31.70	0.00	3.756	349.30	36.90	0.00	3.756	349.30
31.80	0.00	3.756	349.30	37.00	0.00	3.756	349.30
31.90	0.00	3.756	349.30	37.10	0.00	3.756	349.30
32.00	0.00	3.756	349.30	37.20	0.00	3.756	349.30
32.10	0.00	3.756	349.30	37.30	0.00	3.756	349.30
32.20	0.00	3.756	349.30	37.40	0.00	3.756	349.30
32.30	0.00	3.756	349.30	37.50	0.00	3.756	349.30
32.40	0.00	3.756	349.30	37.60	0.00	3.756	349.30
32.50	0.00	3.756	349.30	37.70	0.00	3.756	349.30
32.60	0.00	3.756	349.30	37.80	0.00	3.756	349.30
32.70	0.00	3.756	349.30	37.90	0.00	3.756	349.30
32.80	0.00	3.756	349.30	38.00	0.00	3.756	349.30
32.90	0.00	3.756	349.30	38.10	0.00	3.756	349.30
33.00	0.00	3.756	349.30	38.20	0.00	3.756	349.30
33.10	0.00	3.756	349.30	38.30	0.00	3.756	349.30
33.20	0.00	3.756	349.30	38.40	0.00	3.756	349.30
33.30	0.00	3.756	349.30	38.50	0.00	3.756	349.30
33.40	0.00	3.756	349.30	38.60	0.00	3.756	349.30
33.50	0.00	3.756	349.30	38.70	0.00	3.756	349.30
33.60	0.00	3.756	349.30	38.80	0.00	3.756	349.30
33.70	0.00	3.756	349.30	38.90	0.00	3.756	349.30
33.80	0.00	3.756	349.30	39.00	0.00	3.756	349.30
33.90	0.00	3.756	349.30	39.10	0.00	3.756	349.30
34.00	0.00	3.756	349.30	39.20	0.00	3.756	349.30
34.10	0.00	3.756	349.30	39.30	0.00	3.756	349.30
34.20	0.00	3.756	349.30	39.40	0.00	3.756	349.30
34.30	0.00	3.756	349.30	39.50	0.00	3.756	349.30
34.40	0.00	3.756	349.30	39.60	0.00	3.756	349.30
34.50	0.00	3.756	349.30	39.70	0.00	3.756	349.30
34.60	0.00	3.756	349.30	39.80	0.00	3.756	349.30
34.70	0.00	3.756	349.30	39.90	0.00	3.756	349.30
34.80	0.00	3.756	349.30	40.00	0.00	3.756	349.30
34.90	0.00	3.756	349.30	40.10	0.00	3.756	349.30
35.00	0.00	3.756	349.30	40.20	0.00	3.756	349.30
35.10	0.00	3.756	349.30	40.30	0.00	3.756	349.30
35.20	0.00	3.756	349.30	40.40	0.00	3.756	349.30
35.30	0.00	3.756	349.30	40.50	0.00	3.756	349.30
35.40	0.00	3.756	349.30	40.60	0.00	3.756	349.30
35.50	0.00	3.756	349.30	40.70	0.00	3.756	349.30
35.60	0.00	3.756	349.30	40.80	0.00	3.756	349.30
35.70	0.00	3.756	349.30	40.90	0.00	3.756	349.30
35.80	0.00	3.756	349.30	41.00	0.00	3.756	349.30
35.90	0.00	3.756	349.30	41.10	0.00	3.756	349.30
36.00	0.00	3.756	349.30	41.20	0.00	3.756	349.30
36.10	0.00	3.756	349.30	41.30	0.00	3.756	349.30
36.20	0.00	3.756	349.30	41.40	0.00	3.756	349.30
36.30	0.00	3.756	349.30	41.50	0.00	3.756	349.30

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
41.60	0.00	3.756	349.30	46.80	0.00	3.756	349.30
41.70	0.00	3.756	349.30	46.90	0.00	3.756	349.30
41.80	0.00	3.756	349.30	47.00	0.00	3.756	349.30
41.90	0.00	3.756	349.30	47.10	0.00	3.756	349.30
42.00	0.00	3.756	349.30	47.20	0.00	3.756	349.30
42.10	0.00	3.756	349.30	47.30	0.00	3.756	349.30
42.20	0.00	3.756	349.30	47.40	0.00	3.756	349.30
42.30	0.00	3.756	349.30	47.50	0.00	3.756	349.30
42.40	0.00	3.756	349.30	47.60	0.00	3.756	349.30
42.50	0.00	3.756	349.30	47.70	0.00	3.756	349.30
42.60	0.00	3.756	349.30	47.80	0.00	3.756	349.30
42.70	0.00	3.756	349.30	47.90	0.00	3.756	349.30
42.80	0.00	3.756	349.30	48.00	0.00	3.756	349.30
42.90	0.00	3.756	349.30	48.10	0.00	3.756	349.30
43.00	0.00	3.756	349.30	48.20	0.00	3.756	349.30
43.10	0.00	3.756	349.30	48.30	0.00	3.756	349.30
43.20	0.00	3.756	349.30	48.40	0.00	3.756	349.30
43.30	0.00	3.756	349.30	48.50	0.00	3.756	349.30
43.40	0.00	3.756	349.30	48.60	0.00	3.756	349.30
43.50	0.00	3.756	349.30	48.70	0.00	3.756	349.30
43.60	0.00	3.756	349.30	48.80	0.00	3.756	349.30
43.70	0.00	3.756	349.30	48.90	0.00	3.756	349.30
43.80	0.00	3.756	349.30	49.00	0.00	3.756	349.30
43.90	0.00	3.756	349.30	49.10	0.00	3.756	349.30
44.00	0.00	3.756	349.30	49.20	0.00	3.756	349.30
44.10	0.00	3.756	349.30	49.30	0.00	3.756	349.30
44.20	0.00	3.756	349.30	49.40	0.00	3.756	349.30
44.30	0.00	3.756	349.30	49.50	0.00	3.756	349.30
44.40	0.00	3.756	349.30	49.60	0.00	3.756	349.30
44.50	0.00	3.756	349.30	49.70	0.00	3.756	349.30
44.60	0.00	3.756	349.30	49.80	0.00	3.756	349.30
44.70	0.00	3.756	349.30	49.90	0.00	3.756	349.30
44.80	0.00	3.756	349.30	50.00	0.00	3.756	349.30
44.90	0.00	3.756	349.30	50.10	0.00	3.756	349.30
45.00	0.00	3.756	349.30	50.20	0.00	3.756	349.30
45.10	0.00	3.756	349.30	50.30	0.00	3.756	349.30
45.20	0.00	3.756	349.30	50.40	0.00	3.756	349.30
45.30	0.00	3.756	349.30	50.50	0.00	3.756	349.30
45.40	0.00	3.756	349.30	50.60	0.00	3.756	349.30
45.50	0.00	3.756	349.30	50.70	0.00	3.756	349.30
45.60	0.00	3.756	349.30	50.80	0.00	3.756	349.30
45.70	0.00	3.756	349.30	50.90	0.00	3.756	349.30
45.80	0.00	3.756	349.30	51.00	0.00	3.756	349.30
45.90	0.00	3.756	349.30	51.10	0.00	3.756	349.30
46.00	0.00	3.756	349.30	51.20	0.00	3.756	349.30
46.10	0.00	3.756	349.30	51.30	0.00	3.756	349.30
46.20	0.00	3.756	349.30	51.40	0.00	3.756	349.30
46.30	0.00	3.756	349.30	51.50	0.00	3.756	349.30
46.40	0.00	3.756	349.30	51.60	0.00	3.756	349.30
46.50	0.00	3.756	349.30	51.70	0.00	3.756	349.30
46.60	0.00	3.756	349.30	51.80	0.00	3.756	349.30
46.70	0.00	3.756	349.30	51.90	0.00	3.756	349.30

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
52.00	0.00	3.756	349.30
52.10	0.00	3.756	349.30
52.20	0.00	3.756	349.30
52.30	0.00	3.756	349.30
52.40	0.00	3.756	349.30
52.50	0.00	3.756	349.30
52.60	0.00	3.756	349.30
52.70	0.00	3.756	349.30
52.80	0.00	3.756	349.30
52.90	0.00	3.756	349.30
53.00	0.00	3.756	349.30
53.10	0.00	3.756	349.30
53.20	0.00	3.756	349.30
53.30	0.00	3.756	349.30
53.40	0.00	3.756	349.30
53.50	0.00	3.756	349.30
53.60	0.00	3.756	349.30
53.70	0.00	3.756	349.30
53.80	0.00	3.756	349.30
53.90	0.00	3.756	349.30
54.00	0.00	3.756	349.30
54.10	0.00	3.756	349.30
54.20	0.00	3.756	349.30
54.30	0.00	3.756	349.30
54.40	0.00	3.756	349.30
54.50	0.00	3.756	349.30
54.60	0.00	3.756	349.30
54.70	0.00	3.756	349.30
54.80	0.00	3.756	349.30
54.90	0.00	3.756	349.30
55.00	0.00	3.756	349.30
55.10	0.00	3.756	349.30
55.20	0.00	3.756	349.30
55.30	0.00	3.756	349.30
55.40	0.00	3.756	349.30
55.50	0.00	3.756	349.30
55.60	0.00	3.756	349.30
55.70	0.00	3.756	349.30
55.80	0.00	3.756	349.30
55.90	0.00	3.756	349.30
56.00	0.00	3.756	349.30
56.10	0.00	3.756	349.30
56.20	0.00	3.756	349.30
56.30	0.00	3.756	349.30
56.40	0.00	3.756	349.30
56.50	0.00	3.756	349.30
56.60	0.00	3.756	349.30
56.70	0.00	3.756	349.30
56.80	0.00	3.756	349.30
56.90	0.00	3.756	349.30
57.00	0.00	3.756	349.30
57.10	0.00	3.756	349.30
57.20	0.00	3.756	349.30
57.30	0.00	3.756	349.30
57.40	0.00	3.756	349.30
57.50	0.00	3.756	349.30
57.60	0.00	3.756	349.30
57.70	0.00	3.756	349.30
57.80	0.00	3.756	349.30
57.90	0.00	3.756	349.30
58.00	0.00	3.756	349.30
58.10	0.00	3.756	349.30
58.20	0.00	3.756	349.30
58.30	0.00	3.756	349.30
58.40	0.00	3.756	349.30
58.50	0.00	3.756	349.30
58.60	0.00	3.756	349.30
58.70	0.00	3.756	349.30
58.80	0.00	3.756	349.30
58.90	0.00	3.756	349.30
59.00	0.00	3.756	349.30
59.10	0.00	3.756	349.30
59.20	0.00	3.756	349.30
59.30	0.00	3.756	349.30
59.40	0.00	3.756	349.30
59.50	0.00	3.756	349.30
59.60	0.00	3.756	349.30
59.70	0.00	3.756	349.30
59.80	0.00	3.756	349.30
59.90	0.00	3.756	349.30
60.00	0.00	3.756	349.30

Initial Condition #2:
1 Foot of Liquid in Basin at the Beginning of Storm Event

Basin H

Summary for Pond 94P: Basin H

[78] Warning: Submerged Pond 13P Primary device # 1 by 0.88'

Inflow	=	22.50 cfs @	12.00 hrs, Volume=	1.037 af
Outflow	=	1.16 cfs @	13.05 hrs, Volume=	0.698 af, Atten= 95%, Lag= 63.0 min
Discarded	=	0.07 cfs @	0.00 hrs, Volume=	0.330 af
Primary	=	0.93 cfs @	13.05 hrs, Volume=	0.228 af
Secondary	=	0.15 cfs @	12.15 hrs, Volume=	0.140 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Starting Elev= 323.31' Surf.Area= 0.028 ac Storage= 0.012 af
Peak Elev= 328.36' @ 13.05 hrs Surf.Area= 0.264 ac Storage= 0.661 af (0.649 af above start)

Plug-Flow detention time= 760.9 min calculated for 0.686 af (66% of inflow)
Center-of-Mass det. time= 650.8 min (1,441.8 - 791.0)

Volume	Invert	Avail.Storage	Storage Description
#1	322.31'	0.866 af	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
322.31	0.000	0.000	0.000
322.50	0.001	0.000	0.000
323.00	0.015	0.004	0.004
323.50	0.036	0.013	0.017
324.00	0.058	0.024	0.040
324.50	0.076	0.033	0.074
325.00	0.094	0.042	0.116
325.50	0.112	0.052	0.168
326.00	0.131	0.061	0.229
326.50	0.151	0.070	0.299
327.00	0.171	0.080	0.380
327.50	0.192	0.091	0.470
328.00	0.214	0.101	0.572
328.50	0.284	0.125	0.696
329.00	0.396	0.170	0.866

Device	Routing	Invert	Outlet Devices
#1	Primary	327.48'	**Outflow to South Channel** Elev. (feet) 327.48 328.00 328.25 328.50 328.75 329.00 329.25 329.50 329.75 330.00 Disch. (cfs) 0.000 0.000 0.310 1.770 4.890 10.030 17.520 27.640 40.640 56.750
#2	Discarded	322.31'	**Pump 1** Elev. (feet) 322.31 323.30 323.31 324.00 325.00 326.00 327.00 328.00 329.00 Disch. (cfs) 0.000 0.000 0.074 0.074 0.074 0.074 0.074 0.074 0.074
#3	Secondary	322.31'	**Pump 2** Elev. (feet) 322.31 327.99 328.00 329.00 330.00

Disch. (cfs) 0.000 0.000 0.149 0.149 0.149

Discarded OutFlow Max=0.07 cfs @ 0.00 hrs HW=323.31' (Free Discharge)
└**2=Pump 1** (Custom Controls 0.07 cfs)

Primary OutFlow Max=0.93 cfs @ 13.05 hrs HW=328.36' TW=328.17' (Dynamic Tailwater)
└**1=Outflow to South Channel** (Custom Controls 0.93 cfs)

Secondary OutFlow Max=0.15 cfs @ 12.15 hrs HW=328.02' TW=345.58' (Dynamic Tailwater)
└**3=Pump 2** (Custom Controls 0.15 cfs)

Hydrograph for Pond 94P: Basin H

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.012	323.31	0.07	**0.07**	0.00	0.00
0.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
0.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
0.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
0.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
5.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
5.20	0.01	0.012	323.30	0.01	0.01	0.00	0.00
5.40	0.02	0.012	323.30	0.02	0.02	0.00	0.00
5.60	0.02	0.012	323.30	0.02	0.02	0.00	0.00
5.80	0.03	0.012	323.30	0.03	0.03	0.00	0.00
6.00	0.04	0.012	323.31	0.04	0.04	0.00	0.00
6.20	0.04	0.012	323.31	0.04	0.04	0.00	0.00
6.40	0.05	0.012	323.31	0.04	0.04	0.00	0.00
6.60	0.06	0.012	323.31	0.06	0.06	0.00	0.00
6.80	0.06	0.012	323.31	0.06	0.06	0.00	0.00
7.00	0.07	0.012	323.31	0.06	0.06	0.00	0.00
7.20	0.08	0.012	323.31	0.07	0.07	0.00	0.00
7.40	0.08	0.012	323.32	0.07	0.07	0.00	0.00
7.60	0.09	0.012	323.32	0.07	0.07	0.00	0.00
7.80	0.10	0.013	323.34	0.07	0.07	0.00	0.00
8.00	0.10	0.013	323.36	0.07	0.07	0.00	0.00
8.20	0.12	0.014	323.38	0.07	0.07	0.00	0.00
8.40	0.14	0.015	323.41	0.07	0.07	0.00	0.00
8.60	0.15	0.016	323.46	0.07	0.07	0.00	0.00
8.80	0.17	0.017	323.51	0.07	0.07	0.00	0.00
9.00	0.19	0.019	323.55	0.07	0.07	0.00	0.00
9.20	0.22	0.021	323.59	0.07	0.07	0.00	0.00
9.40	0.22	0.024	323.64	0.07	0.07	0.00	0.00
9.60	0.24	0.026	323.70	0.07	0.07	0.00	0.00
9.80	0.26	0.029	323.76	0.07	0.07	0.00	0.00
10.00	0.29	0.032	323.83	0.07	0.07	0.00	0.00
10.20	0.34	0.036	323.91	0.07	0.07	0.00	0.00

Hydrograph for Pond 94P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
10.40	0.38	0.041	324.01	0.07	0.07	0.00	0.00
10.60	0.44	0.046	324.09	0.07	0.07	0.00	0.00
10.80	0.53	0.053	324.19	0.07	0.07	0.00	0.00
11.00	0.62	0.061	324.31	0.07	0.07	0.00	0.00
11.20	0.76	0.071	324.46	0.07	0.07	0.00	0.00
11.40	0.97	0.084	324.62	0.07	0.07	0.00	0.00
11.60	1.50	0.102	324.83	0.07	0.07	0.00	0.00
11.80	7.14	0.158	325.40	0.07	0.07	0.00	0.00
12.00	**22.48**	0.395	327.08	0.07	0.07	0.00	**0.00**
12.20	3.63	0.596	328.10	0.35	0.07	0.12	**0.15**
12.40	2.13	0.634	328.25	0.53	0.07	0.31	0.15
12.60	1.55	0.652	328.32	0.95	0.07	0.73	0.15
12.80	1.33	0.658	328.35	1.10	0.07	0.88	0.15
13.00	1.19	**0.661**	**328.36**	**1.15**	0.07	**0.93**	0.15
13.20	1.05	**0.660**	**328.35**	**1.14**	0.07	**0.92**	0.15
13.40	0.94	0.658	328.35	1.09	0.07	0.87	0.15
13.60	0.82	0.655	328.33	1.02	0.07	0.80	0.15
13.80	0.71	0.651	328.32	0.94	0.07	0.72	0.15
14.00	0.61	0.648	328.30	0.85	0.07	0.63	0.15
14.20	0.53	0.644	328.29	0.76	0.07	0.53	0.15
14.40	0.51	0.640	328.27	0.68	0.07	0.45	0.15
14.60	0.49	0.638	328.26	0.62	0.07	0.39	0.15
14.80	0.47	0.636	328.26	0.57	0.07	0.35	0.15
15.00	0.45	0.634	328.25	0.53	0.07	0.31	0.15
15.20	0.43	0.633	328.24	0.53	0.07	0.30	0.15
15.40	0.41	0.631	328.24	0.52	0.07	0.29	0.15
15.60	0.39	0.629	328.23	0.51	0.07	0.28	0.15
15.80	0.37	0.627	328.22	0.50	0.07	0.27	0.15
16.00	0.35	0.625	328.21	0.49	0.07	0.26	0.15
16.20	0.33	0.622	328.20	0.47	0.07	0.25	0.15
16.40	0.32	0.620	328.19	0.46	0.07	0.24	0.15
16.60	0.31	0.617	328.18	0.45	0.07	0.23	0.15
16.80	0.31	0.615	328.17	0.44	0.07	0.22	0.15
17.00	0.30	0.613	328.17	0.43	0.07	0.21	0.15
17.20	0.29	0.611	328.16	0.42	0.07	0.19	0.15
17.40	0.29	0.609	328.15	0.41	0.07	0.18	0.15
17.60	0.28	0.607	328.14	0.40	0.07	0.17	0.15
17.80	0.27	0.605	328.13	0.39	0.07	0.17	0.15
18.00	0.27	0.603	328.13	0.38	0.07	0.16	0.15
18.20	0.26	0.601	328.12	0.37	0.07	0.15	0.15
18.40	0.25	0.599	328.11	0.36	0.07	0.14	0.15
18.60	0.24	0.598	328.10	0.35	0.07	0.13	0.15
18.80	0.23	0.596	328.10	0.34	0.07	0.12	0.15
19.00	0.23	0.594	328.09	0.33	0.07	0.11	0.15
19.20	0.22	0.592	328.08	0.32	0.07	0.10	0.15
19.40	0.21	0.591	328.08	0.32	0.07	0.09	0.15
19.60	0.21	0.589	328.07	0.31	0.07	0.09	0.15
19.80	0.20	0.587	328.06	0.30	0.07	0.08	0.15
20.00	0.19	0.586	328.06	0.29	0.07	0.07	0.15
20.20	0.19	0.584	328.05	0.28	0.07	0.06	0.15
20.40	0.18	0.582	328.04	0.28	0.07	0.05	0.15
20.60	0.18	0.581	328.04	0.27	0.07	0.05	0.15

Hydrograph for Pond 94P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
20.80	0.18	0.580	328.03	0.26	0.07	0.04	0.15
21.00	0.18	0.578	328.03	0.25	0.07	0.03	0.15
21.20	0.18	0.577	328.02	0.25	0.07	0.03	0.15
21.40	0.18	0.576	328.02	0.24	0.07	0.02	0.15
21.60	0.18	0.575	328.01	0.24	0.07	0.01	0.15
21.80	0.18	0.574	328.01	0.23	0.07	0.01	0.15
22.00	0.17	0.573	328.00	0.23	0.07	0.01	0.15
22.20	0.17	0.572	328.00	0.22	0.07	0.00	0.15
22.40	0.17	0.571	328.00	0.19	0.07	0.00	0.12
22.60	0.17	0.571	328.00	0.18	0.07	0.00	0.10
22.80	0.17	0.571	328.00	0.17	0.07	0.00	0.10
23.00	0.17	0.571	328.00	0.17	0.07	0.00	0.10
23.20	0.16	0.571	328.00	0.16	0.07	0.00	0.09
23.40	0.16	0.571	328.00	0.16	0.07	0.00	0.09
23.60	0.16	0.571	328.00	0.16	0.07	0.00	0.09
23.80	0.16	0.571	328.00	0.16	0.07	0.00	0.09
24.00	0.16	0.571	328.00	0.16	0.07	0.00	0.08
24.20	0.05	0.570	327.99	0.11	0.07	0.00	0.04
24.40	0.00	0.569	327.99	0.07	0.07	0.00	0.00
24.60	0.00	0.568	327.98	0.07	0.07	0.00	0.00
24.80	0.00	0.567	327.98	0.07	0.07	0.00	0.00
25.00	0.00	0.566	327.97	0.07	0.07	0.00	0.00
25.20	0.00	0.564	327.96	0.07	0.07	0.00	0.00
25.40	0.00	0.563	327.96	0.07	0.07	0.00	0.00
25.60	0.00	0.562	327.95	0.07	0.07	0.00	0.00
25.80	0.00	0.561	327.95	0.07	0.07	0.00	0.00
26.00	0.00	0.560	327.94	0.07	0.07	0.00	0.00
26.20	0.00	0.558	327.93	0.07	0.07	0.00	0.00
26.40	0.00	0.557	327.93	0.07	0.07	0.00	0.00
26.60	0.00	0.556	327.92	0.07	0.07	0.00	0.00
26.80	0.00	0.555	327.92	0.07	0.07	0.00	0.00
27.00	0.00	0.553	327.91	0.07	0.07	0.00	0.00
27.20	0.00	0.552	327.90	0.07	0.07	0.00	0.00
27.40	0.00	0.551	327.90	0.07	0.07	0.00	0.00
27.60	0.00	0.550	327.89	0.07	0.07	0.00	0.00
27.80	0.00	0.549	327.89	0.07	0.07	0.00	0.00
28.00	0.00	0.547	327.88	0.07	0.07	0.00	0.00
28.20	0.00	0.546	327.87	0.07	0.07	0.00	0.00
28.40	0.00	0.545	327.87	0.07	0.07	0.00	0.00
28.60	0.00	0.544	327.86	0.07	0.07	0.00	0.00
28.80	0.00	0.542	327.85	0.07	0.07	0.00	0.00
29.00	0.00	0.541	327.85	0.07	0.07	0.00	0.00
29.20	0.00	0.540	327.84	0.07	0.07	0.00	0.00
29.40	0.00	0.539	327.84	0.07	0.07	0.00	0.00
29.60	0.00	0.537	327.83	0.07	0.07	0.00	0.00
29.80	0.00	0.536	327.82	0.07	0.07	0.00	0.00
30.00	0.00	0.535	327.82	0.07	0.07	0.00	0.00
30.20	0.00	0.534	327.81	0.07	0.07	0.00	0.00
30.40	0.00	0.533	327.81	0.07	0.07	0.00	0.00
30.60	0.00	0.531	327.80	0.07	0.07	0.00	0.00
30.80	0.00	0.530	327.79	0.07	0.07	0.00	0.00
31.00	0.00	0.529	327.79	0.07	0.07	0.00	0.00

Hydrograph for Pond 94P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
31.20	0.00	0.528	327.78	0.07	0.07	0.00	0.00
31.40	0.00	0.526	327.78	0.07	0.07	0.00	0.00
31.60	0.00	0.525	327.77	0.07	0.07	0.00	0.00
31.80	0.00	0.524	327.76	0.07	0.07	0.00	0.00
32.00	0.00	0.523	327.76	0.07	0.07	0.00	0.00
32.20	0.00	0.522	327.75	0.07	0.07	0.00	0.00
32.40	0.00	0.520	327.75	0.07	0.07	0.00	0.00
32.60	0.00	0.519	327.74	0.07	0.07	0.00	0.00
32.80	0.00	0.518	327.73	0.07	0.07	0.00	0.00
33.00	0.00	0.517	327.73	0.07	0.07	0.00	0.00
33.20	0.00	0.515	327.72	0.07	0.07	0.00	0.00
33.40	0.00	0.514	327.72	0.07	0.07	0.00	0.00
33.60	0.00	0.513	327.71	0.07	0.07	0.00	0.00
33.80	0.00	0.512	327.70	0.07	0.07	0.00	0.00
34.00	0.00	0.511	327.70	0.07	0.07	0.00	0.00
34.20	0.00	0.509	327.69	0.07	0.07	0.00	0.00
34.40	0.00	0.508	327.69	0.07	0.07	0.00	0.00
34.60	0.00	0.507	327.68	0.07	0.07	0.00	0.00
34.80	0.00	0.506	327.67	0.07	0.07	0.00	0.00
35.00	0.00	0.504	327.67	0.07	0.07	0.00	0.00
35.20	0.00	0.503	327.66	0.07	0.07	0.00	0.00
35.40	0.00	0.502	327.66	0.07	0.07	0.00	0.00
35.60	0.00	0.501	327.65	0.07	0.07	0.00	0.00
35.80	0.00	0.500	327.64	0.07	0.07	0.00	0.00
36.00	0.00	0.498	327.64	0.07	0.07	0.00	0.00
36.20	0.00	0.497	327.63	0.07	0.07	0.00	0.00
36.40	0.00	0.496	327.63	0.07	0.07	0.00	0.00
36.60	0.00	0.495	327.62	0.07	0.07	0.00	0.00
36.80	0.00	0.493	327.61	0.07	0.07	0.00	0.00
37.00	0.00	0.492	327.61	0.07	0.07	0.00	0.00
37.20	0.00	0.491	327.60	0.07	0.07	0.00	0.00
37.40	0.00	0.490	327.60	0.07	0.07	0.00	0.00
37.60	0.00	0.489	327.59	0.07	0.07	0.00	0.00
37.80	0.00	0.487	327.58	0.07	0.07	0.00	0.00
38.00	0.00	0.486	327.58	0.07	0.07	0.00	0.00
38.20	0.00	0.485	327.57	0.07	0.07	0.00	0.00
38.40	0.00	0.484	327.57	0.07	0.07	0.00	0.00
38.60	0.00	0.482	327.56	0.07	0.07	0.00	0.00
38.80	0.00	0.481	327.55	0.07	0.07	0.00	0.00
39.00	0.00	0.480	327.55	0.07	0.07	0.00	0.00
39.20	0.00	0.479	327.54	0.07	0.07	0.00	0.00
39.40	0.00	0.478	327.54	0.07	0.07	0.00	0.00
39.60	0.00	0.476	327.53	0.07	0.07	0.00	0.00
39.80	0.00	0.475	327.52	0.07	0.07	0.00	0.00
40.00	0.00	0.474	327.52	0.07	0.07	0.00	0.00
40.20	0.00	0.473	327.51	0.07	0.07	0.00	0.00
40.40	0.00	0.471	327.51	0.07	0.07	0.00	0.00
40.60	0.00	0.470	327.50	0.07	0.07	0.00	0.00
40.80	0.00	0.469	327.49	0.07	0.07	0.00	0.00
41.00	0.00	0.468	327.49	0.07	0.07	0.00	0.00
41.20	0.00	0.467	327.48	0.07	0.07	0.00	0.00
41.40	0.00	0.465	327.47	0.07	0.07	0.00	0.00

Hydrograph for Pond 94P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
41.60	0.00	0.464	327.47	0.07	0.07	0.00	0.00
41.80	0.00	0.463	327.46	0.07	0.07	0.00	0.00
42.00	0.00	0.462	327.45	0.07	0.07	0.00	0.00
42.20	0.00	0.460	327.45	0.07	0.07	0.00	0.00
42.40	0.00	0.459	327.44	0.07	0.07	0.00	0.00
42.60	0.00	0.458	327.43	0.07	0.07	0.00	0.00
42.80	0.00	0.457	327.43	0.07	0.07	0.00	0.00
43.00	0.00	0.456	327.42	0.07	0.07	0.00	0.00
43.20	0.00	0.454	327.41	0.07	0.07	0.00	0.00
43.40	0.00	0.453	327.41	0.07	0.07	0.00	0.00
43.60	0.00	0.452	327.40	0.07	0.07	0.00	0.00
43.80	0.00	0.451	327.39	0.07	0.07	0.00	0.00
44.00	0.00	0.449	327.38	0.07	0.07	0.00	0.00
44.20	0.00	0.448	327.38	0.07	0.07	0.00	0.00
44.40	0.00	0.447	327.37	0.07	0.07	0.00	0.00
44.60	0.00	0.446	327.36	0.07	0.07	0.00	0.00
44.80	0.00	0.445	327.36	0.07	0.07	0.00	0.00
45.00	0.00	0.443	327.35	0.07	0.07	0.00	0.00
45.20	0.00	0.442	327.34	0.07	0.07	0.00	0.00
45.40	0.00	0.441	327.34	0.07	0.07	0.00	0.00
45.60	0.00	0.440	327.33	0.07	0.07	0.00	0.00
45.80	0.00	0.438	327.32	0.07	0.07	0.00	0.00
46.00	0.00	0.437	327.32	0.07	0.07	0.00	0.00
46.20	0.00	0.436	327.31	0.07	0.07	0.00	0.00
46.40	0.00	0.435	327.30	0.07	0.07	0.00	0.00
46.60	0.00	0.434	327.30	0.07	0.07	0.00	0.00
46.80	0.00	0.432	327.29	0.07	0.07	0.00	0.00
47.00	0.00	0.431	327.28	0.07	0.07	0.00	0.00
47.20	0.00	0.430	327.28	0.07	0.07	0.00	0.00
47.40	0.00	0.429	327.27	0.07	0.07	0.00	0.00
47.60	0.00	0.427	327.26	0.07	0.07	0.00	0.00
47.80	0.00	0.426	327.26	0.07	0.07	0.00	0.00
48.00	0.00	0.425	327.25	0.07	0.07	0.00	0.00
48.20	0.00	0.424	327.24	0.07	0.07	0.00	0.00
48.40	0.00	0.423	327.24	0.07	0.07	0.00	0.00
48.60	0.00	0.421	327.23	0.07	0.07	0.00	0.00
48.80	0.00	0.420	327.22	0.07	0.07	0.00	0.00
49.00	0.00	0.419	327.22	0.07	0.07	0.00	0.00
49.20	0.00	0.418	327.21	0.07	0.07	0.00	0.00
49.40	0.00	0.416	327.20	0.07	0.07	0.00	0.00
49.60	0.00	0.415	327.20	0.07	0.07	0.00	0.00
49.80	0.00	0.414	327.19	0.07	0.07	0.00	0.00
50.00	0.00	0.413	327.18	0.07	0.07	0.00	0.00
50.20	0.00	0.412	327.18	0.07	0.07	0.00	0.00
50.40	0.00	0.410	327.17	0.07	0.07	0.00	0.00
50.60	0.00	0.409	327.16	0.07	0.07	0.00	0.00
50.80	0.00	0.408	327.16	0.07	0.07	0.00	0.00
51.00	0.00	0.407	327.15	0.07	0.07	0.00	0.00
51.20	0.00	0.405	327.14	0.07	0.07	0.00	0.00
51.40	0.00	0.404	327.14	0.07	0.07	0.00	0.00
51.60	0.00	0.403	327.13	0.07	0.07	0.00	0.00
51.80	0.00	0.402	327.12	0.07	0.07	0.00	0.00

Hydrograph for Pond 94P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
52.00	0.00	0.401	327.12	0.07	0.07	0.00	0.00
52.20	0.00	0.399	327.11	0.07	0.07	0.00	0.00
52.40	0.00	0.398	327.10	0.07	0.07	0.00	0.00
52.60	0.00	0.397	327.10	0.07	0.07	0.00	0.00
52.80	0.00	0.396	327.09	0.07	0.07	0.00	0.00
53.00	0.00	0.394	327.08	0.07	0.07	0.00	0.00
53.20	0.00	0.393	327.07	0.07	0.07	0.00	0.00
53.40	0.00	0.392	327.07	0.07	0.07	0.00	0.00
53.60	0.00	0.391	327.06	0.07	0.07	0.00	0.00
53.80	0.00	0.389	327.05	0.07	0.07	0.00	0.00
54.00	0.00	0.388	327.05	0.07	0.07	0.00	0.00
54.20	0.00	0.387	327.04	0.07	0.07	0.00	0.00
54.40	0.00	0.386	327.03	0.07	0.07	0.00	0.00
54.60	0.00	0.385	327.03	0.07	0.07	0.00	0.00
54.80	0.00	0.383	327.02	0.07	0.07	0.00	0.00
55.00	0.00	0.382	327.01	0.07	0.07	0.00	0.00
55.20	0.00	0.381	327.01	0.07	0.07	0.00	0.00
55.40	0.00	0.380	327.00	0.07	0.07	0.00	0.00
55.60	0.00	0.378	326.99	0.07	0.07	0.00	0.00
55.80	0.00	0.377	326.99	0.07	0.07	0.00	0.00
56.00	0.00	0.376	326.98	0.07	0.07	0.00	0.00
56.20	0.00	0.375	326.97	0.07	0.07	0.00	0.00
56.40	0.00	0.374	326.96	0.07	0.07	0.00	0.00
56.60	0.00	0.372	326.96	0.07	0.07	0.00	0.00
56.80	0.00	0.371	326.95	0.07	0.07	0.00	0.00
57.00	0.00	0.370	326.94	0.07	0.07	0.00	0.00
57.20	0.00	0.369	326.93	0.07	0.07	0.00	0.00
57.40	0.00	0.367	326.92	0.07	0.07	0.00	0.00
57.60	0.00	0.366	326.92	0.07	0.07	0.00	0.00
57.80	0.00	0.365	326.91	0.07	0.07	0.00	0.00
58.00	0.00	0.364	326.90	0.07	0.07	0.00	0.00
58.20	0.00	0.363	326.89	0.07	0.07	0.00	0.00
58.40	0.00	0.361	326.89	0.07	0.07	0.00	0.00
58.60	0.00	0.360	326.88	0.07	0.07	0.00	0.00
58.80	0.00	0.359	326.87	0.07	0.07	0.00	0.00
59.00	0.00	0.358	326.86	0.07	0.07	0.00	0.00
59.20	0.00	0.356	326.86	0.07	0.07	0.00	0.00
59.40	0.00	0.355	326.85	0.07	0.07	0.00	0.00
59.60	0.00	0.354	326.84	0.07	0.07	0.00	0.00
59.80	0.00	0.353	326.83	0.07	0.07	0.00	0.00
60.00	0.00	0.352	326.83	0.07	0.07	0.00	0.00

Basin I

Summary for Pond 75P: Basin I

[78] Warning: Submerged Pond 94P Secondary device # 3 by 27.04'
[80] Warning: Exceeded Pond 94P by 22.52' @ 59.99 hrs (0.15 cfs 0.739 af)

Inflow	=	73.53 cfs @	11.97 hrs,	Volume=	3.756 af
Outflow	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Starting Elev= 335.10' Surf.Area= 0.060 ac Storage= 0.026 af
Peak Elev= 349.35' @ 24.34 hrs Surf.Area= 0.534 ac Storage= 3.782 af (3.756 af above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	334.10'	5.057 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Hydrograph for Pond 75P: Basin I

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
0.00	0.00	0.026	335.10	5.20	0.06	0.028	335.12
0.10	0.00	0.026	335.10	5.30	0.07	0.028	335.13
0.20	0.00	0.026	335.10	5.40	0.08	0.029	335.14
0.30	0.00	0.026	335.10	5.50	0.10	0.030	335.15
0.40	0.00	0.026	335.10	5.60	0.11	0.031	335.17
0.50	0.00	0.026	335.10	5.70	0.12	0.032	335.18
0.60	0.00	0.026	335.10	5.80	0.13	0.033	335.19
0.70	0.00	0.026	335.10	5.90	0.14	0.034	335.21
0.80	0.00	0.026	335.10	6.00	0.16	0.035	335.23
0.90	0.00	0.026	335.10	6.10	0.17	0.036	335.25
1.00	0.00	0.026	335.10	6.20	0.18	0.038	335.27
1.10	0.00	0.026	335.10	6.30	0.19	0.039	335.29
1.20	0.00	0.026	335.10	6.40	0.21	0.041	335.31
1.30	0.00	0.026	335.10	6.50	0.22	0.043	335.34
1.40	0.00	0.026	335.10	6.60	0.23	0.045	335.36
1.50	0.00	0.026	335.10	6.70	0.25	0.047	335.39
1.60	0.00	0.026	335.10	6.80	0.26	0.049	335.41
1.70	0.00	0.026	335.10	6.90	0.28	0.051	335.44
1.80	0.00	0.026	335.10	7.00	0.29	0.053	335.47
1.90	0.00	0.026	335.10	7.10	0.30	0.056	335.50
2.00	0.00	0.026	335.10	7.20	0.32	0.058	335.53
2.10	0.00	0.026	335.10	7.30	0.33	0.061	335.56
2.20	0.00	0.026	335.10	7.40	0.35	0.064	335.59
2.30	0.00	0.026	335.10	7.50	0.36	0.067	335.62
2.40	0.00	0.026	335.10	7.60	0.38	0.070	335.66
2.50	0.00	0.026	335.10	7.70	0.39	0.073	335.69
2.60	0.00	0.026	335.10	7.80	0.41	0.076	335.73
2.70	0.00	0.026	335.10	7.90	0.42	0.079	335.77
2.80	0.00	0.026	335.10	8.00	0.44	0.083	335.80
2.90	0.00	0.026	335.10	8.10	0.45	0.087	335.84
3.00	0.00	0.026	335.10	8.20	0.48	0.090	335.88
3.10	0.00	0.026	335.10	8.30	0.52	0.095	335.93
3.20	0.00	0.026	335.10	8.40	0.55	0.099	335.97
3.30	0.00	0.026	335.10	8.50	0.59	0.104	336.02
3.40	0.00	0.026	335.10	8.60	0.63	0.109	336.07
3.50	0.00	0.026	335.10	8.70	0.67	0.114	336.12
3.60	0.00	0.026	335.10	8.80	0.71	0.120	336.18
3.70	0.00	0.026	335.10	8.90	0.75	0.126	336.24
3.80	0.00	0.026	335.10	9.00	0.79	0.132	336.30
3.90	0.00	0.026	335.10	9.10	0.83	0.139	336.37
4.00	0.00	0.026	335.10	9.20	0.85	0.146	336.43
4.10	0.00	0.026	335.10	9.30	0.87	0.153	336.50
4.20	0.00	0.026	335.10	9.40	0.89	0.160	336.57
4.30	0.00	0.026	335.10	9.50	0.91	0.168	336.63
4.40	0.00	0.026	335.10	9.60	0.93	0.175	336.70
4.50	0.00	0.026	335.10	9.70	0.99	0.183	336.77
4.60	0.00	0.026	335.10	9.80	1.05	0.191	336.85
4.70	0.01	0.026	335.10	9.90	1.12	0.200	336.93
4.80	0.02	0.027	335.10	10.00	1.19	0.210	337.01
4.90	0.03	0.027	335.11	10.10	1.27	0.220	337.09
5.00	0.04	0.027	335.11	10.20	1.37	0.231	337.18
5.10	0.05	0.027	335.12	10.30	1.47	0.243	337.28

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
10.40	1.58	0.255	337.38	15.60	1.63	3.066	347.91
10.50	1.69	0.269	337.49	15.70	1.59	3.080	347.93
10.60	1.81	0.283	337.60	15.80	1.55	3.093	347.96
10.70	1.98	0.299	337.72	15.90	1.52	3.106	347.99
10.80	2.16	0.316	337.84	16.00	1.48	3.118	348.02
10.90	2.35	0.334	337.98	16.10	1.44	3.130	348.04
11.00	2.54	0.354	338.13	16.20	1.43	3.142	348.07
11.10	2.78	0.376	338.28	16.30	1.41	3.154	348.09
11.20	3.18	0.400	338.45	16.40	1.40	3.165	348.12
11.30	3.62	0.428	338.63	16.50	1.38	3.177	348.14
11.40	4.08	0.460	338.84	16.60	1.37	3.188	348.17
11.50	4.56	0.495	339.06	16.70	1.36	3.199	348.19
11.60	7.11	0.538	339.32	16.80	1.34	3.211	348.21
11.70	16.53	0.629	339.84	16.90	1.33	3.222	348.24
11.80	28.71	0.809	340.78	17.00	1.32	3.232	348.26
11.90	**54.98**	1.130	342.23	17.10	1.30	3.243	348.28
12.00	**67.73**	1.685	344.26	17.20	1.29	3.254	348.30
12.10	20.55	2.056	345.38	17.30	1.27	3.265	348.33
12.20	10.52	2.175	345.72	17.40	1.26	3.275	348.35
12.30	8.54	2.253	345.93	17.50	1.25	3.285	348.37
12.40	7.30	2.319	346.11	17.60	1.23	3.296	348.39
12.50	6.07	2.375	346.26	17.70	1.22	3.306	348.41
12.60	5.04	2.421	346.38	17.80	1.20	3.316	348.43
12.70	4.64	2.461	346.48	17.90	1.19	3.326	348.45
12.80	4.35	2.498	346.57	18.00	1.18	3.336	348.47
12.90	4.07	2.533	346.66	18.10	1.16	3.345	348.49
13.00	3.78	2.566	346.74	18.20	1.15	3.355	348.51
13.10	3.53	2.596	346.82	18.30	1.14	3.364	348.53
13.20	3.36	2.624	346.89	18.40	1.12	3.374	348.55
13.30	3.21	2.652	346.95	18.50	1.11	3.383	348.57
13.40	3.05	2.678	347.02	18.60	1.09	3.392	348.59
13.50	2.90	2.702	347.07	18.70	1.08	3.401	348.61
13.60	2.76	2.726	347.13	18.80	1.07	3.410	348.62
13.70	2.64	2.748	347.18	18.90	1.05	3.418	348.64
13.80	2.53	2.769	347.23	19.00	1.04	3.427	348.66
13.90	2.42	2.790	347.28	19.10	1.02	3.436	348.68
14.00	2.31	2.810	347.33	19.20	1.01	3.444	348.69
14.10	2.22	2.828	347.37	19.30	1.00	3.452	348.71
14.20	2.17	2.846	347.41	19.40	0.98	3.461	348.73
14.30	2.13	2.864	347.45	19.50	0.97	3.469	348.74
14.40	2.09	2.882	347.49	19.60	0.95	3.477	348.76
14.50	2.05	2.899	347.53	19.70	0.94	3.484	348.77
14.60	2.02	2.916	347.57	19.80	0.93	3.492	348.79
14.70	1.98	2.932	347.61	19.90	0.91	3.500	348.80
14.80	1.94	2.948	347.64	20.00	0.90	3.507	348.82
14.90	1.90	2.964	347.68	20.10	0.89	3.515	348.83
15.00	1.86	2.980	347.71	20.20	0.88	3.522	348.85
15.10	1.82	2.995	347.75	20.30	0.88	3.529	348.86
15.20	1.79	3.010	347.78	20.40	0.88	3.536	348.88
15.30	1.75	3.025	347.81	20.50	0.87	3.544	348.89
15.40	1.71	3.039	347.84	20.60	0.87	3.551	348.90
15.50	1.67	3.053	347.88	20.70	0.87	3.558	348.92

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
20.80	0.87	3.565	348.93
20.90	0.86	3.572	348.95
21.00	0.86	3.579	348.96
21.10	0.86	3.586	348.97
21.20	0.85	3.594	348.99
21.30	0.85	3.601	349.00
21.40	0.85	3.608	349.01
21.50	0.85	3.615	349.03
21.60	0.84	3.622	349.04
21.70	0.84	3.629	349.06
21.80	0.84	3.636	349.07
21.90	0.84	3.642	349.08
22.00	0.83	3.649	349.10
22.10	0.83	3.656	349.11
22.20	0.83	3.663	349.12
22.30	0.82	3.670	349.13
22.40	0.82	3.677	349.15
22.50	0.81	3.683	349.16
22.60	0.79	3.690	349.17
22.70	0.78	3.696	349.19
22.80	0.77	3.703	349.20
22.90	0.76	3.709	349.21
23.00	0.76	3.715	349.22
23.10	0.75	3.722	349.23
23.20	0.74	3.728	349.25
23.30	0.74	3.734	349.26
23.40	0.74	3.740	349.27
23.50	0.73	3.746	349.28
23.60	0.73	3.752	349.29
23.70	0.73	3.758	349.30
23.80	0.72	3.764	349.31
23.90	0.72	3.770	349.32
24.00	0.72	3.776	349.34
24.10	0.30	3.781	349.35
24.20	0.06	3.782	349.35
24.30	0.00	**3.783**	**349.35**
24.40	0.00	**3.783**	**349.35**
24.50	0.00	3.783	349.35
24.60	0.00	3.783	349.35
24.70	0.00	3.783	349.35
24.80	0.00	3.783	349.35
24.90	0.00	3.783	349.35
25.00	0.00	3.783	349.35
25.10	0.00	3.783	349.35
25.20	0.00	3.783	349.35
25.30	0.00	3.783	349.35
25.40	0.00	3.783	349.35
25.50	0.00	3.783	349.35
25.60	0.00	3.783	349.35
25.70	0.00	3.783	349.35
25.80	0.00	3.783	349.35
25.90	0.00	3.783	349.35
26.00	0.00	3.783	349.35
26.10	0.00	3.783	349.35
26.20	0.00	3.783	349.35
26.30	0.00	3.783	349.35
26.40	0.00	3.783	349.35
26.50	0.00	3.783	349.35
26.60	0.00	3.783	349.35
26.70	0.00	3.783	349.35
26.80	0.00	3.783	349.35
26.90	0.00	3.783	349.35
27.00	0.00	3.783	349.35
27.10	0.00	3.783	349.35
27.20	0.00	3.783	349.35
27.30	0.00	3.783	349.35
27.40	0.00	3.783	349.35
27.50	0.00	3.783	349.35
27.60	0.00	3.783	349.35
27.70	0.00	3.783	349.35
27.80	0.00	3.783	349.35
27.90	0.00	3.783	349.35
28.00	0.00	3.783	349.35
28.10	0.00	3.783	349.35
28.20	0.00	3.783	349.35
28.30	0.00	3.783	349.35
28.40	0.00	3.783	349.35
28.50	0.00	3.783	349.35
28.60	0.00	3.783	349.35
28.70	0.00	3.783	349.35
28.80	0.00	3.783	349.35
28.90	0.00	3.783	349.35
29.00	0.00	3.783	349.35
29.10	0.00	3.783	349.35
29.20	0.00	3.783	349.35
29.30	0.00	3.783	349.35
29.40	0.00	3.783	349.35
29.50	0.00	3.783	349.35
29.60	0.00	3.783	349.35
29.70	0.00	3.783	349.35
29.80	0.00	3.783	349.35
29.90	0.00	3.783	349.35
30.00	0.00	3.783	349.35
30.10	0.00	3.783	349.35
30.20	0.00	3.783	349.35
30.30	0.00	3.783	349.35
30.40	0.00	3.783	349.35
30.50	0.00	3.783	349.35
30.60	0.00	3.783	349.35
30.70	0.00	3.783	349.35
30.80	0.00	3.783	349.35
30.90	0.00	3.783	349.35
31.00	0.00	3.783	349.35
31.10	0.00	3.783	349.35

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
31.20	0.00	3.783	349.35	36.40	0.00	3.783	349.35
31.30	0.00	3.783	349.35	36.50	0.00	3.783	349.35
31.40	0.00	3.783	349.35	36.60	0.00	3.783	349.35
31.50	0.00	3.783	349.35	36.70	0.00	3.783	349.35
31.60	0.00	3.783	349.35	36.80	0.00	3.783	349.35
31.70	0.00	3.783	349.35	36.90	0.00	3.783	349.35
31.80	0.00	3.783	349.35	37.00	0.00	3.783	349.35
31.90	0.00	3.783	349.35	37.10	0.00	3.783	349.35
32.00	0.00	3.783	349.35	37.20	0.00	3.783	349.35
32.10	0.00	3.783	349.35	37.30	0.00	3.783	349.35
32.20	0.00	3.783	349.35	37.40	0.00	3.783	349.35
32.30	0.00	3.783	349.35	37.50	0.00	3.783	349.35
32.40	0.00	3.783	349.35	37.60	0.00	3.783	349.35
32.50	0.00	3.783	349.35	37.70	0.00	3.783	349.35
32.60	0.00	3.783	349.35	37.80	0.00	3.783	349.35
32.70	0.00	3.783	349.35	37.90	0.00	3.783	349.35
32.80	0.00	3.783	349.35	38.00	0.00	3.783	349.35
32.90	0.00	3.783	349.35	38.10	0.00	3.783	349.35
33.00	0.00	3.783	349.35	38.20	0.00	3.783	349.35
33.10	0.00	3.783	349.35	38.30	0.00	3.783	349.35
33.20	0.00	3.783	349.35	38.40	0.00	3.783	349.35
33.30	0.00	3.783	349.35	38.50	0.00	3.783	349.35
33.40	0.00	3.783	349.35	38.60	0.00	3.783	349.35
33.50	0.00	3.783	349.35	38.70	0.00	3.783	349.35
33.60	0.00	3.783	349.35	38.80	0.00	3.783	349.35
33.70	0.00	3.783	349.35	38.90	0.00	3.783	349.35
33.80	0.00	3.783	349.35	39.00	0.00	3.783	349.35
33.90	0.00	3.783	349.35	39.10	0.00	3.783	349.35
34.00	0.00	3.783	349.35	39.20	0.00	3.783	349.35
34.10	0.00	3.783	349.35	39.30	0.00	3.783	349.35
34.20	0.00	3.783	349.35	39.40	0.00	3.783	349.35
34.30	0.00	3.783	349.35	39.50	0.00	3.783	349.35
34.40	0.00	3.783	349.35	39.60	0.00	3.783	349.35
34.50	0.00	3.783	349.35	39.70	0.00	3.783	349.35
34.60	0.00	3.783	349.35	39.80	0.00	3.783	349.35
34.70	0.00	3.783	349.35	39.90	0.00	3.783	349.35
34.80	0.00	3.783	349.35	40.00	0.00	3.783	349.35
34.90	0.00	3.783	349.35	40.10	0.00	3.783	349.35
35.00	0.00	3.783	349.35	40.20	0.00	3.783	349.35
35.10	0.00	3.783	349.35	40.30	0.00	3.783	349.35
35.20	0.00	3.783	349.35	40.40	0.00	3.783	349.35
35.30	0.00	3.783	349.35	40.50	0.00	3.783	349.35
35.40	0.00	3.783	349.35	40.60	0.00	3.783	349.35
35.50	0.00	3.783	349.35	40.70	0.00	3.783	349.35
35.60	0.00	3.783	349.35	40.80	0.00	3.783	349.35
35.70	0.00	3.783	349.35	40.90	0.00	3.783	349.35
35.80	0.00	3.783	349.35	41.00	0.00	3.783	349.35
35.90	0.00	3.783	349.35	41.10	0.00	3.783	349.35
36.00	0.00	3.783	349.35	41.20	0.00	3.783	349.35
36.10	0.00	3.783	349.35	41.30	0.00	3.783	349.35
36.20	0.00	3.783	349.35	41.40	0.00	3.783	349.35
36.30	0.00	3.783	349.35	41.50	0.00	3.783	349.35

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
41.60	0.00	3.783	349.35
41.70	0.00	3.783	349.35
41.80	0.00	3.783	349.35
41.90	0.00	3.783	349.35
42.00	0.00	3.783	349.35
42.10	0.00	3.783	349.35
42.20	0.00	3.783	349.35
42.30	0.00	3.783	349.35
42.40	0.00	3.783	349.35
42.50	0.00	3.783	349.35
42.60	0.00	3.783	349.35
42.70	0.00	3.783	349.35
42.80	0.00	3.783	349.35
42.90	0.00	3.783	349.35
43.00	0.00	3.783	349.35
43.10	0.00	3.783	349.35
43.20	0.00	3.783	349.35
43.30	0.00	3.783	349.35
43.40	0.00	3.783	349.35
43.50	0.00	3.783	349.35
43.60	0.00	3.783	349.35
43.70	0.00	3.783	349.35
43.80	0.00	3.783	349.35
43.90	0.00	3.783	349.35
44.00	0.00	3.783	349.35
44.10	0.00	3.783	349.35
44.20	0.00	3.783	349.35
44.30	0.00	3.783	349.35
44.40	0.00	3.783	349.35
44.50	0.00	3.783	349.35
44.60	0.00	3.783	349.35
44.70	0.00	3.783	349.35
44.80	0.00	3.783	349.35
44.90	0.00	3.783	349.35
45.00	0.00	3.783	349.35
45.10	0.00	3.783	349.35
45.20	0.00	3.783	349.35
45.30	0.00	3.783	349.35
45.40	0.00	3.783	349.35
45.50	0.00	3.783	349.35
45.60	0.00	3.783	349.35
45.70	0.00	3.783	349.35
45.80	0.00	3.783	349.35
45.90	0.00	3.783	349.35
46.00	0.00	3.783	349.35
46.10	0.00	3.783	349.35
46.20	0.00	3.783	349.35
46.30	0.00	3.783	349.35
46.40	0.00	3.783	349.35
46.50	0.00	3.783	349.35
46.60	0.00	3.783	349.35
46.70	0.00	3.783	349.35
46.80	0.00	3.783	349.35
46.90	0.00	3.783	349.35
47.00	0.00	3.783	349.35
47.10	0.00	3.783	349.35
47.20	0.00	3.783	349.35
47.30	0.00	3.783	349.35
47.40	0.00	3.783	349.35
47.50	0.00	3.783	349.35
47.60	0.00	3.783	349.35
47.70	0.00	3.783	349.35
47.80	0.00	3.783	349.35
47.90	0.00	3.783	349.35
48.00	0.00	3.783	349.35
48.10	0.00	3.783	349.35
48.20	0.00	3.783	349.35
48.30	0.00	3.783	349.35
48.40	0.00	3.783	349.35
48.50	0.00	3.783	349.35
48.60	0.00	3.783	349.35
48.70	0.00	3.783	349.35
48.80	0.00	3.783	349.35
48.90	0.00	3.783	349.35
49.00	0.00	3.783	349.35
49.10	0.00	3.783	349.35
49.20	0.00	3.783	349.35
49.30	0.00	3.783	349.35
49.40	0.00	3.783	349.35
49.50	0.00	3.783	349.35
49.60	0.00	3.783	349.35
49.70	0.00	3.783	349.35
49.80	0.00	3.783	349.35
49.90	0.00	3.783	349.35
50.00	0.00	3.783	349.35
50.10	0.00	3.783	349.35
50.20	0.00	3.783	349.35
50.30	0.00	3.783	349.35
50.40	0.00	3.783	349.35
50.50	0.00	3.783	349.35
50.60	0.00	3.783	349.35
50.70	0.00	3.783	349.35
50.80	0.00	3.783	349.35
50.90	0.00	3.783	349.35
51.00	0.00	3.783	349.35
51.10	0.00	3.783	349.35
51.20	0.00	3.783	349.35
51.30	0.00	3.783	349.35
51.40	0.00	3.783	349.35
51.50	0.00	3.783	349.35
51.60	0.00	3.783	349.35
51.70	0.00	3.783	349.35
51.80	0.00	3.783	349.35
51.90	0.00	3.783	349.35

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
52.00	0.00	3.783	349.35
52.10	0.00	3.783	349.35
52.20	0.00	3.783	349.35
52.30	0.00	3.783	349.35
52.40	0.00	3.783	349.35
52.50	0.00	3.783	349.35
52.60	0.00	3.783	349.35
52.70	0.00	3.783	349.35
52.80	0.00	3.783	349.35
52.90	0.00	3.783	349.35
53.00	0.00	3.783	349.35
53.10	0.00	3.783	349.35
53.20	0.00	3.783	349.35
53.30	0.00	3.783	349.35
53.40	0.00	3.783	349.35
53.50	0.00	3.783	349.35
53.60	0.00	3.783	349.35
53.70	0.00	3.783	349.35
53.80	0.00	3.783	349.35
53.90	0.00	3.783	349.35
54.00	0.00	3.783	349.35
54.10	0.00	3.783	349.35
54.20	0.00	3.783	349.35
54.30	0.00	3.783	349.35
54.40	0.00	3.783	349.35
54.50	0.00	3.783	349.35
54.60	0.00	3.783	349.35
54.70	0.00	3.783	349.35
54.80	0.00	3.783	349.35
54.90	0.00	3.783	349.35
55.00	0.00	3.783	349.35
55.10	0.00	3.783	349.35
55.20	0.00	3.783	349.35
55.30	0.00	3.783	349.35
55.40	0.00	3.783	349.35
55.50	0.00	3.783	349.35
55.60	0.00	3.783	349.35
55.70	0.00	3.783	349.35
55.80	0.00	3.783	349.35
55.90	0.00	3.783	349.35
56.00	0.00	3.783	349.35
56.10	0.00	3.783	349.35
56.20	0.00	3.783	349.35
56.30	0.00	3.783	349.35
56.40	0.00	3.783	349.35
56.50	0.00	3.783	349.35
56.60	0.00	3.783	349.35
56.70	0.00	3.783	349.35
56.80	0.00	3.783	349.35
56.90	0.00	3.783	349.35
57.00	0.00	3.783	349.35
57.10	0.00	3.783	349.35
57.20	0.00	3.783	349.35
57.30	0.00	3.783	349.35
57.40	0.00	3.783	349.35
57.50	0.00	3.783	349.35
57.60	0.00	3.783	349.35
57.70	0.00	3.783	349.35
57.80	0.00	3.783	349.35
57.90	0.00	3.783	349.35
58.00	0.00	3.783	349.35
58.10	0.00	3.783	349.35
58.20	0.00	3.783	349.35
58.30	0.00	3.783	349.35
58.40	0.00	3.783	349.35
58.50	0.00	3.783	349.35
58.60	0.00	3.783	349.35
58.70	0.00	3.783	349.35
58.80	0.00	3.783	349.35
58.90	0.00	3.783	349.35
59.00	0.00	3.783	349.35
59.10	0.00	3.783	349.35
59.20	0.00	3.783	349.35
59.30	0.00	3.783	349.35
59.40	0.00	3.783	349.35
59.50	0.00	3.783	349.35
59.60	0.00	3.783	349.35
59.70	0.00	3.783	349.35
59.80	0.00	3.783	349.35
59.90	0.00	3.783	349.35
60.00	0.00	3.783	349.35

ARCADIS

Attachment 2

Infiltration Channel Routing Calculations

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B00023726

Subject: Infiltration Channel Routing Calculations (Cells 7/8, 9/10, 11/13, and 12/14)

Prepared By: BMS/PTO **Date:** March 2009

Reviewed By: BMS **Date:** March 2009

Checked By: PHB **Date:** March 2009

TASK

Calculate the stormwater runoff (leachate) conditions into the perimeter infiltration channels for Cells 7/8, 9/10, 11/13 and 12/14 for the 25-year, 24-hour design storm. Route the stormwater runoff hydrographs through the channels to calculate inflow hydrographs to primary leachate collection system (LCS) sumps and the flow volume exchange with Detention Basin H, where applicable.

REFERENCES

1. *Leachate Level Compliance Plan for Residuals Management Unit- One, Final Sequence Phase 1* prepared by ARCADIS, dated December 2007.

2. *Operations and Maintenance Manual for Residuals Management Unit-1*, dated September, 1997 (latest revised date March 2009).

3. Proposed grading design for waste fill progression and capping for Cells 1 through 14 presented on Figure 1 entitled *Residuals Management Unit-1 Fill Progression and Truck Routes, Cells 1 Through 14 – Final Sequence Phase 2*, prepared by ARCADIS, dated March 2009.

4. HydroCAD Version 8.5, hydraulic evaluation software, HydroCAD Software Solutions LLC, 2006.

5. Calculation sheet entitled *Detention Basins H and I Storage Capacity,* prepared by ARCADIS, dated March 2009.

ASSUMPTIONS

1. In general, the analysis of all infiltration channels is based on the following:

   - Outflow from infiltration channels occurs via infiltration through the operations layer sideslope of the channels. Infiltration through the waste sideslope of the channels is not considered. Some infiltration channels have additional outflow mechanisms that are described in Assumptions 2 and 3.

   - Darcy's law (Q=kiA) is assumed to be valid to model flowrate through the operations layer. Hydraulic conductivity (i.e., "k" in Darcy's law) for the operations layer is 6.8×10^{-2} cm/s.

   - Operations layer thickness for the infiltration channels is 1 foot.

Calculation Sheet

- Rating curves for the infiltration channels (with the exception of the east perimeter channel) are based on grades depicted in Reference 3. The rating curve for the east perimeter channel is based on geometry described in Assumption 3. As-built top of secondary clay drawings are used to determine the lowest lined elevations for the infiltration channels (i.e., the lowest elevations of the primary liner).

- A minimum 1.0 foot freeboard must be provided with respect to the lowest lined elevation for each infiltration channel during the design storm.

- The presence of check dams (depicted on Reference 3) and high points in the inverts of the infiltration channels effectively creates isolated infiltration areas. Separate watershed areas are delineated for each of these isolated infiltration areas.

2. The south perimeter channel has a zero invert slope and is evaluated as one continuous channel. Because the channel extends across Cells 13 and 14 with no check dam at the cell divide line, Reference 4 is used to assess the infiltration component into each cell. This is accomplished by deriving two separate infiltration rating curves – one for each portion of the channel in each cell. Additionally, the eastern end of the south perimeter channel is free-draining into Detention Basin H. Outflow from the south perimeter channel into Detention Basin H is modeled as critical flow in a V-notch channel. As discussed in Reference 5, once the basin liquid elevation exceeds 328.00 feet, the south perimeter channel and the basin are modeled as a combined system and bidirectional flow between the two features is allowed. Liquid above elevation 328.00 feet in the basin gravity drains from the basin, enters the south perimeter channel, and infiltrates into the operations layer. This continues until the basin liquid elevation decreases to 328.00 feet.

3. The east perimeter channel is one continuous channel and extends across Cells 8, 9 and 11 with no check dams at the cell divide lines. Additionally, the channel invert is sloped south to drain towards culvert CV-2 that allows the discharge of stormwater into Detention Basin H. Stormwater runoff within this channel infiltrates into the sumps of Cells 7/8, 9/10 and 11/13 and discharges into Detention Basin H simultaneously. The east perimeter channel is modeled using the same methodology as Reference 1 and based on the following assumptions:

   - Based on Reference 3, the east perimeter channel is trapezoidal in cross section with a 2-foot base width, 3:1 outboard sideslope, 2:1 inboard sideslope, and a minimum lined channel depth of approximately 2.3 feet (measured continuously along the channel length with respect to the adjacent liner crest elevation).

   - The east perimeter channel is modeled as a series of interconnected detention ponds, each having the cross sectional characteristics of the east perimeter channel and measuring approximately 50 feet in length. Because the portion of the east perimeter channel that drains to the south into Detention Basin H is approximately 550 feet long, 11 interconnected ponds are used (11 ponds at 50 feet long each = 550 feet). Separate watersheds are delineated for each 50-foot reach of channel based on Reference 3. These separate watersheds are necessary for the analysis but are not relevant to the overall watershed management and compliance within the landfill. Outflow from a given reach occurs via infiltration into the operations layer stone, which lines the outboard sideslope of the perimeter channel, and open channel flow into the next downgradient channel reach (or, in the case of the most downgradient reach, through culvert CV-2 and into Detention Basin H). The Cell 7/8 primary LCS sump receives infiltration from the

three most upgradient channel reaches while the Cell 11/13 primary LCS sump receives infiltration from the two most downgradient channel reaches. The Cell 9/10 primary LCS sump receives infiltration from the six remaining intermediate channel reaches.

- A generic rating curve for infiltration along a given channel reach is generated based on the channel geometry discussed above. The water surface in the channel is assumed to be parallel with the channel invert (i.e., uniform flow) but the depth of flow in each 50-foot channel reach is allowed to vary from the adjacent reaches.

- A generic rating curve for open channel flow in a given channel reach is generated using the geometry described above and the Manning equation. Based on Reference 3, the channel has an average longitudinal slope to the south of approximately 0.25 percent. The channel is assumed to have a Manning "n" of 0.025.

Unlike the south perimeter channel, the east perimeter channel invert is high enough to prevent bidirectional flow exchange with Basin H. That is, the channel freely discharges into Basin H but the reverse cannot occur.

METHODOLOGY

In general, the following methodology is used in this evaluation to determine the stormwater runoff (leachate) conditions into each channel and to develop the inflow hydrographs into the primary LCS sumps. This methodology is identical to that used in Reference 1.

1. Stormwater Runoff Hydrographs

Use Reference 4 to compute stormwater runoff hydrographs for the infiltration channels based on the following:

- Runoff curve number (CN) for waste = 90 (based on Reference 1).
- Rainfall = 4 inches for the 25-year, 24-hour design storm (based on Reference 1).
- Watershed area (delineated based on Reference 3).
- Time of concentration (Tc) = 0.1 hr (based on Reference 1).

2. Channel Rating Curves

Develop rating curves (stage/storage/discharge relationships) for the infiltration channels. The rating curves, which provide storage volumes and outflow rates at various stages (i.e., elevations) for each channel, are used to route the stormwater runoff hydrographs through the appropriate channels to determine the peak liquid elevation within the channel and the outflow hydrograph from each channel.

3. Channel Routing and Channel Outflow Hydrographs

Route each stormwater runoff hydrograph through the appropriate channel using the above-described stage/storage/discharge relationship to estimate the peak stage in the channel and develop a channel outflow hydrograph.

Calculation Sheet

CALCULATIONS

1. Stormwater Runoff Hydrographs

Table 1A below summarizes the hydrologic parameters for the watershed draining to each infiltration channel (with the exception of the east perimeter channel, which is addressed separately below) and the resulting stormwater runoff conditions into the channel.

Table 1A

Channel	Watershed Area (acres)	CN	Tc (hour)	Estimated Peak Discharge into Channel (cfs)
Cell 10 Perimeter	1.27	90	0.1	6.26
Cell 12 Perimeter	0.59	90	0.1	2.90
Cell 14 West Perimeter	0.62	90	0.1	3.09
South Perimeter	1.70	90	0.1	8.41

Table 1B below summarizes the hydrologic parameters for the watershed draining to each 50-foot reach of the east perimeter channel and the resulting stormwater runoff conditions into each channel reach from its respective watershed. The channel reaches are numbered 1 through 11, starting with the upstream reach.

Table 1B

East Perimeter Channel Reach No.	Watershed Area (acres)	CN	Tc (hour)	Estimated Peak Discharge from Watershed (cfs)
1 (Upstream)	1.03	90	0.1	5.11
2	0.12	90	0.1	0.60
3	0.12	90	0.1	0.60
4	0.14	90	0.1	0.68
5	0.14	90	0.1	0.71
6	0.16	90	0.1	0.78
7	0.14	90	0.1	0.71
8	0.14	90	0.1	0.71
9	0.12	90	0.1	0.59
10	0.09	90	0.1	0.46
11 (Downstream)	0.11	90	0.1	0.53

Stormwater runoff hydrographs for the watersheds presented in Tables 1A and 1B are included in an attachment to this calculation.

2. Channel Rating Curves

A spreadsheet is used to develop channel-specific rating curves that are necessary to route the above-described stormwater runoff hydrographs through the infiltration channels. Reference 4 uses the rating curves to calculate routed outflow hydrographs from each channel and to estimate peak depths and outflow rates for each channel. Additionally, the routed hydrographs are used to determine leachate

elevations and times of exceedance for each cell (discussed in a separate calculation package) and, in the case of the south and east perimeter channels, flow volume exchange with Detention Basin H. Spreadsheet output associated with the rating curve calculations is included as an attachment to this calculation.

3. Channel Routing and Channel Outflow Hydrographs

Table 2A below summarizes the results of the channel routing procedure performed using Reference 4 (with the exception of the east perimeter channel, which is addressed separately below).

Table 2A

Channel	Estimated Peak Inflow into Channel (cfs)	Estimated Peak Outflow from Channel (cfs)	Peak Liquid Elevation (Depth)[1] (feet)	Lowest Lined Elevation (feet)	Resulting Freeboard[2] (feet)
Cell 10 Perimeter	6.26	4.42	329.56 (2.63)	330.62	1.06
Cell 12 Perimeter	2.90	1.82	331.11 (1.44)	332.32	1.21
Cell 14 West Perimeter	3.09	2.24	332.19 (2.46)	333.23	1.04
South Perimeter	8.41	7.69[3]	328.74 (1.26)	330.09	1.35

Notes:
1. The peak depth for each channel is obtained by subtracting the low point of the channel invert from the peak liquid elevation. The channel invert low point is indicated on the channel rating curves that are provided as an attachment to this calculation.
2. The resulting freeboard is obtained by subtracting the peak liquid elevation from the lowest lined elevation, as determined from as-built top of secondary clay drawings.
3. Peak outflow from the south perimeter channel includes both infiltration and open channel flow into Detention Basin H.

Based on the routing calculations for the south perimeter channel, approximately 12,782 cubic feet (cu. ft.) of stormwater infiltrates into the sump of Cell 12/14, and 10,043 cu. ft. of stormwater infiltrates into the sump of Cell 11/13. These volumes are a summation of the infiltration of runoff from the tributary watershed and the infiltration of liquid from Basin H above elevation 328.00 feet that backflows into the channel.

Table 2B below summarizes the peak flowrate and flow depth in each 50-foot reach of the east perimeter channel as well as the resulting freeboard.

Table 2B

East Perimeter Channel Reach No.	Estimated Peak Flowrate in Channel Reach[1] (cfs)	Estimated Peak Outflow from Channel Reach[2] (cfs)	Peak Flow Depth[3] (feet)	Minimum Lined Channel Depth (feet)	Resulting Freeboard (feet)
1 (Upstream)	5.11	5.09	0.72	2.30	1.58
2	5.59	5.58	0.76	2.30	1.54
3	6.08	6.06	0.79	2.30	1.51
4	6.62	6.61	0.82	2.30	1.48
5	7.17	7.16	0.85	2.30	1.45

Calculation Sheet

East Perimeter Channel Reach No.	Estimated Peak Flowrate in Channel Reach[1] (cfs)	Estimated Peak Outflow from Channel Reach[2] (cfs)	Peak Flow Depth[3] (feet)	Minimum Lined Channel Depth (feet)	Resulting Freeboard (feet)
6	7.78	7.76	0.88	2.30	1.42
7	8.29	8.28	0.91	2.30	1.39
8	8.79	8.77	0.94	2.30	1.36
9	9.17	9.15	0.96	2.30	1.34
10	9.40	9.38	0.98	2.30	1.32
11 (Downstream)	9.69	9.67	0.96	2.30	1.34

Note:

1. Peak flowrate into the channel reach includes runoff from the tributary watershed to the reach, and the inflow (if any) from the reach immediately upstream.
2. Peak outflow from the east perimeter channel includes both infiltration and open channel flow into the next downstream reach (or in the case of Reach 11, culvert flow into Detention Basin H via culvert CV-2).
3. The peak flow depth for each channel reach is the required flow depth determined from the Manning equation (for Reaches 1 through 10) or the culvert rating table (for Reach 11) to convey the estimated peak outflow into the next downstream reach or, in the case of Reach 11, Detention Basin H.

Based on the routing calculations for the east perimeter channel, approximately 566 cu. ft. of stormwater infiltrates into the sump of Cell 7/8, 1,699 cu. ft. of stormwater infiltrates into the sump of Cell 9/10, 828 cu. ft. of stormwater infiltrates into the sump of Cell 11/13, and 21,475 cu. ft. of stormwater passes through culvert CV-2 into Detention Basin H.

Supporting output from Reference 4 is included as an attachment to this calculation.

SUMMARY

Based on the assumptions and calculations presented above, the design channel depths are sufficient to route the stormwater runoff associated with 25-year, 24-hour design storm into the cell sumps and Detention Basin H and maintain the minimum required 1 foot of freeboard. Routed channel outflow hydrographs are included as an attachment to this calculation.

Cell 10 Perimeter Channel

CWM Chemical Services, LLC
Model City, NY
RMU-1 Cell 10 Perimeter Channel
Rating Curve for Infiltration into Cell 9/10

Elevation [ft]	Planimetric Area[1] [sq. ft.]	Cumulative Volume [ft^3]	Operations Layer Area Subject to Infiltration[2] [ft^2]	Hydraulic Gradient[3]	Flowrate (Darcy's Law)[4] [cfs]
326.93	0	0	0	0.00	0.00
328.00	332	178	210	0.53	0.25
329.00	1364	1026	863	1.04	1.99
330.00	2921	3168	1847	1.54	6.33
331.00	4178	6718	2642	2.04	12.00

Notes:

1. Obtained by direct measurement of area within contours from the Cells 1 Through 14 Fill Progression Plan (ARCADIS, March 2009).
2. Equal to 0.6 times the planimetric area times the 3:1 slope correction factor of 1.05. The 0.6 factor accounts for the fact that 60% of the plan area of a v-notch channel with 3:1 and 2:1 sideslopes is represented by the 3:1 sideslope, which is subject to infiltration.
3. Equal to the elevation above the low point (326.93) divided by two times the thickness of the operations layer (i.e. 1 ft).
4. Based on hydraulic conductivity of operations stone equal to 6.8×10^{-2} cm/s.
5. Lowest lined elevation for channel is 330.62 based on as-built top of secondary soil drawing.

Summary for Subcatchment 28S: Cell 10

Runoff = 6.26 cfs @ 11.97 hrs, Volume= 0.308 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	1.265	90	
	1.265		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Hydrograph for Subcatchment 28S: Cell 10

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	5.20	0.26	0.00	0.01
0.10	0.00	0.00	0.00	5.30	0.27	0.00	0.01
0.20	0.01	0.00	0.00	5.40	0.28	0.00	0.01
0.30	0.01	0.00	0.00	5.50	0.28	0.00	0.01
0.40	0.02	0.00	0.00	5.60	0.29	0.00	0.01
0.50	0.02	0.00	0.00	5.70	0.30	0.00	0.01
0.60	0.02	0.00	0.00	5.80	0.31	0.01	0.01
0.70	0.03	0.00	0.00	5.90	0.31	0.01	0.01
0.80	0.03	0.00	0.00	6.00	0.32	0.01	0.01
0.90	0.04	0.00	0.00	6.10	0.33	0.01	0.01
1.00	0.04	0.00	0.00	6.20	0.33	0.01	0.02
1.10	0.05	0.00	0.00	6.30	0.34	0.01	0.02
1.20	0.05	0.00	0.00	6.40	0.35	0.01	0.02
1.30	0.06	0.00	0.00	6.50	0.36	0.01	0.02
1.40	0.06	0.00	0.00	6.60	0.36	0.02	0.02
1.50	0.06	0.00	0.00	6.70	0.37	0.02	0.02
1.60	0.07	0.00	0.00	6.80	0.38	0.02	0.02
1.70	0.07	0.00	0.00	6.90	0.39	0.02	0.02
1.80	0.08	0.00	0.00	7.00	0.40	0.02	0.02
1.90	0.08	0.00	0.00	7.10	0.40	0.03	0.03
2.00	0.09	0.00	0.00	7.20	0.41	0.03	0.03
2.10	0.09	0.00	0.00	7.30	0.42	0.03	0.03
2.20	0.10	0.00	0.00	7.40	0.43	0.03	0.03
2.30	0.10	0.00	0.00	7.50	0.44	0.03	0.03
2.40	0.11	0.00	0.00	7.60	0.45	0.04	0.03
2.50	0.11	0.00	0.00	7.70	0.45	0.04	0.03
2.60	0.12	0.00	0.00	7.80	0.46	0.04	0.03
2.70	0.12	0.00	0.00	7.90	0.47	0.05	0.04
2.80	0.13	0.00	0.00	8.00	0.48	0.05	0.04
2.90	0.13	0.00	0.00	8.10	0.49	0.05	0.04
3.00	0.14	0.00	0.00	8.20	0.50	0.05	0.04
3.10	0.14	0.00	0.00	8.30	0.51	0.06	0.04
3.20	0.15	0.00	0.00	8.40	0.52	0.06	0.05
3.30	0.15	0.00	0.00	8.50	0.53	0.07	0.05
3.40	0.16	0.00	0.00	8.60	0.54	0.07	0.05
3.50	0.16	0.00	0.00	8.70	0.55	0.08	0.06
3.60	0.17	0.00	0.00	8.80	0.56	0.08	0.06
3.70	0.18	0.00	0.00	8.90	0.58	0.09	0.06
3.80	0.18	0.00	0.00	9.00	0.59	0.09	0.07
3.90	0.19	0.00	0.00	9.10	0.60	0.10	0.07
4.00	0.19	0.00	0.00	9.20	0.61	0.10	0.07
4.10	0.20	0.00	0.00	9.30	0.63	0.11	0.07
4.20	0.20	0.00	0.00	9.40	0.64	0.11	0.08
4.30	0.21	0.00	0.00	9.50	0.65	0.12	0.08
4.40	0.22	0.00	0.00	9.60	0.67	0.13	0.08
4.50	0.22	0.00	0.00	9.70	0.68	0.13	0.08
4.60	0.23	0.00	0.00	9.80	0.69	0.14	0.09
4.70	0.23	0.00	0.00	9.90	0.71	0.15	0.10
4.80	0.24	0.00	0.00	10.00	0.72	0.16	0.10
4.90	0.25	0.00	0.00	10.10	0.74	0.16	0.11
5.00	0.25	0.00	0.00	10.20	0.76	0.17	0.12
5.10	0.26	0.00	0.00	10.30	0.78	0.18	0.13

Hydrograph for Subcatchment 28S: Cell 10 (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
10.40	0.80	0.20	0.13	15.60	3.48	2.43	0.13
10.50	0.82	0.21	0.14	15.70	3.49	2.44	0.12
10.60	0.84	0.22	0.15	15.80	3.50	2.45	0.12
10.70	0.86	0.23	0.17	15.90	3.51	2.46	0.12
10.80	0.89	0.25	0.18	16.00	3.52	2.47	0.11
10.90	0.91	0.26	0.20	16.10	3.53	2.48	0.11
11.00	0.94	0.28	0.22	16.20	3.54	2.48	0.11
11.10	0.97	0.30	0.24	16.30	3.55	2.49	0.11
11.20	1.01	0.32	0.27	16.40	3.56	2.50	0.11
11.30	1.04	0.35	0.31	16.50	3.56	2.51	0.11
11.40	1.09	0.38	0.35	16.60	3.57	2.52	0.10
11.50	1.13	0.41	0.39	16.70	3.58	2.52	0.10
11.60	1.23	0.48	0.61	16.80	3.59	2.53	0.10
11.70	1.42	0.62	1.41	16.90	3.60	2.54	0.10
11.80	1.72	0.86	2.44	17.00	3.61	2.55	0.10
11.90	2.27	1.33	**4.68**	17.10	3.62	2.56	0.10
12.00	2.65	1.67	**5.77**	17.20	3.62	2.56	0.10
12.10	2.73	1.74	1.75	17.30	3.63	2.57	0.10
12.20	2.79	1.80	0.88	17.40	3.64	2.58	0.09
12.30	2.85	1.85	0.71	17.50	3.65	2.59	0.09
12.40	2.90	1.89	0.61	17.60	3.65	2.59	0.09
12.50	2.94	1.93	0.50	17.70	3.66	2.60	0.09
12.60	2.97	1.96	0.42	17.80	3.67	2.61	0.09
12.70	3.01	1.99	0.38	17.90	3.68	2.61	0.09
12.80	3.04	2.02	0.36	18.00	3.68	2.62	0.09
12.90	3.06	2.04	0.33	18.10	3.69	2.63	0.09
13.00	3.09	2.07	0.31	18.20	3.70	2.63	0.09
13.10	3.11	2.09	0.29	18.30	3.71	2.64	0.08
13.20	3.13	2.11	0.27	18.40	3.71	2.65	0.08
13.30	3.16	2.13	0.26	18.50	3.72	2.65	0.08
13.40	3.18	2.15	0.25	18.60	3.73	2.66	0.08
13.50	3.20	2.16	0.23	18.70	3.73	2.67	0.08
13.60	3.21	2.18	0.22	18.80	3.74	2.67	0.08
13.70	3.23	2.20	0.21	18.90	3.74	2.68	0.08
13.80	3.25	2.21	0.20	19.00	3.75	2.68	0.08
13.90	3.26	2.23	0.19	19.10	3.76	2.69	0.07
14.00	3.28	2.24	0.18	19.20	3.76	2.70	0.07
14.10	3.29	2.26	0.18	19.30	3.77	2.70	0.07
14.20	3.31	2.27	0.17	19.40	3.77	2.71	0.07
14.30	3.32	2.28	0.17	19.50	3.78	2.71	0.07
14.40	3.34	2.30	0.17	19.60	3.79	2.72	0.07
14.50	3.35	2.31	0.16	19.70	3.79	2.72	0.07
14.60	3.36	2.32	0.16	19.80	3.80	2.73	0.07
14.70	3.38	2.33	0.16	19.90	3.80	2.73	0.06
14.80	3.39	2.34	0.15	20.00	3.81	2.74	0.06
14.90	3.40	2.36	0.15	20.10	3.81	2.74	0.06
15.00	3.41	2.37	0.15	20.20	3.82	2.75	0.06
15.10	3.43	2.38	0.14	20.30	3.82	2.75	0.06
15.20	3.44	2.39	0.14	20.40	3.83	2.76	0.06
15.30	3.45	2.40	0.14	20.50	3.83	2.76	0.06
15.40	3.46	2.41	0.13	20.60	3.84	2.77	0.06
15.50	3.47	2.42	0.13	20.70	3.84	2.77	0.06

Hydrograph for Subcatchment 28S: Cell 10 (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
20.80	3.85	2.78	0.06	26.00	4.00	2.92	0.00
20.90	3.85	2.78	0.06	26.10	4.00	2.92	0.00
21.00	3.86	2.79	0.06	26.20	4.00	2.92	0.00
21.10	3.86	2.79	0.06	26.30	4.00	2.92	0.00
21.20	3.87	2.80	0.06	26.40	4.00	2.92	0.00
21.30	3.87	2.80	0.06	26.50	4.00	2.92	0.00
21.40	3.88	2.80	0.06	26.60	4.00	2.92	0.00
21.50	3.88	2.81	0.06	26.70	4.00	2.92	0.00
21.60	3.89	2.81	0.06	26.80	4.00	2.92	0.00
21.70	3.89	2.82	0.06	26.90	4.00	2.92	0.00
21.80	3.90	2.82	0.06	27.00	4.00	2.92	0.00
21.90	3.90	2.83	0.06	27.10	4.00	2.92	0.00
22.00	3.91	2.83	0.06	27.20	4.00	2.92	0.00
22.10	3.91	2.84	0.06	27.30	4.00	2.92	0.00
22.20	3.92	2.84	0.06	27.40	4.00	2.92	0.00
22.30	3.92	2.85	0.06	27.50	4.00	2.92	0.00
22.40	3.93	2.85	0.06	27.60	4.00	2.92	0.00
22.50	3.93	2.85	0.06	27.70	4.00	2.92	0.00
22.60	3.94	2.86	0.06	27.80	4.00	2.92	0.00
22.70	3.94	2.86	0.06	27.90	4.00	2.92	0.00
22.80	3.95	2.87	0.06	28.00	4.00	2.92	0.00
22.90	3.95	2.87	0.06	28.10	4.00	2.92	0.00
23.00	3.95	2.88	0.06	28.20	4.00	2.92	0.00
23.10	3.96	2.88	0.06	28.30	4.00	2.92	0.00
23.20	3.96	2.89	0.06	28.40	4.00	2.92	0.00
23.30	3.97	2.89	0.06	28.50	4.00	2.92	0.00
23.40	3.97	2.89	0.05	28.60	4.00	2.92	0.00
23.50	3.98	2.90	0.05	28.70	4.00	2.92	0.00
23.60	3.98	2.90	0.05	28.80	4.00	2.92	0.00
23.70	3.99	2.91	0.05	28.90	4.00	2.92	0.00
23.80	3.99	2.91	0.05	29.00	4.00	2.92	0.00
23.90	4.00	2.92	0.05	29.10	4.00	2.92	0.00
24.00	**4.00**	**2.92**	0.05	29.20	4.00	2.92	0.00
24.10	4.00	2.92	0.02	29.30	4.00	2.92	0.00
24.20	4.00	2.92	0.00	29.40	4.00	2.92	0.00
24.30	4.00	2.92	0.00	29.50	4.00	2.92	0.00
24.40	4.00	2.92	0.00	29.60	4.00	2.92	0.00
24.50	4.00	2.92	0.00	29.70	4.00	2.92	0.00
24.60	4.00	2.92	0.00	29.80	4.00	2.92	0.00
24.70	4.00	2.92	0.00	29.90	4.00	2.92	0.00
24.80	4.00	2.92	0.00	30.00	4.00	2.92	0.00
24.90	4.00	2.92	0.00	30.10	4.00	2.92	0.00
25.00	4.00	2.92	0.00	30.20	4.00	2.92	0.00
25.10	4.00	2.92	0.00	30.30	4.00	2.92	0.00
25.20	4.00	2.92	0.00	30.40	4.00	2.92	0.00
25.30	4.00	2.92	0.00	30.50	4.00	2.92	0.00
25.40	4.00	2.92	0.00	30.60	4.00	2.92	0.00
25.50	4.00	2.92	0.00	30.70	4.00	2.92	0.00
25.60	4.00	2.92	0.00	30.80	4.00	2.92	0.00
25.70	4.00	2.92	0.00	30.90	4.00	2.92	0.00
25.80	4.00	2.92	0.00	31.00	4.00	2.92	0.00
25.90	4.00	2.92	0.00	31.10	4.00	2.92	0.00

Hydrograph for Subcatchment 28S: Cell 10 (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
31.20	4.00	2.92	0.00	36.40	4.00	2.92	0.00
31.30	4.00	2.92	0.00	36.50	4.00	2.92	0.00
31.40	4.00	2.92	0.00	36.60	4.00	2.92	0.00
31.50	4.00	2.92	0.00	36.70	4.00	2.92	0.00
31.60	4.00	2.92	0.00	36.80	4.00	2.92	0.00
31.70	4.00	2.92	0.00	36.90	4.00	2.92	0.00
31.80	4.00	2.92	0.00	37.00	4.00	2.92	0.00
31.90	4.00	2.92	0.00	37.10	4.00	2.92	0.00
32.00	4.00	2.92	0.00	37.20	4.00	2.92	0.00
32.10	4.00	2.92	0.00	37.30	4.00	2.92	0.00
32.20	4.00	2.92	0.00	37.40	4.00	2.92	0.00
32.30	4.00	2.92	0.00	37.50	4.00	2.92	0.00
32.40	4.00	2.92	0.00	37.60	4.00	2.92	0.00
32.50	4.00	2.92	0.00	37.70	4.00	2.92	0.00
32.60	4.00	2.92	0.00	37.80	4.00	2.92	0.00
32.70	4.00	2.92	0.00	37.90	4.00	2.92	0.00
32.80	4.00	2.92	0.00	38.00	4.00	2.92	0.00
32.90	4.00	2.92	0.00	38.10	4.00	2.92	0.00
33.00	4.00	2.92	0.00	38.20	4.00	2.92	0.00
33.10	4.00	2.92	0.00	38.30	4.00	2.92	0.00
33.20	4.00	2.92	0.00	38.40	4.00	2.92	0.00
33.30	4.00	2.92	0.00	38.50	4.00	2.92	0.00
33.40	4.00	2.92	0.00	38.60	4.00	2.92	0.00
33.50	4.00	2.92	0.00	38.70	4.00	2.92	0.00
33.60	4.00	2.92	0.00	38.80	4.00	2.92	0.00
33.70	4.00	2.92	0.00	38.90	4.00	2.92	0.00
33.80	4.00	2.92	0.00	39.00	4.00	2.92	0.00
33.90	4.00	2.92	0.00	39.10	4.00	2.92	0.00
34.00	4.00	2.92	0.00	39.20	4.00	2.92	0.00
34.10	4.00	2.92	0.00	39.30	4.00	2.92	0.00
34.20	4.00	2.92	0.00	39.40	4.00	2.92	0.00
34.30	4.00	2.92	0.00	39.50	4.00	2.92	0.00
34.40	4.00	2.92	0.00	39.60	4.00	2.92	0.00
34.50	4.00	2.92	0.00	39.70	4.00	2.92	0.00
34.60	4.00	2.92	0.00	39.80	4.00	2.92	0.00
34.70	4.00	2.92	0.00	39.90	4.00	2.92	0.00
34.80	4.00	2.92	0.00	40.00	4.00	2.92	0.00
34.90	4.00	2.92	0.00	40.10	4.00	2.92	0.00
35.00	4.00	2.92	0.00	40.20	4.00	2.92	0.00
35.10	4.00	2.92	0.00	40.30	4.00	2.92	0.00
35.20	4.00	2.92	0.00	40.40	4.00	2.92	0.00
35.30	4.00	2.92	0.00	40.50	4.00	2.92	0.00
35.40	4.00	2.92	0.00	40.60	4.00	2.92	0.00
35.50	4.00	2.92	0.00	40.70	4.00	2.92	0.00
35.60	4.00	2.92	0.00	40.80	4.00	2.92	0.00
35.70	4.00	2.92	0.00	40.90	4.00	2.92	0.00
35.80	4.00	2.92	0.00	41.00	4.00	2.92	0.00
35.90	4.00	2.92	0.00	41.10	4.00	2.92	0.00
36.00	4.00	2.92	0.00	41.20	4.00	2.92	0.00
36.10	4.00	2.92	0.00	41.30	4.00	2.92	0.00
36.20	4.00	2.92	0.00	41.40	4.00	2.92	0.00
36.30	4.00	2.92	0.00	41.50	4.00	2.92	0.00

Hydrograph for Subcatchment 28S: Cell 10 (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
41.60	4.00	2.92	0.00	46.80	4.00	2.92	0.00
41.70	4.00	2.92	0.00	46.90	4.00	2.92	0.00
41.80	4.00	2.92	0.00	47.00	4.00	2.92	0.00
41.90	4.00	2.92	0.00	47.10	4.00	2.92	0.00
42.00	4.00	2.92	0.00	47.20	4.00	2.92	0.00
42.10	4.00	2.92	0.00	47.30	4.00	2.92	0.00
42.20	4.00	2.92	0.00	47.40	4.00	2.92	0.00
42.30	4.00	2.92	0.00	47.50	4.00	2.92	0.00
42.40	4.00	2.92	0.00	47.60	4.00	2.92	0.00
42.50	4.00	2.92	0.00	47.70	4.00	2.92	0.00
42.60	4.00	2.92	0.00	47.80	4.00	2.92	0.00
42.70	4.00	2.92	0.00	47.90	4.00	2.92	0.00
42.80	4.00	2.92	0.00	48.00	4.00	2.92	0.00
42.90	4.00	2.92	0.00	48.10	4.00	2.92	0.00
43.00	4.00	2.92	0.00	48.20	4.00	2.92	0.00
43.10	4.00	2.92	0.00	48.30	4.00	2.92	0.00
43.20	4.00	2.92	0.00	48.40	4.00	2.92	0.00
43.30	4.00	2.92	0.00	48.50	4.00	2.92	0.00
43.40	4.00	2.92	0.00	48.60	4.00	2.92	0.00
43.50	4.00	2.92	0.00	48.70	4.00	2.92	0.00
43.60	4.00	2.92	0.00	48.80	4.00	2.92	0.00
43.70	4.00	2.92	0.00	48.90	4.00	2.92	0.00
43.80	4.00	2.92	0.00	49.00	4.00	2.92	0.00
43.90	4.00	2.92	0.00	49.10	4.00	2.92	0.00
44.00	4.00	2.92	0.00	49.20	4.00	2.92	0.00
44.10	4.00	2.92	0.00	49.30	4.00	2.92	0.00
44.20	4.00	2.92	0.00	49.40	4.00	2.92	0.00
44.30	4.00	2.92	0.00	49.50	4.00	2.92	0.00
44.40	4.00	2.92	0.00	49.60	4.00	2.92	0.00
44.50	4.00	2.92	0.00	49.70	4.00	2.92	0.00
44.60	4.00	2.92	0.00	49.80	4.00	2.92	0.00
44.70	4.00	2.92	0.00	49.90	4.00	2.92	0.00
44.80	4.00	2.92	0.00	50.00	4.00	2.92	0.00
44.90	4.00	2.92	0.00	50.10	4.00	2.92	0.00
45.00	4.00	2.92	0.00	50.20	4.00	2.92	0.00
45.10	4.00	2.92	0.00	50.30	4.00	2.92	0.00
45.20	4.00	2.92	0.00	50.40	4.00	2.92	0.00
45.30	4.00	2.92	0.00	50.50	4.00	2.92	0.00
45.40	4.00	2.92	0.00	50.60	4.00	2.92	0.00
45.50	4.00	2.92	0.00	50.70	4.00	2.92	0.00
45.60	4.00	2.92	0.00	50.80	4.00	2.92	0.00
45.70	4.00	2.92	0.00	50.90	4.00	2.92	0.00
45.80	4.00	2.92	0.00	51.00	4.00	2.92	0.00
45.90	4.00	2.92	0.00	51.10	4.00	2.92	0.00
46.00	4.00	2.92	0.00	51.20	4.00	2.92	0.00
46.10	4.00	2.92	0.00	51.30	4.00	2.92	0.00
46.20	4.00	2.92	0.00	51.40	4.00	2.92	0.00
46.30	4.00	2.92	0.00	51.50	4.00	2.92	0.00
46.40	4.00	2.92	0.00	51.60	4.00	2.92	0.00
46.50	4.00	2.92	0.00	51.70	4.00	2.92	0.00
46.60	4.00	2.92	0.00	51.80	4.00	2.92	0.00
46.70	4.00	2.92	0.00	51.90	4.00	2.92	0.00

Hydrograph for Subcatchment 28S: Cell 10 (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
52.00	4.00	2.92	0.00
52.10	4.00	2.92	0.00
52.20	4.00	2.92	0.00
52.30	4.00	2.92	0.00
52.40	4.00	2.92	0.00
52.50	4.00	2.92	0.00
52.60	4.00	2.92	0.00
52.70	4.00	2.92	0.00
52.80	4.00	2.92	0.00
52.90	4.00	2.92	0.00
53.00	4.00	2.92	0.00
53.10	4.00	2.92	0.00
53.20	4.00	2.92	0.00
53.30	4.00	2.92	0.00
53.40	4.00	2.92	0.00
53.50	4.00	2.92	0.00
53.60	4.00	2.92	0.00
53.70	4.00	2.92	0.00
53.80	4.00	2.92	0.00
53.90	4.00	2.92	0.00
54.00	4.00	2.92	0.00
54.10	4.00	2.92	0.00
54.20	4.00	2.92	0.00
54.30	4.00	2.92	0.00
54.40	4.00	2.92	0.00
54.50	4.00	2.92	0.00
54.60	4.00	2.92	0.00
54.70	4.00	2.92	0.00
54.80	4.00	2.92	0.00
54.90	4.00	2.92	0.00
55.00	4.00	2.92	0.00
55.10	4.00	2.92	0.00
55.20	4.00	2.92	0.00
55.30	4.00	2.92	0.00
55.40	4.00	2.92	0.00
55.50	4.00	2.92	0.00
55.60	4.00	2.92	0.00
55.70	4.00	2.92	0.00
55.80	4.00	2.92	0.00
55.90	4.00	2.92	0.00
56.00	4.00	2.92	0.00
56.10	4.00	2.92	0.00
56.20	4.00	2.92	0.00
56.30	4.00	2.92	0.00
56.40	4.00	2.92	0.00
56.50	4.00	2.92	0.00
56.60	4.00	2.92	0.00
56.70	4.00	2.92	0.00
56.80	4.00	2.92	0.00
56.90	4.00	2.92	0.00
57.00	4.00	2.92	0.00
57.10	4.00	2.92	0.00
57.20	4.00	2.92	0.00
57.30	4.00	2.92	0.00
57.40	4.00	2.92	0.00
57.50	4.00	2.92	0.00
57.60	4.00	2.92	0.00
57.70	4.00	2.92	0.00
57.80	4.00	2.92	0.00
57.90	4.00	2.92	0.00
58.00	4.00	2.92	0.00
58.10	4.00	2.92	0.00
58.20	4.00	2.92	0.00
58.30	4.00	2.92	0.00
58.40	4.00	2.92	0.00
58.50	4.00	2.92	0.00
58.60	4.00	2.92	0.00
58.70	4.00	2.92	0.00
58.80	4.00	2.92	0.00
58.90	4.00	2.92	0.00
59.00	4.00	2.92	0.00
59.10	4.00	2.92	0.00
59.20	4.00	2.92	0.00
59.30	4.00	2.92	0.00
59.40	4.00	2.92	0.00
59.50	4.00	2.92	0.00
59.60	4.00	2.92	0.00
59.70	4.00	2.92	0.00
59.80	4.00	2.92	0.00
59.90	4.00	2.92	0.00
60.00	4.00	2.92	0.00

Summary for Pond 27P: Cell 10 Perimeter

Inflow Area = 1.265 ac, 0.00% Impervious, Inflow Depth = 2.92"
Inflow = 6.26 cfs @ 11.97 hrs, Volume= 0.308 af
Outflow = 4.42 cfs @ 12.03 hrs, Volume= 0.308 af, Atten= 29%, Lag= 3.7 min
Primary = 4.42 cfs @ 12.03 hrs, Volume= 0.308 af

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 329.56' @ 12.03 hrs Surf.Area= 0 sf Storage= 2,225 cf

Plug-Flow detention time= 10.1 min calculated for 0.308 af (100% of inflow)
Center-of-Mass det. time= 10.1 min (805.5 - 795.4)

Volume	Invert	Avail.Storage	Storage Description
#1	326.93'	6,718 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
326.93	0
328.00	178
329.00	1,026
330.00	3,168
331.00	6,718

Device	Routing	Invert	Outlet Devices
#1	Primary	326.93'	**Special & User-Defined** Elev. (feet) 326.93 328.00 329.00 330.00 331.00 Disch. (cfs) 0.000 0.250 1.990 6.330 12.000

Primary OutFlow Max=4.42 cfs @ 12.03 hrs HW=329.56' (Free Discharge)
↑—**1=Special & User-Defined** (Custom Controls 4.42 cfs)

Hydrograph for Pond 27P: Cell 10 Perimeter

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	326.93	0.00
0.20	0.00	0	326.93	0.00
0.40	0.00	0	326.93	0.00
0.60	0.00	0	326.93	0.00
0.80	0.00	0	326.93	0.00
1.00	0.00	0	326.93	0.00
1.20	0.00	0	326.93	0.00
1.40	0.00	0	326.93	0.00
1.60	0.00	0	326.93	0.00
1.80	0.00	0	326.93	0.00
2.00	0.00	0	326.93	0.00
2.20	0.00	0	326.93	0.00
2.40	0.00	0	326.93	0.00
2.60	0.00	0	326.93	0.00
2.80	0.00	0	326.93	0.00
3.00	0.00	0	326.93	0.00
3.20	0.00	0	326.93	0.00
3.40	0.00	0	326.93	0.00
3.60	0.00	0	326.93	0.00
3.80	0.00	0	326.93	0.00
4.00	0.00	0	326.93	0.00
4.20	0.00	0	326.93	0.00
4.40	0.00	0	326.93	0.00
4.60	0.00	0	326.93	0.00
4.80	0.00	0	326.93	0.00
5.00	0.00	1	326.94	0.00
5.20	0.01	2	326.94	0.00
5.40	0.01	4	326.95	0.01
5.60	0.01	5	326.96	0.01
5.80	0.01	7	326.97	0.01
6.00	0.01	8	326.98	0.01
6.20	0.02	9	326.99	0.01
6.40	0.02	11	327.00	0.02
6.60	0.02	13	327.01	0.02
6.80	0.02	14	327.02	0.02
7.00	0.02	16	327.03	0.02
7.20	0.03	18	327.04	0.02
7.40	0.03	19	327.05	0.03
7.60	0.03	21	327.06	0.03
7.80	0.03	23	327.07	0.03
8.00	0.04	25	327.08	0.03
8.20	0.04	27	327.09	0.04
8.40	0.05	30	327.11	0.04
8.60	0.05	34	327.13	0.05
8.80	0.06	38	327.16	0.05
9.00	0.07	43	327.19	0.06
9.20	0.07	48	327.22	0.07
9.40	0.08	51	327.24	0.07
9.60	0.08	54	327.25	0.08
9.80	0.09	58	327.28	0.08
10.00	0.10	65	327.32	0.09
10.20	0.12	73	327.37	0.10

Hydrograph for Pond 27P: Cell 10 Perimeter (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
10.40	0.13	84	327.44	0.12
10.60	0.15	96	327.51	0.14
10.80	0.18	113	327.61	0.16
11.00	0.22	133	327.73	0.19
11.20	0.27	159	327.88	0.22
11.40	0.35	198	328.02	0.29
11.60	0.61	251	328.09	0.40
11.80	**2.44**	726	328.65	1.37
12.00	**5.77**	**2,134**	**329.52**	**4.24**
12.20	0.88	**1,233**	**329.10**	**2.41**
12.40	0.61	586	328.48	1.09
12.60	0.42	359	328.21	0.62
12.80	0.36	267	328.10	0.43
13.00	0.31	227	328.06	0.35
13.20	0.27	202	328.03	0.30
13.40	0.25	186	328.01	0.27
13.60	0.22	172	327.97	0.24
13.80	0.20	158	327.88	0.22
14.00	0.18	144	327.80	0.20
14.20	0.17	132	327.72	0.19
14.40	0.17	124	327.68	0.17
14.60	0.16	118	327.64	0.17
14.80	0.15	113	327.61	0.16
15.00	0.15	109	327.58	0.15
15.20	0.14	104	327.55	0.15
15.40	0.13	99	327.53	0.14
15.60	0.13	94	327.50	0.13
15.80	0.12	90	327.47	0.13
16.00	0.11	85	327.44	0.12
16.20	0.11	81	327.42	0.11
16.40	0.11	78	327.40	0.11
16.60	0.10	76	327.39	0.11
16.80	0.10	74	327.38	0.10
17.00	0.10	72	327.37	0.10
17.20	0.10	71	327.35	0.10
17.40	0.09	69	327.34	0.10
17.60	0.09	67	327.33	0.09
17.80	0.09	66	327.32	0.09
18.00	0.09	64	327.31	0.09
18.20	0.09	62	327.30	0.09
18.40	0.08	61	327.29	0.09
18.60	0.08	59	327.28	0.08
18.80	0.08	57	327.27	0.08
19.00	0.08	56	327.26	0.08
19.20	0.07	54	327.25	0.08
19.40	0.07	52	327.24	0.07
19.60	0.07	50	327.23	0.07
19.80	0.07	49	327.22	0.07
20.00	0.06	47	327.21	0.07
20.20	0.06	46	327.20	0.06
20.40	0.06	45	327.20	0.06
20.60	0.06	44	327.20	0.06

Hydrograph for Pond 27P: Cell 10 Perimeter (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
20.80	0.06	44	327.19	0.06
21.00	0.06	43	327.19	0.06
21.20	0.06	43	327.19	0.06
21.40	0.06	43	327.19	0.06
21.60	0.06	42	327.18	0.06
21.80	0.06	42	327.18	0.06
22.00	0.06	42	327.18	0.06
22.20	0.06	41	327.18	0.06
22.40	0.06	41	327.18	0.06
22.60	0.06	41	327.17	0.06
22.80	0.06	40	327.17	0.06
23.00	0.06	40	327.17	0.06
23.20	0.06	40	327.17	0.06
23.40	0.05	39	327.17	0.06
23.60	0.05	39	327.16	0.05
23.80	0.05	39	327.16	0.05
24.00	0.05	38	327.16	0.05
24.20	0.00	23	327.07	0.03
24.40	0.00	8	326.98	0.01
24.60	0.00	3	326.95	0.00
24.80	0.00	1	326.94	0.00
25.00	0.00	0	326.93	0.00
25.20	0.00	0	326.93	0.00
25.40	0.00	0	326.93	0.00
25.60	0.00	0	326.93	0.00
25.80	0.00	0	326.93	0.00
26.00	0.00	0	326.93	0.00
26.20	0.00	0	326.93	0.00
26.40	0.00	0	326.93	0.00
26.60	0.00	0	326.93	0.00
26.80	0.00	0	326.93	0.00
27.00	0.00	0	326.93	0.00
27.20	0.00	0	326.93	0.00
27.40	0.00	0	326.93	0.00
27.60	0.00	0	326.93	0.00
27.80	0.00	0	326.93	0.00
28.00	0.00	0	326.93	0.00
28.20	0.00	0	326.93	0.00
28.40	0.00	0	326.93	0.00
28.60	0.00	0	326.93	0.00
28.80	0.00	0	326.93	0.00
29.00	0.00	0	326.93	0.00
29.20	0.00	0	326.93	0.00
29.40	0.00	0	326.93	0.00
29.60	0.00	0	326.93	0.00
29.80	0.00	0	326.93	0.00
30.00	0.00	0	326.93	0.00
30.20	0.00	0	326.93	0.00
30.40	0.00	0	326.93	0.00
30.60	0.00	0	326.93	0.00
30.80	0.00	0	326.93	0.00
31.00	0.00	0	326.93	0.00

Hydrograph for Pond 27P: Cell 10 Perimeter (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
31.20	0.00	0	326.93	0.00
31.40	0.00	0	326.93	0.00
31.60	0.00	0	326.93	0.00
31.80	0.00	0	326.93	0.00
32.00	0.00	0	326.93	0.00
32.20	0.00	0	326.93	0.00
32.40	0.00	0	326.93	0.00
32.60	0.00	0	326.93	0.00
32.80	0.00	0	326.93	0.00
33.00	0.00	0	326.93	0.00
33.20	0.00	0	326.93	0.00
33.40	0.00	0	326.93	0.00
33.60	0.00	0	326.93	0.00
33.80	0.00	0	326.93	0.00
34.00	0.00	0	326.93	0.00
34.20	0.00	0	326.93	0.00
34.40	0.00	0	326.93	0.00
34.60	0.00	0	326.93	0.00
34.80	0.00	0	326.93	0.00
35.00	0.00	0	326.93	0.00
35.20	0.00	0	326.93	0.00
35.40	0.00	0	326.93	0.00
35.60	0.00	0	326.93	0.00
35.80	0.00	0	326.93	0.00
36.00	0.00	0	326.93	0.00
36.20	0.00	0	326.93	0.00
36.40	0.00	0	326.93	0.00
36.60	0.00	0	326.93	0.00
36.80	0.00	0	326.93	0.00
37.00	0.00	0	326.93	0.00
37.20	0.00	0	326.93	0.00
37.40	0.00	0	326.93	0.00
37.60	0.00	0	326.93	0.00
37.80	0.00	0	326.93	0.00
38.00	0.00	0	326.93	0.00
38.20	0.00	0	326.93	0.00
38.40	0.00	0	326.93	0.00
38.60	0.00	0	326.93	0.00
38.80	0.00	0	326.93	0.00
39.00	0.00	0	326.93	0.00
39.20	0.00	0	326.93	0.00
39.40	0.00	0	326.93	0.00
39.60	0.00	0	326.93	0.00
39.80	0.00	0	326.93	0.00
40.00	0.00	0	326.93	0.00
40.20	0.00	0	326.93	0.00
40.40	0.00	0	326.93	0.00
40.60	0.00	0	326.93	0.00
40.80	0.00	0	326.93	0.00
41.00	0.00	0	326.93	0.00
41.20	0.00	0	326.93	0.00
41.40	0.00	0	326.93	0.00

Hydrograph for Pond 27P: Cell 10 Perimeter (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
41.60	0.00	0	326.93	0.00
41.80	0.00	0	326.93	0.00
42.00	0.00	0	326.93	0.00
42.20	0.00	0	326.93	0.00
42.40	0.00	0	326.93	0.00
42.60	0.00	0	326.93	0.00
42.80	0.00	0	326.93	0.00
43.00	0.00	0	326.93	0.00
43.20	0.00	0	326.93	0.00
43.40	0.00	0	326.93	0.00
43.60	0.00	0	326.93	0.00
43.80	0.00	0	326.93	0.00
44.00	0.00	0	326.93	0.00
44.20	0.00	0	326.93	0.00
44.40	0.00	0	326.93	0.00
44.60	0.00	0	326.93	0.00
44.80	0.00	0	326.93	0.00
45.00	0.00	0	326.93	0.00
45.20	0.00	0	326.93	0.00
45.40	0.00	0	326.93	0.00
45.60	0.00	0	326.93	0.00
45.80	0.00	0	326.93	0.00
46.00	0.00	0	326.93	0.00
46.20	0.00	0	326.93	0.00
46.40	0.00	0	326.93	0.00
46.60	0.00	0	326.93	0.00
46.80	0.00	0	326.93	0.00
47.00	0.00	0	326.93	0.00
47.20	0.00	0	326.93	0.00
47.40	0.00	0	326.93	0.00
47.60	0.00	0	326.93	0.00
47.80	0.00	0	326.93	0.00
48.00	0.00	0	326.93	0.00
48.20	0.00	0	326.93	0.00
48.40	0.00	0	326.93	0.00
48.60	0.00	0	326.93	0.00
48.80	0.00	0	326.93	0.00
49.00	0.00	0	326.93	0.00
49.20	0.00	0	326.93	0.00
49.40	0.00	0	326.93	0.00
49.60	0.00	0	326.93	0.00
49.80	0.00	0	326.93	0.00
50.00	0.00	0	326.93	0.00
50.20	0.00	0	326.93	0.00
50.40	0.00	0	326.93	0.00
50.60	0.00	0	326.93	0.00
50.80	0.00	0	326.93	0.00
51.00	0.00	0	326.93	0.00
51.20	0.00	0	326.93	0.00
51.40	0.00	0	326.93	0.00
51.60	0.00	0	326.93	0.00
51.80	0.00	0	326.93	0.00

Hydrograph for Pond 27P: Cell 10 Perimeter (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
52.00	0.00	0	326.93	0.00
52.20	0.00	0	326.93	0.00
52.40	0.00	0	326.93	0.00
52.60	0.00	0	326.93	0.00
52.80	0.00	0	326.93	0.00
53.00	0.00	0	326.93	0.00
53.20	0.00	0	326.93	0.00
53.40	0.00	0	326.93	0.00
53.60	0.00	0	326.93	0.00
53.80	0.00	0	326.93	0.00
54.00	0.00	0	326.93	0.00
54.20	0.00	0	326.93	0.00
54.40	0.00	0	326.93	0.00
54.60	0.00	0	326.93	0.00
54.80	0.00	0	326.93	0.00
55.00	0.00	0	326.93	0.00
55.20	0.00	0	326.93	0.00
55.40	0.00	0	326.93	0.00
55.60	0.00	0	326.93	0.00
55.80	0.00	0	326.93	0.00
56.00	0.00	0	326.93	0.00
56.20	0.00	0	326.93	0.00
56.40	0.00	0	326.93	0.00
56.60	0.00	0	326.93	0.00
56.80	0.00	0	326.93	0.00
57.00	0.00	0	326.93	0.00
57.20	0.00	0	326.93	0.00
57.40	0.00	0	326.93	0.00
57.60	0.00	0	326.93	0.00
57.80	0.00	0	326.93	0.00
58.00	0.00	0	326.93	0.00
58.20	0.00	0	326.93	0.00
58.40	0.00	0	326.93	0.00
58.60	0.00	0	326.93	0.00
58.80	0.00	0	326.93	0.00
59.00	0.00	0	326.93	0.00
59.20	0.00	0	326.93	0.00
59.40	0.00	0	326.93	0.00
59.60	0.00	0	326.93	0.00
59.80	0.00	0	326.93	0.00
60.00	0.00	0	326.93	0.00

Cell 12 Perimeter Channel

CWM Chemical Services, LLC
Model City, NY
RMU-1 Cell 12 Perimeter Channel
Rating Curve for Infiltration into Cell 12/14

Elevation [ft]	Planimetric Area[1] [sq. ft.]	Cumulative Volume [ft^3]	Operations Layer Area Subject to Infiltration[2] [ft^2]	Hydraulic Gradient[3]	Flowrate (Darcy's Law)[4] [cfs]
329.67	0	0	0	0.00	0.00
330.00	331	55	209	0.16	0.08
331.00	1582	1011	1000	0.66	1.48
332.00	2856	3230	1806	1.16	4.69
333.00	4134	6725	2614	1.66	9.71

Notes:

1. Obtained by direct measurement of area within contours from the Cells 1 Through 14 Fill Progression Plan (ARCADIS, March 2009).
2. Equal to 0.6 times the planimetric area times the 3:1 slope correction factor. The 0.6 factor accounts for the fact that 60% of the plan area of a v-notch channel with 3:1 and 2:1 sideslopes is represented by the 3:1 sideslope, which is subject to infiltration.
3. Equal to the elevation above the low point (329.67) divided by two times the thickness of the operations layer (i.e. 1 ft).
4. Based on hydraulic conductivity of operations stone equal to 6.8×10^{-2} cm/s.
5. Lowest lined elevation for channel is 332.32 based on as-built top of secondary soil drawing.

Summary for Subcatchment 12S: Cell 12

Runoff = 2.90 cfs @ 11.97 hrs, Volume= 0.143 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.586	90	
	0.586		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Hydrograph for Subcatchment 12S: Cell 12

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	5.20	0.26	0.00	0.00
0.10	0.00	0.00	0.00	5.30	0.27	0.00	0.00
0.20	0.01	0.00	0.00	5.40	0.28	0.00	0.00
0.30	0.01	0.00	0.00	5.50	0.28	0.00	0.00
0.40	0.02	0.00	0.00	5.60	0.29	0.00	0.00
0.50	0.02	0.00	0.00	5.70	0.30	0.00	0.00
0.60	0.02	0.00	0.00	5.80	0.31	0.01	0.01
0.70	0.03	0.00	0.00	5.90	0.31	0.01	0.01
0.80	0.03	0.00	0.00	6.00	0.32	0.01	0.01
0.90	0.04	0.00	0.00	6.10	0.33	0.01	0.01
1.00	0.04	0.00	0.00	6.20	0.33	0.01	0.01
1.10	0.05	0.00	0.00	6.30	0.34	0.01	0.01
1.20	0.05	0.00	0.00	6.40	0.35	0.01	0.01
1.30	0.06	0.00	0.00	6.50	0.36	0.01	0.01
1.40	0.06	0.00	0.00	6.60	0.36	0.02	0.01
1.50	0.06	0.00	0.00	6.70	0.37	0.02	0.01
1.60	0.07	0.00	0.00	6.80	0.38	0.02	0.01
1.70	0.07	0.00	0.00	6.90	0.39	0.02	0.01
1.80	0.08	0.00	0.00	7.00	0.40	0.02	0.01
1.90	0.08	0.00	0.00	7.10	0.40	0.03	0.01
2.00	0.09	0.00	0.00	7.20	0.41	0.03	0.01
2.10	0.09	0.00	0.00	7.30	0.42	0.03	0.01
2.20	0.10	0.00	0.00	7.40	0.43	0.03	0.01
2.30	0.10	0.00	0.00	7.50	0.44	0.03	0.01
2.40	0.11	0.00	0.00	7.60	0.45	0.04	0.01
2.50	0.11	0.00	0.00	7.70	0.45	0.04	0.02
2.60	0.12	0.00	0.00	7.80	0.46	0.04	0.02
2.70	0.12	0.00	0.00	7.90	0.47	0.05	0.02
2.80	0.13	0.00	0.00	8.00	0.48	0.05	0.02
2.90	0.13	0.00	0.00	8.10	0.49	0.05	0.02
3.00	0.14	0.00	0.00	8.20	0.50	0.05	0.02
3.10	0.14	0.00	0.00	8.30	0.51	0.06	0.02
3.20	0.15	0.00	0.00	8.40	0.52	0.06	0.02
3.30	0.15	0.00	0.00	8.50	0.53	0.07	0.02
3.40	0.16	0.00	0.00	8.60	0.54	0.07	0.02
3.50	0.16	0.00	0.00	8.70	0.55	0.08	0.03
3.60	0.17	0.00	0.00	8.80	0.56	0.08	0.03
3.70	0.18	0.00	0.00	8.90	0.58	0.09	0.03
3.80	0.18	0.00	0.00	9.00	0.59	0.09	0.03
3.90	0.19	0.00	0.00	9.10	0.60	0.10	0.03
4.00	0.19	0.00	0.00	9.20	0.61	0.10	0.03
4.10	0.20	0.00	0.00	9.30	0.63	0.11	0.03
4.20	0.20	0.00	0.00	9.40	0.64	0.11	0.04
4.30	0.21	0.00	0.00	9.50	0.65	0.12	0.04
4.40	0.22	0.00	0.00	9.60	0.67	0.13	0.04
4.50	0.22	0.00	0.00	9.70	0.68	0.13	0.04
4.60	0.23	0.00	0.00	9.80	0.69	0.14	0.04
4.70	0.23	0.00	0.00	9.90	0.71	0.15	0.04
4.80	0.24	0.00	0.00	10.00	0.72	0.16	0.05
4.90	0.25	0.00	0.00	10.10	0.74	0.16	0.05
5.00	0.25	0.00	0.00	10.20	0.76	0.17	0.05
5.10	0.26	0.00	0.00	10.30	0.78	0.18	0.06

Hydrograph for Subcatchment 12S: Cell 12 (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
10.40	0.80	0.20	0.06	15.60	3.48	2.43	0.06
10.50	0.82	0.21	0.07	15.70	3.49	2.44	0.06
10.60	0.84	0.22	0.07	15.80	3.50	2.45	0.06
10.70	0.86	0.23	0.08	15.90	3.51	2.46	0.05
10.80	0.89	0.25	0.09	16.00	3.52	2.47	0.05
10.90	0.91	0.26	0.09	16.10	3.53	2.48	0.05
11.00	0.94	0.28	0.10	16.20	3.54	2.48	0.05
11.10	0.97	0.30	0.11	16.30	3.55	2.49	0.05
11.20	1.01	0.32	0.13	16.40	3.56	2.50	0.05
11.30	1.04	0.35	0.14	16.50	3.56	2.51	0.05
11.40	1.09	0.38	0.16	16.60	3.57	2.52	0.05
11.50	1.13	0.41	0.18	16.70	3.58	2.52	0.05
11.60	1.23	0.48	0.28	16.80	3.59	2.53	0.05
11.70	1.42	0.62	0.65	16.90	3.60	2.54	0.05
11.80	1.72	0.86	1.13	17.00	3.61	2.55	0.05
11.90	2.27	1.33	**2.17**	17.10	3.62	2.56	0.05
12.00	2.65	1.67	**2.67**	17.20	3.62	2.56	0.04
12.10	2.73	1.74	0.81	17.30	3.63	2.57	0.04
12.20	2.79	1.80	0.41	17.40	3.64	2.58	0.04
12.30	2.85	1.85	0.33	17.50	3.65	2.59	0.04
12.40	2.90	1.89	0.28	17.60	3.65	2.59	0.04
12.50	2.94	1.93	0.23	17.70	3.66	2.60	0.04
12.60	2.97	1.96	0.19	17.80	3.67	2.61	0.04
12.70	3.01	1.99	0.18	17.90	3.68	2.61	0.04
12.80	3.04	2.02	0.17	18.00	3.68	2.62	0.04
12.90	3.06	2.04	0.15	18.10	3.69	2.63	0.04
13.00	3.09	2.07	0.14	18.20	3.70	2.63	0.04
13.10	3.11	2.09	0.13	18.30	3.71	2.64	0.04
13.20	3.13	2.11	0.13	18.40	3.71	2.65	0.04
13.30	3.16	2.13	0.12	18.50	3.72	2.65	0.04
13.40	3.18	2.15	0.11	18.60	3.73	2.66	0.04
13.50	3.20	2.16	0.11	18.70	3.73	2.67	0.04
13.60	3.21	2.18	0.10	18.80	3.74	2.67	0.04
13.70	3.23	2.20	0.10	18.90	3.74	2.68	0.04
13.80	3.25	2.21	0.09	19.00	3.75	2.68	0.04
13.90	3.26	2.23	0.09	19.10	3.76	2.69	0.03
14.00	3.28	2.24	0.09	19.20	3.76	2.70	0.03
14.10	3.29	2.26	0.08	19.30	3.77	2.70	0.03
14.20	3.31	2.27	0.08	19.40	3.77	2.71	0.03
14.30	3.32	2.28	0.08	19.50	3.78	2.71	0.03
14.40	3.34	2.30	0.08	19.60	3.79	2.72	0.03
14.50	3.35	2.31	0.08	19.70	3.79	2.72	0.03
14.60	3.36	2.32	0.07	19.80	3.80	2.73	0.03
14.70	3.38	2.33	0.07	19.90	3.80	2.73	0.03
14.80	3.39	2.34	0.07	20.00	3.81	2.74	0.03
14.90	3.40	2.36	0.07	20.10	3.81	2.74	0.03
15.00	3.41	2.37	0.07	20.20	3.82	2.75	0.03
15.10	3.43	2.38	0.07	20.30	3.82	2.75	0.03
15.20	3.44	2.39	0.06	20.40	3.83	2.76	0.03
15.30	3.45	2.40	0.06	20.50	3.83	2.76	0.03
15.40	3.46	2.41	0.06	20.60	3.84	2.77	0.03
15.50	3.47	2.42	0.06	20.70	3.84	2.77	0.03

Hydrograph for Subcatchment 12S: Cell 12 (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
20.80	3.85	2.78	0.03
20.90	3.85	2.78	0.03
21.00	3.86	2.79	0.03
21.10	3.86	2.79	0.03
21.20	3.87	2.80	0.03
21.30	3.87	2.80	0.03
21.40	3.88	2.80	0.03
21.50	3.88	2.81	0.03
21.60	3.89	2.81	0.03
21.70	3.89	2.82	0.03
21.80	3.90	2.82	0.03
21.90	3.90	2.83	0.03
22.00	3.91	2.83	0.03
22.10	3.91	2.84	0.03
22.20	3.92	2.84	0.03
22.30	3.92	2.85	0.03
22.40	3.93	2.85	0.03
22.50	3.93	2.85	0.03
22.60	3.94	2.86	0.03
22.70	3.94	2.86	0.03
22.80	3.95	2.87	0.03
22.90	3.95	2.87	0.03
23.00	3.95	2.88	0.03
23.10	3.96	2.88	0.03
23.20	3.96	2.89	0.03
23.30	3.97	2.89	0.03
23.40	3.97	2.89	0.03
23.50	3.98	2.90	0.03
23.60	3.98	2.90	0.03
23.70	3.99	2.91	0.03
23.80	3.99	2.91	0.02
23.90	4.00	2.92	0.02
24.00	**4.00**	**2.92**	0.02
24.10	4.00	2.92	0.01
24.20	4.00	2.92	0.00
24.30	4.00	2.92	0.00
24.40	4.00	2.92	0.00
24.50	4.00	2.92	0.00
24.60	4.00	2.92	0.00
24.70	4.00	2.92	0.00
24.80	4.00	2.92	0.00
24.90	4.00	2.92	0.00
25.00	4.00	2.92	0.00
25.10	4.00	2.92	0.00
25.20	4.00	2.92	0.00
25.30	4.00	2.92	0.00
25.40	4.00	2.92	0.00
25.50	4.00	2.92	0.00
25.60	4.00	2.92	0.00
25.70	4.00	2.92	0.00
25.80	4.00	2.92	0.00
25.90	4.00	2.92	0.00
26.00	4.00	2.92	0.00
26.10	4.00	2.92	0.00
26.20	4.00	2.92	0.00
26.30	4.00	2.92	0.00
26.40	4.00	2.92	0.00
26.50	4.00	2.92	0.00
26.60	4.00	2.92	0.00
26.70	4.00	2.92	0.00
26.80	4.00	2.92	0.00
26.90	4.00	2.92	0.00
27.00	4.00	2.92	0.00
27.10	4.00	2.92	0.00
27.20	4.00	2.92	0.00
27.30	4.00	2.92	0.00
27.40	4.00	2.92	0.00
27.50	4.00	2.92	0.00
27.60	4.00	2.92	0.00
27.70	4.00	2.92	0.00
27.80	4.00	2.92	0.00
27.90	4.00	2.92	0.00
28.00	4.00	2.92	0.00
28.10	4.00	2.92	0.00
28.20	4.00	2.92	0.00
28.30	4.00	2.92	0.00
28.40	4.00	2.92	0.00
28.50	4.00	2.92	0.00
28.60	4.00	2.92	0.00
28.70	4.00	2.92	0.00
28.80	4.00	2.92	0.00
28.90	4.00	2.92	0.00
29.00	4.00	2.92	0.00
29.10	4.00	2.92	0.00
29.20	4.00	2.92	0.00
29.30	4.00	2.92	0.00
29.40	4.00	2.92	0.00
29.50	4.00	2.92	0.00
29.60	4.00	2.92	0.00
29.70	4.00	2.92	0.00
29.80	4.00	2.92	0.00
29.90	4.00	2.92	0.00
30.00	4.00	2.92	0.00
30.10	4.00	2.92	0.00
30.20	4.00	2.92	0.00
30.30	4.00	2.92	0.00
30.40	4.00	2.92	0.00
30.50	4.00	2.92	0.00
30.60	4.00	2.92	0.00
30.70	4.00	2.92	0.00
30.80	4.00	2.92	0.00
30.90	4.00	2.92	0.00
31.00	4.00	2.92	0.00
31.10	4.00	2.92	0.00

Hydrograph for Subcatchment 12S: Cell 12 (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
31.20	4.00	2.92	0.00	36.40	4.00	2.92	0.00
31.30	4.00	2.92	0.00	36.50	4.00	2.92	0.00
31.40	4.00	2.92	0.00	36.60	4.00	2.92	0.00
31.50	4.00	2.92	0.00	36.70	4.00	2.92	0.00
31.60	4.00	2.92	0.00	36.80	4.00	2.92	0.00
31.70	4.00	2.92	0.00	36.90	4.00	2.92	0.00
31.80	4.00	2.92	0.00	37.00	4.00	2.92	0.00
31.90	4.00	2.92	0.00	37.10	4.00	2.92	0.00
32.00	4.00	2.92	0.00	37.20	4.00	2.92	0.00
32.10	4.00	2.92	0.00	37.30	4.00	2.92	0.00
32.20	4.00	2.92	0.00	37.40	4.00	2.92	0.00
32.30	4.00	2.92	0.00	37.50	4.00	2.92	0.00
32.40	4.00	2.92	0.00	37.60	4.00	2.92	0.00
32.50	4.00	2.92	0.00	37.70	4.00	2.92	0.00
32.60	4.00	2.92	0.00	37.80	4.00	2.92	0.00
32.70	4.00	2.92	0.00	37.90	4.00	2.92	0.00
32.80	4.00	2.92	0.00	38.00	4.00	2.92	0.00
32.90	4.00	2.92	0.00	38.10	4.00	2.92	0.00
33.00	4.00	2.92	0.00	38.20	4.00	2.92	0.00
33.10	4.00	2.92	0.00	38.30	4.00	2.92	0.00
33.20	4.00	2.92	0.00	38.40	4.00	2.92	0.00
33.30	4.00	2.92	0.00	38.50	4.00	2.92	0.00
33.40	4.00	2.92	0.00	38.60	4.00	2.92	0.00
33.50	4.00	2.92	0.00	38.70	4.00	2.92	0.00
33.60	4.00	2.92	0.00	38.80	4.00	2.92	0.00
33.70	4.00	2.92	0.00	38.90	4.00	2.92	0.00
33.80	4.00	2.92	0.00	39.00	4.00	2.92	0.00
33.90	4.00	2.92	0.00	39.10	4.00	2.92	0.00
34.00	4.00	2.92	0.00	39.20	4.00	2.92	0.00
34.10	4.00	2.92	0.00	39.30	4.00	2.92	0.00
34.20	4.00	2.92	0.00	39.40	4.00	2.92	0.00
34.30	4.00	2.92	0.00	39.50	4.00	2.92	0.00
34.40	4.00	2.92	0.00	39.60	4.00	2.92	0.00
34.50	4.00	2.92	0.00	39.70	4.00	2.92	0.00
34.60	4.00	2.92	0.00	39.80	4.00	2.92	0.00
34.70	4.00	2.92	0.00	39.90	4.00	2.92	0.00
34.80	4.00	2.92	0.00	40.00	4.00	2.92	0.00
34.90	4.00	2.92	0.00	40.10	4.00	2.92	0.00
35.00	4.00	2.92	0.00	40.20	4.00	2.92	0.00
35.10	4.00	2.92	0.00	40.30	4.00	2.92	0.00
35.20	4.00	2.92	0.00	40.40	4.00	2.92	0.00
35.30	4.00	2.92	0.00	40.50	4.00	2.92	0.00
35.40	4.00	2.92	0.00	40.60	4.00	2.92	0.00
35.50	4.00	2.92	0.00	40.70	4.00	2.92	0.00
35.60	4.00	2.92	0.00	40.80	4.00	2.92	0.00
35.70	4.00	2.92	0.00	40.90	4.00	2.92	0.00
35.80	4.00	2.92	0.00	41.00	4.00	2.92	0.00
35.90	4.00	2.92	0.00	41.10	4.00	2.92	0.00
36.00	4.00	2.92	0.00	41.20	4.00	2.92	0.00
36.10	4.00	2.92	0.00	41.30	4.00	2.92	0.00
36.20	4.00	2.92	0.00	41.40	4.00	2.92	0.00
36.30	4.00	2.92	0.00	41.50	4.00	2.92	0.00

Hydrograph for Subcatchment 12S: Cell 12 (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
41.60	4.00	2.92	0.00	46.80	4.00	2.92	0.00
41.70	4.00	2.92	0.00	46.90	4.00	2.92	0.00
41.80	4.00	2.92	0.00	47.00	4.00	2.92	0.00
41.90	4.00	2.92	0.00	47.10	4.00	2.92	0.00
42.00	4.00	2.92	0.00	47.20	4.00	2.92	0.00
42.10	4.00	2.92	0.00	47.30	4.00	2.92	0.00
42.20	4.00	2.92	0.00	47.40	4.00	2.92	0.00
42.30	4.00	2.92	0.00	47.50	4.00	2.92	0.00
42.40	4.00	2.92	0.00	47.60	4.00	2.92	0.00
42.50	4.00	2.92	0.00	47.70	4.00	2.92	0.00
42.60	4.00	2.92	0.00	47.80	4.00	2.92	0.00
42.70	4.00	2.92	0.00	47.90	4.00	2.92	0.00
42.80	4.00	2.92	0.00	48.00	4.00	2.92	0.00
42.90	4.00	2.92	0.00	48.10	4.00	2.92	0.00
43.00	4.00	2.92	0.00	48.20	4.00	2.92	0.00
43.10	4.00	2.92	0.00	48.30	4.00	2.92	0.00
43.20	4.00	2.92	0.00	48.40	4.00	2.92	0.00
43.30	4.00	2.92	0.00	48.50	4.00	2.92	0.00
43.40	4.00	2.92	0.00	48.60	4.00	2.92	0.00
43.50	4.00	2.92	0.00	48.70	4.00	2.92	0.00
43.60	4.00	2.92	0.00	48.80	4.00	2.92	0.00
43.70	4.00	2.92	0.00	48.90	4.00	2.92	0.00
43.80	4.00	2.92	0.00	49.00	4.00	2.92	0.00
43.90	4.00	2.92	0.00	49.10	4.00	2.92	0.00
44.00	4.00	2.92	0.00	49.20	4.00	2.92	0.00
44.10	4.00	2.92	0.00	49.30	4.00	2.92	0.00
44.20	4.00	2.92	0.00	49.40	4.00	2.92	0.00
44.30	4.00	2.92	0.00	49.50	4.00	2.92	0.00
44.40	4.00	2.92	0.00	49.60	4.00	2.92	0.00
44.50	4.00	2.92	0.00	49.70	4.00	2.92	0.00
44.60	4.00	2.92	0.00	49.80	4.00	2.92	0.00
44.70	4.00	2.92	0.00	49.90	4.00	2.92	0.00
44.80	4.00	2.92	0.00	50.00	4.00	2.92	0.00
44.90	4.00	2.92	0.00	50.10	4.00	2.92	0.00
45.00	4.00	2.92	0.00	50.20	4.00	2.92	0.00
45.10	4.00	2.92	0.00	50.30	4.00	2.92	0.00
45.20	4.00	2.92	0.00	50.40	4.00	2.92	0.00
45.30	4.00	2.92	0.00	50.50	4.00	2.92	0.00
45.40	4.00	2.92	0.00	50.60	4.00	2.92	0.00
45.50	4.00	2.92	0.00	50.70	4.00	2.92	0.00
45.60	4.00	2.92	0.00	50.80	4.00	2.92	0.00
45.70	4.00	2.92	0.00	50.90	4.00	2.92	0.00
45.80	4.00	2.92	0.00	51.00	4.00	2.92	0.00
45.90	4.00	2.92	0.00	51.10	4.00	2.92	0.00
46.00	4.00	2.92	0.00	51.20	4.00	2.92	0.00
46.10	4.00	2.92	0.00	51.30	4.00	2.92	0.00
46.20	4.00	2.92	0.00	51.40	4.00	2.92	0.00
46.30	4.00	2.92	0.00	51.50	4.00	2.92	0.00
46.40	4.00	2.92	0.00	51.60	4.00	2.92	0.00
46.50	4.00	2.92	0.00	51.70	4.00	2.92	0.00
46.60	4.00	2.92	0.00	51.80	4.00	2.92	0.00
46.70	4.00	2.92	0.00	51.90	4.00	2.92	0.00

Hydrograph for Subcatchment 12S: Cell 12 (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
52.00	4.00	2.92	0.00
52.10	4.00	2.92	0.00
52.20	4.00	2.92	0.00
52.30	4.00	2.92	0.00
52.40	4.00	2.92	0.00
52.50	4.00	2.92	0.00
52.60	4.00	2.92	0.00
52.70	4.00	2.92	0.00
52.80	4.00	2.92	0.00
52.90	4.00	2.92	0.00
53.00	4.00	2.92	0.00
53.10	4.00	2.92	0.00
53.20	4.00	2.92	0.00
53.30	4.00	2.92	0.00
53.40	4.00	2.92	0.00
53.50	4.00	2.92	0.00
53.60	4.00	2.92	0.00
53.70	4.00	2.92	0.00
53.80	4.00	2.92	0.00
53.90	4.00	2.92	0.00
54.00	4.00	2.92	0.00
54.10	4.00	2.92	0.00
54.20	4.00	2.92	0.00
54.30	4.00	2.92	0.00
54.40	4.00	2.92	0.00
54.50	4.00	2.92	0.00
54.60	4.00	2.92	0.00
54.70	4.00	2.92	0.00
54.80	4.00	2.92	0.00
54.90	4.00	2.92	0.00
55.00	4.00	2.92	0.00
55.10	4.00	2.92	0.00
55.20	4.00	2.92	0.00
55.30	4.00	2.92	0.00
55.40	4.00	2.92	0.00
55.50	4.00	2.92	0.00
55.60	4.00	2.92	0.00
55.70	4.00	2.92	0.00
55.80	4.00	2.92	0.00
55.90	4.00	2.92	0.00
56.00	4.00	2.92	0.00
56.10	4.00	2.92	0.00
56.20	4.00	2.92	0.00
56.30	4.00	2.92	0.00
56.40	4.00	2.92	0.00
56.50	4.00	2.92	0.00
56.60	4.00	2.92	0.00
56.70	4.00	2.92	0.00
56.80	4.00	2.92	0.00
56.90	4.00	2.92	0.00
57.00	4.00	2.92	0.00
57.10	4.00	2.92	0.00
57.20	4.00	2.92	0.00
57.30	4.00	2.92	0.00
57.40	4.00	2.92	0.00
57.50	4.00	2.92	0.00
57.60	4.00	2.92	0.00
57.70	4.00	2.92	0.00
57.80	4.00	2.92	0.00
57.90	4.00	2.92	0.00
58.00	4.00	2.92	0.00
58.10	4.00	2.92	0.00
58.20	4.00	2.92	0.00
58.30	4.00	2.92	0.00
58.40	4.00	2.92	0.00
58.50	4.00	2.92	0.00
58.60	4.00	2.92	0.00
58.70	4.00	2.92	0.00
58.80	4.00	2.92	0.00
58.90	4.00	2.92	0.00
59.00	4.00	2.92	0.00
59.10	4.00	2.92	0.00
59.20	4.00	2.92	0.00
59.30	4.00	2.92	0.00
59.40	4.00	2.92	0.00
59.50	4.00	2.92	0.00
59.60	4.00	2.92	0.00
59.70	4.00	2.92	0.00
59.80	4.00	2.92	0.00
59.90	4.00	2.92	0.00
60.00	4.00	2.92	0.00

Summary for Pond 3P: Cell 12 Perimeter Channel

Inflow Area = 0.586 ac, 0.00% Impervious, Inflow Depth = 2.92"
Inflow = 2.90 cfs @ 11.97 hrs, Volume= 0.143 af
Outflow = 1.82 cfs @ 12.05 hrs, Volume= 0.143 af, Atten= 37%, Lag= 4.6 min
Primary = 1.82 cfs @ 12.05 hrs, Volume= 0.143 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 331.11' @ 12.05 hrs Surf.Area= 0 sf Storage= 1,247 cf

Plug-Flow detention time= 11.4 min calculated for 0.143 af (100% of inflow)
Center-of-Mass det. time= 11.4 min (806.8 - 795.4)

Volume	Invert	Avail.Storage	Storage Description
#1	329.67'	6,725 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
329.67	0
330.00	55
331.00	1,011
332.00	3,230
333.00	6,725

Device	Routing	Invert	Outlet Devices
#1	Primary	329.67'	**Cell 12/14 Infilration** Elev. (feet) 329.67 330.00 331.00 332.00 333.00 Disch. (cfs) 0.000 0.080 1.480 4.690 9.710

Primary OutFlow Max=1.82 cfs @ 12.05 hrs HW=331.11' TW=311.69' (Dynamic Tailwater)
↑—**1=Cell 12/14 Infilration** (Custom Controls 1.82 cfs)

Hydrograph for Pond 3P: Cell 12 Perimeter Channel

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	329.67	0.00
0.20	0.00	0	329.67	0.00
0.40	0.00	0	329.67	0.00
0.60	0.00	0	329.67	0.00
0.80	0.00	0	329.67	0.00
1.00	0.00	0	329.67	0.00
1.20	0.00	0	329.67	0.00
1.40	0.00	0	329.67	0.00
1.60	0.00	0	329.67	0.00
1.80	0.00	0	329.67	0.00
2.00	0.00	0	329.67	0.00
2.20	0.00	0	329.67	0.00
2.40	0.00	0	329.67	0.00
2.60	0.00	0	329.67	0.00
2.80	0.00	0	329.67	0.00
3.00	0.00	0	329.67	0.00
3.20	0.00	0	329.67	0.00
3.40	0.00	0	329.67	0.00
3.60	0.00	0	329.67	0.00
3.80	0.00	0	329.67	0.00
4.00	0.00	0	329.67	0.00
4.20	0.00	0	329.67	0.00
4.40	0.00	0	329.67	0.00
4.60	0.00	0	329.67	0.00
4.80	0.00	0	329.67	0.00
5.00	0.00	1	329.67	0.00
5.20	0.00	1	329.68	0.00
5.40	0.00	2	329.68	0.00
5.60	0.00	2	329.68	0.00
5.80	0.01	3	329.69	0.00
6.00	0.01	4	329.69	0.01
6.20	0.01	4	329.70	0.01
6.40	0.01	5	329.70	0.01
6.60	0.01	6	329.70	0.01
6.80	0.01	6	329.71	0.01
7.00	0.01	7	329.71	0.01
7.20	0.01	8	329.72	0.01
7.40	0.01	9	329.72	0.01
7.60	0.01	9	329.73	0.01
7.80	0.02	10	329.73	0.01
8.00	0.02	11	329.74	0.02
8.20	0.02	12	329.74	0.02
8.40	0.02	13	329.75	0.02
8.60	0.02	15	329.76	0.02
8.80	0.03	17	329.77	0.02
9.00	0.03	19	329.79	0.03
9.20	0.03	21	329.80	0.03
9.40	0.04	23	329.81	0.03
9.60	0.04	24	329.81	0.03
9.80	0.04	26	329.83	0.04
10.00	0.05	29	329.84	0.04
10.20	0.05	33	329.87	0.05

Hydrograph for Pond 3P: Cell 12 Perimeter Channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
10.40	0.06	38	329.90	0.05
10.60	0.07	43	329.93	0.06
10.80	0.09	51	329.97	0.07
11.00	0.10	60	330.00	0.09
11.20	0.13	71	330.02	0.10
11.40	0.16	90	330.04	0.13
11.60	0.28	118	330.07	0.17
11.80	**1.13**	366	330.33	0.54
12.00	**2.67**	**1,152**	**331.06**	**1.68**
12.20	0.41	**826**	**330.81**	**1.21**
12.40	0.28	428	330.39	0.63
12.60	0.19	248	330.20	0.36
12.80	0.17	164	330.11	0.24
13.00	0.14	125	330.07	0.18
13.20	0.13	102	330.05	0.15
13.40	0.11	89	330.04	0.13
13.60	0.10	79	330.03	0.12
13.80	0.09	71	330.02	0.10
14.00	0.09	65	330.01	0.09
14.20	0.08	59	330.00	0.09
14.40	0.08	55	330.00	0.08
14.60	0.07	53	329.99	0.08
14.80	0.07	51	329.97	0.07
15.00	0.07	48	329.96	0.07
15.20	0.06	46	329.95	0.07
15.40	0.06	44	329.94	0.06
15.60	0.06	42	329.92	0.06
15.80	0.06	40	329.91	0.06
16.00	0.05	38	329.90	0.06
16.20	0.05	36	329.89	0.05
16.40	0.05	35	329.88	0.05
16.60	0.05	34	329.87	0.05
16.80	0.05	33	329.87	0.05
17.00	0.05	32	329.86	0.05
17.20	0.04	32	329.86	0.05
17.40	0.04	31	329.86	0.04
17.60	0.04	30	329.85	0.04
17.80	0.04	29	329.85	0.04
18.00	0.04	29	329.84	0.04
18.20	0.04	28	329.84	0.04
18.40	0.04	27	329.83	0.04
18.60	0.04	26	329.83	0.04
18.80	0.04	26	329.82	0.04
19.00	0.04	25	329.82	0.04
19.20	0.03	24	329.81	0.03
19.40	0.03	23	329.81	0.03
19.60	0.03	23	329.81	0.03
19.80	0.03	22	329.80	0.03
20.00	0.03	21	329.80	0.03
20.20	0.03	20	329.79	0.03
20.40	0.03	20	329.79	0.03
20.60	0.03	20	329.79	0.03

Hydrograph for Pond 3P: Cell 12 Perimeter Channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
20.80	0.03	20	329.79	0.03
21.00	0.03	19	329.79	0.03
21.20	0.03	19	329.79	0.03
21.40	0.03	19	329.78	0.03
21.60	0.03	19	329.78	0.03
21.80	0.03	19	329.78	0.03
22.00	0.03	19	329.78	0.03
22.20	0.03	19	329.78	0.03
22.40	0.03	18	329.78	0.03
22.60	0.03	18	329.78	0.03
22.80	0.03	18	329.78	0.03
23.00	0.03	18	329.78	0.03
23.20	0.03	18	329.78	0.03
23.40	0.03	18	329.78	0.03
23.60	0.03	17	329.77	0.03
23.80	0.02	17	329.77	0.03
24.00	0.02	17	329.77	0.02
24.20	0.00	10	329.73	0.01
24.40	0.00	3	329.69	0.01
24.60	0.00	1	329.68	0.00
24.80	0.00	0	329.67	0.00
25.00	0.00	0	329.67	0.00
25.20	0.00	0	329.67	0.00
25.40	0.00	0	329.67	0.00
25.60	0.00	0	329.67	0.00
25.80	0.00	0	329.67	0.00
26.00	0.00	0	329.67	0.00
26.20	0.00	0	329.67	0.00
26.40	0.00	0	329.67	0.00
26.60	0.00	0	329.67	0.00
26.80	0.00	0	329.67	0.00
27.00	0.00	0	329.67	0.00
27.20	0.00	0	329.67	0.00
27.40	0.00	0	329.67	0.00
27.60	0.00	0	329.67	0.00
27.80	0.00	0	329.67	0.00
28.00	0.00	0	329.67	0.00
28.20	0.00	0	329.67	0.00
28.40	0.00	0	329.67	0.00
28.60	0.00	0	329.67	0.00
28.80	0.00	0	329.67	0.00
29.00	0.00	0	329.67	0.00
29.20	0.00	0	329.67	0.00
29.40	0.00	0	329.67	0.00
29.60	0.00	0	329.67	0.00
29.80	0.00	0	329.67	0.00
30.00	0.00	0	329.67	0.00
30.20	0.00	0	329.67	0.00
30.40	0.00	0	329.67	0.00
30.60	0.00	0	329.67	0.00
30.80	0.00	0	329.67	0.00
31.00	0.00	0	329.67	0.00

Hydrograph for Pond 3P: Cell 12 Perimeter Channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
31.20	0.00	0	329.67	0.00
31.40	0.00	0	329.67	0.00
31.60	0.00	0	329.67	0.00
31.80	0.00	0	329.67	0.00
32.00	0.00	0	329.67	0.00
32.20	0.00	0	329.67	0.00
32.40	0.00	0	329.67	0.00
32.60	0.00	0	329.67	0.00
32.80	0.00	0	329.67	0.00
33.00	0.00	0	329.67	0.00
33.20	0.00	0	329.67	0.00
33.40	0.00	0	329.67	0.00
33.60	0.00	0	329.67	0.00
33.80	0.00	0	329.67	0.00
34.00	0.00	0	329.67	0.00
34.20	0.00	0	329.67	0.00
34.40	0.00	0	329.67	0.00
34.60	0.00	0	329.67	0.00
34.80	0.00	0	329.67	0.00
35.00	0.00	0	329.67	0.00
35.20	0.00	0	329.67	0.00
35.40	0.00	0	329.67	0.00
35.60	0.00	0	329.67	0.00
35.80	0.00	0	329.67	0.00
36.00	0.00	0	329.67	0.00
36.20	0.00	0	329.67	0.00
36.40	0.00	0	329.67	0.00
36.60	0.00	0	329.67	0.00
36.80	0.00	0	329.67	0.00
37.00	0.00	0	329.67	0.00
37.20	0.00	0	329.67	0.00
37.40	0.00	0	329.67	0.00
37.60	0.00	0	329.67	0.00
37.80	0.00	0	329.67	0.00
38.00	0.00	0	329.67	0.00
38.20	0.00	0	329.67	0.00
38.40	0.00	0	329.67	0.00
38.60	0.00	0	329.67	0.00
38.80	0.00	0	329.67	0.00
39.00	0.00	0	329.67	0.00
39.20	0.00	0	329.67	0.00
39.40	0.00	0	329.67	0.00
39.60	0.00	0	329.67	0.00
39.80	0.00	0	329.67	0.00
40.00	0.00	0	329.67	0.00
40.20	0.00	0	329.67	0.00
40.40	0.00	0	329.67	0.00
40.60	0.00	0	329.67	0.00
40.80	0.00	0	329.67	0.00
41.00	0.00	0	329.67	0.00
41.20	0.00	0	329.67	0.00
41.40	0.00	0	329.67	0.00

Hydrograph for Pond 3P: Cell 12 Perimeter Channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
41.60	0.00	0	329.67	0.00
41.80	0.00	0	329.67	0.00
42.00	0.00	0	329.67	0.00
42.20	0.00	0	329.67	0.00
42.40	0.00	0	329.67	0.00
42.60	0.00	0	329.67	0.00
42.80	0.00	0	329.67	0.00
43.00	0.00	0	329.67	0.00
43.20	0.00	0	329.67	0.00
43.40	0.00	0	329.67	0.00
43.60	0.00	0	329.67	0.00
43.80	0.00	0	329.67	0.00
44.00	0.00	0	329.67	0.00
44.20	0.00	0	329.67	0.00
44.40	0.00	0	329.67	0.00
44.60	0.00	0	329.67	0.00
44.80	0.00	0	329.67	0.00
45.00	0.00	0	329.67	0.00
45.20	0.00	0	329.67	0.00
45.40	0.00	0	329.67	0.00
45.60	0.00	0	329.67	0.00
45.80	0.00	0	329.67	0.00
46.00	0.00	0	329.67	0.00
46.20	0.00	0	329.67	0.00
46.40	0.00	0	329.67	0.00
46.60	0.00	0	329.67	0.00
46.80	0.00	0	329.67	0.00
47.00	0.00	0	329.67	0.00
47.20	0.00	0	329.67	0.00
47.40	0.00	0	329.67	0.00
47.60	0.00	0	329.67	0.00
47.80	0.00	0	329.67	0.00
48.00	0.00	0	329.67	0.00
48.20	0.00	0	329.67	0.00
48.40	0.00	0	329.67	0.00
48.60	0.00	0	329.67	0.00
48.80	0.00	0	329.67	0.00
49.00	0.00	0	329.67	0.00
49.20	0.00	0	329.67	0.00
49.40	0.00	0	329.67	0.00
49.60	0.00	0	329.67	0.00
49.80	0.00	0	329.67	0.00
50.00	0.00	0	329.67	0.00
50.20	0.00	0	329.67	0.00
50.40	0.00	0	329.67	0.00
50.60	0.00	0	329.67	0.00
50.80	0.00	0	329.67	0.00
51.00	0.00	0	329.67	0.00
51.20	0.00	0	329.67	0.00
51.40	0.00	0	329.67	0.00
51.60	0.00	0	329.67	0.00
51.80	0.00	0	329.67	0.00

Hydrograph for Pond 3P: Cell 12 Perimeter Channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
52.00	0.00	0	329.67	0.00
52.20	0.00	0	329.67	0.00
52.40	0.00	0	329.67	0.00
52.60	0.00	0	329.67	0.00
52.80	0.00	0	329.67	0.00
53.00	0.00	0	329.67	0.00
53.20	0.00	0	329.67	0.00
53.40	0.00	0	329.67	0.00
53.60	0.00	0	329.67	0.00
53.80	0.00	0	329.67	0.00
54.00	0.00	0	329.67	0.00
54.20	0.00	0	329.67	0.00
54.40	0.00	0	329.67	0.00
54.60	0.00	0	329.67	0.00
54.80	0.00	0	329.67	0.00
55.00	0.00	0	329.67	0.00
55.20	0.00	0	329.67	0.00
55.40	0.00	0	329.67	0.00
55.60	0.00	0	329.67	0.00
55.80	0.00	0	329.67	0.00
56.00	0.00	0	329.67	0.00
56.20	0.00	0	329.67	0.00
56.40	0.00	0	329.67	0.00
56.60	0.00	0	329.67	0.00
56.80	0.00	0	329.67	0.00
57.00	0.00	0	329.67	0.00
57.20	0.00	0	329.67	0.00
57.40	0.00	0	329.67	0.00
57.60	0.00	0	329.67	0.00
57.80	0.00	0	329.67	0.00
58.00	0.00	0	329.67	0.00
58.20	0.00	0	329.67	0.00
58.40	0.00	0	329.67	0.00
58.60	0.00	0	329.67	0.00
58.80	0.00	0	329.67	0.00
59.00	0.00	0	329.67	0.00
59.20	0.00	0	329.67	0.00
59.40	0.00	0	329.67	0.00
59.60	0.00	0	329.67	0.00
59.80	0.00	0	329.67	0.00
60.00	0.00	0	329.67	0.00

Cell 14 West Perimeter Channel

CWM Chemical Services, LLC
Model City, NY
RMU-1 Cell 14 Perimeter Channel (West)
Rating Curve for Infiltration into Cell 12/14

Elevation [ft]	Planimetric Area[1] [sq. ft.]	Cumulative Volume [ft^3]	Operations Layer Area Subject to Infiltration[2] [ft^2]	Hydraulic Gradient[3]	Flowrate (Darcy's Law)[4] [cfs]
329.73	0	0	0	0.00	0.00
330.00	14	2	9	0.13	0.00
331.00	314	166	199	0.63	0.28
332.00	1000	823	632	1.13	1.60
333.00	2197	2421	1389	1.63	5.07
334.00	3689	5405	2333	2.13	11.17

Notes:

1. Obtained by direct measurement of area within contours from the Cells 1 Through 14 Fill Progression Plan (ARCADIS, March 2009).
2. Equal to 0.6 times the planimetric area times the 3:1 slope correction factor. The 0.6 factor accounts for the fact that 60% of the plan area of a v-notch channel with 3:1 and 2:1 sideslopes is represented by the 3:1 sideslope, which is subject to infiltration.
3. Equal to the elevation above the low point (329.73) divided by two times the thickness of the operations layer (i.e. 1 ft).
4. Based on hydraulic conductivity of operations stone equal to 6.8×10^{-2} cm/s.
5. Lowest lined elevation for channel is 333.23 based on as-built top of secondary soil drawing.

Summary for Subcatchment 40S: Cell 14W

Runoff = 3.09 cfs @ 11.97 hrs, Volume= 0.152 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.624	90	
	0.624		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Hydrograph for Subcatchment 40S: Cell 14W

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	5.20	0.26	0.00	0.00
0.10	0.00	0.00	0.00	5.30	0.27	0.00	0.00
0.20	0.01	0.00	0.00	5.40	0.28	0.00	0.00
0.30	0.01	0.00	0.00	5.50	0.28	0.00	0.00
0.40	0.02	0.00	0.00	5.60	0.29	0.00	0.00
0.50	0.02	0.00	0.00	5.70	0.30	0.00	0.00
0.60	0.02	0.00	0.00	5.80	0.31	0.01	0.01
0.70	0.03	0.00	0.00	5.90	0.31	0.01	0.01
0.80	0.03	0.00	0.00	6.00	0.32	0.01	0.01
0.90	0.04	0.00	0.00	6.10	0.33	0.01	0.01
1.00	0.04	0.00	0.00	6.20	0.33	0.01	0.01
1.10	0.05	0.00	0.00	6.30	0.34	0.01	0.01
1.20	0.05	0.00	0.00	6.40	0.35	0.01	0.01
1.30	0.06	0.00	0.00	6.50	0.36	0.01	0.01
1.40	0.06	0.00	0.00	6.60	0.36	0.02	0.01
1.50	0.06	0.00	0.00	6.70	0.37	0.02	0.01
1.60	0.07	0.00	0.00	6.80	0.38	0.02	0.01
1.70	0.07	0.00	0.00	6.90	0.39	0.02	0.01
1.80	0.08	0.00	0.00	7.00	0.40	0.02	0.01
1.90	0.08	0.00	0.00	7.10	0.40	0.03	0.01
2.00	0.09	0.00	0.00	7.20	0.41	0.03	0.01
2.10	0.09	0.00	0.00	7.30	0.42	0.03	0.01
2.20	0.10	0.00	0.00	7.40	0.43	0.03	0.01
2.30	0.10	0.00	0.00	7.50	0.44	0.03	0.02
2.40	0.11	0.00	0.00	7.60	0.45	0.04	0.02
2.50	0.11	0.00	0.00	7.70	0.45	0.04	0.02
2.60	0.12	0.00	0.00	7.80	0.46	0.04	0.02
2.70	0.12	0.00	0.00	7.90	0.47	0.05	0.02
2.80	0.13	0.00	0.00	8.00	0.48	0.05	0.02
2.90	0.13	0.00	0.00	8.10	0.49	0.05	0.02
3.00	0.14	0.00	0.00	8.20	0.50	0.05	0.02
3.10	0.14	0.00	0.00	8.30	0.51	0.06	0.02
3.20	0.15	0.00	0.00	8.40	0.52	0.06	0.02
3.30	0.15	0.00	0.00	8.50	0.53	0.07	0.02
3.40	0.16	0.00	0.00	8.60	0.54	0.07	0.03
3.50	0.16	0.00	0.00	8.70	0.55	0.08	0.03
3.60	0.17	0.00	0.00	8.80	0.56	0.08	0.03
3.70	0.18	0.00	0.00	8.90	0.58	0.09	0.03
3.80	0.18	0.00	0.00	9.00	0.59	0.09	0.03
3.90	0.19	0.00	0.00	9.10	0.60	0.10	0.03
4.00	0.19	0.00	0.00	9.20	0.61	0.10	0.04
4.10	0.20	0.00	0.00	9.30	0.63	0.11	0.04
4.20	0.20	0.00	0.00	9.40	0.64	0.11	0.04
4.30	0.21	0.00	0.00	9.50	0.65	0.12	0.04
4.40	0.22	0.00	0.00	9.60	0.67	0.13	0.04
4.50	0.22	0.00	0.00	9.70	0.68	0.13	0.04
4.60	0.23	0.00	0.00	9.80	0.69	0.14	0.04
4.70	0.23	0.00	0.00	9.90	0.71	0.15	0.05
4.80	0.24	0.00	0.00	10.00	0.72	0.16	0.05
4.90	0.25	0.00	0.00	10.10	0.74	0.16	0.05
5.00	0.25	0.00	0.00	10.20	0.76	0.17	0.06
5.10	0.26	0.00	0.00	10.30	0.78	0.18	0.06

Hydrograph for Subcatchment 40S: Cell 14W (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
10.40	0.80	0.20	0.07	15.60	3.48	2.43	0.06
10.50	0.82	0.21	0.07	15.70	3.49	2.44	0.06
10.60	0.84	0.22	0.08	15.80	3.50	2.45	0.06
10.70	0.86	0.23	0.08	15.90	3.51	2.46	0.06
10.80	0.89	0.25	0.09	16.00	3.52	2.47	0.06
10.90	0.91	0.26	0.10	16.10	3.53	2.48	0.05
11.00	0.94	0.28	0.11	16.20	3.54	2.48	0.05
11.10	0.97	0.30	0.12	16.30	3.55	2.49	0.05
11.20	1.01	0.32	0.13	16.40	3.56	2.50	0.05
11.30	1.04	0.35	0.15	16.50	3.56	2.51	0.05
11.40	1.09	0.38	0.17	16.60	3.57	2.52	0.05
11.50	1.13	0.41	0.19	16.70	3.58	2.52	0.05
11.60	1.23	0.48	0.30	16.80	3.59	2.53	0.05
11.70	1.42	0.62	0.69	16.90	3.60	2.54	0.05
11.80	1.72	0.86	1.21	17.00	3.61	2.55	0.05
11.90	2.27	1.33	**2.31**	17.10	3.62	2.56	0.05
12.00	2.65	1.67	**2.84**	17.20	3.62	2.56	0.05
12.10	2.73	1.74	0.86	17.30	3.63	2.57	0.05
12.20	2.79	1.80	0.44	17.40	3.64	2.58	0.05
12.30	2.85	1.85	0.35	17.50	3.65	2.59	0.05
12.40	2.90	1.89	0.30	17.60	3.65	2.59	0.05
12.50	2.94	1.93	0.25	17.70	3.66	2.60	0.04
12.60	2.97	1.96	0.21	17.80	3.67	2.61	0.04
12.70	3.01	1.99	0.19	17.90	3.68	2.61	0.04
12.80	3.04	2.02	0.18	18.00	3.68	2.62	0.04
12.90	3.06	2.04	0.16	18.10	3.69	2.63	0.04
13.00	3.09	2.07	0.15	18.20	3.70	2.63	0.04
13.10	3.11	2.09	0.14	18.30	3.71	2.64	0.04
13.20	3.13	2.11	0.13	18.40	3.71	2.65	0.04
13.30	3.16	2.13	0.13	18.50	3.72	2.65	0.04
13.40	3.18	2.15	0.12	18.60	3.73	2.66	0.04
13.50	3.20	2.16	0.12	18.70	3.73	2.67	0.04
13.60	3.21	2.18	0.11	18.80	3.74	2.67	0.04
13.70	3.23	2.20	0.10	18.90	3.74	2.68	0.04
13.80	3.25	2.21	0.10	19.00	3.75	2.68	0.04
13.90	3.26	2.23	0.10	19.10	3.76	2.69	0.04
14.00	3.28	2.24	0.09	19.20	3.76	2.70	0.04
14.10	3.29	2.26	0.09	19.30	3.77	2.70	0.04
14.20	3.31	2.27	0.08	19.40	3.77	2.71	0.03
14.30	3.32	2.28	0.08	19.50	3.78	2.71	0.03
14.40	3.34	2.30	0.08	19.60	3.79	2.72	0.03
14.50	3.35	2.31	0.08	19.70	3.79	2.72	0.03
14.60	3.36	2.32	0.08	19.80	3.80	2.73	0.03
14.70	3.38	2.33	0.08	19.90	3.80	2.73	0.03
14.80	3.39	2.34	0.08	20.00	3.81	2.74	0.03
14.90	3.40	2.36	0.07	20.10	3.81	2.74	0.03
15.00	3.41	2.37	0.07	20.20	3.82	2.75	0.03
15.10	3.43	2.38	0.07	20.30	3.82	2.75	0.03
15.20	3.44	2.39	0.07	20.40	3.83	2.76	0.03
15.30	3.45	2.40	0.07	20.50	3.83	2.76	0.03
15.40	3.46	2.41	0.07	20.60	3.84	2.77	0.03
15.50	3.47	2.42	0.06	20.70	3.84	2.77	0.03

Hydrograph for Subcatchment 40S: Cell 14W (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
20.80	3.85	2.78	0.03	26.00	4.00	2.92	0.00
20.90	3.85	2.78	0.03	26.10	4.00	2.92	0.00
21.00	3.86	2.79	0.03	26.20	4.00	2.92	0.00
21.10	3.86	2.79	0.03	26.30	4.00	2.92	0.00
21.20	3.87	2.80	0.03	26.40	4.00	2.92	0.00
21.30	3.87	2.80	0.03	26.50	4.00	2.92	0.00
21.40	3.88	2.80	0.03	26.60	4.00	2.92	0.00
21.50	3.88	2.81	0.03	26.70	4.00	2.92	0.00
21.60	3.89	2.81	0.03	26.80	4.00	2.92	0.00
21.70	3.89	2.82	0.03	26.90	4.00	2.92	0.00
21.80	3.90	2.82	0.03	27.00	4.00	2.92	0.00
21.90	3.90	2.83	0.03	27.10	4.00	2.92	0.00
22.00	3.91	2.83	0.03	27.20	4.00	2.92	0.00
22.10	3.91	2.84	0.03	27.30	4.00	2.92	0.00
22.20	3.92	2.84	0.03	27.40	4.00	2.92	0.00
22.30	3.92	2.85	0.03	27.50	4.00	2.92	0.00
22.40	3.93	2.85	0.03	27.60	4.00	2.92	0.00
22.50	3.93	2.85	0.03	27.70	4.00	2.92	0.00
22.60	3.94	2.86	0.03	27.80	4.00	2.92	0.00
22.70	3.94	2.86	0.03	27.90	4.00	2.92	0.00
22.80	3.95	2.87	0.03	28.00	4.00	2.92	0.00
22.90	3.95	2.87	0.03	28.10	4.00	2.92	0.00
23.00	3.95	2.88	0.03	28.20	4.00	2.92	0.00
23.10	3.96	2.88	0.03	28.30	4.00	2.92	0.00
23.20	3.96	2.89	0.03	28.40	4.00	2.92	0.00
23.30	3.97	2.89	0.03	28.50	4.00	2.92	0.00
23.40	3.97	2.89	0.03	28.60	4.00	2.92	0.00
23.50	3.98	2.90	0.03	28.70	4.00	2.92	0.00
23.60	3.98	2.90	0.03	28.80	4.00	2.92	0.00
23.70	3.99	2.91	0.03	28.90	4.00	2.92	0.00
23.80	3.99	2.91	0.03	29.00	4.00	2.92	0.00
23.90	4.00	2.92	0.03	29.10	4.00	2.92	0.00
24.00	**4.00**	**2.92**	0.03	29.20	4.00	2.92	0.00
24.10	4.00	2.92	0.01	29.30	4.00	2.92	0.00
24.20	4.00	2.92	0.00	29.40	4.00	2.92	0.00
24.30	4.00	2.92	0.00	29.50	4.00	2.92	0.00
24.40	4.00	2.92	0.00	29.60	4.00	2.92	0.00
24.50	4.00	2.92	0.00	29.70	4.00	2.92	0.00
24.60	4.00	2.92	0.00	29.80	4.00	2.92	0.00
24.70	4.00	2.92	0.00	29.90	4.00	2.92	0.00
24.80	4.00	2.92	0.00	30.00	4.00	2.92	0.00
24.90	4.00	2.92	0.00	30.10	4.00	2.92	0.00
25.00	4.00	2.92	0.00	30.20	4.00	2.92	0.00
25.10	4.00	2.92	0.00	30.30	4.00	2.92	0.00
25.20	4.00	2.92	0.00	30.40	4.00	2.92	0.00
25.30	4.00	2.92	0.00	30.50	4.00	2.92	0.00
25.40	4.00	2.92	0.00	30.60	4.00	2.92	0.00
25.50	4.00	2.92	0.00	30.70	4.00	2.92	0.00
25.60	4.00	2.92	0.00	30.80	4.00	2.92	0.00
25.70	4.00	2.92	0.00	30.90	4.00	2.92	0.00
25.80	4.00	2.92	0.00	31.00	4.00	2.92	0.00
25.90	4.00	2.92	0.00	31.10	4.00	2.92	0.00

Hydrograph for Subcatchment 40S: Cell 14W (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
31.20	4.00	2.92	0.00	36.40	4.00	2.92	0.00
31.30	4.00	2.92	0.00	36.50	4.00	2.92	0.00
31.40	4.00	2.92	0.00	36.60	4.00	2.92	0.00
31.50	4.00	2.92	0.00	36.70	4.00	2.92	0.00
31.60	4.00	2.92	0.00	36.80	4.00	2.92	0.00
31.70	4.00	2.92	0.00	36.90	4.00	2.92	0.00
31.80	4.00	2.92	0.00	37.00	4.00	2.92	0.00
31.90	4.00	2.92	0.00	37.10	4.00	2.92	0.00
32.00	4.00	2.92	0.00	37.20	4.00	2.92	0.00
32.10	4.00	2.92	0.00	37.30	4.00	2.92	0.00
32.20	4.00	2.92	0.00	37.40	4.00	2.92	0.00
32.30	4.00	2.92	0.00	37.50	4.00	2.92	0.00
32.40	4.00	2.92	0.00	37.60	4.00	2.92	0.00
32.50	4.00	2.92	0.00	37.70	4.00	2.92	0.00
32.60	4.00	2.92	0.00	37.80	4.00	2.92	0.00
32.70	4.00	2.92	0.00	37.90	4.00	2.92	0.00
32.80	4.00	2.92	0.00	38.00	4.00	2.92	0.00
32.90	4.00	2.92	0.00	38.10	4.00	2.92	0.00
33.00	4.00	2.92	0.00	38.20	4.00	2.92	0.00
33.10	4.00	2.92	0.00	38.30	4.00	2.92	0.00
33.20	4.00	2.92	0.00	38.40	4.00	2.92	0.00
33.30	4.00	2.92	0.00	38.50	4.00	2.92	0.00
33.40	4.00	2.92	0.00	38.60	4.00	2.92	0.00
33.50	4.00	2.92	0.00	38.70	4.00	2.92	0.00
33.60	4.00	2.92	0.00	38.80	4.00	2.92	0.00
33.70	4.00	2.92	0.00	38.90	4.00	2.92	0.00
33.80	4.00	2.92	0.00	39.00	4.00	2.92	0.00
33.90	4.00	2.92	0.00	39.10	4.00	2.92	0.00
34.00	4.00	2.92	0.00	39.20	4.00	2.92	0.00
34.10	4.00	2.92	0.00	39.30	4.00	2.92	0.00
34.20	4.00	2.92	0.00	39.40	4.00	2.92	0.00
34.30	4.00	2.92	0.00	39.50	4.00	2.92	0.00
34.40	4.00	2.92	0.00	39.60	4.00	2.92	0.00
34.50	4.00	2.92	0.00	39.70	4.00	2.92	0.00
34.60	4.00	2.92	0.00	39.80	4.00	2.92	0.00
34.70	4.00	2.92	0.00	39.90	4.00	2.92	0.00
34.80	4.00	2.92	0.00	40.00	4.00	2.92	0.00
34.90	4.00	2.92	0.00	40.10	4.00	2.92	0.00
35.00	4.00	2.92	0.00	40.20	4.00	2.92	0.00
35.10	4.00	2.92	0.00	40.30	4.00	2.92	0.00
35.20	4.00	2.92	0.00	40.40	4.00	2.92	0.00
35.30	4.00	2.92	0.00	40.50	4.00	2.92	0.00
35.40	4.00	2.92	0.00	40.60	4.00	2.92	0.00
35.50	4.00	2.92	0.00	40.70	4.00	2.92	0.00
35.60	4.00	2.92	0.00	40.80	4.00	2.92	0.00
35.70	4.00	2.92	0.00	40.90	4.00	2.92	0.00
35.80	4.00	2.92	0.00	41.00	4.00	2.92	0.00
35.90	4.00	2.92	0.00	41.10	4.00	2.92	0.00
36.00	4.00	2.92	0.00	41.20	4.00	2.92	0.00
36.10	4.00	2.92	0.00	41.30	4.00	2.92	0.00
36.20	4.00	2.92	0.00	41.40	4.00	2.92	0.00
36.30	4.00	2.92	0.00	41.50	4.00	2.92	0.00

Hydrograph for Subcatchment 40S: Cell 14W (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
41.60	4.00	2.92	0.00	46.80	4.00	2.92	0.00
41.70	4.00	2.92	0.00	46.90	4.00	2.92	0.00
41.80	4.00	2.92	0.00	47.00	4.00	2.92	0.00
41.90	4.00	2.92	0.00	47.10	4.00	2.92	0.00
42.00	4.00	2.92	0.00	47.20	4.00	2.92	0.00
42.10	4.00	2.92	0.00	47.30	4.00	2.92	0.00
42.20	4.00	2.92	0.00	47.40	4.00	2.92	0.00
42.30	4.00	2.92	0.00	47.50	4.00	2.92	0.00
42.40	4.00	2.92	0.00	47.60	4.00	2.92	0.00
42.50	4.00	2.92	0.00	47.70	4.00	2.92	0.00
42.60	4.00	2.92	0.00	47.80	4.00	2.92	0.00
42.70	4.00	2.92	0.00	47.90	4.00	2.92	0.00
42.80	4.00	2.92	0.00	48.00	4.00	2.92	0.00
42.90	4.00	2.92	0.00	48.10	4.00	2.92	0.00
43.00	4.00	2.92	0.00	48.20	4.00	2.92	0.00
43.10	4.00	2.92	0.00	48.30	4.00	2.92	0.00
43.20	4.00	2.92	0.00	48.40	4.00	2.92	0.00
43.30	4.00	2.92	0.00	48.50	4.00	2.92	0.00
43.40	4.00	2.92	0.00	48.60	4.00	2.92	0.00
43.50	4.00	2.92	0.00	48.70	4.00	2.92	0.00
43.60	4.00	2.92	0.00	48.80	4.00	2.92	0.00
43.70	4.00	2.92	0.00	48.90	4.00	2.92	0.00
43.80	4.00	2.92	0.00	49.00	4.00	2.92	0.00
43.90	4.00	2.92	0.00	49.10	4.00	2.92	0.00
44.00	4.00	2.92	0.00	49.20	4.00	2.92	0.00
44.10	4.00	2.92	0.00	49.30	4.00	2.92	0.00
44.20	4.00	2.92	0.00	49.40	4.00	2.92	0.00
44.30	4.00	2.92	0.00	49.50	4.00	2.92	0.00
44.40	4.00	2.92	0.00	49.60	4.00	2.92	0.00
44.50	4.00	2.92	0.00	49.70	4.00	2.92	0.00
44.60	4.00	2.92	0.00	49.80	4.00	2.92	0.00
44.70	4.00	2.92	0.00	49.90	4.00	2.92	0.00
44.80	4.00	2.92	0.00	50.00	4.00	2.92	0.00
44.90	4.00	2.92	0.00	50.10	4.00	2.92	0.00
45.00	4.00	2.92	0.00	50.20	4.00	2.92	0.00
45.10	4.00	2.92	0.00	50.30	4.00	2.92	0.00
45.20	4.00	2.92	0.00	50.40	4.00	2.92	0.00
45.30	4.00	2.92	0.00	50.50	4.00	2.92	0.00
45.40	4.00	2.92	0.00	50.60	4.00	2.92	0.00
45.50	4.00	2.92	0.00	50.70	4.00	2.92	0.00
45.60	4.00	2.92	0.00	50.80	4.00	2.92	0.00
45.70	4.00	2.92	0.00	50.90	4.00	2.92	0.00
45.80	4.00	2.92	0.00	51.00	4.00	2.92	0.00
45.90	4.00	2.92	0.00	51.10	4.00	2.92	0.00
46.00	4.00	2.92	0.00	51.20	4.00	2.92	0.00
46.10	4.00	2.92	0.00	51.30	4.00	2.92	0.00
46.20	4.00	2.92	0.00	51.40	4.00	2.92	0.00
46.30	4.00	2.92	0.00	51.50	4.00	2.92	0.00
46.40	4.00	2.92	0.00	51.60	4.00	2.92	0.00
46.50	4.00	2.92	0.00	51.70	4.00	2.92	0.00
46.60	4.00	2.92	0.00	51.80	4.00	2.92	0.00
46.70	4.00	2.92	0.00	51.90	4.00	2.92	0.00

Hydrograph for Subcatchment 40S: Cell 14W (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
52.00	4.00	2.92	0.00
52.10	4.00	2.92	0.00
52.20	4.00	2.92	0.00
52.30	4.00	2.92	0.00
52.40	4.00	2.92	0.00
52.50	4.00	2.92	0.00
52.60	4.00	2.92	0.00
52.70	4.00	2.92	0.00
52.80	4.00	2.92	0.00
52.90	4.00	2.92	0.00
53.00	4.00	2.92	0.00
53.10	4.00	2.92	0.00
53.20	4.00	2.92	0.00
53.30	4.00	2.92	0.00
53.40	4.00	2.92	0.00
53.50	4.00	2.92	0.00
53.60	4.00	2.92	0.00
53.70	4.00	2.92	0.00
53.80	4.00	2.92	0.00
53.90	4.00	2.92	0.00
54.00	4.00	2.92	0.00
54.10	4.00	2.92	0.00
54.20	4.00	2.92	0.00
54.30	4.00	2.92	0.00
54.40	4.00	2.92	0.00
54.50	4.00	2.92	0.00
54.60	4.00	2.92	0.00
54.70	4.00	2.92	0.00
54.80	4.00	2.92	0.00
54.90	4.00	2.92	0.00
55.00	4.00	2.92	0.00
55.10	4.00	2.92	0.00
55.20	4.00	2.92	0.00
55.30	4.00	2.92	0.00
55.40	4.00	2.92	0.00
55.50	4.00	2.92	0.00
55.60	4.00	2.92	0.00
55.70	4.00	2.92	0.00
55.80	4.00	2.92	0.00
55.90	4.00	2.92	0.00
56.00	4.00	2.92	0.00
56.10	4.00	2.92	0.00
56.20	4.00	2.92	0.00
56.30	4.00	2.92	0.00
56.40	4.00	2.92	0.00
56.50	4.00	2.92	0.00
56.60	4.00	2.92	0.00
56.70	4.00	2.92	0.00
56.80	4.00	2.92	0.00
56.90	4.00	2.92	0.00
57.00	4.00	2.92	0.00
57.10	4.00	2.92	0.00
57.20	4.00	2.92	0.00
57.30	4.00	2.92	0.00
57.40	4.00	2.92	0.00
57.50	4.00	2.92	0.00
57.60	4.00	2.92	0.00
57.70	4.00	2.92	0.00
57.80	4.00	2.92	0.00
57.90	4.00	2.92	0.00
58.00	4.00	2.92	0.00
58.10	4.00	2.92	0.00
58.20	4.00	2.92	0.00
58.30	4.00	2.92	0.00
58.40	4.00	2.92	0.00
58.50	4.00	2.92	0.00
58.60	4.00	2.92	0.00
58.70	4.00	2.92	0.00
58.80	4.00	2.92	0.00
58.90	4.00	2.92	0.00
59.00	4.00	2.92	0.00
59.10	4.00	2.92	0.00
59.20	4.00	2.92	0.00
59.30	4.00	2.92	0.00
59.40	4.00	2.92	0.00
59.50	4.00	2.92	0.00
59.60	4.00	2.92	0.00
59.70	4.00	2.92	0.00
59.80	4.00	2.92	0.00
59.90	4.00	2.92	0.00
60.00	4.00	2.92	0.00

Summary for Pond 2P: 14 West Channel

Inflow Area = 0.630 ac, 0.00% Impervious, Inflow Depth = 2.92"
Inflow = 3.12 cfs @ 11.97 hrs, Volume= 0.153 af
Outflow = 2.26 cfs @ 12.03 hrs, Volume= 0.153 af, Atten= 28%, Lag= 3.9 min
Primary = 2.26 cfs @ 12.03 hrs, Volume= 0.153 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 332.19' @ 12.03 hrs Surf.Area= 0 sf Storage= 1,125 cf

Plug-Flow detention time= 9.6 min calculated for 0.153 af (100% of inflow)
Center-of-Mass det. time= 9.4 min (804.8 - 795.4)

Volume	Invert	Avail.Storage	Storage Description
#1	329.73'	5,405 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
329.73	0
330.00	2
331.00	166
332.00	823
333.00	2,421
334.00	5,405

Device	Routing	Invert	Outlet Devices
#1	Primary	329.73'	**12/14 infilt** Elev. (feet) 329.73 330.00 331.00 332.00 333.00 334.00 Disch. (cfs) 0.000 0.000 0.280 1.600 5.070 11.170

Primary OutFlow Max=2.25 cfs @ 12.03 hrs HW=332.19' TW=312.07' (Dynamic Tailwater)
↑—**1=12/14 infilt** (Custom Controls 2.25 cfs)

Hydrograph for Pond 2P: 14 West Channel

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	329.73	0.00
0.20	0.00	0	329.73	0.00
0.40	0.00	0	329.73	0.00
0.60	0.00	0	329.73	0.00
0.80	0.00	0	329.73	0.00
1.00	0.00	0	329.73	0.00
1.20	0.00	0	329.73	0.00
1.40	0.00	0	329.73	0.00
1.60	0.00	0	329.73	0.00
1.80	0.00	0	329.73	0.00
2.00	0.00	0	329.73	0.00
2.20	0.00	0	329.73	0.00
2.40	0.00	0	329.73	0.00
2.60	0.00	0	329.73	0.00
2.80	0.00	0	329.73	0.00
3.00	0.00	0	329.73	0.00
3.20	0.00	0	329.73	0.00
3.40	0.00	0	329.73	0.00
3.60	0.00	0	329.73	0.00
3.80	0.00	0	329.73	0.00
4.00	0.00	0	329.73	0.00
4.20	0.00	0	329.73	0.00
4.40	0.00	0	329.73	0.00
4.60	0.00	0	329.73	0.00
4.80	0.00	0	329.77	0.00
5.00	0.00	1	329.88	0.00
5.20	0.00	3	330.00	0.00
5.40	0.00	3	330.01	0.00
5.60	0.00	4	330.01	0.00
5.80	0.01	5	330.02	0.00
6.00	0.01	5	330.02	0.01
6.20	0.01	6	330.02	0.01
6.40	0.01	7	330.03	0.01
6.60	0.01	7	330.03	0.01
6.80	0.01	8	330.04	0.01
7.00	0.01	9	330.04	0.01
7.20	0.01	9	330.04	0.01
7.40	0.01	10	330.05	0.01
7.60	0.02	11	330.05	0.01
7.80	0.02	11	330.06	0.02
8.00	0.02	12	330.06	0.02
8.20	0.02	13	330.07	0.02
8.40	0.02	14	330.08	0.02
8.60	0.03	16	330.09	0.02
8.80	0.03	18	330.10	0.03
9.00	0.03	20	330.11	0.03
9.20	0.04	22	330.12	0.03
9.40	0.04	23	330.13	0.04
9.60	0.04	24	330.14	0.04
9.80	0.04	26	330.15	0.04
10.00	0.05	29	330.16	0.05
10.20	0.06	33	330.19	0.05

Hydrograph for Pond 2P: 14 West Channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
10.40	0.07	37	330.21	0.06
10.60	0.08	42	330.25	0.07
10.80	0.09	49	330.29	0.08
11.00	0.11	58	330.34	0.10
11.20	0.13	69	330.41	0.11
11.40	0.17	87	330.52	0.14
11.60	0.30	114	330.68	0.19
11.80	**1.22**	357	331.29	0.66
12.00	**2.87**	**1,070**	**332.15**	**2.14**
12.20	0.44	**625**	**331.70**	**1.20**
12.40	0.30	295	331.20	0.54
12.60	0.21	180	331.02	0.31
12.80	0.18	131	330.79	0.22
13.00	0.15	108	330.64	0.18
13.20	0.14	92	330.55	0.15
13.40	0.12	81	330.48	0.14
13.60	0.11	73	330.43	0.12
13.80	0.10	66	330.39	0.11
14.00	0.09	60	330.36	0.10
14.20	0.09	55	330.32	0.09
14.40	0.08	52	330.31	0.09
14.60	0.08	50	330.29	0.08
14.80	0.08	48	330.28	0.08
15.00	0.07	46	330.27	0.08
15.20	0.07	44	330.26	0.07
15.40	0.07	42	330.25	0.07
15.60	0.06	40	330.23	0.07
15.80	0.06	38	330.22	0.06
16.00	0.06	37	330.21	0.06
16.20	0.05	35	330.20	0.06
16.40	0.05	34	330.19	0.05
16.60	0.05	33	330.19	0.05
16.80	0.05	32	330.18	0.05
17.00	0.05	32	330.18	0.05
17.20	0.05	31	330.18	0.05
17.40	0.05	30	330.17	0.05
17.60	0.05	29	330.17	0.05
17.80	0.04	29	330.16	0.05
18.00	0.04	28	330.16	0.04
18.20	0.04	27	330.15	0.04
18.40	0.04	27	330.15	0.04
18.60	0.04	26	330.15	0.04
18.80	0.04	25	330.14	0.04
19.00	0.04	25	330.14	0.04
19.20	0.04	24	330.13	0.04
19.40	0.04	23	330.13	0.04
19.60	0.03	23	330.13	0.04
19.80	0.03	22	330.12	0.03
20.00	0.03	21	330.12	0.03
20.20	0.03	21	330.11	0.03
20.40	0.03	20	330.11	0.03
20.60	0.03	20	330.11	0.03

Hydrograph for Pond 2P: 14 West Channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
20.80	0.03	20	330.11	0.03
21.00	0.03	20	330.11	0.03
21.20	0.03	20	330.11	0.03
21.40	0.03	19	330.11	0.03
21.60	0.03	19	330.11	0.03
21.80	0.03	19	330.10	0.03
22.00	0.03	19	330.10	0.03
22.20	0.03	19	330.10	0.03
22.40	0.03	19	330.10	0.03
22.60	0.03	19	330.10	0.03
22.80	0.03	19	330.10	0.03
23.00	0.03	18	330.10	0.03
23.20	0.03	18	330.10	0.03
23.40	0.03	18	330.10	0.03
23.60	0.03	18	330.10	0.03
23.80	0.03	18	330.10	0.03
24.00	0.03	18	330.10	0.03
24.20	0.00	10	330.05	0.01
24.40	0.00	4	330.01	0.00
24.60	0.00	3	330.00	0.00
24.80	0.00	2	330.00	0.00
25.00	0.00	2	330.00	0.00
25.20	0.00	2	330.00	0.00
25.40	0.00	2	330.00	0.00
25.60	0.00	2	330.00	0.00
25.80	0.00	2	330.00	0.00
26.00	0.00	2	330.00	0.00
26.20	0.00	2	330.00	0.00
26.40	0.00	2	330.00	0.00
26.60	0.00	2	330.00	0.00
26.80	0.00	2	330.00	0.00
27.00	0.00	2	330.00	0.00
27.20	0.00	2	330.00	0.00
27.40	0.00	2	330.00	0.00
27.60	0.00	2	330.00	0.00
27.80	0.00	2	330.00	0.00
28.00	0.00	2	330.00	0.00
28.20	0.00	2	330.00	0.00
28.40	0.00	2	330.00	0.00
28.60	0.00	2	330.00	0.00
28.80	0.00	2	330.00	0.00
29.00	0.00	2	330.00	0.00
29.20	0.00	2	330.00	0.00
29.40	0.00	2	330.00	0.00
29.60	0.00	2	330.00	0.00
29.80	0.00	2	330.00	0.00
30.00	0.00	2	330.00	0.00
30.20	0.00	2	330.00	0.00
30.40	0.00	2	330.00	0.00
30.60	0.00	2	330.00	0.00
30.80	0.00	2	330.00	0.00
31.00	0.00	2	330.00	0.00

Hydrograph for Pond 2P: 14 West Channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
31.20	0.00	2	330.00	0.00
31.40	0.00	2	330.00	0.00
31.60	0.00	2	330.00	0.00
31.80	0.00	2	330.00	0.00
32.00	0.00	2	330.00	0.00
32.20	0.00	2	330.00	0.00
32.40	0.00	2	330.00	0.00
32.60	0.00	2	330.00	0.00
32.80	0.00	2	330.00	0.00
33.00	0.00	2	330.00	0.00
33.20	0.00	2	330.00	0.00
33.40	0.00	2	330.00	0.00
33.60	0.00	2	330.00	0.00
33.80	0.00	2	330.00	0.00
34.00	0.00	2	330.00	0.00
34.20	0.00	2	330.00	0.00
34.40	0.00	2	330.00	0.00
34.60	0.00	2	330.00	0.00
34.80	0.00	2	330.00	0.00
35.00	0.00	2	330.00	0.00
35.20	0.00	2	330.00	0.00
35.40	0.00	2	330.00	0.00
35.60	0.00	2	330.00	0.00
35.80	0.00	2	330.00	0.00
36.00	0.00	2	330.00	0.00
36.20	0.00	2	330.00	0.00
36.40	0.00	2	330.00	0.00
36.60	0.00	2	330.00	0.00
36.80	0.00	2	330.00	0.00
37.00	0.00	2	330.00	0.00
37.20	0.00	2	330.00	0.00
37.40	0.00	2	330.00	0.00
37.60	0.00	2	330.00	0.00
37.80	0.00	2	330.00	0.00
38.00	0.00	2	330.00	0.00
38.20	0.00	2	330.00	0.00
38.40	0.00	2	330.00	0.00
38.60	0.00	2	330.00	0.00
38.80	0.00	2	330.00	0.00
39.00	0.00	2	330.00	0.00
39.20	0.00	2	330.00	0.00
39.40	0.00	2	330.00	0.00
39.60	0.00	2	330.00	0.00
39.80	0.00	2	330.00	0.00
40.00	0.00	2	330.00	0.00
40.20	0.00	2	330.00	0.00
40.40	0.00	2	330.00	0.00
40.60	0.00	2	330.00	0.00
40.80	0.00	2	330.00	0.00
41.00	0.00	2	330.00	0.00
41.20	0.00	2	330.00	0.00
41.40	0.00	2	330.00	0.00

Hydrograph for Pond 2P: 14 West Channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
41.60	0.00	2	330.00	0.00
41.80	0.00	2	330.00	0.00
42.00	0.00	2	330.00	0.00
42.20	0.00	2	330.00	0.00
42.40	0.00	2	330.00	0.00
42.60	0.00	2	330.00	0.00
42.80	0.00	2	330.00	0.00
43.00	0.00	2	330.00	0.00
43.20	0.00	2	330.00	0.00
43.40	0.00	2	330.00	0.00
43.60	0.00	2	330.00	0.00
43.80	0.00	2	330.00	0.00
44.00	0.00	2	330.00	0.00
44.20	0.00	2	330.00	0.00
44.40	0.00	2	330.00	0.00
44.60	0.00	2	330.00	0.00
44.80	0.00	2	330.00	0.00
45.00	0.00	2	330.00	0.00
45.20	0.00	2	330.00	0.00
45.40	0.00	2	330.00	0.00
45.60	0.00	2	330.00	0.00
45.80	0.00	2	330.00	0.00
46.00	0.00	2	330.00	0.00
46.20	0.00	2	330.00	0.00
46.40	0.00	2	330.00	0.00
46.60	0.00	2	330.00	0.00
46.80	0.00	2	330.00	0.00
47.00	0.00	2	330.00	0.00
47.20	0.00	2	330.00	0.00
47.40	0.00	2	330.00	0.00
47.60	0.00	2	330.00	0.00
47.80	0.00	2	330.00	0.00
48.00	0.00	2	330.00	0.00
48.20	0.00	2	330.00	0.00
48.40	0.00	2	330.00	0.00
48.60	0.00	2	330.00	0.00
48.80	0.00	2	330.00	0.00
49.00	0.00	2	330.00	0.00
49.20	0.00	2	330.00	0.00
49.40	0.00	2	330.00	0.00
49.60	0.00	2	330.00	0.00
49.80	0.00	2	330.00	0.00
50.00	0.00	2	330.00	0.00
50.20	0.00	2	330.00	0.00
50.40	0.00	2	330.00	0.00
50.60	0.00	2	330.00	0.00
50.80	0.00	2	330.00	0.00
51.00	0.00	2	330.00	0.00
51.20	0.00	2	330.00	0.00
51.40	0.00	2	330.00	0.00
51.60	0.00	2	330.00	0.00
51.80	0.00	2	330.00	0.00

Hydrograph for Pond 2P: 14 West Channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
52.00	0.00	2	330.00	0.00
52.20	0.00	2	330.00	0.00
52.40	0.00	2	330.00	0.00
52.60	0.00	2	330.00	0.00
52.80	0.00	2	330.00	0.00
53.00	0.00	2	330.00	0.00
53.20	0.00	2	330.00	0.00
53.40	0.00	2	330.00	0.00
53.60	0.00	2	330.00	0.00
53.80	0.00	2	330.00	0.00
54.00	0.00	2	330.00	0.00
54.20	0.00	2	330.00	0.00
54.40	0.00	2	330.00	0.00
54.60	0.00	2	330.00	0.00
54.80	0.00	2	330.00	0.00
55.00	0.00	2	330.00	0.00
55.20	0.00	2	330.00	0.00
55.40	0.00	2	330.00	0.00
55.60	0.00	2	330.00	0.00
55.80	0.00	2	330.00	0.00
56.00	0.00	2	330.00	0.00
56.20	0.00	2	330.00	0.00
56.40	0.00	2	330.00	0.00
56.60	0.00	2	330.00	0.00
56.80	0.00	2	330.00	0.00
57.00	0.00	2	330.00	0.00
57.20	0.00	2	330.00	0.00
57.40	0.00	2	330.00	0.00
57.60	0.00	2	330.00	0.00
57.80	0.00	2	330.00	0.00
58.00	0.00	2	330.00	0.00
58.20	0.00	2	330.00	0.00
58.40	0.00	2	330.00	0.00
58.60	0.00	2	330.00	0.00
58.80	0.00	2	330.00	0.00
59.00	0.00	2	330.00	0.00
59.20	0.00	2	330.00	0.00
59.40	0.00	2	330.00	0.00
59.60	0.00	2	330.00	0.00
59.80	0.00	2	330.00	0.00
60.00	0.00	2	330.00	0.00

South Perimeter Channel

CWM Chemical Services, LLC
Model City, NY
RMU-1 South Perimeter Channel
Rating Curves for Infiltration into Cells 11/13 and 12/14

Elevation [ft]	Planimetric Area[1] [sq ft]	Cumulative Volume [ft^3]	Operations Layer Area Subject to Infiltration[2] [ft^2]	Hydraulic Gradient[3]	Flowrate (Darcy's Law)[4] [cfs]
327.48	0	0	0	0.00	0.00
328.50	2315	1181	1464	0.51	1.67
329.00	3993	2758	2525	0.76	4.28
329.50	5726	5187	3621	1.01	8.16
330.00	7501	8494	4744	1.26	13.33

Notes:

1. Obtained by direct measurement of area within contours from the Cells 1 Through 14 Fill Progression Plan (ARCADIS , March 2009).
2. Equal to 0.6 times the planimetric area times the 3:1 slope correction factor. The 0.6 factor accounts for the fact that 60% of the plan area of a v-notch channel with 3:1 and 2:1 sideslopes is represented by the 3:1 sideslope, which is subject to infiltration.
3. Equal to the elevation above the low point (327.48) divided by two times the thickness of the operations layer (i.e. 1 ft).
4. Based on hydraulic conductivity of operations stone equal to 6.8 x 10^{-2} cm/s.
5. Lowest lined elevation for channel is 330.09 based on as-built top of secondary soil drawing.

Cell 13 Infiltration Length (ft)[1]: 271 Cell 14 Infiltration Length (ft)[1]: 343

Elevation [ft]	Total Infiltration Flowrate (Darcy's Law)[2] [cfs]	Infiltration into Cell 11/13[3] (cfs)	Infiltration into Cell 12/14[4] (cfs)
327.48	0.00	0.00	0.00
328.50	1.67	0.74	0.93
329.00	4.28	1.89	2.39
329.50	8.16	3.60	4.56
330.00	13.33	5.89	7.45

Notes:

1. The infiltration lengths are based on the channel lengths having zero invert slopes.
2. Total infiltration values are from the "Flowrate" column in the above table.
3. Infiltration values for Cell 11/13 are calculated by multiplying the total infiltration values by the ratio of the infiltration length to the total infiltration length.
4. Infiltration values for Cell 12/14 are calculated by multiplying the total infiltration values by the ratio of the infiltration length to the total infiltration length.

CWM Chemical Services, LLC
Model City, NY
RMU-1 South Perimeter Channel
Rating Curve for Discharge into Detention Basin H Based on Critical Flow

Elevation [ft]	Flow Depth [ft]	Cross Sectional Area [ft²]	Flowrate (Critical Flow) [cfs]
327.48	0.00	0.00	0.00
328.00	0.00	0.00	0.00
328.25	0.25	0.16	0.31
328.48	0.48	0.57	1.59
328.50	0.50	0.63	1.77
328.75	0.75	1.41	4.89
329.00	1.00	2.50	10.03
329.25	1.25	3.91	17.52
329.50	1.50	5.63	27.64
329.75	1.75	7.66	40.64
330.00	2.00	10.00	56.75

Notes:

1. Based on the height above channel invert and 2:1 and 3:1 sideslopes.
2. Flowrate calculated based on critical flow (Froude number =1) into Detention Basin H.

Summary for Subcatchment 31S: Cell 14S

Runoff = 8.41 cfs @ 11.97 hrs, Volume= 0.414 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	1.700	90	
	1.700		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Hydrograph for Subcatchment 31S: Cell 14S

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	5.20	0.26	0.00	0.01
0.10	0.00	0.00	0.00	5.30	0.27	0.00	0.01
0.20	0.01	0.00	0.00	5.40	0.28	0.00	0.01
0.30	0.01	0.00	0.00	5.50	0.28	0.00	0.01
0.40	0.02	0.00	0.00	5.60	0.29	0.00	0.01
0.50	0.02	0.00	0.00	5.70	0.30	0.00	0.01
0.60	0.02	0.00	0.00	5.80	0.31	0.01	0.01
0.70	0.03	0.00	0.00	5.90	0.31	0.01	0.02
0.80	0.03	0.00	0.00	6.00	0.32	0.01	0.02
0.90	0.04	0.00	0.00	6.10	0.33	0.01	0.02
1.00	0.04	0.00	0.00	6.20	0.33	0.01	0.02
1.10	0.05	0.00	0.00	6.30	0.34	0.01	0.02
1.20	0.05	0.00	0.00	6.40	0.35	0.01	0.02
1.30	0.06	0.00	0.00	6.50	0.36	0.01	0.03
1.40	0.06	0.00	0.00	6.60	0.36	0.02	0.03
1.50	0.06	0.00	0.00	6.70	0.37	0.02	0.03
1.60	0.07	0.00	0.00	6.80	0.38	0.02	0.03
1.70	0.07	0.00	0.00	6.90	0.39	0.02	0.03
1.80	0.08	0.00	0.00	7.00	0.40	0.02	0.03
1.90	0.08	0.00	0.00	7.10	0.40	0.03	0.03
2.00	0.09	0.00	0.00	7.20	0.41	0.03	0.04
2.10	0.09	0.00	0.00	7.30	0.42	0.03	0.04
2.20	0.10	0.00	0.00	7.40	0.43	0.03	0.04
2.30	0.10	0.00	0.00	7.50	0.44	0.03	0.04
2.40	0.11	0.00	0.00	7.60	0.45	0.04	0.04
2.50	0.11	0.00	0.00	7.70	0.45	0.04	0.04
2.60	0.12	0.00	0.00	7.80	0.46	0.04	0.05
2.70	0.12	0.00	0.00	7.90	0.47	0.05	0.05
2.80	0.13	0.00	0.00	8.00	0.48	0.05	0.05
2.90	0.13	0.00	0.00	8.10	0.49	0.05	0.05
3.00	0.14	0.00	0.00	8.20	0.50	0.05	0.06
3.10	0.14	0.00	0.00	8.30	0.51	0.06	0.06
3.20	0.15	0.00	0.00	8.40	0.52	0.06	0.06
3.30	0.15	0.00	0.00	8.50	0.53	0.07	0.07
3.40	0.16	0.00	0.00	8.60	0.54	0.07	0.07
3.50	0.16	0.00	0.00	8.70	0.55	0.08	0.08
3.60	0.17	0.00	0.00	8.80	0.56	0.08	0.08
3.70	0.18	0.00	0.00	8.90	0.58	0.09	0.09
3.80	0.18	0.00	0.00	9.00	0.59	0.09	0.09
3.90	0.19	0.00	0.00	9.10	0.60	0.10	0.09
4.00	0.19	0.00	0.00	9.20	0.61	0.10	0.10
4.10	0.20	0.00	0.00	9.30	0.63	0.11	0.10
4.20	0.20	0.00	0.00	9.40	0.64	0.11	0.10
4.30	0.21	0.00	0.00	9.50	0.65	0.12	0.10
4.40	0.22	0.00	0.00	9.60	0.67	0.13	0.11
4.50	0.22	0.00	0.00	9.70	0.68	0.13	0.11
4.60	0.23	0.00	0.00	9.80	0.69	0.14	0.12
4.70	0.23	0.00	0.00	9.90	0.71	0.15	0.13
4.80	0.24	0.00	0.00	10.00	0.72	0.16	0.14
4.90	0.25	0.00	0.00	10.10	0.74	0.16	0.15
5.00	0.25	0.00	0.00	10.20	0.76	0.17	0.16
5.10	0.26	0.00	0.01	10.30	0.78	0.18	0.17

Hydrograph for Subcatchment 31S: Cell 14S (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
10.40	0.80	0.20	0.18	15.60	3.48	2.43	0.17
10.50	0.82	0.21	0.19	15.70	3.49	2.44	0.17
10.60	0.84	0.22	0.21	15.80	3.50	2.45	0.16
10.70	0.86	0.23	0.23	15.90	3.51	2.46	0.16
10.80	0.89	0.25	0.25	16.00	3.52	2.47	0.15
10.90	0.91	0.26	0.27	16.10	3.53	2.48	0.15
11.00	0.94	0.28	0.29	16.20	3.54	2.48	0.15
11.10	0.97	0.30	0.32	16.30	3.55	2.49	0.14
11.20	1.01	0.32	0.36	16.40	3.56	2.50	0.14
11.30	1.04	0.35	0.41	16.50	3.56	2.51	0.14
11.40	1.09	0.38	0.47	16.60	3.57	2.52	0.14
11.50	1.13	0.41	0.52	16.70	3.58	2.52	0.14
11.60	1.23	0.48	0.81	16.80	3.59	2.53	0.14
11.70	1.42	0.62	1.89	16.90	3.60	2.54	0.14
11.80	1.72	0.86	3.28	17.00	3.61	2.55	0.13
11.90	2.27	1.33	**6.29**	17.10	3.62	2.56	0.13
12.00	2.65	1.67	**7.75**	17.20	3.62	2.56	0.13
12.10	2.73	1.74	2.35	17.30	3.63	2.57	0.13
12.20	2.79	1.80	1.19	17.40	3.64	2.58	0.13
12.30	2.85	1.85	0.96	17.50	3.65	2.59	0.13
12.40	2.90	1.89	0.82	17.60	3.65	2.59	0.12
12.50	2.94	1.93	0.68	17.70	3.66	2.60	0.12
12.60	2.97	1.96	0.56	17.80	3.67	2.61	0.12
12.70	3.01	1.99	0.51	17.90	3.68	2.61	0.12
12.80	3.04	2.02	0.48	18.00	3.68	2.62	0.12
12.90	3.06	2.04	0.45	18.10	3.69	2.63	0.12
13.00	3.09	2.07	0.42	18.20	3.70	2.63	0.11
13.10	3.11	2.09	0.39	18.30	3.71	2.64	0.11
13.20	3.13	2.11	0.37	18.40	3.71	2.65	0.11
13.30	3.16	2.13	0.35	18.50	3.72	2.65	0.11
13.40	3.18	2.15	0.33	18.60	3.73	2.66	0.11
13.50	3.20	2.16	0.31	18.70	3.73	2.67	0.11
13.60	3.21	2.18	0.30	18.80	3.74	2.67	0.10
13.70	3.23	2.20	0.29	18.90	3.74	2.68	0.10
13.80	3.25	2.21	0.27	19.00	3.75	2.68	0.10
13.90	3.26	2.23	0.26	19.10	3.76	2.69	0.10
14.00	3.28	2.24	0.25	19.20	3.76	2.70	0.10
14.10	3.29	2.26	0.24	19.30	3.77	2.70	0.10
14.20	3.31	2.27	0.23	19.40	3.77	2.71	0.10
14.30	3.32	2.28	0.23	19.50	3.78	2.71	0.09
14.40	3.34	2.30	0.22	19.60	3.79	2.72	0.09
14.50	3.35	2.31	0.22	19.70	3.79	2.72	0.09
14.60	3.36	2.32	0.21	19.80	3.80	2.73	0.09
14.70	3.38	2.33	0.21	19.90	3.80	2.73	0.09
14.80	3.39	2.34	0.20	20.00	3.81	2.74	0.09
14.90	3.40	2.36	0.20	20.10	3.81	2.74	0.08
15.00	3.41	2.37	0.20	20.20	3.82	2.75	0.08
15.10	3.43	2.38	0.19	20.30	3.82	2.75	0.08
15.20	3.44	2.39	0.19	20.40	3.83	2.76	0.08
15.30	3.45	2.40	0.18	20.50	3.83	2.76	0.08
15.40	3.46	2.41	0.18	20.60	3.84	2.77	0.08
15.50	3.47	2.42	0.17	20.70	3.84	2.77	0.08

Hydrograph for Subcatchment 31S: Cell 14S (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
20.80	3.85	2.78	0.08
20.90	3.85	2.78	0.08
21.00	3.86	2.79	0.08
21.10	3.86	2.79	0.08
21.20	3.87	2.80	0.08
21.30	3.87	2.80	0.08
21.40	3.88	2.80	0.08
21.50	3.88	2.81	0.08
21.60	3.89	2.81	0.08
21.70	3.89	2.82	0.08
21.80	3.90	2.82	0.08
21.90	3.90	2.83	0.08
22.00	3.91	2.83	0.08
22.10	3.91	2.84	0.08
22.20	3.92	2.84	0.08
22.30	3.92	2.85	0.08
22.40	3.93	2.85	0.08
22.50	3.93	2.85	0.08
22.60	3.94	2.86	0.08
22.70	3.94	2.86	0.08
22.80	3.95	2.87	0.08
22.90	3.95	2.87	0.08
23.00	3.95	2.88	0.07
23.10	3.96	2.88	0.07
23.20	3.96	2.89	0.07
23.30	3.97	2.89	0.07
23.40	3.97	2.89	0.07
23.50	3.98	2.90	0.07
23.60	3.98	2.90	0.07
23.70	3.99	2.91	0.07
23.80	3.99	2.91	0.07
23.90	4.00	2.92	0.07
24.00	**4.00**	**2.92**	0.07
24.10	4.00	2.92	0.03
24.20	4.00	2.92	0.00
24.30	4.00	2.92	0.00
24.40	4.00	2.92	0.00
24.50	4.00	2.92	0.00
24.60	4.00	2.92	0.00
24.70	4.00	2.92	0.00
24.80	4.00	2.92	0.00
24.90	4.00	2.92	0.00
25.00	4.00	2.92	0.00
25.10	4.00	2.92	0.00
25.20	4.00	2.92	0.00
25.30	4.00	2.92	0.00
25.40	4.00	2.92	0.00
25.50	4.00	2.92	0.00
25.60	4.00	2.92	0.00
25.70	4.00	2.92	0.00
25.80	4.00	2.92	0.00
25.90	4.00	2.92	0.00
26.00	4.00	2.92	0.00
26.10	4.00	2.92	0.00
26.20	4.00	2.92	0.00
26.30	4.00	2.92	0.00
26.40	4.00	2.92	0.00
26.50	4.00	2.92	0.00
26.60	4.00	2.92	0.00
26.70	4.00	2.92	0.00
26.80	4.00	2.92	0.00
26.90	4.00	2.92	0.00
27.00	4.00	2.92	0.00
27.10	4.00	2.92	0.00
27.20	4.00	2.92	0.00
27.30	4.00	2.92	0.00
27.40	4.00	2.92	0.00
27.50	4.00	2.92	0.00
27.60	4.00	2.92	0.00
27.70	4.00	2.92	0.00
27.80	4.00	2.92	0.00
27.90	4.00	2.92	0.00
28.00	4.00	2.92	0.00
28.10	4.00	2.92	0.00
28.20	4.00	2.92	0.00
28.30	4.00	2.92	0.00
28.40	4.00	2.92	0.00
28.50	4.00	2.92	0.00
28.60	4.00	2.92	0.00
28.70	4.00	2.92	0.00
28.80	4.00	2.92	0.00
28.90	4.00	2.92	0.00
29.00	4.00	2.92	0.00
29.10	4.00	2.92	0.00
29.20	4.00	2.92	0.00
29.30	4.00	2.92	0.00
29.40	4.00	2.92	0.00
29.50	4.00	2.92	0.00
29.60	4.00	2.92	0.00
29.70	4.00	2.92	0.00
29.80	4.00	2.92	0.00
29.90	4.00	2.92	0.00
30.00	4.00	2.92	0.00
30.10	4.00	2.92	0.00
30.20	4.00	2.92	0.00
30.30	4.00	2.92	0.00
30.40	4.00	2.92	0.00
30.50	4.00	2.92	0.00
30.60	4.00	2.92	0.00
30.70	4.00	2.92	0.00
30.80	4.00	2.92	0.00
30.90	4.00	2.92	0.00
31.00	4.00	2.92	0.00
31.10	4.00	2.92	0.00

Hydrograph for Subcatchment 31S: Cell 14S (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
31.20	4.00	2.92	0.00	36.40	4.00	2.92	0.00
31.30	4.00	2.92	0.00	36.50	4.00	2.92	0.00
31.40	4.00	2.92	0.00	36.60	4.00	2.92	0.00
31.50	4.00	2.92	0.00	36.70	4.00	2.92	0.00
31.60	4.00	2.92	0.00	36.80	4.00	2.92	0.00
31.70	4.00	2.92	0.00	36.90	4.00	2.92	0.00
31.80	4.00	2.92	0.00	37.00	4.00	2.92	0.00
31.90	4.00	2.92	0.00	37.10	4.00	2.92	0.00
32.00	4.00	2.92	0.00	37.20	4.00	2.92	0.00
32.10	4.00	2.92	0.00	37.30	4.00	2.92	0.00
32.20	4.00	2.92	0.00	37.40	4.00	2.92	0.00
32.30	4.00	2.92	0.00	37.50	4.00	2.92	0.00
32.40	4.00	2.92	0.00	37.60	4.00	2.92	0.00
32.50	4.00	2.92	0.00	37.70	4.00	2.92	0.00
32.60	4.00	2.92	0.00	37.80	4.00	2.92	0.00
32.70	4.00	2.92	0.00	37.90	4.00	2.92	0.00
32.80	4.00	2.92	0.00	38.00	4.00	2.92	0.00
32.90	4.00	2.92	0.00	38.10	4.00	2.92	0.00
33.00	4.00	2.92	0.00	38.20	4.00	2.92	0.00
33.10	4.00	2.92	0.00	38.30	4.00	2.92	0.00
33.20	4.00	2.92	0.00	38.40	4.00	2.92	0.00
33.30	4.00	2.92	0.00	38.50	4.00	2.92	0.00
33.40	4.00	2.92	0.00	38.60	4.00	2.92	0.00
33.50	4.00	2.92	0.00	38.70	4.00	2.92	0.00
33.60	4.00	2.92	0.00	38.80	4.00	2.92	0.00
33.70	4.00	2.92	0.00	38.90	4.00	2.92	0.00
33.80	4.00	2.92	0.00	39.00	4.00	2.92	0.00
33.90	4.00	2.92	0.00	39.10	4.00	2.92	0.00
34.00	4.00	2.92	0.00	39.20	4.00	2.92	0.00
34.10	4.00	2.92	0.00	39.30	4.00	2.92	0.00
34.20	4.00	2.92	0.00	39.40	4.00	2.92	0.00
34.30	4.00	2.92	0.00	39.50	4.00	2.92	0.00
34.40	4.00	2.92	0.00	39.60	4.00	2.92	0.00
34.50	4.00	2.92	0.00	39.70	4.00	2.92	0.00
34.60	4.00	2.92	0.00	39.80	4.00	2.92	0.00
34.70	4.00	2.92	0.00	39.90	4.00	2.92	0.00
34.80	4.00	2.92	0.00	40.00	4.00	2.92	0.00
34.90	4.00	2.92	0.00	40.10	4.00	2.92	0.00
35.00	4.00	2.92	0.00	40.20	4.00	2.92	0.00
35.10	4.00	2.92	0.00	40.30	4.00	2.92	0.00
35.20	4.00	2.92	0.00	40.40	4.00	2.92	0.00
35.30	4.00	2.92	0.00	40.50	4.00	2.92	0.00
35.40	4.00	2.92	0.00	40.60	4.00	2.92	0.00
35.50	4.00	2.92	0.00	40.70	4.00	2.92	0.00
35.60	4.00	2.92	0.00	40.80	4.00	2.92	0.00
35.70	4.00	2.92	0.00	40.90	4.00	2.92	0.00
35.80	4.00	2.92	0.00	41.00	4.00	2.92	0.00
35.90	4.00	2.92	0.00	41.10	4.00	2.92	0.00
36.00	4.00	2.92	0.00	41.20	4.00	2.92	0.00
36.10	4.00	2.92	0.00	41.30	4.00	2.92	0.00
36.20	4.00	2.92	0.00	41.40	4.00	2.92	0.00
36.30	4.00	2.92	0.00	41.50	4.00	2.92	0.00

Hydrograph for Subcatchment 31S: Cell 14S (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
41.60	4.00	2.92	0.00	46.80	4.00	2.92	0.00
41.70	4.00	2.92	0.00	46.90	4.00	2.92	0.00
41.80	4.00	2.92	0.00	47.00	4.00	2.92	0.00
41.90	4.00	2.92	0.00	47.10	4.00	2.92	0.00
42.00	4.00	2.92	0.00	47.20	4.00	2.92	0.00
42.10	4.00	2.92	0.00	47.30	4.00	2.92	0.00
42.20	4.00	2.92	0.00	47.40	4.00	2.92	0.00
42.30	4.00	2.92	0.00	47.50	4.00	2.92	0.00
42.40	4.00	2.92	0.00	47.60	4.00	2.92	0.00
42.50	4.00	2.92	0.00	47.70	4.00	2.92	0.00
42.60	4.00	2.92	0.00	47.80	4.00	2.92	0.00
42.70	4.00	2.92	0.00	47.90	4.00	2.92	0.00
42.80	4.00	2.92	0.00	48.00	4.00	2.92	0.00
42.90	4.00	2.92	0.00	48.10	4.00	2.92	0.00
43.00	4.00	2.92	0.00	48.20	4.00	2.92	0.00
43.10	4.00	2.92	0.00	48.30	4.00	2.92	0.00
43.20	4.00	2.92	0.00	48.40	4.00	2.92	0.00
43.30	4.00	2.92	0.00	48.50	4.00	2.92	0.00
43.40	4.00	2.92	0.00	48.60	4.00	2.92	0.00
43.50	4.00	2.92	0.00	48.70	4.00	2.92	0.00
43.60	4.00	2.92	0.00	48.80	4.00	2.92	0.00
43.70	4.00	2.92	0.00	48.90	4.00	2.92	0.00
43.80	4.00	2.92	0.00	49.00	4.00	2.92	0.00
43.90	4.00	2.92	0.00	49.10	4.00	2.92	0.00
44.00	4.00	2.92	0.00	49.20	4.00	2.92	0.00
44.10	4.00	2.92	0.00	49.30	4.00	2.92	0.00
44.20	4.00	2.92	0.00	49.40	4.00	2.92	0.00
44.30	4.00	2.92	0.00	49.50	4.00	2.92	0.00
44.40	4.00	2.92	0.00	49.60	4.00	2.92	0.00
44.50	4.00	2.92	0.00	49.70	4.00	2.92	0.00
44.60	4.00	2.92	0.00	49.80	4.00	2.92	0.00
44.70	4.00	2.92	0.00	49.90	4.00	2.92	0.00
44.80	4.00	2.92	0.00	50.00	4.00	2.92	0.00
44.90	4.00	2.92	0.00	50.10	4.00	2.92	0.00
45.00	4.00	2.92	0.00	50.20	4.00	2.92	0.00
45.10	4.00	2.92	0.00	50.30	4.00	2.92	0.00
45.20	4.00	2.92	0.00	50.40	4.00	2.92	0.00
45.30	4.00	2.92	0.00	50.50	4.00	2.92	0.00
45.40	4.00	2.92	0.00	50.60	4.00	2.92	0.00
45.50	4.00	2.92	0.00	50.70	4.00	2.92	0.00
45.60	4.00	2.92	0.00	50.80	4.00	2.92	0.00
45.70	4.00	2.92	0.00	50.90	4.00	2.92	0.00
45.80	4.00	2.92	0.00	51.00	4.00	2.92	0.00
45.90	4.00	2.92	0.00	51.10	4.00	2.92	0.00
46.00	4.00	2.92	0.00	51.20	4.00	2.92	0.00
46.10	4.00	2.92	0.00	51.30	4.00	2.92	0.00
46.20	4.00	2.92	0.00	51.40	4.00	2.92	0.00
46.30	4.00	2.92	0.00	51.50	4.00	2.92	0.00
46.40	4.00	2.92	0.00	51.60	4.00	2.92	0.00
46.50	4.00	2.92	0.00	51.70	4.00	2.92	0.00
46.60	4.00	2.92	0.00	51.80	4.00	2.92	0.00
46.70	4.00	2.92	0.00	51.90	4.00	2.92	0.00

Hydrograph for Subcatchment 31S: Cell 14S (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
52.00	4.00	2.92	0.00
52.10	4.00	2.92	0.00
52.20	4.00	2.92	0.00
52.30	4.00	2.92	0.00
52.40	4.00	2.92	0.00
52.50	4.00	2.92	0.00
52.60	4.00	2.92	0.00
52.70	4.00	2.92	0.00
52.80	4.00	2.92	0.00
52.90	4.00	2.92	0.00
53.00	4.00	2.92	0.00
53.10	4.00	2.92	0.00
53.20	4.00	2.92	0.00
53.30	4.00	2.92	0.00
53.40	4.00	2.92	0.00
53.50	4.00	2.92	0.00
53.60	4.00	2.92	0.00
53.70	4.00	2.92	0.00
53.80	4.00	2.92	0.00
53.90	4.00	2.92	0.00
54.00	4.00	2.92	0.00
54.10	4.00	2.92	0.00
54.20	4.00	2.92	0.00
54.30	4.00	2.92	0.00
54.40	4.00	2.92	0.00
54.50	4.00	2.92	0.00
54.60	4.00	2.92	0.00
54.70	4.00	2.92	0.00
54.80	4.00	2.92	0.00
54.90	4.00	2.92	0.00
55.00	4.00	2.92	0.00
55.10	4.00	2.92	0.00
55.20	4.00	2.92	0.00
55.30	4.00	2.92	0.00
55.40	4.00	2.92	0.00
55.50	4.00	2.92	0.00
55.60	4.00	2.92	0.00
55.70	4.00	2.92	0.00
55.80	4.00	2.92	0.00
55.90	4.00	2.92	0.00
56.00	4.00	2.92	0.00
56.10	4.00	2.92	0.00
56.20	4.00	2.92	0.00
56.30	4.00	2.92	0.00
56.40	4.00	2.92	0.00
56.50	4.00	2.92	0.00
56.60	4.00	2.92	0.00
56.70	4.00	2.92	0.00
56.80	4.00	2.92	0.00
56.90	4.00	2.92	0.00
57.00	4.00	2.92	0.00
57.10	4.00	2.92	0.00
57.20	4.00	2.92	0.00
57.30	4.00	2.92	0.00
57.40	4.00	2.92	0.00
57.50	4.00	2.92	0.00
57.60	4.00	2.92	0.00
57.70	4.00	2.92	0.00
57.80	4.00	2.92	0.00
57.90	4.00	2.92	0.00
58.00	4.00	2.92	0.00
58.10	4.00	2.92	0.00
58.20	4.00	2.92	0.00
58.30	4.00	2.92	0.00
58.40	4.00	2.92	0.00
58.50	4.00	2.92	0.00
58.60	4.00	2.92	0.00
58.70	4.00	2.92	0.00
58.80	4.00	2.92	0.00
58.90	4.00	2.92	0.00
59.00	4.00	2.92	0.00
59.10	4.00	2.92	0.00
59.20	4.00	2.92	0.00
59.30	4.00	2.92	0.00
59.40	4.00	2.92	0.00
59.50	4.00	2.92	0.00
59.60	4.00	2.92	0.00
59.70	4.00	2.92	0.00
59.80	4.00	2.92	0.00
59.90	4.00	2.92	0.00
60.00	4.00	2.92	0.00

Summary for Pond 13P: 14 s channel

[78] Warning: Submerged Pond 94P Primary device # 1 by 1.26'

Inflow	=	8.41 cfs @	11.97 hrs, Volume=	0.640 af
Outflow	=	7.69 cfs @	12.01 hrs, Volume=	0.640 af, Atten= 9%, Lag= 2.2 min
Discarded	=	2.92 cfs @	12.01 hrs, Volume=	0.524 af
Primary	=	4.77 cfs @	12.01 hrs, Volume=	0.116 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 328.74' @ 12.01 hrs Surf.Area= 0 sf Storage= 1,939 cf

Plug-Flow detention time= 9.6 min calculated for 0.640 af (100% of inflow)
Center-of-Mass det. time= 9.6 min (838.4 - 828.8)

Volume	Invert	Avail.Storage	Storage Description
#1	327.48'	8,494 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
327.48	0
328.50	1,181
329.00	2,758
329.50	5,187
330.00	8,494

Device	Routing	Invert	Outlet Devices
#1	Primary	327.48'	**Flow exchange with Basin H** Elev. (feet) 327.48 328.00 328.25 328.48 328.50 328.75 329.00 329.25 329.50 329.75 330.00 Disch. (cfs) 0.000 0.000 0.310 1.590 1.770 4.890 10.030 17.520 27.640 40.640 56.750
#2	Discarded	327.48'	**Infiltration** Elev. (feet) 327.48 328.50 329.00 329.50 330.00 Disch. (cfs) 0.000 1.670 4.280 8.160 13.330

Discarded OutFlow Max=2.92 cfs @ 12.01 hrs HW=328.74' (Free Discharge)
↑—**2=Infiltration** (Custom Controls 2.92 cfs)

Primary OutFlow Max=4.76 cfs @ 12.01 hrs HW=328.74' TW=327.14' (Dynamic Tailwater)
↑—**1=Flow exchange with Basin H** (Custom Controls 4.76 cfs)

Hydrograph for Pond 13P: 14 s channel

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	327.48	0.00	0.00	0.00
0.20	0.00	0	327.48	0.00	0.00	0.00
0.40	0.00	0	327.48	0.00	0.00	0.00
0.60	0.00	0	327.48	0.00	0.00	0.00
0.80	0.00	0	327.48	0.00	0.00	0.00
1.00	0.00	0	327.48	0.00	0.00	0.00
1.20	0.00	0	327.48	0.00	0.00	0.00
1.40	0.00	0	327.48	0.00	0.00	0.00
1.60	0.00	0	327.48	0.00	0.00	0.00
1.80	0.00	0	327.48	0.00	0.00	0.00
2.00	0.00	0	327.48	0.00	0.00	0.00
2.20	0.00	0	327.48	0.00	0.00	0.00
2.40	0.00	0	327.48	0.00	0.00	0.00
2.60	0.00	0	327.48	0.00	0.00	0.00
2.80	0.00	0	327.48	0.00	0.00	0.00
3.00	0.00	0	327.48	0.00	0.00	0.00
3.20	0.00	0	327.48	0.00	0.00	0.00
3.40	0.00	0	327.48	0.00	0.00	0.00
3.60	0.00	0	327.48	0.00	0.00	0.00
3.80	0.00	0	327.48	0.00	0.00	0.00
4.00	0.00	0	327.48	0.00	0.00	0.00
4.20	0.00	0	327.48	0.00	0.00	0.00
4.40	0.00	0	327.48	0.00	0.00	0.00
4.60	0.00	0	327.48	0.00	0.00	0.00
4.80	0.00	1	327.48	0.00	0.00	0.00
5.00	0.00	2	327.48	0.00	0.00	0.00
5.20	0.01	3	327.48	0.00	0.00	0.00
5.40	0.01	5	327.48	0.01	0.01	0.00
5.60	0.01	7	327.49	0.01	0.01	0.00
5.80	0.01	9	327.49	0.01	0.01	0.00
6.00	0.02	11	327.49	0.02	0.02	0.00
6.20	0.02	13	327.49	0.02	0.02	0.00
6.40	0.02	15	327.49	0.02	0.02	0.00
6.60	0.03	17	327.49	0.02	0.02	0.00
6.80	0.03	19	327.50	0.03	0.03	0.00
7.00	0.03	21	327.50	0.03	0.03	0.00
7.20	0.04	23	327.50	0.03	0.03	0.00
7.40	0.04	26	327.50	0.04	0.04	0.00
7.60	0.04	28	327.50	0.04	0.04	0.00
7.80	0.05	30	327.51	0.04	0.04	0.00
8.00	0.05	33	327.51	0.05	0.05	0.00
8.20	0.06	36	327.51	0.05	0.05	0.00
8.40	0.06	40	327.51	0.06	0.06	0.00
8.60	0.07	45	327.52	0.06	0.06	0.00
8.80	0.08	51	327.52	0.07	0.07	0.00
9.00	0.09	58	327.53	0.08	0.08	0.00
9.20	0.10	64	327.54	0.09	0.09	0.00
9.40	0.10	68	327.54	0.10	0.10	0.00
9.60	0.11	72	327.54	0.10	0.10	0.00
9.80	0.12	78	327.55	0.11	0.11	0.00
10.00	0.14	87	327.55	0.12	0.12	0.00
10.20	0.16	98	327.56	0.14	0.14	0.00

Hydrograph for Pond 13P: 14 s channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
10.40	0.18	112	327.58	0.16	0.16	0.00
10.60	0.21	129	327.59	0.18	0.18	0.00
10.80	0.25	150	327.61	0.21	0.21	0.00
11.00	0.29	177	327.63	0.25	0.25	0.00
11.20	0.36	212	327.66	0.30	0.30	0.00
11.40	0.47	267	327.71	0.38	0.38	0.00
11.60	0.81	351	327.78	0.50	0.50	0.00
11.80	**3.28**	1,006	328.35	2.28	1.42	0.86
12.00	**7.75**	**1,935**	**328.74**	**7.67**	**2.92**	**4.75**
12.20	1.31	**917**	**328.27**	**1.73**	**1.30**	**0.43**
12.40	1.12	761	328.14	1.25	1.08	0.17
12.60	1.27	757	328.13	1.24	1.07	0.17
12.80	1.35	788	328.16	1.31	1.11	0.20
13.00	1.34	800	328.17	1.34	1.13	0.21
13.20	1.28	786	328.16	1.31	1.11	0.20
13.40	1.20	759	328.14	1.24	1.07	0.17
13.60	1.09	723	328.10	1.15	1.02	0.13
13.80	0.99	680	328.07	1.05	0.96	0.08
14.00	0.87	636	328.03	0.93	0.90	0.04
14.20	0.76	589	327.99	0.83	0.83	0.00
14.40	0.67	533	327.94	0.75	0.75	0.00
14.60	0.61	479	327.89	0.68	0.68	0.00
14.80	0.55	432	327.85	0.61	0.61	0.00
15.00	0.51	393	327.82	0.56	0.56	0.00
15.20	0.49	366	327.80	0.52	0.52	0.00
15.40	0.47	349	327.78	0.49	0.49	0.00
15.60	0.45	334	327.77	0.47	0.47	0.00
15.80	0.43	321	327.76	0.45	0.45	0.00
16.00	0.41	307	327.74	0.43	0.43	0.00
16.20	0.40	293	327.73	0.41	0.41	0.00
16.40	0.38	281	327.72	0.40	0.40	0.00
16.60	0.37	270	327.71	0.38	0.38	0.00
16.80	0.35	260	327.70	0.37	0.37	0.00
17.00	0.34	249	327.70	0.35	0.35	0.00
17.20	0.33	240	327.69	0.34	0.34	0.00
17.40	0.31	230	327.68	0.33	0.33	0.00
17.60	0.30	221	327.67	0.31	0.31	0.00
17.80	0.29	211	327.66	0.30	0.30	0.00
18.00	0.27	202	327.65	0.29	0.29	0.00
18.20	0.26	193	327.65	0.27	0.27	0.00
18.40	0.25	184	327.64	0.26	0.26	0.00
18.60	0.24	176	327.63	0.25	0.25	0.00
18.80	0.22	167	327.62	0.24	0.24	0.00
19.00	0.21	158	327.62	0.22	0.22	0.00
19.20	0.20	150	327.61	0.21	0.21	0.00
19.40	0.19	142	327.60	0.20	0.20	0.00
19.60	0.18	133	327.60	0.19	0.19	0.00
19.80	0.17	125	327.59	0.18	0.18	0.00
20.00	0.15	117	327.58	0.17	0.17	0.00
20.20	0.14	109	327.57	0.15	0.15	0.00
20.40	0.14	102	327.57	0.14	0.14	0.00
20.60	0.13	96	327.56	0.14	0.14	0.00

Hydrograph for Pond 13P: 14 s channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
20.80	0.12	90	327.56	0.13	0.13	0.00
21.00	0.11	85	327.55	0.12	0.12	0.00
21.20	0.11	80	327.55	0.11	0.11	0.00
21.40	0.10	75	327.54	0.11	0.11	0.00
21.60	0.09	71	327.54	0.10	0.10	0.00
21.80	0.09	67	327.54	0.09	0.09	0.00
22.00	0.08	63	327.53	0.09	0.09	0.00
22.20	0.08	59	327.53	0.08	0.08	0.00
22.40	0.08	56	327.53	0.08	0.08	0.00
22.60	0.08	55	327.53	0.08	0.08	0.00
22.80	0.08	54	327.53	0.08	0.08	0.00
23.00	0.07	54	327.53	0.08	0.08	0.00
23.20	0.07	53	327.53	0.08	0.08	0.00
23.40	0.07	53	327.53	0.07	0.07	0.00
23.60	0.07	52	327.53	0.07	0.07	0.00
23.80	0.07	52	327.52	0.07	0.07	0.00
24.00	0.07	51	327.52	0.07	0.07	0.00
24.20	0.00	30	327.51	0.04	0.04	0.00
24.40	0.00	11	327.49	0.02	0.02	0.00
24.60	0.00	4	327.48	0.01	0.01	0.00
24.80	0.00	1	327.48	0.00	0.00	0.00
25.00	0.00	0	327.48	0.00	0.00	0.00
25.20	0.00	0	327.48	0.00	0.00	0.00
25.40	0.00	0	327.48	0.00	0.00	0.00
25.60	0.00	0	327.48	0.00	0.00	0.00
25.80	0.00	0	327.48	0.00	0.00	0.00
26.00	0.00	0	327.48	0.00	0.00	0.00
26.20	0.00	0	327.48	0.00	0.00	0.00
26.40	0.00	0	327.48	0.00	0.00	0.00
26.60	0.00	0	327.48	0.00	0.00	0.00
26.80	0.00	0	327.48	0.00	0.00	0.00
27.00	0.00	0	327.48	0.00	0.00	0.00
27.20	0.00	0	327.48	0.00	0.00	0.00
27.40	0.00	0	327.48	0.00	0.00	0.00
27.60	0.00	0	327.48	0.00	0.00	0.00
27.80	0.00	0	327.48	0.00	0.00	0.00
28.00	0.00	0	327.48	0.00	0.00	0.00
28.20	0.00	0	327.48	0.00	0.00	0.00
28.40	0.00	0	327.48	0.00	0.00	0.00
28.60	0.00	0	327.48	0.00	0.00	0.00
28.80	0.00	0	327.48	0.00	0.00	0.00
29.00	0.00	0	327.48	0.00	0.00	0.00
29.20	0.00	0	327.48	0.00	0.00	0.00
29.40	0.00	0	327.48	0.00	0.00	0.00
29.60	0.00	0	327.48	0.00	0.00	0.00
29.80	0.00	0	327.48	0.00	0.00	0.00
30.00	0.00	0	327.48	0.00	0.00	0.00
30.20	0.00	0	327.48	0.00	0.00	0.00
30.40	0.00	0	327.48	0.00	0.00	0.00
30.60	0.00	0	327.48	0.00	0.00	0.00
30.80	0.00	0	327.48	0.00	0.00	0.00
31.00	0.00	0	327.48	0.00	0.00	0.00

Hydrograph for Pond 13P: 14 s channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
31.20	0.00	0	327.48	0.00	0.00	0.00
31.40	0.00	0	327.48	0.00	0.00	0.00
31.60	0.00	0	327.48	0.00	0.00	0.00
31.80	0.00	0	327.48	0.00	0.00	0.00
32.00	0.00	0	327.48	0.00	0.00	0.00
32.20	0.00	0	327.48	0.00	0.00	0.00
32.40	0.00	0	327.48	0.00	0.00	0.00
32.60	0.00	0	327.48	0.00	0.00	0.00
32.80	0.00	0	327.48	0.00	0.00	0.00
33.00	0.00	0	327.48	0.00	0.00	0.00
33.20	0.00	0	327.48	0.00	0.00	0.00
33.40	0.00	0	327.48	0.00	0.00	0.00
33.60	0.00	0	327.48	0.00	0.00	0.00
33.80	0.00	0	327.48	0.00	0.00	0.00
34.00	0.00	0	327.48	0.00	0.00	0.00
34.20	0.00	0	327.48	0.00	0.00	0.00
34.40	0.00	0	327.48	0.00	0.00	0.00
34.60	0.00	0	327.48	0.00	0.00	0.00
34.80	0.00	0	327.48	0.00	0.00	0.00
35.00	0.00	0	327.48	0.00	0.00	0.00
35.20	0.00	0	327.48	0.00	0.00	0.00
35.40	0.00	0	327.48	0.00	0.00	0.00
35.60	0.00	0	327.48	0.00	0.00	0.00
35.80	0.00	0	327.48	0.00	0.00	0.00
36.00	0.00	0	327.48	0.00	0.00	0.00
36.20	0.00	0	327.48	0.00	0.00	0.00
36.40	0.00	0	327.48	0.00	0.00	0.00
36.60	0.00	0	327.48	0.00	0.00	0.00
36.80	0.00	0	327.48	0.00	0.00	0.00
37.00	0.00	0	327.48	0.00	0.00	0.00
37.20	0.00	0	327.48	0.00	0.00	0.00
37.40	0.00	0	327.48	0.00	0.00	0.00
37.60	0.00	0	327.48	0.00	0.00	0.00
37.80	0.00	0	327.48	0.00	0.00	0.00
38.00	0.00	0	327.48	0.00	0.00	0.00
38.20	0.00	0	327.48	0.00	0.00	0.00
38.40	0.00	0	327.48	0.00	0.00	0.00
38.60	0.00	0	327.48	0.00	0.00	0.00
38.80	0.00	0	327.48	0.00	0.00	0.00
39.00	0.00	0	327.48	0.00	0.00	0.00
39.20	0.00	0	327.48	0.00	0.00	0.00
39.40	0.00	0	327.48	0.00	0.00	0.00
39.60	0.00	0	327.48	0.00	0.00	0.00
39.80	0.00	0	327.48	0.00	0.00	0.00
40.00	0.00	0	327.48	0.00	0.00	0.00
40.20	0.00	0	327.48	0.00	0.00	0.00
40.40	0.00	0	327.48	0.00	0.00	0.00
40.60	0.00	0	327.48	0.00	0.00	0.00
40.80	0.00	0	327.48	0.00	0.00	0.00
41.00	0.00	0	327.48	0.00	0.00	0.00
41.20	0.00	0	327.48	0.00	0.00	0.00
41.40	0.00	0	327.48	0.00	0.00	0.00

Hydrograph for Pond 13P: 14 s channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
41.60	0.00	0	327.48	0.00	0.00	0.00
41.80	0.00	0	327.48	0.00	0.00	0.00
42.00	0.00	0	327.48	0.00	0.00	0.00
42.20	0.00	0	327.48	0.00	0.00	0.00
42.40	0.00	0	327.48	0.00	0.00	0.00
42.60	0.00	0	327.48	0.00	0.00	0.00
42.80	0.00	0	327.48	0.00	0.00	0.00
43.00	0.00	0	327.48	0.00	0.00	0.00
43.20	0.00	0	327.48	0.00	0.00	0.00
43.40	0.00	0	327.48	0.00	0.00	0.00
43.60	0.00	0	327.48	0.00	0.00	0.00
43.80	0.00	0	327.48	0.00	0.00	0.00
44.00	0.00	0	327.48	0.00	0.00	0.00
44.20	0.00	0	327.48	0.00	0.00	0.00
44.40	0.00	0	327.48	0.00	0.00	0.00
44.60	0.00	0	327.48	0.00	0.00	0.00
44.80	0.00	0	327.48	0.00	0.00	0.00
45.00	0.00	0	327.48	0.00	0.00	0.00
45.20	0.00	0	327.48	0.00	0.00	0.00
45.40	0.00	0	327.48	0.00	0.00	0.00
45.60	0.00	0	327.48	0.00	0.00	0.00
45.80	0.00	0	327.48	0.00	0.00	0.00
46.00	0.00	0	327.48	0.00	0.00	0.00
46.20	0.00	0	327.48	0.00	0.00	0.00
46.40	0.00	0	327.48	0.00	0.00	0.00
46.60	0.00	0	327.48	0.00	0.00	0.00
46.80	0.00	0	327.48	0.00	0.00	0.00
47.00	0.00	0	327.48	0.00	0.00	0.00
47.20	0.00	0	327.48	0.00	0.00	0.00
47.40	0.00	0	327.48	0.00	0.00	0.00
47.60	0.00	0	327.48	0.00	0.00	0.00
47.80	0.00	0	327.48	0.00	0.00	0.00
48.00	0.00	0	327.48	0.00	0.00	0.00
48.20	0.00	0	327.48	0.00	0.00	0.00
48.40	0.00	0	327.48	0.00	0.00	0.00
48.60	0.00	0	327.48	0.00	0.00	0.00
48.80	0.00	0	327.48	0.00	0.00	0.00
49.00	0.00	0	327.48	0.00	0.00	0.00
49.20	0.00	0	327.48	0.00	0.00	0.00
49.40	0.00	0	327.48	0.00	0.00	0.00
49.60	0.00	0	327.48	0.00	0.00	0.00
49.80	0.00	0	327.48	0.00	0.00	0.00
50.00	0.00	0	327.48	0.00	0.00	0.00
50.20	0.00	0	327.48	0.00	0.00	0.00
50.40	0.00	0	327.48	0.00	0.00	0.00
50.60	0.00	0	327.48	0.00	0.00	0.00
50.80	0.00	0	327.48	0.00	0.00	0.00
51.00	0.00	0	327.48	0.00	0.00	0.00
51.20	0.00	0	327.48	0.00	0.00	0.00
51.40	0.00	0	327.48	0.00	0.00	0.00
51.60	0.00	0	327.48	0.00	0.00	0.00
51.80	0.00	0	327.48	0.00	0.00	0.00

Hydrograph for Pond 13P: 14 s channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
52.00	0.00	0	327.48	0.00	0.00	0.00
52.20	0.00	0	327.48	0.00	0.00	0.00
52.40	0.00	0	327.48	0.00	0.00	0.00
52.60	0.00	0	327.48	0.00	0.00	0.00
52.80	0.00	0	327.48	0.00	0.00	0.00
53.00	0.00	0	327.48	0.00	0.00	0.00
53.20	0.00	0	327.48	0.00	0.00	0.00
53.40	0.00	0	327.48	0.00	0.00	0.00
53.60	0.00	0	327.48	0.00	0.00	0.00
53.80	0.00	0	327.48	0.00	0.00	0.00
54.00	0.00	0	327.48	0.00	0.00	0.00
54.20	0.00	0	327.48	0.00	0.00	0.00
54.40	0.00	0	327.48	0.00	0.00	0.00
54.60	0.00	0	327.48	0.00	0.00	0.00
54.80	0.00	0	327.48	0.00	0.00	0.00
55.00	0.00	0	327.48	0.00	0.00	0.00
55.20	0.00	0	327.48	0.00	0.00	0.00
55.40	0.00	0	327.48	0.00	0.00	0.00
55.60	0.00	0	327.48	0.00	0.00	0.00
55.80	0.00	0	327.48	0.00	0.00	0.00
56.00	0.00	0	327.48	0.00	0.00	0.00
56.20	0.00	0	327.48	0.00	0.00	0.00
56.40	0.00	0	327.48	0.00	0.00	0.00
56.60	0.00	0	327.48	0.00	0.00	0.00
56.80	0.00	0	327.48	0.00	0.00	0.00
57.00	0.00	0	327.48	0.00	0.00	0.00
57.20	0.00	0	327.48	0.00	0.00	0.00
57.40	0.00	0	327.48	0.00	0.00	0.00
57.60	0.00	0	327.48	0.00	0.00	0.00
57.80	0.00	0	327.48	0.00	0.00	0.00
58.00	0.00	0	327.48	0.00	0.00	0.00
58.20	0.00	0	327.48	0.00	0.00	0.00
58.40	0.00	0	327.48	0.00	0.00	0.00
58.60	0.00	0	327.48	0.00	0.00	0.00
58.80	0.00	0	327.48	0.00	0.00	0.00
59.00	0.00	0	327.48	0.00	0.00	0.00
59.20	0.00	0	327.48	0.00	0.00	0.00
59.40	0.00	0	327.48	0.00	0.00	0.00
59.60	0.00	0	327.48	0.00	0.00	0.00
59.80	0.00	0	327.48	0.00	0.00	0.00
60.00	0.00	0	327.48	0.00	0.00	0.00

East Perimeter Channel

CWM Chemical Services, LLC
Model City, NY
RMU-1 East Perimeter Channel
Rating Curve for Open Channel Flow Through 50-foot Reach of Perimeter Channel

Height Above Channel Invert [ft]	Cross Sectional Area [ft^2][1]	Wetted Perimeter [ft][1]	Flowrate (Manning Equation) [cfs][2]	Channel Volume [ft^3]
0.00	0.00	0.00	0.00	0.0
0.25	0.66	3.35	0.66	32.8
0.50	1.63	4.70	2.39	81.3
0.75	2.91	6.05	5.31	145.3
1.00	4.50	7.40	9.63	225.0
1.25	6.41	8.75	15.51	320.3
1.50	8.63	10.10	23.14	431.3
1.75	11.16	11.45	32.68	557.8
2.00	14.00	12.80	44.30	700.0
2.25	17.16	14.15	58.14	857.8
2.30	17.83	14.42	61.19	891.3

Notes:
1. Based on the height above channel invert and 2:1 and 3:1 sideslopes.
2. Based on Manning "n" of 0.025 and bed slope of 0.25%.

CWM Chemical Services, LLC
Model City, NY
RMU-1 East Perimeter Channel
Rating Curve for Infiltration within a 50-foot Reach of Perimeter Channel

Height Above Channel Invert [ft]	Operations Layer Area Subject to Infiltration [ft^2][1]	Hydraulic Gradient[2]	Flowrate (Darcy's Law) [cfs][3]
0.00	0.00	0.00	0.00
0.25	39.53	0.13	0.01
0.50	79.06	0.25	0.04
0.75	118.59	0.38	0.10
1.00	158.11	0.50	0.18
1.25	197.64	0.63	0.28
1.50	237.17	0.75	0.40
1.75	276.70	0.88	0.54
2.00	316.23	1.00	0.71
2.25	355.76	1.13	0.89
2.30	363.66	1.15	0.93

Notes:

1. Based on the height above channel invert and 3:1 slope of operations layer stone.
2. Equal to the height above channel invert (column 1) divided by two times the thickness of the operations layer (i.e. 1 ft).
3. Based on hydraulic conductivity of operations stone equal to 6.8×10^{-2} cm/s.

Summary for Subcatchment 13S: Reach 1

Runoff = 5.11 cfs @ 11.97 hrs, Volume= 0.251 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	1.032	90	
	1.032		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: Reach 2

Runoff = 0.60 cfs @ 11.97 hrs, Volume= 0.029 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.121	90	
	0.121		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15S: Reach 3

Runoff = 0.60 cfs @ 11.97 hrs, Volume= 0.030 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.122	90	
	0.122		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 16S: Reach 4

Runoff = 0.68 cfs @ 11.97 hrs, Volume= 0.033 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.137	90	
	0.137		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 17S: Reach 5

Runoff = 0.71 cfs @ 11.97 hrs, Volume= 0.035 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.143	90	
	0.143		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 18S: Reach 6

Runoff = 0.78 cfs @ 11.97 hrs, Volume= 0.038 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.157	90	
	0.157		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 19S: Reach 7

Runoff = 0.71 cfs @ 11.97 hrs, Volume= 0.035 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.143	90	
	0.143		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 20S: Reach 8

Runoff = 0.71 cfs @ 11.97 hrs, Volume= 0.035 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.143	90	
	0.143		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 21S: Reach 9

Runoff = 0.59 cfs @ 11.97 hrs, Volume= 0.029 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.120	90	
	0.120		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 22S: Reach 10

Runoff = 0.46 cfs @ 11.97 hrs, Volume= 0.022 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.092	90	
	0.092		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 23S: Reach 11

Runoff = 0.53 cfs @ 11.97 hrs, Volume= 0.026 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.108	90	
	0.108		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Stage-Discharge for Pond 29P: Reach 1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.00	0.00
0.05	0.13	0.13	0.00
0.10	0.27	0.26	0.00
0.15	0.40	0.40	0.01
0.20	0.54	0.53	0.01
0.25	0.67	0.66	0.01
0.30	1.02	1.01	0.02
0.35	1.37	1.35	0.02
0.40	1.73	1.70	0.03
0.45	2.08	2.04	0.03
0.50	2.43	2.39	0.04
0.55	3.03	2.97	0.05
0.60	3.62	3.56	0.06
0.65	4.22	4.14	0.08
0.70	4.81	4.73	0.09
0.75	5.41	5.31	0.10
0.80	6.29	6.17	0.12
0.85	7.17	7.04	0.13
0.90	8.05	7.90	0.15
0.95	8.93	8.77	0.16
1.00	9.81	9.63	0.18
1.05	11.01	10.81	0.20
1.10	12.20	11.98	0.22
1.15	13.40	13.16	0.24
1.20	14.59	14.33	0.26
1.25	15.79	15.51	0.28
1.30	17.34	17.04	0.30
1.35	18.89	18.56	0.33
1.40	20.44	20.09	0.35
1.45	21.99	21.61	0.38
1.50	23.54	23.14	0.40
1.55	25.48	25.05	0.43
1.60	27.41	26.96	0.46
1.65	29.35	28.86	0.48
1.70	31.28	30.77	0.51
1.75	33.22	32.68	0.54
1.80	35.58	35.00	0.57
1.85	37.94	37.33	0.61
1.90	40.29	39.65	0.64
1.95	42.65	41.98	0.68
2.00	45.01	44.30	0.71
2.05	47.81	47.07	0.75
2.10	50.62	49.84	0.78
2.15	53.42	52.60	0.82
2.20	56.23	55.37	0.85
2.25	59.03	58.14	0.89
2.30	**62.12**	**61.19**	**0.93**

Stage-Discharge for Pond 30P: Reach 2

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.00	0.00
0.05	0.13	0.13	0.00
0.10	0.27	0.26	0.00
0.15	0.40	0.40	0.01
0.20	0.54	0.53	0.01
0.25	0.67	0.66	0.01
0.30	1.02	1.01	0.02
0.35	1.37	1.35	0.02
0.40	1.73	1.70	0.03
0.45	2.08	2.04	0.03
0.50	2.43	2.39	0.04
0.55	3.03	2.97	0.05
0.60	3.62	3.56	0.06
0.65	4.22	4.14	0.08
0.70	4.81	4.73	0.09
0.75	5.41	5.31	0.10
0.80	6.29	6.17	0.12
0.85	7.17	7.04	0.13
0.90	8.05	7.90	0.15
0.95	8.93	8.77	0.16
1.00	9.81	9.63	0.18
1.05	11.01	10.81	0.20
1.10	12.20	11.98	0.22
1.15	13.40	13.16	0.24
1.20	14.59	14.33	0.26
1.25	15.79	15.51	0.28
1.30	17.34	17.04	0.30
1.35	18.89	18.56	0.33
1.40	20.44	20.09	0.35
1.45	21.99	21.61	0.38
1.50	23.54	23.14	0.40
1.55	25.48	25.05	0.43
1.60	27.41	26.96	0.46
1.65	29.35	28.86	0.48
1.70	31.28	30.77	0.51
1.75	33.22	32.68	0.54
1.80	35.58	35.00	0.57
1.85	37.94	37.33	0.61
1.90	40.29	39.65	0.64
1.95	42.65	41.98	0.68
2.00	45.01	44.30	0.71
2.05	47.81	47.07	0.75
2.10	50.62	49.84	0.78
2.15	53.42	52.60	0.82
2.20	56.23	55.37	0.85
2.25	59.03	58.14	0.89
2.30	**62.12**	**61.19**	**0.93**

Stage-Discharge for Pond 31P: Reach 3

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.00	0.00
0.05	0.13	0.13	0.00
0.10	0.27	0.26	0.00
0.15	0.40	0.40	0.01
0.20	0.54	0.53	0.01
0.25	0.67	0.66	0.01
0.30	1.02	1.01	0.02
0.35	1.37	1.35	0.02
0.40	1.73	1.70	0.03
0.45	2.08	2.04	0.03
0.50	2.43	2.39	0.04
0.55	3.03	2.97	0.05
0.60	3.62	3.56	0.06
0.65	4.22	4.14	0.08
0.70	4.81	4.73	0.09
0.75	5.41	5.31	0.10
0.80	6.29	6.17	0.12
0.85	7.17	7.04	0.13
0.90	8.05	7.90	0.15
0.95	8.93	8.77	0.16
1.00	9.81	9.63	0.18
1.05	11.01	10.81	0.20
1.10	12.20	11.98	0.22
1.15	13.40	13.16	0.24
1.20	14.59	14.33	0.26
1.25	15.79	15.51	0.28
1.30	17.34	17.04	0.30
1.35	18.89	18.56	0.33
1.40	20.44	20.09	0.35
1.45	21.99	21.61	0.38
1.50	23.54	23.14	0.40
1.55	25.48	25.05	0.43
1.60	27.41	26.96	0.46
1.65	29.35	28.86	0.48
1.70	31.28	30.77	0.51
1.75	33.22	32.68	0.54
1.80	35.58	35.00	0.57
1.85	37.94	37.33	0.61
1.90	40.29	39.65	0.64
1.95	42.65	41.98	0.68
2.00	45.01	44.30	0.71
2.05	47.81	47.07	0.75
2.10	50.62	49.84	0.78
2.15	53.42	52.60	0.82
2.20	56.23	55.37	0.85
2.25	59.03	58.14	0.89
2.30	**62.12**	**61.19**	**0.93**

Stage-Discharge for Pond 34P: Reach 4

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.00	0.00
0.05	0.13	0.13	0.00
0.10	0.27	0.26	0.00
0.15	0.40	0.40	0.01
0.20	0.54	0.53	0.01
0.25	0.67	0.66	0.01
0.30	1.02	1.01	0.02
0.35	1.37	1.35	0.02
0.40	1.73	1.70	0.03
0.45	2.08	2.04	0.03
0.50	2.43	2.39	0.04
0.55	3.03	2.97	0.05
0.60	3.62	3.56	0.06
0.65	4.22	4.14	0.08
0.70	4.81	4.73	0.09
0.75	5.41	5.31	0.10
0.80	6.29	6.17	0.12
0.85	7.17	7.04	0.13
0.90	8.05	7.90	0.15
0.95	8.93	8.77	0.16
1.00	9.81	9.63	0.18
1.05	11.01	10.81	0.20
1.10	12.20	11.98	0.22
1.15	13.40	13.16	0.24
1.20	14.59	14.33	0.26
1.25	15.79	15.51	0.28
1.30	17.34	17.04	0.30
1.35	18.89	18.56	0.33
1.40	20.44	20.09	0.35
1.45	21.99	21.61	0.38
1.50	23.54	23.14	0.40
1.55	25.48	25.05	0.43
1.60	27.41	26.96	0.46
1.65	29.35	28.86	0.48
1.70	31.28	30.77	0.51
1.75	33.22	32.68	0.54
1.80	35.58	35.00	0.57
1.85	37.94	37.33	0.61
1.90	40.29	39.65	0.64
1.95	42.65	41.98	0.68
2.00	45.01	44.30	0.71
2.05	47.81	47.07	0.75
2.10	50.62	49.84	0.78
2.15	53.42	52.60	0.82
2.20	56.23	55.37	0.85
2.25	59.03	58.14	0.89
2.30	**62.12**	**61.19**	**0.93**

Stage-Discharge for Pond 33P: Reach 5

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.00	0.00
0.05	0.13	0.13	0.00
0.10	0.27	0.26	0.00
0.15	0.40	0.40	0.01
0.20	0.54	0.53	0.01
0.25	0.67	0.66	0.01
0.30	1.02	1.01	0.02
0.35	1.37	1.35	0.02
0.40	1.73	1.70	0.03
0.45	2.08	2.04	0.03
0.50	2.43	2.39	0.04
0.55	3.03	2.97	0.05
0.60	3.62	3.56	0.06
0.65	4.22	4.14	0.08
0.70	4.81	4.73	0.09
0.75	5.41	5.31	0.10
0.80	6.29	6.17	0.12
0.85	7.17	7.04	0.13
0.90	8.05	7.90	0.15
0.95	8.93	8.77	0.16
1.00	9.81	9.63	0.18
1.05	11.01	10.81	0.20
1.10	12.20	11.98	0.22
1.15	13.40	13.16	0.24
1.20	14.59	14.33	0.26
1.25	15.79	15.51	0.28
1.30	17.34	17.04	0.30
1.35	18.89	18.56	0.33
1.40	20.44	20.09	0.35
1.45	21.99	21.61	0.38
1.50	23.54	23.14	0.40
1.55	25.48	25.05	0.43
1.60	27.41	26.96	0.46
1.65	29.35	28.86	0.48
1.70	31.28	30.77	0.51
1.75	33.22	32.68	0.54
1.80	35.58	35.00	0.57
1.85	37.94	37.33	0.61
1.90	40.29	39.65	0.64
1.95	42.65	41.98	0.68
2.00	45.01	44.30	0.71
2.05	47.81	47.07	0.75
2.10	50.62	49.84	0.78
2.15	53.42	52.60	0.82
2.20	56.23	55.37	0.85
2.25	59.03	58.14	0.89
2.30	**62.12**	**61.19**	**0.93**

Stage-Discharge for Pond 32P: Reach 6

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.00	0.00
0.05	0.13	0.13	0.00
0.10	0.27	0.26	0.00
0.15	0.40	0.40	0.01
0.20	0.54	0.53	0.01
0.25	0.67	0.66	0.01
0.30	1.02	1.01	0.02
0.35	1.37	1.35	0.02
0.40	1.73	1.70	0.03
0.45	2.08	2.04	0.03
0.50	2.43	2.39	0.04
0.55	3.03	2.97	0.05
0.60	3.62	3.56	0.06
0.65	4.22	4.14	0.08
0.70	4.81	4.73	0.09
0.75	5.41	5.31	0.10
0.80	6.29	6.17	0.12
0.85	7.17	7.04	0.13
0.90	8.05	7.90	0.15
0.95	8.93	8.77	0.16
1.00	9.81	9.63	0.18
1.05	11.01	10.81	0.20
1.10	12.20	11.98	0.22
1.15	13.40	13.16	0.24
1.20	14.59	14.33	0.26
1.25	15.79	15.51	0.28
1.30	17.34	17.04	0.30
1.35	18.89	18.56	0.33
1.40	20.44	20.09	0.35
1.45	21.99	21.61	0.38
1.50	23.54	23.14	0.40
1.55	25.48	25.05	0.43
1.60	27.41	26.96	0.46
1.65	29.35	28.86	0.48
1.70	31.28	30.77	0.51
1.75	33.22	32.68	0.54
1.80	35.58	35.00	0.57
1.85	37.94	37.33	0.61
1.90	40.29	39.65	0.64
1.95	42.65	41.98	0.68
2.00	45.01	44.30	0.71
2.05	47.81	47.07	0.75
2.10	50.62	49.84	0.78
2.15	53.42	52.60	0.82
2.20	56.23	55.37	0.85
2.25	59.03	58.14	0.89
2.30	**62.12**	**61.19**	**0.93**

Stage-Discharge for Pond 35P: Reach 7

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.00	0.00
0.05	0.13	0.13	0.00
0.10	0.27	0.26	0.00
0.15	0.40	0.40	0.01
0.20	0.54	0.53	0.01
0.25	0.67	0.66	0.01
0.30	1.02	1.01	0.02
0.35	1.37	1.35	0.02
0.40	1.73	1.70	0.03
0.45	2.08	2.04	0.03
0.50	2.43	2.39	0.04
0.55	3.03	2.97	0.05
0.60	3.62	3.56	0.06
0.65	4.22	4.14	0.08
0.70	4.81	4.73	0.09
0.75	5.41	5.31	0.10
0.80	6.29	6.17	0.12
0.85	7.17	7.04	0.13
0.90	8.05	7.90	0.15
0.95	8.93	8.77	0.16
1.00	9.81	9.63	0.18
1.05	11.01	10.81	0.20
1.10	12.20	11.98	0.22
1.15	13.40	13.16	0.24
1.20	14.59	14.33	0.26
1.25	15.79	15.51	0.28
1.30	17.34	17.04	0.30
1.35	18.89	18.56	0.33
1.40	20.44	20.09	0.35
1.45	21.99	21.61	0.38
1.50	23.54	23.14	0.40
1.55	25.48	25.05	0.43
1.60	27.41	26.96	0.46
1.65	29.35	28.86	0.48
1.70	31.28	30.77	0.51
1.75	33.22	32.68	0.54
1.80	35.58	35.00	0.57
1.85	37.94	37.33	0.61
1.90	40.29	39.65	0.64
1.95	42.65	41.98	0.68
2.00	45.01	44.30	0.71
2.05	47.81	47.07	0.75
2.10	50.62	49.84	0.78
2.15	53.42	52.60	0.82
2.20	56.23	55.37	0.85
2.25	59.03	58.14	0.89
2.30	**62.12**	**61.19**	**0.93**

Stage-Discharge for Pond 36P: Reach 8

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.00	0.00
0.05	0.13	0.13	0.00
0.10	0.27	0.26	0.00
0.15	0.40	0.40	0.01
0.20	0.54	0.53	0.01
0.25	0.67	0.66	0.01
0.30	1.02	1.01	0.02
0.35	1.37	1.35	0.02
0.40	1.73	1.70	0.03
0.45	2.08	2.04	0.03
0.50	2.43	2.39	0.04
0.55	3.03	2.97	0.05
0.60	3.62	3.56	0.06
0.65	4.22	4.14	0.08
0.70	4.81	4.73	0.09
0.75	5.41	5.31	0.10
0.80	6.29	6.17	0.12
0.85	7.17	7.04	0.13
0.90	8.05	7.90	0.15
0.95	8.93	8.77	0.16
1.00	9.81	9.63	0.18
1.05	11.01	10.81	0.20
1.10	12.20	11.98	0.22
1.15	13.40	13.16	0.24
1.20	14.59	14.33	0.26
1.25	15.79	15.51	0.28
1.30	17.34	17.04	0.30
1.35	18.89	18.56	0.33
1.40	20.44	20.09	0.35
1.45	21.99	21.61	0.38
1.50	23.54	23.14	0.40
1.55	25.48	25.05	0.43
1.60	27.41	26.96	0.46
1.65	29.35	28.86	0.48
1.70	31.28	30.77	0.51
1.75	33.22	32.68	0.54
1.80	35.58	35.00	0.57
1.85	37.94	37.33	0.61
1.90	40.29	39.65	0.64
1.95	42.65	41.98	0.68
2.00	45.01	44.30	0.71
2.05	47.81	47.07	0.75
2.10	50.62	49.84	0.78
2.15	53.42	52.60	0.82
2.20	56.23	55.37	0.85
2.25	59.03	58.14	0.89
2.30	**62.12**	**61.19**	**0.93**

Stage-Discharge for Pond 37P: Reach 9

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.00	0.00
0.05	0.13	0.13	0.00
0.10	0.27	0.26	0.00
0.15	0.40	0.40	0.01
0.20	0.54	0.53	0.01
0.25	0.67	0.66	0.01
0.30	1.02	1.01	0.02
0.35	1.37	1.35	0.02
0.40	1.73	1.70	0.03
0.45	2.08	2.04	0.03
0.50	2.43	2.39	0.04
0.55	3.03	2.97	0.05
0.60	3.62	3.56	0.06
0.65	4.22	4.14	0.08
0.70	4.81	4.73	0.09
0.75	5.41	5.31	0.10
0.80	6.29	6.17	0.12
0.85	7.17	7.04	0.13
0.90	8.05	7.90	0.15
0.95	8.93	8.77	0.16
1.00	9.81	9.63	0.18
1.05	11.01	10.81	0.20
1.10	12.20	11.98	0.22
1.15	13.40	13.16	0.24
1.20	14.59	14.33	0.26
1.25	15.79	15.51	0.28
1.30	17.34	17.04	0.30
1.35	18.89	18.56	0.33
1.40	20.44	20.09	0.35
1.45	21.99	21.61	0.38
1.50	23.54	23.14	0.40
1.55	25.48	25.05	0.43
1.60	27.41	26.96	0.46
1.65	29.35	28.86	0.48
1.70	31.28	30.77	0.51
1.75	33.22	32.68	0.54
1.80	35.58	35.00	0.57
1.85	37.94	37.33	0.61
1.90	40.29	39.65	0.64
1.95	42.65	41.98	0.68
2.00	45.01	44.30	0.71
2.05	47.81	47.07	0.75
2.10	50.62	49.84	0.78
2.15	53.42	52.60	0.82
2.20	56.23	55.37	0.85
2.25	59.03	58.14	0.89
2.30	**62.12**	**61.19**	**0.93**

Stage-Discharge for Pond 38P: Reach 10

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.00	0.00
0.05	0.13	0.13	0.00
0.10	0.27	0.26	0.00
0.15	0.40	0.40	0.01
0.20	0.54	0.53	0.01
0.25	0.67	0.66	0.01
0.30	1.02	1.01	0.02
0.35	1.37	1.35	0.02
0.40	1.73	1.70	0.03
0.45	2.08	2.04	0.03
0.50	2.43	2.39	0.04
0.55	3.03	2.97	0.05
0.60	3.62	3.56	0.06
0.65	4.22	4.14	0.08
0.70	4.81	4.73	0.09
0.75	5.41	5.31	0.10
0.80	6.29	6.17	0.12
0.85	7.17	7.04	0.13
0.90	8.05	7.90	0.15
0.95	8.93	8.77	0.16
1.00	9.81	9.63	0.18
1.05	11.01	10.81	0.20
1.10	12.20	11.98	0.22
1.15	13.40	13.16	0.24
1.20	14.59	14.33	0.26
1.25	15.79	15.51	0.28
1.30	17.34	17.04	0.30
1.35	18.89	18.56	0.33
1.40	20.44	20.09	0.35
1.45	21.99	21.61	0.38
1.50	23.54	23.14	0.40
1.55	25.48	25.05	0.43
1.60	27.41	26.96	0.46
1.65	29.35	28.86	0.48
1.70	31.28	30.77	0.51
1.75	33.22	32.68	0.54
1.80	35.58	35.00	0.57
1.85	37.94	37.33	0.61
1.90	40.29	39.65	0.64
1.95	42.65	41.98	0.68
2.00	45.01	44.30	0.71
2.05	47.81	47.07	0.75
2.10	50.62	49.84	0.78
2.15	53.42	52.60	0.82
2.20	56.23	55.37	0.85
2.25	59.03	58.14	0.89
2.30	**62.12**	**61.19**	**0.93**

Stage-Discharge for Pond 39P: Reach 11

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.00	0.00
0.05	0.03	0.02	0.00
0.10	0.11	0.11	0.00
0.15	0.26	0.26	0.01
0.20	0.48	0.47	0.01
0.25	0.76	0.75	0.01
0.30	1.10	1.09	0.02
0.35	1.51	1.49	0.02
0.40	1.96	1.93	0.03
0.45	2.45	2.41	0.03
0.50	2.98	2.94	0.04
0.55	3.56	3.51	0.05
0.60	4.19	4.12	0.06
0.65	4.85	4.77	0.08
0.70	5.54	5.46	0.09
0.75	6.27	6.17	0.10
0.80	7.03	6.91	0.12
0.85	7.81	7.68	0.13
0.90	8.62	8.47	0.15
0.95	9.44	9.27	0.16
1.00	10.27	10.09	0.18
1.05	11.12	10.92	0.20
1.10	11.97	11.75	0.22
1.15	12.81	12.57	0.24
1.20	13.65	13.39	0.26
1.25	14.47	14.19	0.28
1.30	15.26	14.96	0.30
1.35	16.02	15.70	0.33
1.40	16.73	16.38	0.35
1.45	17.36	16.98	0.38
1.50	17.85	17.45	0.40
1.55	18.45	18.02	0.43
1.60	19.04	18.58	0.46
1.65	19.60	19.12	0.48
1.70	20.15	19.64	0.51
1.75	20.69	20.15	0.54
1.80	21.22	20.65	0.57
1.85	21.74	21.14	0.61
1.90	22.25	21.61	0.64
1.95	22.75	22.08	0.68
2.00	23.24	22.53	0.71
2.05	23.67	22.92	0.75
2.10	23.99	23.21	0.78
2.15	24.32	23.50	0.82
2.20	24.64	23.79	0.85
2.25	24.96	24.07	0.89
2.30	**25.28**	**24.35**	**0.93**

Summary for Pond 29P: Reach 1

Inflow Area = 1.032 ac, 0.00% Impervious, Inflow Depth = 2.92"
Inflow = 5.11 cfs @ 11.97 hrs, Volume= 0.251 af
Outflow = 5.09 cfs @ 11.98 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.4 min
Primary = 5.00 cfs @ 11.98 hrs, Volume= 0.247 af
Secondary = 0.09 cfs @ 11.98 hrs, Volume= 0.004 af ← Infiltration into cell 7/8

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 0.72' @ 11.98 hrs Surf.Area= 0 sf Storage= 138 cf

Plug-Flow detention time= 0.7 min calculated for 0.251 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (796.1 - 795.4)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	891 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
0.25	33
0.50	81
0.75	145
1.00	225
1.25	320
1.50	431
1.75	558
2.00	700
2.25	858
2.30	891

Device	Routing	Invert	Outlet Devices
#1	Secondary	0.00'	**Infiltration** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.010 0.040 0.100 0.180 0.280 0.400 0.540 0.710 0.890 0.930
#2	Primary	0.00'	**Channel Flow** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.660 2.390 5.310 9.630 15.510 23.140 32.680 44.300 58.140 61.190

Primary OutFlow Max=4.99 cfs @ 11.98 hrs HW=0.72' (Free Discharge)
└**2=Channel Flow** (Custom Controls 4.99 cfs)

Secondary OutFlow Max=0.09 cfs @ 11.98 hrs HW=0.72' (Free Discharge)
└**1=Infiltration** (Custom Controls 0.09 cfs)

Summary for Pond 30P: Reach 2

[78] Warning: Submerged Pond 29P Primary device # 2 by 0.76'
[81] Warning: Exceeded Pond 29P by 0.05' @ 12.09 hrs

Inflow Area =	1.153 ac,	0.00% Impervious,	Inflow Depth =	2.88"
Inflow =	5.59 cfs @	11.97 hrs, Volume=	0.276 af	
Outflow =	5.58 cfs @	11.98 hrs, Volume=	0.276 af,	Atten= 0%, Lag= 0.3 min
Primary =	5.48 cfs @	11.98 hrs, Volume=	0.272 af	
Secondary =	0.10 cfs @	11.98 hrs, Volume=	0.004 af	← Infiltration into cell 7/8

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 0.76' @ 11.98 hrs Surf.Area= 0 sf Storage= 148 cf

Plug-Flow detention time= 0.7 min calculated for 0.276 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (796.8 - 796.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	891 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
0.25	33
0.50	81
0.75	145
1.00	225
1.25	320
1.50	431
1.75	558
2.00	700
2.25	858
2.30	891

Device	Routing	Invert	Outlet Devices
#1	Secondary	0.00'	**Infiltration** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.010 0.040 0.100 0.180 0.280 0.400 0.540 0.710 0.890 0.930
#2	Primary	0.00'	**Channel Flow** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.660 2.390 5.310 9.630 15.510 23.140 32.680 44.300 58.140 61.190

Primary OutFlow Max=5.48 cfs @ 11.98 hrs HW=0.76' (Free Discharge)
↑—**2=Channel Flow** (Custom Controls 5.48 cfs)

Secondary OutFlow Max=0.10 cfs @ 11.98 hrs HW=0.76' (Free Discharge)
↑—**1=Infiltration** (Custom Controls 0.10 cfs)

Summary for Pond 31P: Reach 3

[78] Warning: Submerged Pond 30P Primary device # 2 by 0.79'
[81] Warning: Exceeded Pond 30P by 0.05' @ 12.03 hrs

Inflow Area =	1.275 ac,	0.00% Impervious,	Inflow Depth =	2.84"
Inflow =	6.08 cfs @	11.98 hrs, Volume=	0.302 af	
Outflow =	6.06 cfs @	11.98 hrs, Volume=	0.302 af,	Atten= 0%, Lag= 0.3 min
Primary =	5.95 cfs @	11.98 hrs, Volume=	0.297 af	
Secondary =	0.11 cfs @	11.98 hrs, Volume=	0.005 af	← Infiltration into cell 7/8

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 0.79' @ 11.98 hrs Surf.Area= 0 sf Storage= 157 cf

Plug-Flow detention time= 0.7 min calculated for 0.302 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (797.4 - 796.7)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	891 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
0.25	33
0.50	81
0.75	145
1.00	225
1.25	320
1.50	431
1.75	558
2.00	700
2.25	858
2.30	891

Device	Routing	Invert	Outlet Devices
#1	Secondary	0.00'	**Infiltration** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.010 0.040 0.100 0.180 0.280 0.400 0.540 0.710 0.890 0.930
#2	Primary	0.00'	**Channel Flow** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.660 2.390 5.310 9.630 15.510 23.140 32.680 44.300 58.140 61.190

Primary OutFlow Max=5.94 cfs @ 11.98 hrs HW=0.79' (Free Discharge)
└**2=Channel Flow** (Custom Controls 5.94 cfs)

Secondary OutFlow Max=0.11 cfs @ 11.98 hrs HW=0.79' (Free Discharge)
└**1=Infiltration** (Custom Controls 0.11 cfs)

Summary for Pond 34P: Reach 4

[78] Warning: Submerged Pond 31P Primary device # 2 by 0.82'
[81] Warning: Exceeded Pond 31P by 0.05' @ 12.05 hrs

Inflow Area =	1.412 ac,	0.00% Impervious,	Inflow Depth =	2.81"
Inflow =	6.62 cfs @	11.98 hrs, Volume=	0.330 af	
Outflow =	6.61 cfs @	11.99 hrs, Volume=	0.330 af,	Atten= 0%, Lag= 0.3 min
Primary =	6.48 cfs @	11.99 hrs, Volume=	0.325 af	
Secondary =	0.12 cfs @	11.99 hrs, Volume=	0.005 af	← Infiltration into cell 9/10

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 0.82' @ 11.99 hrs Surf.Area= 0 sf Storage= 167 cf

Plug-Flow detention time= 0.7 min calculated for 0.330 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (798.0 - 797.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	891 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
0.25	33
0.50	81
0.75	145
1.00	225
1.25	320
1.50	431
1.75	558
2.00	700
2.25	858
2.30	891

Device	Routing	Invert	Outlet Devices
#1	Secondary	0.00'	**Infiltration** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.010 0.040 0.100 0.180 0.280 0.400 0.540 0.710 0.890 0.930
#2	Primary	0.00'	**Channel Flow** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.660 2.390 5.310 9.630 15.510 23.140 32.680 44.300 58.140 61.190

Primary OutFlow Max=6.47 cfs @ 11.99 hrs HW=0.82' (Free Discharge)
↑—**2=Channel Flow** (Custom Controls 6.47 cfs)

Secondary OutFlow Max=0.12 cfs @ 11.99 hrs HW=0.82' (Free Discharge)
↑—**1=Infiltration** (Custom Controls 0.12 cfs)

Summary for Pond 33P: Reach 5

[78] Warning: Submerged Pond 34P Primary device # 2 by 0.85'
[81] Warning: Exceeded Pond 34P by 0.05' @ 12.06 hrs

Inflow Area =	1.555 ac,	0.00% Impervious,	Inflow Depth =	2.78"
Inflow =	7.17 cfs @	11.99 hrs, Volume=	0.360 af	
Outflow =	7.16 cfs @	11.99 hrs, Volume=	0.360 af,	Atten= 0%, Lag= 0.3 min
Primary =	7.03 cfs @	11.99 hrs, Volume=	0.354 af	
Secondary =	0.13 cfs @	11.99 hrs, Volume=	0.006 af	← Infiltration into cell 9/10

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 0.85' @ 11.99 hrs Surf.Area= 0 sf Storage= 177 cf

Plug-Flow detention time= 0.7 min calculated for 0.360 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (798.5 - 797.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	891 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
0.25	33
0.50	81
0.75	145
1.00	225
1.25	320
1.50	431
1.75	558
2.00	700
2.25	858
2.30	891

Device	Routing	Invert	Outlet Devices
#1	Secondary	0.00'	**Infiltration** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.010 0.040 0.100 0.180 0.280 0.400 0.540 0.710 0.890 0.930
#2	Primary	0.00'	**Channel Flow** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.660 2.390 5.310 9.630 15.510 23.140 32.680 44.300 58.140 61.190

Primary OutFlow Max=7.02 cfs @ 11.99 hrs HW=0.85' (Free Discharge)
└**2=Channel Flow** (Custom Controls 7.02 cfs)

Secondary OutFlow Max=0.13 cfs @ 11.99 hrs HW=0.85' (Free Discharge)
└**1=Infiltration** (Custom Controls 0.13 cfs)

Summary for Pond 32P: Reach 6

[78] Warning: Submerged Pond 33P Primary device # 2 by 0.88'
[81] Warning: Exceeded Pond 33P by 0.05' @ 12.07 hrs

Inflow Area =	1.712 ac,	0.00% Impervious,	Inflow Depth =	2.75"
Inflow =	7.78 cfs @	11.99 hrs, Volume=	0.392 af	
Outflow =	7.76 cfs @	11.99 hrs, Volume=	0.392 af,	Atten= 0%, Lag= 0.3 min
Primary =	7.62 cfs @	11.99 hrs, Volume=	0.386 af	
Secondary =	0.14 cfs @	11.99 hrs, Volume=	0.006 af	← Infiltration into cell 9/10

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 0.88' @ 11.99 hrs Surf.Area= 0 sf Storage= 188 cf

Plug-Flow detention time= 0.7 min calculated for 0.392 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (798.9 - 798.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	891 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
0.25	33
0.50	81
0.75	145
1.00	225
1.25	320
1.50	431
1.75	558
2.00	700
2.25	858
2.30	891

Device	Routing	Invert	Outlet Devices
#1	Secondary	0.00'	**Infiltration** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.010 0.040 0.100 0.180 0.280 0.400 0.540 0.710 0.890 0.930
#2	Primary	0.00'	**Channel Flow** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.660 2.390 5.310 9.630 15.510 23.140 32.680 44.300 58.140 61.190

Primary OutFlow Max=7.60 cfs @ 11.99 hrs HW=0.88' (Free Discharge)
↑—**2=Channel Flow** (Custom Controls 7.60 cfs)

Secondary OutFlow Max=0.14 cfs @ 11.99 hrs HW=0.88' (Free Discharge)
↑—**1=Infiltration** (Custom Controls 0.14 cfs)

Summary for Pond 35P: Reach 7

[78] Warning: Submerged Pond 32P Primary device # 2 by 0.91'
[81] Warning: Exceeded Pond 32P by 0.04' @ 12.08 hrs

Inflow Area =	1.855 ac,	0.00% Impervious,	Inflow Depth =	2.72"
Inflow =	8.29 cfs @	11.99 hrs, Volume=	0.420 af	
Outflow =	8.28 cfs @	12.00 hrs, Volume=	0.420 af,	Atten= 0%, Lag= 0.3 min
Primary =	8.12 cfs @	12.00 hrs, Volume=	0.414 af	
Secondary =	0.15 cfs @	12.00 hrs, Volume=	0.007 af	← Infiltration into Cell 9/10

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 0.91' @ 12.00 hrs Surf.Area= 0 sf Storage= 197 cf

Plug-Flow detention time= 0.7 min calculated for 0.420 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (799.4 - 798.7)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	891 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
0.25	33
0.50	81
0.75	145
1.00	225
1.25	320
1.50	431
1.75	558
2.00	700
2.25	858
2.30	891

Device	Routing	Invert	Outlet Devices
#1	Secondary	0.00'	**Infiltration** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.010 0.040 0.100 0.180 0.280 0.400 0.540 0.710 0.890 0.930
#2	Primary	0.00'	**Channel Flow** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.660 2.390 5.310 9.630 15.510 23.140 32.680 44.300 58.140 61.190

Primary OutFlow Max=8.11 cfs @ 12.00 hrs HW=0.91' (Free Discharge)
└**2=Channel Flow** (Custom Controls 8.11 cfs)

Secondary OutFlow Max=0.15 cfs @ 12.00 hrs HW=0.91' (Free Discharge)
└**1=Infiltration** (Custom Controls 0.15 cfs)

Summary for Pond 36P: Reach 8

[78] Warning: Submerged Pond 35P Primary device # 2 by 0.94'
[81] Warning: Exceeded Pond 35P by 0.04' @ 12.09 hrs

Inflow Area =	1.998 ac,	0.00% Impervious,	Inflow Depth =	2.69"
Inflow =	8.79 cfs @	11.99 hrs, Volume=	0.448 af	
Outflow =	8.77 cfs @	12.00 hrs, Volume=	0.448 af,	Atten= 0%, Lag= 0.3 min
Primary =	8.61 cfs @	12.00 hrs, Volume=	0.441 af	
Secondary =	0.16 cfs @	12.00 hrs, Volume=	0.007 af	← Infiltration into Cell 9/10

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 0.94' @ 12.00 hrs Surf.Area= 0 sf Storage= 206 cf

Plug-Flow detention time= 0.7 min calculated for 0.448 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (799.8 - 799.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	891 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
0.25	33
0.50	81
0.75	145
1.00	225
1.25	320
1.50	431
1.75	558
2.00	700
2.25	858
2.30	891

Device	Routing	Invert	Outlet Devices
#1	Secondary	0.00'	**Infiltration** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.010 0.040 0.100 0.180 0.280 0.400 0.540 0.710 0.890 0.930
#2	Primary	0.00'	**Channel Flow** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.660 2.390 5.310 9.630 15.510 23.140 32.680 44.300 58.140 61.190

Primary OutFlow Max=8.61 cfs @ 12.00 hrs HW=0.94' (Free Discharge)
└─**2=Channel Flow** (Custom Controls 8.61 cfs)

Secondary OutFlow Max=0.16 cfs @ 12.00 hrs HW=0.94' (Free Discharge)
└─**1=Infiltration** (Custom Controls 0.16 cfs)

Summary for Pond 37P: Reach 9

[78] Warning: Submerged Pond 36P Primary device # 2 by 0.96'
[81] Warning: Exceeded Pond 36P by 0.04' @ 12.10 hrs

Inflow Area =	2.118 ac,	0.00% Impervious,	Inflow Depth =	2.66"
Inflow =	9.17 cfs @	12.00 hrs, Volume=	0.470 af	
Outflow =	9.15 cfs @	12.00 hrs, Volume=	0.470 af,	Atten= 0%, Lag= 0.3 min
Primary =	8.98 cfs @	12.00 hrs, Volume=	0.463 af	
Secondary =	0.17 cfs @	12.00 hrs, Volume=	0.008 af	← Infiltration into Cell 9/10

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 0.96' @ 12.00 hrs Surf.Area= 0 sf Storage= 213 cf

Plug-Flow detention time= 0.6 min calculated for 0.470 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (800.3 - 799.7)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	891 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
0.25	33
0.50	81
0.75	145
1.00	225
1.25	320
1.50	431
1.75	558
2.00	700
2.25	858
2.30	891

Device	Routing	Invert	Outlet Devices
#1	Secondary	0.00'	**Infiltration** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.010 0.040 0.100 0.180 0.280 0.400 0.540 0.710 0.890 0.930
#2	Primary	0.00'	**Channel Flow** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.660 2.390 5.310 9.630 15.510 23.140 32.680 44.300 58.140 61.190

Primary OutFlow Max=8.97 cfs @ 12.00 hrs HW=0.96' (Free Discharge)
└**2=Channel Flow** (Custom Controls 8.97 cfs)

Secondary OutFlow Max=0.17 cfs @ 12.00 hrs HW=0.96' (Free Discharge)
└**1=Infiltration** (Custom Controls 0.17 cfs)

Summary for Pond 38P: Reach 10

[78] Warning: Submerged Pond 37P Primary device # 2 by 0.97'
[81] Warning: Exceeded Pond 37P by 0.03' @ 12.11 hrs

Inflow Area =	2.210 ac,	0.00% Impervious,	Inflow Depth =	2.63"
Inflow =	9.40 cfs @	12.00 hrs, Volume=	0.485 af	
Outflow =	9.38 cfs @	12.01 hrs, Volume=	0.485 af,	Atten= 0%, Lag= 0.3 min
Primary =	9.21 cfs @	12.01 hrs, Volume=	0.477 af	
Secondary =	0.17 cfs @	12.01 hrs, Volume=	0.008 af	← Infiltration into Cell 11/13

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 0.98' @ 12.01 hrs Surf.Area= 0 sf Storage= 217 cf

Plug-Flow detention time= 0.6 min calculated for 0.485 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (800.8 - 800.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	891 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
0.25	33
0.50	81
0.75	145
1.00	225
1.25	320
1.50	431
1.75	558
2.00	700
2.25	858
2.30	891

Device	Routing	Invert	Outlet Devices
#1	Secondary	0.00'	**Infiltration** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.010 0.040 0.100 0.180 0.280 0.400 0.540 0.710 0.890 0.930
#2	Primary	0.00'	**Channel Flow** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.660 2.390 5.310 9.630 15.510 23.140 32.680 44.300 58.140 61.190

Primary OutFlow Max=9.19 cfs @ 12.01 hrs HW=0.97' (Free Discharge)
↑—**2=Channel Flow** (Custom Controls 9.19 cfs)

Secondary OutFlow Max=0.17 cfs @ 12.01 hrs HW=0.97' (Free Discharge)
↑—**1=Infiltration** (Custom Controls 0.17 cfs)

Summary for Pond 39P: Reach 11

[78] Warning: Submerged Pond 38P Primary device # 2 by 0.96'
[81] Warning: Exceeded Pond 38P by 0.06' @ 17.71 hrs

Inflow Area =	2.318 ac,	0.00% Impervious,	Inflow Depth =	2.61"
Inflow =	9.69 cfs @	12.00 hrs, Volume=	0.503 af	
Outflow =	9.67 cfs @	12.01 hrs, Volume=	0.503 af,	Atten= 0%, Lag= 0.3 min
Primary =	9.50 cfs @	12.01 hrs, Volume=	0.493 af	← Contribution to Basin 6
Secondary =	0.17 cfs @	12.01 hrs, Volume=	0.011 af	← Infiltration into cell 11/13

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 0.96' @ 12.01 hrs Surf.Area= 0 sf Storage= 213 cf

Plug-Flow detention time= 1.0 min calculated for 0.503 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (801.6 - 800.7)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	891 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
0.25	33
0.50	81
0.75	145
1.00	225
1.25	320
1.50	431
1.75	558
2.00	700
2.25	858
2.30	891

Device	Routing	Invert	Outlet Devices
#1	Secondary	0.00'	**Infiltration** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.010 0.040 0.100 0.180 0.280 0.400 0.540 0.710 0.890 0.930
#2	Primary	0.00'	**18.0" x 92.0' long Culvert X 3.00** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= -1.40' S= 0.0152 '/' Cc= 0.900 n= 0.022

Primary OutFlow Max=9.49 cfs @ 12.01 hrs HW=0.96' (Free Discharge)
↑**2=Culvert** (Inlet Controls 9.49 cfs @ 2.64 fps)

Secondary OutFlow Max=0.17 cfs @ 12.01 hrs HW=0.96' (Free Discharge)
↑**1=Infiltration** (Custom Controls 0.17 cfs)

ARCADIS

Attachment 3

Leachate Elevation and Time of Exceedance

ARCADIS
Infrastructure, environment, buildings

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B0023726

Subject: Leachate Level and Time of Exceedance (Cells 7/8, 9/10, 11/13, and 12/14)

Prepared By: BMS/PTO **Date:** October 2009

Reviewed By: BMS **Date:** October 2009

Checked By: PHB **Date:** October 2009

TASK

Determine the maximum leachate elevations in Cells 7/8, 9/10, 11/13 and 12/14 for the 25-year, 24-hour design storm and the duration for which the leachate elevation in each cell exceeds the allowable leachate elevation (i.e., time of exceedance).

REFERENCES

1. *Leachate Level Compliance Plan for Residuals Management Unit- One, Final Sequence Phase I – Cells 1 Through 14*, prepared by ARCADIS, dated December 2007.
2. *Operations and Maintenance Manual for Residuals Management Unit-1*, dated September, 1997 (latest revised date October 2009).
3. HydroCAD Version 8.5, hydraulic evaluation software, HydroCAD Software Solutions LLC, 2006.
4. Calculation sheet entitled *Infiltration Channel Routing Calculations (Cells 7/8, 9/10, 11/13 and 12/14)*, prepared by ARCADIS, dated March 2009.
5. Calculation sheet entitled *RMU-1 Landfill Cells 1 through 14 through Lift Station to OWS Building*, prepared by ARCADIS, dated October 2009.

ASSUMPTIONS

1. The design storm is the 25-year, 24-hour storm, which produces 4.0 inches of rainfall.
2. The porosities of the granular drainage layer, operations layer and waste are 0.42, 0.33 and 0.35, respectively.
3. The inflow hydrographs for Cells 7/8, 9/10, 11/13 and 12/14 are determined from channel routing calculations presented in Reference 4. For cells with multiple independent infiltration channels, the cell inflow hydrograph equals the graphical summation of outflow hydrographs for the contributing channels. It should be noted that the peak inflow to the cell is not necessarily equal to the sum of the peak outflows from the contributing channels since the individual peaks may occur at different times.
4. The stage/storage relationships for the cells are based on Reference 1.

Calculation Sheet

5. Actual leachate storage volume within each cell is linearly related to the porosity of the material.

6. The starting leachate elevation in each cell is the lowest corner elevation of the top edge of the primary leachate collection system (LCS) sump. Consequently, the storage volume in the cell sump is not considered in this analysis. The starting leachate elevations for the cells are obtained from Reference 1. The allowable leachate elevation in each cell is 1 foot above the starting leachate elevation. The starting and allowable leachate elevations are as follows:

Table 1

Cell	Starting Leachate El. (ft)	Allowable Leachate El. (ft)
7/8	312.43	313.43
9/10	313.82	314.82
11/13	310.59	311.59
12/14	310.75	311.75

7. Maximum outflow from each cell is based on the estimated pumping rate for the primary LCS pump. Estimated pumping rates are obtained from Reference 5. The maximum outflow rates are as follows:

Table 2

Cell	Cell Outflow Rate (gpm) (cfs)
7/8	60 (0.13)
9/10	152 (0.34)
11/13	133 (0.30)
12/14	135 (0.30)

METHODOLOGY

In general, the following methodology is used in this evaluation to determine the leachate elevation and time of exceedance for each cell. This methodology is based on Reference 1.

1. Stage/Storage/Discharge Relationships

Stage/storage/discharge relationships for the cells are created to model each cell. The stage/storage relationships are obtained from Reference 1 and are based on constructed cell floor grades. The stage/discharge relationships are obtained from Reference 5 and are based on the hydraulic characteristics of the leachate removal, transfer and storage system and the performance curves for the pumps in the sumps of the modeled cells.

2. Leachate Elevations and Times of Exceedence

The stage/storage relationship and outflow rate for each cell are used to route the inflow hydrograph through the cell to determine the leachate elevation within the cell over time. The time of exceedence for each cell is then computed from the leachate elevation vs. time relationship and the allowable leachate elevation. The time of exceedence is defined as the period of time during which leachate elevation within the cell exceeds the allowable elevation.

Calculation Sheet

CALCULATIONS

1. Stage/Storage/Discharge Relationships

The areas within the primary LCS contours are calculated and adjusted to account for individual porosities of the granular drainage layer, operations layer and waste layer. The tabulated elevation/area data is used to generate a stage/storage relationship for the cell. Spreadsheet output associated with the stage/storage relationships for each cell is included as an attachment.

2. Leachate Elevations and Times of Exceedance

The stage/storage relationship and cell outflow rate for each cell are used to route the inflow hydrograph(s) from the contributing infiltration channel(s) through the cell. Table 3 summarizes the results of the routing procedure performed using Reference 3.

Table 3

Cell	Estimated Peak Inflow to Cell (cfs)	Estimated Peak Outflow from Cell (cfs)	Allowable Leachate El. (ft)	Peak Leachate El. (ft)	Time of Exceedance (hr)
7/8	0.31	0.13 (pump limited)	313.43	312.48	0.00
9/10	5.22	0.34 (pump limited)	314.82	316.27	9.35
11/13	1.62	0.30 (pump limited)	311.59	311.43	0.00
12/14	5.61	0.30 (pump limited)	311.75	312.98	18.80

SUMMARY

The time of exceedence for each cell is less than the maximum permissible exceedance value of 24 hours. Supporting output from Reference 3 is included as an attachment to this calculation.

CWM Chemical Services, LLC
Model City Facility
Cells 1 Through 14 Leachate Level Compliance Plan

Cell 7/8 Sump

Cell Floor Area Computation					
Elevation (ft)	Measured Area (sf)	Drainage Layer Area Adjustment For Porosity (sf)	Operations Layer Area Adjustment For Porosity (sf)	Waste Layer Area Adjustment For Porosity (sf)	Total Adjusted Area For Porosity (sf)
312.43	0	0	0	0	0
314.00	10,872	2,283	1,794	0	4,077
315.00	27,678	5,812	4,567	3,805	14,184
316.00	52,125	8,663	6,807	9,687	25,157
317.00	78,042	5,443	4,276	18,244	27,963
318.00	103,392	5,324	4,183	27,315	36,821

Volume Computation							
Elevation (ft)	Adjusted Area (sf)	Average Area (sf)	Depth Increment (ft)	Incremental Volume (cf)	Incremental Volume (yd3)	Cumulative Volume (cf)	Cumulative Volume (yd3)
312.43	0	-	-	-	-	-	-
314.00	4,077	2,039	1.57	3,200	119	3,200	119
315.00	14,184	9,131	1.00	9,131	338	12,331	457
316.00	25,157	19,671	1.00	19,671	729	32,002	1,185
317.00	27,963	26,560	1.00	26,560	984	58,562	2,169
318.00	36,821	32,392	1.00	32,392	1,200	90,954	3,369

Summary for Pond 24P: Cell 7/8

[78] Warning: Submerged Pond 29P Secondary device # 1 by 312.48'
[81] Warning: Exceeded Pond 29P by 312.43' @ 24.37 hrs
[78] Warning: Submerged Pond 30P Secondary device # 1 by 312.48'
[81] Warning: Exceeded Pond 30P by 312.43' @ 24.41 hrs
[78] Warning: Submerged Pond 31P Secondary device # 1 by 312.48'
[81] Warning: Exceeded Pond 31P by 312.43' @ 24.45 hrs

Inflow	=	0.31 cfs @	11.98 hrs, Volume=	0.013 af	
Outflow	=	0.13 cfs @	11.88 hrs, Volume=	0.013 af,	Atten= 58%, Lag= 0.0 min
Primary	=	0.13 cfs @	11.88 hrs, Volume=	0.013 af	

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 312.48' @ 12.08 hrs Surf.Area= 0 sf Storage= 103 cf

Plug-Flow detention time= 4.9 min calculated for 0.013 af (100% of inflow)
Center-of-Mass det. time= 4.9 min (796.2 - 791.3)

Volume	Invert	Avail.Storage	Storage Description
#1	312.43'	90,954 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
312.43	0
314.00	3,200
315.00	12,331
316.00	32,002
317.00	58,562
318.00	90,954

Device	Routing	Invert	Outlet Devices
#1	Primary	312.43'	**7/8 Pump** Elev. (feet) 312.43 312.44 318.00 Disch. (cfs) 0.000 0.130 0.130

Primary OutFlow Max=0.13 cfs @ 11.88 hrs HW=312.44' (Free Discharge)
↑—**1=7/8 Pump** (Custom Controls 0.13 cfs)

Hydrograph for Pond 24P: Cell 7/8

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	312.43	0.00
0.05	0.00	0	312.43	0.00
0.10	0.00	0	312.43	0.00
0.15	0.00	0	312.43	0.00
0.20	0.00	0	312.43	0.00
0.25	0.00	0	312.43	0.00
0.30	0.00	0	312.43	0.00
0.35	0.00	0	312.43	0.00
0.40	0.00	0	312.43	0.00
0.45	0.00	0	312.43	0.00
0.50	0.00	0	312.43	0.00
0.55	0.00	0	312.43	0.00
0.60	0.00	0	312.43	0.00
0.65	0.00	0	312.43	0.00
0.70	0.00	0	312.43	0.00
0.75	0.00	0	312.43	0.00
0.80	0.00	0	312.43	0.00
0.85	0.00	0	312.43	0.00
0.90	0.00	0	312.43	0.00
0.95	0.00	0	312.43	0.00
1.00	0.00	0	312.43	0.00
1.05	0.00	0	312.43	0.00
1.10	0.00	0	312.43	0.00
1.15	0.00	0	312.43	0.00
1.20	0.00	0	312.43	0.00
1.25	0.00	0	312.43	0.00
1.30	0.00	0	312.43	0.00
1.35	0.00	0	312.43	0.00
1.40	0.00	0	312.43	0.00
1.45	0.00	0	312.43	0.00
1.50	0.00	0	312.43	0.00
1.55	0.00	0	312.43	0.00
1.60	0.00	0	312.43	0.00
1.65	0.00	0	312.43	0.00
1.70	0.00	0	312.43	0.00
1.75	0.00	0	312.43	0.00
1.80	0.00	0	312.43	0.00
1.85	0.00	0	312.43	0.00
1.90	0.00	0	312.43	0.00
1.95	0.00	0	312.43	0.00
2.00	0.00	0	312.43	0.00
2.05	0.00	0	312.43	0.00
2.10	0.00	0	312.43	0.00
2.15	0.00	0	312.43	0.00
2.20	0.00	0	312.43	0.00
2.25	0.00	0	312.43	0.00
2.30	0.00	0	312.43	0.00
2.35	0.00	0	312.43	0.00
2.40	0.00	0	312.43	0.00
2.45	0.00	0	312.43	0.00
2.50	0.00	0	312.43	0.00

2.55	0.00	0	312.43	0.00
2.60	0.00	0	312.43	0.00
2.65	0.00	0	312.43	0.00
2.70	0.00	0	312.43	0.00
2.75	0.00	0	312.43	0.00
2.80	0.00	0	312.43	0.00
2.85	0.00	0	312.43	0.00
2.90	0.00	0	312.43	0.00
2.95	0.00	0	312.43	0.00
3.00	0.00	0	312.43	0.00
3.05	0.00	0	312.43	0.00
3.10	0.00	0	312.43	0.00
3.15	0.00	0	312.43	0.00
3.20	0.00	0	312.43	0.00
3.25	0.00	0	312.43	0.00
3.30	0.00	0	312.43	0.00
3.35	0.00	0	312.43	0.00
3.40	0.00	0	312.43	0.00
3.45	0.00	0	312.43	0.00
3.50	0.00	0	312.43	0.00
3.55	0.00	0	312.43	0.00
3.60	0.00	0	312.43	0.00
3.65	0.00	0	312.43	0.00
3.70	0.00	0	312.43	0.00
3.75	0.00	0	312.43	0.00
3.80	0.00	0	312.43	0.00
3.85	0.00	0	312.43	0.00
3.90	0.00	0	312.43	0.00
3.95	0.00	0	312.43	0.00
4.00	0.00	0	312.43	0.00
4.05	0.00	0	312.43	0.00
4.10	0.00	0	312.43	0.00
4.15	0.00	0	312.43	0.00
4.20	0.00	0	312.43	0.00
4.25	0.00	0	312.43	0.00
4.30	0.00	0	312.43	0.00
4.35	0.00	0	312.43	0.00
4.40	0.00	0	312.43	0.00
4.45	0.00	0	312.43	0.00
4.50	0.00	0	312.43	0.00
4.55	0.00	0	312.43	0.00
4.60	0.00	0	312.43	0.00
4.65	0.00	0	312.43	0.00
4.70	0.00	0	312.43	0.00
4.75	0.00	0	312.43	0.00
4.80	0.00	0	312.43	0.00
4.85	0.00	0	312.43	0.00
4.90	0.00	0	312.43	0.00
4.95	0.00	0	312.43	0.00
5.00	0.00	0	312.43	0.00
5.05	0.00	0	312.43	0.00
5.10	0.00	0	312.43	0.00
5.15	0.00	0	312.43	0.00
5.20	0.00	0	312.43	0.00
5.25	0.00	0	312.43	0.00
5.30	0.00	0	312.43	0.00

5.35	0.00	0	312.43	0.00
5.40	0.00	0	312.43	0.00
5.45	0.00	0	312.43	0.00
5.50	0.00	0	312.43	0.00
5.55	0.00	0	312.43	0.00
5.60	0.00	0	312.43	0.00
5.65	0.00	0	312.43	0.00
5.70	0.00	0	312.43	0.00
5.75	0.00	0	312.43	0.00
5.80	0.00	0	312.43	0.00
5.85	0.00	0	312.43	0.00
5.90	0.00	0	312.43	0.00
5.95	0.00	0	312.43	0.00
6.00	0.00	0	312.43	0.00
6.05	0.00	0	312.43	0.00
6.10	0.00	0	312.43	0.00
6.15	0.00	0	312.43	0.00
6.20	0.00	0	312.43	0.00
6.25	0.00	0	312.43	0.00
6.30	0.00	0	312.43	0.00
6.35	0.00	0	312.43	0.00
6.40	0.00	0	312.43	0.00
6.45	0.00	0	312.43	0.00
6.50	0.00	0	312.43	0.00
6.55	0.00	0	312.43	0.00
6.60	0.00	0	312.43	0.00
6.65	0.00	0	312.43	0.00
6.70	0.00	0	312.43	0.00
6.75	0.00	0	312.43	0.00
6.80	0.00	0	312.43	0.00
6.85	0.00	0	312.43	0.00
6.90	0.00	0	312.43	0.00
6.95	0.00	0	312.43	0.00
7.00	0.00	0	312.43	0.00
7.05	0.00	0	312.43	0.00
7.10	0.00	0	312.43	0.00
7.15	0.00	0	312.43	0.00
7.20	0.00	0	312.43	0.00
7.25	0.00	0	312.43	0.00
7.30	0.00	0	312.43	0.00
7.35	0.00	0	312.43	0.00
7.40	0.00	0	312.43	0.00
7.45	0.00	0	312.43	0.00
7.50	0.00	0	312.43	0.00
7.55	0.00	0	312.43	0.00
7.60	0.00	0	312.43	0.00
7.65	0.00	0	312.43	0.00
7.70	0.00	0	312.43	0.00
7.75	0.00	0	312.43	0.00
7.80	0.00	0	312.43	0.00
7.85	0.00	0	312.43	0.00
7.90	0.00	0	312.43	0.00
7.95	0.00	0	312.43	0.00
8.00	0.00	0	312.43	0.00
8.05	0.00	0	312.43	0.00
8.10	0.00	0	312.43	0.00

8.15	0.00	0	312.43	0.00
8.20	0.00	0	312.43	0.00
8.25	0.00	0	312.43	0.00
8.30	0.00	0	312.43	0.00
8.35	0.00	0	312.43	0.00
8.40	0.00	0	312.43	0.00
8.45	0.00	0	312.43	0.00
8.50	0.00	0	312.43	0.00
8.55	0.00	0	312.43	0.00
8.60	0.00	0	312.43	0.00
8.65	0.00	0	312.43	0.00
8.70	0.00	0	312.43	0.00
8.75	0.00	0	312.43	0.00
8.80	0.00	0	312.43	0.00
8.85	0.00	0	312.43	0.00
8.90	0.00	0	312.43	0.00
8.95	0.00	0	312.43	0.00
9.00	0.00	0	312.43	0.00
9.05	0.00	0	312.43	0.00
9.10	0.00	0	312.43	0.00
9.15	0.00	0	312.43	0.00
9.20	0.00	0	312.43	0.00
9.25	0.00	0	312.43	0.00
9.30	0.00	0	312.43	0.00
9.35	0.00	0	312.43	0.00
9.40	0.00	0	312.43	0.00
9.45	0.00	0	312.43	0.00
9.50	0.00	0	312.43	0.00
9.55	0.00	0	312.43	0.00
9.60	0.00	0	312.43	0.00
9.65	0.00	0	312.43	0.00
9.70	0.00	1	312.43	0.00
9.75	0.00	1	312.43	0.00
9.80	0.00	1	312.43	0.00
9.85	0.00	1	312.43	0.00
9.90	0.00	1	312.43	0.00
9.95	0.00	1	312.43	0.00
10.00	0.00	1	312.43	0.00
10.05	0.00	1	312.43	0.00
10.10	0.00	1	312.43	0.00
10.15	0.00	1	312.43	0.00
10.20	0.00	1	312.43	0.00
10.25	0.00	1	312.43	0.00
10.30	0.00	1	312.43	0.00
10.35	0.01	1	312.43	0.00
10.40	0.01	1	312.43	0.01
10.45	0.01	1	312.43	0.01
10.50	0.01	1	312.43	0.01
10.55	0.01	1	312.43	0.01
10.60	0.01	1	312.43	0.01
10.65	0.01	1	312.43	0.01
10.70	0.01	1	312.43	0.01
10.75	0.01	1	312.43	0.01
10.80	0.01	1	312.43	0.01
10.85	0.01	1	312.43	0.01
10.90	0.01	1	312.43	0.01

10.95	0.01	1	312.43	0.01
11.00	0.01	1	312.43	0.01
11.05	0.01	1	312.43	0.01
11.10	0.01	1	312.43	0.01
11.15	0.01	1	312.43	0.01
11.20	0.01	2	312.43	0.01
11.25	0.01	2	312.43	0.01
11.30	0.01	2	312.43	0.01
11.35	0.01	2	312.43	0.01
11.40	0.01	2	312.43	0.01
11.45	0.01	2	312.43	0.01
11.50	0.02	2	312.43	0.01
11.55	0.02	2	312.43	0.02
11.60	0.02	3	312.43	0.02
11.65	0.03	4	312.43	0.02
11.70	0.05	6	312.43	0.04
11.75	0.08	9	312.43	0.06
11.80	0.10	13	312.44	0.08
11.85	0.14	17	312.44	0.11
11.90	0.21	26	312.44	0.13
11.95	0.29	47	312.45	0.13
12.00	0.30	78	312.47	0.13
12.05	0.19	100	312.48	0.13
12.10	0.09	102	312.48	0.13
12.15	0.05	91	312.47	0.13
12.20	0.04	76	312.47	0.13
12.25	0.03	59	312.46	0.13
12.30	0.03	41	312.45	0.13
12.35	0.03	23	312.44	0.13
12.40	0.03	10	312.43	0.06
12.45	0.02	6	312.43	0.04
12.50	0.02	4	312.43	0.03
12.55	0.02	3	312.43	0.02
12.60	0.02	3	312.43	0.02
12.65	0.02	3	312.43	0.02
12.70	0.02	3	312.43	0.02
12.75	0.02	2	312.43	0.02
12.80	0.01	2	312.43	0.02
12.85	0.01	2	312.43	0.01
12.90	0.01	2	312.43	0.01
12.95	0.01	2	312.43	0.01
13.00	0.01	2	312.43	0.01
13.05	0.01	2	312.43	0.01
13.10	0.01	2	312.43	0.01
13.15	0.01	2	312.43	0.01
13.20	0.01	2	312.43	0.01
13.25	0.01	2	312.43	0.01
13.30	0.01	2	312.43	0.01
13.35	0.01	2	312.43	0.01
13.40	0.01	2	312.43	0.01
13.45	0.01	2	312.43	0.01
13.50	0.01	2	312.43	0.01
13.55	0.01	1	312.43	0.01
13.60	0.01	1	312.43	0.01
13.65	0.01	1	312.43	0.01
13.70	0.01	1	312.43	0.01

13.75	0.01	1	312.43	0.01
13.80	0.01	1	312.43	0.01
13.85	0.01	1	312.43	0.01
13.90	0.01	1	312.43	0.01
13.95	0.01	1	312.43	0.01
14.00	0.01	1	312.43	0.01
14.05	0.01	1	312.43	0.01
14.10	0.01	1	312.43	0.01
14.15	0.01	1	312.43	0.01
14.20	0.01	1	312.43	0.01
14.25	0.01	1	312.43	0.01
14.30	0.01	1	312.43	0.01
14.35	0.01	1	312.43	0.01
14.40	0.01	1	312.43	0.01
14.45	0.01	1	312.43	0.01
14.50	0.01	1	312.43	0.01
14.55	0.01	1	312.43	0.01
14.60	0.01	1	312.43	0.01
14.65	0.01	1	312.43	0.01
14.70	0.01	1	312.43	0.01
14.75	0.01	1	312.43	0.01
14.80	0.01	1	312.43	0.01
14.85	0.01	1	312.43	0.01
14.90	0.01	1	312.43	0.01
14.95	0.01	1	312.43	0.01
15.00	0.01	1	312.43	0.01
15.05	0.01	1	312.43	0.01
15.10	0.01	1	312.43	0.01
15.15	0.01	1	312.43	0.01
15.20	0.01	1	312.43	0.01
15.25	0.01	1	312.43	0.01
15.30	0.01	1	312.43	0.01
15.35	0.01	1	312.43	0.01
15.40	0.01	1	312.43	0.01
15.45	0.01	1	312.43	0.01
15.50	0.01	1	312.43	0.01
15.55	0.01	1	312.43	0.01
15.60	0.01	1	312.43	0.01
15.65	0.01	1	312.43	0.01
15.70	0.00	1	312.43	0.01
15.75	0.00	1	312.43	0.00
15.80	0.00	1	312.43	0.00
15.85	0.00	1	312.43	0.00
15.90	0.00	1	312.43	0.00
15.95	0.00	1	312.43	0.00
16.00	0.00	1	312.43	0.00
16.05	0.00	1	312.43	0.00
16.10	0.00	1	312.43	0.00
16.15	0.00	1	312.43	0.00
16.20	0.00	1	312.43	0.00
16.25	0.00	1	312.43	0.00
16.30	0.00	1	312.43	0.00
16.35	0.00	1	312.43	0.00
16.40	0.00	1	312.43	0.00
16.45	0.00	1	312.43	0.00
16.50	0.00	1	312.43	0.00

16.55	0.00	1	312.43	0.00
16.60	0.00	1	312.43	0.00
16.65	0.00	1	312.43	0.00
16.70	0.00	1	312.43	0.00
16.75	0.00	1	312.43	0.00
16.80	0.00	1	312.43	0.00
16.85	0.00	1	312.43	0.00
16.90	0.00	1	312.43	0.00
16.95	0.00	1	312.43	0.00
17.00	0.00	1	312.43	0.00
17.05	0.00	1	312.43	0.00
17.10	0.00	1	312.43	0.00
17.15	0.00	1	312.43	0.00
17.20	0.00	1	312.43	0.00
17.25	0.00	1	312.43	0.00
17.30	0.00	1	312.43	0.00
17.35	0.00	1	312.43	0.00
17.40	0.00	1	312.43	0.00
17.45	0.00	1	312.43	0.00
17.50	0.00	1	312.43	0.00
17.55	0.00	1	312.43	0.00
17.60	0.00	1	312.43	0.00
17.65	0.00	1	312.43	0.00
17.70	0.00	1	312.43	0.00
17.75	0.00	1	312.43	0.00
17.80	0.00	1	312.43	0.00
17.85	0.00	1	312.43	0.00
17.90	0.00	1	312.43	0.00
17.95	0.00	1	312.43	0.00
18.00	0.00	1	312.43	0.00
18.05	0.00	1	312.43	0.00
18.10	0.00	1	312.43	0.00
18.15	0.00	1	312.43	0.00
18.20	0.00	1	312.43	0.00
18.25	0.00	1	312.43	0.00
18.30	0.00	1	312.43	0.00
18.35	0.00	1	312.43	0.00
18.40	0.00	1	312.43	0.00
18.45	0.00	1	312.43	0.00
18.50	0.00	1	312.43	0.00
18.55	0.00	1	312.43	0.00
18.60	0.00	1	312.43	0.00
18.65	0.00	1	312.43	0.00
18.70	0.00	1	312.43	0.00
18.75	0.00	1	312.43	0.00
18.80	0.00	0	312.43	0.00
18.85	0.00	0	312.43	0.00
18.90	0.00	0	312.43	0.00
18.95	0.00	0	312.43	0.00
19.00	0.00	0	312.43	0.00
19.05	0.00	0	312.43	0.00
19.10	0.00	0	312.43	0.00
19.15	0.00	0	312.43	0.00
19.20	0.00	0	312.43	0.00
19.25	0.00	0	312.43	0.00
19.30	0.00	0	312.43	0.00

19.35	0.00	0	312.43	0.00
19.40	0.00	0	312.43	0.00
19.45	0.00	0	312.43	0.00
19.50	0.00	0	312.43	0.00
19.55	0.00	0	312.43	0.00
19.60	0.00	0	312.43	0.00
19.65	0.00	0	312.43	0.00
19.70	0.00	0	312.43	0.00
19.75	0.00	0	312.43	0.00
19.80	0.00	0	312.43	0.00
19.85	0.00	0	312.43	0.00
19.90	0.00	0	312.43	0.00
19.95	0.00	0	312.43	0.00
20.00	0.00	0	312.43	0.00
20.05	0.00	0	312.43	0.00
20.10	0.00	0	312.43	0.00
20.15	0.00	0	312.43	0.00
20.20	0.00	0	312.43	0.00
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22.10	0.00	0	312.43	0.00

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41.60	0.00	0	312.43	0.00
41.65	0.00	0	312.43	0.00
41.70	0.00	0	312.43	0.00

41.75	0.00	0	312.43	0.00
41.80	0.00	0	312.43	0.00
41.85	0.00	0	312.43	0.00
41.90	0.00	0	312.43	0.00
41.95	0.00	0	312.43	0.00
42.00	0.00	0	312.43	0.00
42.05	0.00	0	312.43	0.00
42.10	0.00	0	312.43	0.00
42.15	0.00	0	312.43	0.00
42.20	0.00	0	312.43	0.00
42.25	0.00	0	312.43	0.00
42.30	0.00	0	312.43	0.00
42.35	0.00	0	312.43	0.00
42.40	0.00	0	312.43	0.00
42.45	0.00	0	312.43	0.00
42.50	0.00	0	312.43	0.00
42.55	0.00	0	312.43	0.00
42.60	0.00	0	312.43	0.00
42.65	0.00	0	312.43	0.00
42.70	0.00	0	312.43	0.00
42.75	0.00	0	312.43	0.00
42.80	0.00	0	312.43	0.00
42.85	0.00	0	312.43	0.00
42.90	0.00	0	312.43	0.00
42.95	0.00	0	312.43	0.00
43.00	0.00	0	312.43	0.00
43.05	0.00	0	312.43	0.00
43.10	0.00	0	312.43	0.00
43.15	0.00	0	312.43	0.00
43.20	0.00	0	312.43	0.00
43.25	0.00	0	312.43	0.00
43.30	0.00	0	312.43	0.00
43.35	0.00	0	312.43	0.00
43.40	0.00	0	312.43	0.00
43.45	0.00	0	312.43	0.00
43.50	0.00	0	312.43	0.00
43.55	0.00	0	312.43	0.00
43.60	0.00	0	312.43	0.00
43.65	0.00	0	312.43	0.00
43.70	0.00	0	312.43	0.00
43.75	0.00	0	312.43	0.00
43.80	0.00	0	312.43	0.00
43.85	0.00	0	312.43	0.00
43.90	0.00	0	312.43	0.00
43.95	0.00	0	312.43	0.00
44.00	0.00	0	312.43	0.00
44.05	0.00	0	312.43	0.00
44.10	0.00	0	312.43	0.00
44.15	0.00	0	312.43	0.00
44.20	0.00	0	312.43	0.00
44.25	0.00	0	312.43	0.00
44.30	0.00	0	312.43	0.00
44.35	0.00	0	312.43	0.00
44.40	0.00	0	312.43	0.00
44.45	0.00	0	312.43	0.00
44.50	0.00	0	312.43	0.00

44.55	0.00	0	312.43	0.00
44.60	0.00	0	312.43	0.00
44.65	0.00	0	312.43	0.00
44.70	0.00	0	312.43	0.00
44.75	0.00	0	312.43	0.00
44.80	0.00	0	312.43	0.00
44.85	0.00	0	312.43	0.00
44.90	0.00	0	312.43	0.00
44.95	0.00	0	312.43	0.00
45.00	0.00	0	312.43	0.00
45.05	0.00	0	312.43	0.00
45.10	0.00	0	312.43	0.00
45.15	0.00	0	312.43	0.00
45.20	0.00	0	312.43	0.00
45.25	0.00	0	312.43	0.00
45.30	0.00	0	312.43	0.00
45.35	0.00	0	312.43	0.00
45.40	0.00	0	312.43	0.00
45.45	0.00	0	312.43	0.00
45.50	0.00	0	312.43	0.00
45.55	0.00	0	312.43	0.00
45.60	0.00	0	312.43	0.00
45.65	0.00	0	312.43	0.00
45.70	0.00	0	312.43	0.00
45.75	0.00	0	312.43	0.00
45.80	0.00	0	312.43	0.00
45.85	0.00	0	312.43	0.00
45.90	0.00	0	312.43	0.00
45.95	0.00	0	312.43	0.00
46.00	0.00	0	312.43	0.00
46.05	0.00	0	312.43	0.00
46.10	0.00	0	312.43	0.00
46.15	0.00	0	312.43	0.00
46.20	0.00	0	312.43	0.00
46.25	0.00	0	312.43	0.00
46.30	0.00	0	312.43	0.00
46.35	0.00	0	312.43	0.00
46.40	0.00	0	312.43	0.00
46.45	0.00	0	312.43	0.00
46.50	0.00	0	312.43	0.00
46.55	0.00	0	312.43	0.00
46.60	0.00	0	312.43	0.00
46.65	0.00	0	312.43	0.00
46.70	0.00	0	312.43	0.00
46.75	0.00	0	312.43	0.00
46.80	0.00	0	312.43	0.00
46.85	0.00	0	312.43	0.00
46.90	0.00	0	312.43	0.00
46.95	0.00	0	312.43	0.00
47.00	0.00	0	312.43	0.00
47.05	0.00	0	312.43	0.00
47.10	0.00	0	312.43	0.00
47.15	0.00	0	312.43	0.00
47.20	0.00	0	312.43	0.00
47.25	0.00	0	312.43	0.00
47.30	0.00	0	312.43	0.00

47.35	0.00	0	312.43	0.00
47.40	0.00	0	312.43	0.00
47.45	0.00	0	312.43	0.00
47.50	0.00	0	312.43	0.00
47.55	0.00	0	312.43	0.00
47.60	0.00	0	312.43	0.00
47.65	0.00	0	312.43	0.00
47.70	0.00	0	312.43	0.00
47.75	0.00	0	312.43	0.00
47.80	0.00	0	312.43	0.00
47.85	0.00	0	312.43	0.00
47.90	0.00	0	312.43	0.00
47.95	0.00	0	312.43	0.00
48.00	0.00	0	312.43	0.00
48.05	0.00	0	312.43	0.00
48.10	0.00	0	312.43	0.00
48.15	0.00	0	312.43	0.00
48.20	0.00	0	312.43	0.00
48.25	0.00	0	312.43	0.00
48.30	0.00	0	312.43	0.00
48.35	0.00	0	312.43	0.00
48.40	0.00	0	312.43	0.00
48.45	0.00	0	312.43	0.00
48.50	0.00	0	312.43	0.00
48.55	0.00	0	312.43	0.00
48.60	0.00	0	312.43	0.00
48.65	0.00	0	312.43	0.00
48.70	0.00	0	312.43	0.00
48.75	0.00	0	312.43	0.00
48.80	0.00	0	312.43	0.00
48.85	0.00	0	312.43	0.00
48.90	0.00	0	312.43	0.00
48.95	0.00	0	312.43	0.00
49.00	0.00	0	312.43	0.00
49.05	0.00	0	312.43	0.00
49.10	0.00	0	312.43	0.00
49.15	0.00	0	312.43	0.00
49.20	0.00	0	312.43	0.00
49.25	0.00	0	312.43	0.00
49.30	0.00	0	312.43	0.00
49.35	0.00	0	312.43	0.00
49.40	0.00	0	312.43	0.00
49.45	0.00	0	312.43	0.00
49.50	0.00	0	312.43	0.00
49.55	0.00	0	312.43	0.00
49.60	0.00	0	312.43	0.00
49.65	0.00	0	312.43	0.00
49.70	0.00	0	312.43	0.00
49.75	0.00	0	312.43	0.00
49.80	0.00	0	312.43	0.00
49.85	0.00	0	312.43	0.00
49.90	0.00	0	312.43	0.00
49.95	0.00	0	312.43	0.00
50.00	0.00	0	312.43	0.00
50.05	0.00	0	312.43	0.00
50.10	0.00	0	312.43	0.00

50.15	0.00	0	312.43	0.00
50.20	0.00	0	312.43	0.00
50.25	0.00	0	312.43	0.00
50.30	0.00	0	312.43	0.00
50.35	0.00	0	312.43	0.00
50.40	0.00	0	312.43	0.00
50.45	0.00	0	312.43	0.00
50.50	0.00	0	312.43	0.00
50.55	0.00	0	312.43	0.00
50.60	0.00	0	312.43	0.00
50.65	0.00	0	312.43	0.00
50.70	0.00	0	312.43	0.00
50.75	0.00	0	312.43	0.00
50.80	0.00	0	312.43	0.00
50.85	0.00	0	312.43	0.00
50.90	0.00	0	312.43	0.00
50.95	0.00	0	312.43	0.00
51.00	0.00	0	312.43	0.00
51.05	0.00	0	312.43	0.00
51.10	0.00	0	312.43	0.00
51.15	0.00	0	312.43	0.00
51.20	0.00	0	312.43	0.00
51.25	0.00	0	312.43	0.00
51.30	0.00	0	312.43	0.00
51.35	0.00	0	312.43	0.00
51.40	0.00	0	312.43	0.00
51.45	0.00	0	312.43	0.00
51.50	0.00	0	312.43	0.00
51.55	0.00	0	312.43	0.00
51.60	0.00	0	312.43	0.00
51.65	0.00	0	312.43	0.00
51.70	0.00	0	312.43	0.00
51.75	0.00	0	312.43	0.00
51.80	0.00	0	312.43	0.00
51.85	0.00	0	312.43	0.00
51.90	0.00	0	312.43	0.00
51.95	0.00	0	312.43	0.00
52.00	0.00	0	312.43	0.00
52.05	0.00	0	312.43	0.00
52.10	0.00	0	312.43	0.00
52.15	0.00	0	312.43	0.00
52.20	0.00	0	312.43	0.00
52.25	0.00	0	312.43	0.00
52.30	0.00	0	312.43	0.00
52.35	0.00	0	312.43	0.00
52.40	0.00	0	312.43	0.00
52.45	0.00	0	312.43	0.00
52.50	0.00	0	312.43	0.00
52.55	0.00	0	312.43	0.00
52.60	0.00	0	312.43	0.00
52.65	0.00	0	312.43	0.00
52.70	0.00	0	312.43	0.00
52.75	0.00	0	312.43	0.00
52.80	0.00	0	312.43	0.00
52.85	0.00	0	312.43	0.00
52.90	0.00	0	312.43	0.00

52.95	0.00	0	312.43	0.00
53.00	0.00	0	312.43	0.00
53.05	0.00	0	312.43	0.00
53.10	0.00	0	312.43	0.00
53.15	0.00	0	312.43	0.00
53.20	0.00	0	312.43	0.00
53.25	0.00	0	312.43	0.00
53.30	0.00	0	312.43	0.00
53.35	0.00	0	312.43	0.00
53.40	0.00	0	312.43	0.00
53.45	0.00	0	312.43	0.00
53.50	0.00	0	312.43	0.00
53.55	0.00	0	312.43	0.00
53.60	0.00	0	312.43	0.00
53.65	0.00	0	312.43	0.00
53.70	0.00	0	312.43	0.00
53.75	0.00	0	312.43	0.00
53.80	0.00	0	312.43	0.00
53.85	0.00	0	312.43	0.00
53.90	0.00	0	312.43	0.00
53.95	0.00	0	312.43	0.00
54.00	0.00	0	312.43	0.00
54.05	0.00	0	312.43	0.00
54.10	0.00	0	312.43	0.00
54.15	0.00	0	312.43	0.00
54.20	0.00	0	312.43	0.00
54.25	0.00	0	312.43	0.00
54.30	0.00	0	312.43	0.00
54.35	0.00	0	312.43	0.00
54.40	0.00	0	312.43	0.00
54.45	0.00	0	312.43	0.00
54.50	0.00	0	312.43	0.00
54.55	0.00	0	312.43	0.00
54.60	0.00	0	312.43	0.00
54.65	0.00	0	312.43	0.00
54.70	0.00	0	312.43	0.00
54.75	0.00	0	312.43	0.00
54.80	0.00	0	312.43	0.00
54.85	0.00	0	312.43	0.00
54.90	0.00	0	312.43	0.00
54.95	0.00	0	312.43	0.00
55.00	0.00	0	312.43	0.00
55.05	0.00	0	312.43	0.00
55.10	0.00	0	312.43	0.00
55.15	0.00	0	312.43	0.00
55.20	0.00	0	312.43	0.00
55.25	0.00	0	312.43	0.00
55.30	0.00	0	312.43	0.00
55.35	0.00	0	312.43	0.00
55.40	0.00	0	312.43	0.00
55.45	0.00	0	312.43	0.00
55.50	0.00	0	312.43	0.00
55.55	0.00	0	312.43	0.00
55.60	0.00	0	312.43	0.00
55.65	0.00	0	312.43	0.00
55.70	0.00	0	312.43	0.00

55.75	0.00	0	312.43	0.00
55.80	0.00	0	312.43	0.00
55.85	0.00	0	312.43	0.00
55.90	0.00	0	312.43	0.00
55.95	0.00	0	312.43	0.00
56.00	0.00	0	312.43	0.00
56.05	0.00	0	312.43	0.00
56.10	0.00	0	312.43	0.00
56.15	0.00	0	312.43	0.00
56.20	0.00	0	312.43	0.00
56.25	0.00	0	312.43	0.00
56.30	0.00	0	312.43	0.00
56.35	0.00	0	312.43	0.00
56.40	0.00	0	312.43	0.00
56.45	0.00	0	312.43	0.00
56.50	0.00	0	312.43	0.00
56.55	0.00	0	312.43	0.00
56.60	0.00	0	312.43	0.00
56.65	0.00	0	312.43	0.00
56.70	0.00	0	312.43	0.00
56.75	0.00	0	312.43	0.00
56.80	0.00	0	312.43	0.00
56.85	0.00	0	312.43	0.00
56.90	0.00	0	312.43	0.00
56.95	0.00	0	312.43	0.00
57.00	0.00	0	312.43	0.00
57.05	0.00	0	312.43	0.00
57.10	0.00	0	312.43	0.00
57.15	0.00	0	312.43	0.00
57.20	0.00	0	312.43	0.00
57.25	0.00	0	312.43	0.00
57.30	0.00	0	312.43	0.00
57.35	0.00	0	312.43	0.00
57.40	0.00	0	312.43	0.00
57.45	0.00	0	312.43	0.00
57.50	0.00	0	312.43	0.00
57.55	0.00	0	312.43	0.00
57.60	0.00	0	312.43	0.00
57.65	0.00	0	312.43	0.00
57.70	0.00	0	312.43	0.00
57.75	0.00	0	312.43	0.00
57.80	0.00	0	312.43	0.00
57.85	0.00	0	312.43	0.00
57.90	0.00	0	312.43	0.00
57.95	0.00	0	312.43	0.00
58.00	0.00	0	312.43	0.00
58.05	0.00	0	312.43	0.00
58.10	0.00	0	312.43	0.00
58.15	0.00	0	312.43	0.00
58.20	0.00	0	312.43	0.00
58.25	0.00	0	312.43	0.00
58.30	0.00	0	312.43	0.00
58.35	0.00	0	312.43	0.00
58.40	0.00	0	312.43	0.00
58.45	0.00	0	312.43	0.00
58.50	0.00	0	312.43	0.00

58.55	0.00	0	312.43	0.00
58.60	0.00	0	312.43	0.00
58.65	0.00	0	312.43	0.00
58.70	0.00	0	312.43	0.00
58.75	0.00	0	312.43	0.00
58.80	0.00	0	312.43	0.00
58.85	0.00	0	312.43	0.00
58.90	0.00	0	312.43	0.00
58.95	0.00	0	312.43	0.00
59.00	0.00	0	312.43	0.00
59.05	0.00	0	312.43	0.00
59.10	0.00	0	312.43	0.00
59.15	0.00	0	312.43	0.00
59.20	0.00	0	312.43	0.00
59.25	0.00	0	312.43	0.00
59.30	0.00	0	312.43	0.00
59.35	0.00	0	312.43	0.00
59.40	0.00	0	312.43	0.00
59.45	0.00	0	312.43	0.00
59.50	0.00	0	312.43	0.00
59.55	0.00	0	312.43	0.00
59.60	0.00	0	312.43	0.00
59.65	0.00	0	312.43	0.00
59.70	0.00	0	312.43	0.00
59.75	0.00	0	312.43	0.00
59.80	0.00	0	312.43	0.00
59.85	0.00	0	312.43	0.00
59.90	0.00	0	312.43	0.00
59.95	0.00	0	312.43	0.00
60.00	0.00	0	312.43	0.00

Cell 9/10

CWM Che[illegible]l Services, LLC
Model City Facility
Cells 1 Through 14 Leachate Level Compliance Plan

Cell 9/10 Sump

Cell Floor Area Computation					
Elevation (ft)	Measured Area (sf)	Drainage Layer Area Adjustment For Porosity (sf)	Operations Layer Area Adjustment For Porosity (sf)	Waste Layer Area Adjustment For Porosity (sf)	Total Adjusted Area For Porosity (sf)
313.82	0	0	0	0	0
314.00	770	162	127	0	289
315.00	5,206	932	732	0	1,664
316.00	14,898	2,035	1,599	1,822	5,457
317.00	30,980	3,377	2,654	5,214	11,245
318.00	48,162	3,608	2,835	10,843	17,286

Volume Computation							
Elevation (ft)	Adjusted Area (sf)	Average Area (sf)	Depth Increment (ft)	Incremental Volume (cf)	Incremental Volume (yd3)	Cumulative Volume (cf)	Cumulative Volume (yd3)
313.82	0	-	-	-	-	-	-
314.00	289	144	0.18	26	1	26	1
315.00	1,664	976	1.00	976	36	1,002	37
316.00	5,457	3,560	1.00	3,560	132	4,562	169
317.00	11,245	8,351	1.00	8,351	309	12,913	478
318.00	17,286	14,266	1.00	14,266	528	27,179	1,007

Summary for Pond 26P: Cell 9/10

[85] Warning: Oscillations may require Finer Routing>1
[78] Warning: Submerged Pond 32P Secondary device # 1 by 316.27'
[81] Warning: Exceeded Pond 32P by 316.16' @ 13.89 hrs
[78] Warning: Submerged Pond 33P Secondary device # 1 by 316.27'
[81] Warning: Exceeded Pond 33P by 316.17' @ 13.81 hrs
[78] Warning: Submerged Pond 34P Secondary device # 1 by 316.27'
[81] Warning: Exceeded Pond 34P by 316.17' @ 13.75 hrs
[78] Warning: Submerged Pond 35P Secondary device # 1 by 316.27'
[81] Warning: Exceeded Pond 35P by 316.15' @ 13.96 hrs
[78] Warning: Submerged Pond 36P Secondary device # 1 by 316.27'
[81] Warning: Exceeded Pond 36P by 316.14' @ 14.03 hrs
[78] Warning: Submerged Pond 37P Secondary device # 1 by 316.27'
[81] Warning: Exceeded Pond 37P by 316.14' @ 14.07 hrs

Inflow Area =	1.264 ac,	0.00% Impervious,	Inflow Depth =	3.29"	
Inflow =	5.22 cfs @	12.02 hrs,	Volume=	0.347 af	
Outflow =	0.34 cfs @	11.43 hrs,	Volume=	0.347 af,	Atten= 93%, Lag= 0.0 min
Primary =	0.34 cfs @	11.43 hrs,	Volume=	0.347 af	

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 316.27' @ 13.17 hrs Surf.Area= 0 sf Storage= 6,838 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 168.0 min (972.1 - 804.1)

Volume	Invert	Avail.Storage	Storage Description
#1	313.82'	27,179 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
313.82	0
314.00	26
315.00	1,002
316.00	4,582
317.00	12,913
318.00	27,179

Device	Routing	Invert	Outlet Devices
#1	Primary	313.82'	**9/10 Pump** Elev. (feet) 313.82 313.83 318.00 Disch. (cfs) 0.000 0.340 0.340

Primary OutFlow Max=0.34 cfs @ 11.43 hrs HW=313.83' (Free Discharge)
↑—**1=9/10 Pump** (Custom Controls 0.34 cfs)

Hydrograph for Pond 26P: Cell 9/10

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	313.82	0.00
0.05	0.00	0	313.82	0.00
0.10	0.00	0	313.82	0.00
0.15	0.00	0	313.82	0.00
0.20	0.00	0	313.82	0.00
0.25	0.00	0	313.82	0.00
0.30	0.00	0	313.82	0.00
0.35	0.00	0	313.82	0.00
0.40	0.00	0	313.82	0.00
0.45	0.00	0	313.82	0.00
0.50	0.00	0	313.82	0.00
0.55	0.00	0	313.82	0.00
0.60	0.00	0	313.82	0.00
0.65	0.00	0	313.82	0.00
0.70	0.00	0	313.82	0.00
0.75	0.00	0	313.82	0.00
0.80	0.00	0	313.82	0.00
0.85	0.00	0	313.82	0.00
0.90	0.00	0	313.82	0.00
0.95	0.00	0	313.82	0.00
1.00	0.00	0	313.82	0.00
1.05	0.00	0	313.82	0.00
1.10	0.00	0	313.82	0.00
1.15	0.00	0	313.82	0.00
1.20	0.00	0	313.82	0.00
1.25	0.00	0	313.82	0.00
1.30	0.00	0	313.82	0.00
1.35	0.00	0	313.82	0.00
1.40	0.00	0	313.82	0.00
1.45	0.00	0	313.82	0.00
1.50	0.00	0	313.82	0.00
1.55	0.00	0	313.82	0.00
1.60	0.00	0	313.82	0.00
1.65	0.00	0	313.82	0.00
1.70	0.00	0	313.82	0.00
1.75	0.00	0	313.82	0.00
1.80	0.00	0	313.82	0.00
1.85	0.00	0	313.82	0.00
1.90	0.00	0	313.82	0.00
1.95	0.00	0	313.82	0.00
2.00	0.00	0	313.82	0.00
2.05	0.00	0	313.82	0.00
2.10	0.00	0	313.82	0.00
2.15	0.00	0	313.82	0.00
2.20	0.00	0	313.82	0.00
2.25	0.00	0	313.82	0.00
2.30	0.00	0	313.82	0.00
2.35	0.00	0	313.82	0.00
2.40	0.00	0	313.82	0.00
2.45	0.00	0	313.82	0.00
2.50	0.00	0	313.82	0.00

2.55	0.00	0	313.82	0.00
2.60	0.00	0	313.82	0.00
2.65	0.00	0	313.82	0.00
2.70	0.00	0	313.82	0.00
2.75	0.00	0	313.82	0.00
2.80	0.00	0	313.82	0.00
2.85	0.00	0	313.82	0.00
2.90	0.00	0	313.82	0.00
2.95	0.00	0	313.82	0.00
3.00	0.00	0	313.82	0.00
3.05	0.00	0	313.82	0.00
3.10	0.00	0	313.82	0.00
3.15	0.00	0	313.82	0.00
3.20	0.00	0	313.82	0.00
3.25	0.00	0	313.82	0.00
3.30	0.00	0	313.82	0.00
3.35	0.00	0	313.82	0.00
3.40	0.00	0	313.82	0.00
3.45	0.00	0	313.82	0.00
3.50	0.00	0	313.82	0.00
3.55	0.00	0	313.82	0.00
3.60	0.00	0	313.82	0.00
3.65	0.00	0	313.82	0.00
3.70	0.00	0	313.82	0.00
3.75	0.00	0	313.82	0.00
3.80	0.00	0	313.82	0.00
3.85	0.00	0	313.82	0.00
3.90	0.00	0	313.82	0.00
3.95	0.00	0	313.82	0.00
4.00	0.00	0	313.82	0.00
4.05	0.00	0	313.82	0.00
4.10	0.00	0	313.82	0.00
4.15	0.00	0	313.82	0.00
4.20	0.00	0	313.82	0.00
4.25	0.00	0	313.82	0.00
4.30	0.00	0	313.82	0.00
4.35	0.00	0	313.82	0.00
4.40	0.00	0	313.82	0.00
4.45	0.00	0	313.82	0.00
4.50	0.00	0	313.82	0.00
4.55	0.00	0	313.82	0.00
4.60	0.00	0	313.82	0.00
4.65	0.00	0	313.82	0.00
4.70	0.00	0	313.82	0.00
4.75	0.00	0	313.82	0.00
4.80	0.00	0	313.82	0.00
4.85	0.00	0	313.82	0.00
4.90	0.00	0	313.82	0.00
4.95	0.00	0	313.82	0.00
5.00	0.00	0	313.82	0.00
5.05	0.00	0	313.82	0.00
5.10	0.00	0	313.82	0.00
5.15	0.00	0	313.82	0.00
5.20	0.00	0	313.82	0.00
5.25	0.00	0	313.82	0.00
5.30	0.01	0	313.82	0.01

5.35	0.01	0	313.82	0.01
5.40	0.01	0	313.82	0.01
5.45	0.01	0	313.82	0.01
5.50	0.01	0	313.82	0.01
5.55	0.01	0	313.82	0.01
5.60	0.01	0	313.82	0.01
5.65	0.01	0	313.82	0.01
5.70	0.01	0	313.82	0.01
5.75	0.01	0	313.82	0.01
5.80	0.01	0	313.82	0.01
5.85	0.01	0	313.82	0.01
5.90	0.01	0	313.82	0.01
5.95	0.01	0	313.82	0.01
6.00	0.01	0	313.82	0.01
6.05	0.01	0	313.82	0.01
6.10	0.01	0	313.82	0.01
6.15	0.01	0	313.82	0.01
6.20	0.02	0	313.82	0.02
6.25	0.02	0	313.82	0.02
6.30	0.02	0	313.82	0.02
6.35	0.02	0	313.82	0.02
6.40	0.02	0	313.82	0.02
6.45	0.02	0	313.82	0.02
6.50	0.02	0	313.82	0.02
6.55	0.02	0	313.82	0.02
6.60	0.02	0	313.82	0.02
6.65	0.02	0	313.82	0.02
6.70	0.02	0	313.82	0.02
6.75	0.02	0	313.82	0.02
6.80	0.02	0	313.82	0.02
6.85	0.02	0	313.82	0.02
6.90	0.02	0	313.82	0.02
6.95	0.02	0	313.82	0.02
7.00	0.03	0	313.82	0.03
7.05	0.03	0	313.82	0.03
7.10	0.03	0	313.82	0.03
7.15	0.03	0	313.82	0.03
7.20	0.03	0	313.82	0.03
7.25	0.03	0	313.82	0.03
7.30	0.03	0	313.82	0.03
7.35	0.03	0	313.82	0.03
7.40	0.03	0	313.82	0.03
7.45	0.03	0	313.82	0.03
7.50	0.03	0	313.82	0.03
7.55	0.03	0	313.82	0.03
7.60	0.03	0	313.82	0.03
7.65	0.03	0	313.82	0.03
7.70	0.03	0	313.82	0.03
7.75	0.04	0	313.82	0.04
7.80	0.04	0	313.82	0.04
7.85	0.04	0	313.82	0.04
7.90	0.04	0	313.82	0.04
7.95	0.04	0	313.82	0.04
8.00	0.04	0	313.82	0.04
8.05	0.04	0	313.82	0.04
8.10	0.04	0	313.82	0.04

8.15	0.04	0	313.82	0.04
8.20	0.04	0	313.82	0.04
8.25	0.04	0	313.82	0.04
8.30	0.04	0	313.82	0.04
8.35	0.05	0	313.82	0.05
8.40	0.05	0	313.82	0.05
8.45	0.05	0	313.82	0.05
8.50	0.05	0	313.82	0.05
8.55	0.05	0	313.82	0.05
8.60	0.05	0	313.82	0.05
8.65	0.06	0	313.82	0.06
8.70	0.06	0	313.82	0.06
8.75	0.06	0	313.82	0.06
8.80	0.06	0	313.82	0.06
8.85	0.06	0	313.82	0.06
8.90	0.06	0	313.82	0.06
8.95	0.07	0	313.82	0.07
9.00	0.07	0	313.82	0.07
9.05	0.07	0	313.82	0.07
9.10	0.07	0	313.82	0.07
9.15	0.07	0	313.82	0.07
9.20	0.08	0	313.82	0.08
9.25	0.08	0	313.82	0.08
9.30	0.08	0	313.82	0.08
9.35	0.08	0	313.82	0.08
9.40	0.08	0	313.82	0.08
9.45	0.08	0	313.82	0.08
9.50	0.08	0	313.82	0.08
9.55	0.08	0	313.82	0.08
9.60	0.08	0	313.82	0.08
9.65	0.09	0	313.82	0.09
9.70	0.09	0	313.82	0.09
9.75	0.09	0	313.82	0.09
9.80	0.09	0	313.82	0.09
9.85	0.09	0	313.82	0.09
9.90	0.10	0	313.82	0.10
9.95	0.10	0	313.82	0.10
10.00	0.10	0	313.82	0.10
10.05	0.11	0	313.82	0.11
10.10	0.11	0	313.82	0.11
10.15	0.11	0	313.82	0.11
10.20	0.12	0	313.82	0.12
10.25	0.12	1	313.82	0.12
10.30	0.12	1	313.82	0.12
10.35	0.13	1	313.82	0.13
10.40	0.13	1	313.82	0.13
10.45	0.14	1	313.82	0.14
10.50	0.14	1	313.82	0.14
10.55	0.15	1	313.82	0.15
10.60	0.15	1	313.82	0.15
10.65	0.16	1	313.82	0.16
10.70	0.16	1	313.82	0.16
10.75	0.17	1	313.83	0.17
10.80	0.18	1	313.83	0.18
10.85	0.19	1	313.83	0.19
10.90	0.19	1	313.83	0.19

10.95	0.20	1	313.83	0.20
11.00	0.21	1	313.83	0.21
11.05	0.22	1	313.83	0.22
11.10	0.23	1	313.83	0.23
11.15	0.24	1	313.83	0.24
11.20	0.25	1	313.83	0.25
11.25	0.27	1	313.83	0.27
11.30	0.28	1	313.83	0.28
11.35	0.31	1	313.83	0.31
11.40	0.33	1	313.83	0.33
11.45	0.35	2	313.83	0.34
11.50	0.37	6	313.86	0.34
11.55	0.40	15	313.92	0.34
11.60	0.45	29	314.00	0.34
11.65	0.59	60	314.03	0.34
11.70	0.86	128	314.10	0.34
11.75	1.21	252	314.23	0.34
11.80	1.64	446	314.43	0.34
11.85	2.22	729	314.72	0.34
11.90	3.06	1,139	315.04	0.34
11.95	4.17	1,726	315.20	0.34
12.00	5.11	2,509	315.42	0.34
12.05	5.05	3,378	315.66	0.34
12.10	4.17	4,153	315.88	0.34
12.15	3.25	4,756	316.02	0.34
12.20	2.54	5,213	316.08	0.34
12.25	2.03	5,561	316.12	0.34
12.30	1.65	5,830	316.15	0.34
12.35	1.38	6,040	316.18	0.34
12.40	1.17	6,207	316.20	0.34
12.45	1.00	6,341	316.21	0.34
12.50	0.87	6,448	316.22	0.34
12.55	0.77	6,534	316.23	0.34
12.60	0.68	6,602	316.24	0.34
12.65	0.60	6,656	316.25	0.34
12.70	0.55	6,699	316.25	0.34
12.75	0.51	6,733	316.26	0.34
12.80	0.48	6,760	316.26	0.34
12.85	0.45	6,782	316.26	0.34
12.90	0.43	6,800	316.27	0.34
12.95	0.41	6,814	316.27	0.34
13.00	0.39	6,824	316.27	0.34
13.05	0.37	6,832	316.27	0.34
13.10	0.36	6,836	316.27	0.34
13.15	0.34	6,838	316.27	0.34
13.20	0.33	6,838	316.27	0.34
13.25	0.32	6,836	316.27	0.34
13.30	0.31	6,832	316.27	0.34
13.35	0.31	6,827	316.27	0.34
13.40	0.30	6,820	316.27	0.34
13.45	0.29	6,811	316.27	0.34
13.50	0.28	6,801	316.27	0.34
13.55	0.27	6,790	316.27	0.34
13.60	0.27	6,778	316.26	0.34
13.65	0.26	6,764	316.26	0.34
13.70	0.26	6,750	316.26	0.34

13.75	0.25	6,735	316.26	0.34
13.80	0.25	6,719	316.26	0.34
13.85	0.24	6,701	316.25	0.34
13.90	0.24	6,683	316.25	0.34
13.95	0.23	6,664	316.25	0.34
14.00	0.23	6,644	316.25	0.34
14.05	0.22	6,622	316.24	0.34
14.10	0.21	6,600	316.24	0.34
14.15	0.21	6,577	316.24	0.34
14.20	0.21	6,554	316.24	0.34
14.25	0.20	6,529	316.23	0.34
14.30	0.20	6,504	316.23	0.34
14.35	0.20	6,479	316.23	0.34
14.40	0.19	6,453	316.22	0.34
14.45	0.19	6,426	316.22	0.34
14.50	0.19	6,399	316.22	0.34
14.55	0.19	6,372	316.21	0.34
14.60	0.19	6,344	316.21	0.34
14.65	0.18	6,316	316.21	0.34
14.70	0.18	6,288	316.20	0.34
14.75	0.18	6,259	316.20	0.34
14.80	0.18	6,230	316.20	0.34
14.85	0.18	6,201	316.19	0.34
14.90	0.17	6,171	316.19	0.34
14.95	0.17	6,141	316.19	0.34
15.00	0.17	6,110	316.18	0.34
15.05	0.17	6,079	316.18	0.34
15.10	0.17	6,048	316.18	0.34
15.15	0.16	6,017	316.17	0.34
15.20	0.16	5,985	316.17	0.34
15.25	0.16	5,953	316.16	0.34
15.30	0.16	5,920	316.16	0.34
15.35	0.16	5,888	316.16	0.34
15.40	0.16	5,855	316.15	0.34
15.45	0.15	5,821	316.15	0.34
15.50	0.15	5,787	316.14	0.34
15.55	0.15	5,753	316.14	0.34
15.60	0.15	5,719	316.14	0.34
15.65	0.15	5,684	316.13	0.34
15.70	0.14	5,649	316.13	0.34
15.75	0.14	5,613	316.12	0.34
15.80	0.14	5,578	316.12	0.34
15.85	0.14	5,542	316.12	0.34
15.90	0.14	5,505	316.11	0.34
15.95	0.13	5,468	316.11	0.34
16.00	0.13	5,431	316.10	0.34
16.05	0.13	5,394	316.10	0.34
16.10	0.13	5,356	316.09	0.34
16.15	0.13	5,318	316.09	0.34
16.20	0.13	5,280	316.08	0.34
16.25	0.13	5,241	316.08	0.34
16.30	0.12	5,202	316.07	0.34
16.35	0.12	5,163	316.07	0.34
16.40	0.12	5,124	316.07	0.34
16.45	0.12	5,085	316.06	0.34
16.50	0.12	5,046	316.06	0.34

16.55	0.12	5,006	316.05	0.34
16.60	0.12	4,966	316.05	0.34
16.65	0.12	4,926	316.04	0.34
16.70	0.12	4,886	316.04	0.34
16.75	0.12	4,846	316.03	0.34
16.80	0.12	4,806	316.03	0.34
16.85	0.12	4,766	316.02	0.34
16.90	0.11	4,725	316.02	0.34
16.95	0.11	4,685	316.01	0.34
17.00	0.11	4,644	316.01	0.34
17.05	0.11	4,603	316.00	0.34
17.10	0.11	4,562	315.99	0.34
17.15	0.11	4,521	315.98	0.34
17.20	0.11	4,480	315.97	0.34
17.25	0.11	4,438	315.96	0.34
17.30	0.11	4,397	315.95	0.34
17.35	0.11	4,355	315.94	0.34
17.40	0.11	4,314	315.93	0.34
17.45	0.11	4,272	315.91	0.34
17.50	0.11	4,230	315.90	0.34
17.55	0.11	4,188	315.89	0.34
17.60	0.11	4,146	315.88	0.34
17.65	0.10	4,103	315.87	0.34
17.70	0.10	4,061	315.85	0.34
17.75	0.10	4,019	315.84	0.34
17.80	0.10	3,976	315.83	0.34
17.85	0.10	3,933	315.82	0.34
17.90	0.10	3,890	315.81	0.34
17.95	0.10	3,847	315.79	0.34
18.00	0.10	3,804	315.78	0.34
18.05	0.10	3,761	315.77	0.34
18.10	0.10	3,718	315.76	0.34
18.15	0.10	3,674	315.75	0.34
18.20	0.10	3,631	315.73	0.34
18.25	0.10	3,587	315.72	0.34
18.30	0.10	3,543	315.71	0.34
18.35	0.10	3,499	315.70	0.34
18.40	0.09	3,455	315.69	0.34
18.45	0.09	3,411	315.67	0.34
18.50	0.09	3,367	315.66	0.34
18.55	0.09	3,322	315.65	0.34
18.60	0.09	3,278	315.64	0.34
18.65	0.09	3,233	315.62	0.34
18.70	0.09	3,188	315.61	0.34
18.75	0.09	3,143	315.60	0.34
18.80	0.09	3,098	315.59	0.34
18.85	0.09	3,053	315.57	0.34
18.90	0.09	3,008	315.56	0.34
18.95	0.09	2,963	315.55	0.34
19.00	0.09	2,917	315.53	0.34
19.05	0.09	2,872	315.52	0.34
19.10	0.09	2,826	315.51	0.34
19.15	0.08	2,780	315.50	0.34
19.20	0.08	2,734	315.48	0.34
19.25	0.08	2,688	315.47	0.34
19.30	0.08	2,642	315.46	0.34

19.35	0.08	2,595	315.45	0.34
19.40	0.08	2,549	315.43	0.34
19.45	0.08	2,502	315.42	0.34
19.50	0.08	2,456	315.41	0.34
19.55	0.08	2,409	315.39	0.34
19.60	0.08	2,362	315.38	0.34
19.65	0.08	2,315	315.37	0.34
19.70	0.08	2,268	315.35	0.34
19.75	0.08	2,221	315.34	0.34
19.80	0.08	2,173	315.33	0.34
19.85	0.08	2,126	315.31	0.34
19.90	0.07	2,078	315.30	0.34
19.95	0.07	2,030	315.29	0.34
20.00	0.07	1,982	315.27	0.34
20.05	0.07	1,934	315.26	0.34
20.10	0.07	1,886	315.25	0.34
20.15	0.07	1,838	315.23	0.34
20.20	0.07	1,790	315.22	0.34
20.25	0.07	1,741	315.21	0.34
20.30	0.07	1,693	315.19	0.34
20.35	0.07	1,644	315.18	0.34
20.40	0.07	1,596	315.17	0.34
20.45	0.07	1,547	315.15	0.34
20.50	0.07	1,498	315.14	0.34
20.55	0.07	1,450	315.13	0.34
20.60	0.07	1,401	315.11	0.34
20.65	0.07	1,352	315.10	0.34
20.70	0.07	1,304	315.08	0.34
20.75	0.07	1,255	315.07	0.34
20.80	0.07	1,206	315.06	0.34
20.85	0.07	1,157	315.04	0.34
20.90	0.07	1,108	315.03	0.34
20.95	0.07	1,059	315.02	0.34
21.00	0.07	1,010	315.00	0.34
21.05	0.07	961	314.96	0.34
21.10	0.07	912	314.91	0.34
21.15	0.07	863	314.86	0.34
21.20	0.07	814	314.81	0.34
21.25	0.07	765	314.76	0.34
21.30	0.07	716	314.71	0.34
21.35	0.07	667	314.66	0.34
21.40	0.07	618	314.61	0.34
21.45	0.07	569	314.56	0.34
21.50	0.07	520	314.51	0.34
21.55	0.07	470	314.46	0.34
21.60	0.07	421	314.40	0.34
21.65	0.07	372	314.35	0.34
21.70	0.07	323	314.30	0.34
21.75	0.07	273	314.25	0.34
21.80	0.07	224	314.20	0.34
21.85	0.07	175	314.15	0.34
21.90	0.07	125	314.10	0.34
21.95	0.07	76	314.05	0.34
22.00	0.07	27	314.00	0.34
22.05	0.07	0	313.82	0.09
22.10	0.07	0	313.82	0.06

22.15	0.07	0	313.82	0.07
22.20	0.06	0	313.82	0.06
22.25	0.06	0	313.82	0.06
22.30	0.06	0	313.82	0.06
22.35	0.06	0	313.82	0.06
22.40	0.06	0	313.82	0.06
22.45	0.06	0	313.82	0.06
22.50	0.06	0	313.82	0.06
22.55	0.06	0	313.82	0.06
22.60	0.06	0	313.82	0.06
22.65	0.06	0	313.82	0.06
22.70	0.06	0	313.82	0.06
22.75	0.06	0	313.82	0.06
22.80	0.06	0	313.82	0.06
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22.90	0.06	0	313.82	0.06
22.95	0.06	0	313.82	0.06
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23.05	0.06	0	313.82	0.06
23.10	0.06	0	313.82	0.06
23.15	0.06	0	313.82	0.06
23.20	0.06	0	313.82	0.06
23.25	0.06	0	313.82	0.06
23.30	0.06	0	313.82	0.06
23.35	0.06	0	313.82	0.06
23.40	0.06	0	313.82	0.06
23.45	0.06	0	313.82	0.06
23.50	0.06	0	313.82	0.06
23.55	0.06	0	313.82	0.06
23.60	0.06	0	313.82	0.06
23.65	0.06	0	313.82	0.06
23.70	0.06	0	313.82	0.06
23.75	0.06	0	313.82	0.06
23.80	0.06	0	313.82	0.06
23.85	0.06	0	313.82	0.06
23.90	0.06	0	313.82	0.06
23.95	0.06	0	313.82	0.06
24.00	0.06	0	313.82	0.06
24.05	0.06	0	313.82	0.06
24.10	0.05	0	313.82	0.05
24.15	0.04	0	313.82	0.04
24.20	0.03	0	313.82	0.03
24.25	0.03	0	313.82	0.03
24.30	0.02	0	313.82	0.02
24.35	0.02	0	313.82	0.02
24.40	0.01	0	313.82	0.01
24.45	0.01	0	313.82	0.01
24.50	0.01	0	313.82	0.01
24.55	0.01	0	313.82	0.01
24.60	0.00	0	313.82	0.00
24.65	0.00	0	313.82	0.00
24.70	0.00	0	313.82	0.00
24.75	0.00	0	313.82	0.00
24.80	0.00	0	313.82	0.00
24.85	0.00	0	313.82	0.00
24.90	0.00	0	313.82	0.00

24.95	0.00	0	313.82	0.00
25.00	0.00	0	313.82	0.00
25.05	0.00	0	313.82	0.00
25.10	0.00	0	313.82	0.00
25.15	0.00	0	313.82	0.00
25.20	0.00	0	313.82	0.00
25.25	0.00	0	313.82	0.00
25.30	0.00	0	313.82	0.00
25.35	0.00	0	313.82	0.00
25.40	0.00	0	313.82	0.00
25.45	0.00	0	313.82	0.00
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25.60	0.00	0	313.82	0.00
25.65	0.00	0	313.82	0.00
25.70	0.00	0	313.82	0.00
25.75	0.00	0	313.82	0.00
25.80	0.00	0	313.82	0.00
25.85	0.00	0	313.82	0.00
25.90	0.00	0	313.82	0.00
25.95	0.00	0	313.82	0.00
26.00	0.00	0	313.82	0.00
26.05	0.00	0	313.82	0.00
26.10	0.00	0	313.82	0.00
26.15	0.00	0	313.82	0.00
26.20	0.00	0	313.82	0.00
26.25	0.00	0	313.82	0.00
26.30	0.00	0	313.82	0.00
26.35	0.00	0	313.82	0.00
26.40	0.00	0	313.82	0.00
26.45	0.00	0	313.82	0.00
26.50	0.00	0	313.82	0.00
26.55	0.00	0	313.82	0.00
26.60	0.00	0	313.82	0.00
26.65	0.00	0	313.82	0.00
26.70	0.00	0	313.82	0.00
26.75	0.00	0	313.82	0.00
26.80	0.00	0	313.82	0.00
26.85	0.00	0	313.82	0.00
26.90	0.00	0	313.82	0.00
26.95	0.00	0	313.82	0.00
27.00	0.00	0	313.82	0.00
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27.50	0.00	0	313.82	0.00
27.55	0.00	0	313.82	0.00
27.60	0.00	0	313.82	0.00
27.65	0.00	0	313.82	0.00
27.70	0.00	0	313.82	0.00

27.75	0.00	0	313.82	0.00
27.80	0.00	0	313.82	0.00
27.85	0.00	0	313.82	0.00
27.90	0.00	0	313.82	0.00
27.95	0.00	0	313.82	0.00
28.00	0.00	0	313.82	0.00
28.05	0.00	0	313.82	0.00
28.10	0.00	0	313.82	0.00
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29.95	0.00	0	313.82	0.00
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30.40	0.00	0	313.82	0.00
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30.50	0.00	0	313.82	0.00

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30.60	0.00	0	313.82	0.00
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30.70	0.00	0	313.82	0.00
30.75	0.00	0	313.82	0.00
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32.70	0.00	0	313.82	0.00
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33.60	0.00	0	313.82	0.00
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34.90	0.00	0	313.82	0.00
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35.00	0.00	0	313.82	0.00
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35.55	0.00	0	313.82	0.00
35.60	0.00	0	313.82	0.00
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35.90	0.00	0	313.82	0.00
35.95	0.00	0	313.82	0.00
36.00	0.00	0	313.82	0.00
36.05	0.00	0	313.82	0.00
36.10	0.00	0	313.82	0.00

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36.90	0.00	0	313.82	0.00
36.95	0.00	0	313.82	0.00
37.00	0.00	0	313.82	0.00
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38.80	0.00	0	313.82	0.00
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38.90	0.00	0	313.82	0.00

38.95	0.00	0	313.82	0.00
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39.65	0.00	0	313.82	0.00
39.70	0.00	0	313.82	0.00
39.75	0.00	0	313.82	0.00
39.80	0.00	0	313.82	0.00
39.85	0.00	0	313.82	0.00
39.90	0.00	0	313.82	0.00
39.95	0.00	0	313.82	0.00
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40.80	0.00	0	313.82	0.00
40.85	0.00	0	313.82	0.00
40.90	0.00	0	313.82	0.00
40.95	0.00	0	313.82	0.00
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41.10	0.00	0	313.82	0.00
41.15	0.00	0	313.82	0.00
41.20	0.00	0	313.82	0.00
41.25	0.00	0	313.82	0.00
41.30	0.00	0	313.82	0.00
41.35	0.00	0	313.82	0.00
41.40	0.00	0	313.82	0.00
41.45	0.00	0	313.82	0.00
41.50	0.00	0	313.82	0.00
41.55	0.00	0	313.82	0.00
41.60	0.00	0	313.82	0.00
41.65	0.00	0	313.82	0.00
41.70	0.00	0	313.82	0.00

41.75	0.00	0	313.82	0.00
41.80	0.00	0	313.82	0.00
41.85	0.00	0	313.82	0.00
41.90	0.00	0	313.82	0.00
41.95	0.00	0	313.82	0.00
42.00	0.00	0	313.82	0.00
42.05	0.00	0	313.82	0.00
42.10	0.00	0	313.82	0.00
42.15	0.00	0	313.82	0.00
42.20	0.00	0	313.82	0.00
42.25	0.00	0	313.82	0.00
42.30	0.00	0	313.82	0.00
42.35	0.00	0	313.82	0.00
42.40	0.00	0	313.82	0.00
42.45	0.00	0	313.82	0.00
42.50	0.00	0	313.82	0.00
42.55	0.00	0	313.82	0.00
42.60	0.00	0	313.82	0.00
42.65	0.00	0	313.82	0.00
42.70	0.00	0	313.82	0.00
42.75	0.00	0	313.82	0.00
42.80	0.00	0	313.82	0.00
42.85	0.00	0	313.82	0.00
42.90	0.00	0	313.82	0.00
42.95	0.00	0	313.82	0.00
43.00	0.00	0	313.82	0.00
43.05	0.00	0	313.82	0.00
43.10	0.00	0	313.82	0.00
43.15	0.00	0	313.82	0.00
43.20	0.00	0	313.82	0.00
43.25	0.00	0	313.82	0.00
43.30	0.00	0	313.82	0.00
43.35	0.00	0	313.82	0.00
43.40	0.00	0	313.82	0.00
43.45	0.00	0	313.82	0.00
43.50	0.00	0	313.82	0.00
43.55	0.00	0	313.82	0.00
43.60	0.00	0	313.82	0.00
43.65	0.00	0	313.82	0.00
43.70	0.00	0	313.82	0.00
43.75	0.00	0	313.82	0.00
43.80	0.00	0	313.82	0.00
43.85	0.00	0	313.82	0.00
43.90	0.00	0	313.82	0.00
43.95	0.00	0	313.82	0.00
44.00	0.00	0	313.82	0.00
44.05	0.00	0	313.82	0.00
44.10	0.00	0	313.82	0.00
44.15	0.00	0	313.82	0.00
44.20	0.00	0	313.82	0.00
44.25	0.00	0	313.82	0.00
44.30	0.00	0	313.82	0.00
44.35	0.00	0	313.82	0.00
44.40	0.00	0	313.82	0.00
44.45	0.00	0	313.82	0.00
44.50	0.00	0	313.82	0.00

44.55	0.00	0	313.82	0.00
44.60	0.00	0	313.82	0.00
44.65	0.00	0	313.82	0.00
44.70	0.00	0	313.82	0.00
44.75	0.00	0	313.82	0.00
44.80	0.00	0	313.82	0.00
44.85	0.00	0	313.82	0.00
44.90	0.00	0	313.82	0.00
44.95	0.00	0	313.82	0.00
45.00	0.00	0	313.82	0.00
45.05	0.00	0	313.82	0.00
45.10	0.00	0	313.82	0.00
45.15	0.00	0	313.82	0.00
45.20	0.00	0	313.82	0.00
45.25	0.00	0	313.82	0.00
45.30	0.00	0	313.82	0.00
45.35	0.00	0	313.82	0.00
45.40	0.00	0	313.82	0.00
45.45	0.00	0	313.82	0.00
45.50	0.00	0	313.82	0.00
45.55	0.00	0	313.82	0.00
45.60	0.00	0	313.82	0.00
45.65	0.00	0	313.82	0.00
45.70	0.00	0	313.82	0.00
45.75	0.00	0	313.82	0.00
45.80	0.00	0	313.82	0.00
45.85	0.00	0	313.82	0.00
45.90	0.00	0	313.82	0.00
45.95	0.00	0	313.82	0.00
46.00	0.00	0	313.82	0.00
46.05	0.00	0	313.82	0.00
46.10	0.00	0	313.82	0.00
46.15	0.00	0	313.82	0.00
46.20	0.00	0	313.82	0.00
46.25	0.00	0	313.82	0.00
46.30	0.00	0	313.82	0.00
46.35	0.00	0	313.82	0.00
46.40	0.00	0	313.82	0.00
46.45	0.00	0	313.82	0.00
46.50	0.00	0	313.82	0.00
46.55	0.00	0	313.82	0.00
46.60	0.00	0	313.82	0.00
46.65	0.00	0	313.82	0.00
46.70	0.00	0	313.82	0.00
46.75	0.00	0	313.82	0.00
46.80	0.00	0	313.82	0.00
46.85	0.00	0	313.82	0.00
46.90	0.00	0	313.82	0.00
46.95	0.00	0	313.82	0.00
47.00	0.00	0	313.82	0.00
47.05	0.00	0	313.82	0.00
47.10	0.00	0	313.82	0.00
47.15	0.00	0	313.82	0.00
47.20	0.00	0	313.82	0.00
47.25	0.00	0	313.82	0.00
47.30	0.00	0	313.82	0.00

47.35	0.00	0	313.82	0.00
47.40	0.00	0	313.82	0.00
47.45	0.00	0	313.82	0.00
47.50	0.00	0	313.82	0.00
47.55	0.00	0	313.82	0.00
47.60	0.00	0	313.82	0.00
47.65	0.00	0	313.82	0.00
47.70	0.00	0	313.82	0.00
47.75	0.00	0	313.82	0.00
47.80	0.00	0	313.82	0.00
47.85	0.00	0	313.82	0.00
47.90	0.00	0	313.82	0.00
47.95	0.00	0	313.82	0.00
48.00	0.00	0	313.82	0.00
48.05	0.00	0	313.82	0.00
48.10	0.00	0	313.82	0.00
48.15	0.00	0	313.82	0.00
48.20	0.00	0	313.82	0.00
48.25	0.00	0	313.82	0.00
48.30	0.00	0	313.82	0.00
48.35	0.00	0	313.82	0.00
48.40	0.00	0	313.82	0.00
48.45	0.00	0	313.82	0.00
48.50	0.00	0	313.82	0.00
48.55	0.00	0	313.82	0.00
48.60	0.00	0	313.82	0.00
48.65	0.00	0	313.82	0.00
48.70	0.00	0	313.82	0.00
48.75	0.00	0	313.82	0.00
48.80	0.00	0	313.82	0.00
48.85	0.00	0	313.82	0.00
48.90	0.00	0	313.82	0.00
48.95	0.00	0	313.82	0.00
49.00	0.00	0	313.82	0.00
49.05	0.00	0	313.82	0.00
49.10	0.00	0	313.82	0.00
49.15	0.00	0	313.82	0.00
49.20	0.00	0	313.82	0.00
49.25	0.00	0	313.82	0.00
49.30	0.00	0	313.82	0.00
49.35	0.00	0	313.82	0.00
49.40	0.00	0	313.82	0.00
49.45	0.00	0	313.82	0.00
49.50	0.00	0	313.82	0.00
49.55	0.00	0	313.82	0.00
49.60	0.00	0	313.82	0.00
49.65	0.00	0	313.82	0.00
49.70	0.00	0	313.82	0.00
49.75	0.00	0	313.82	0.00
49.80	0.00	0	313.82	0.00
49.85	0.00	0	313.82	0.00
49.90	0.00	0	313.82	0.00
49.95	0.00	0	313.82	0.00
50.00	0.00	0	313.82	0.00
50.05	0.00	0	313.82	0.00
50.10	0.00	0	313.82	0.00

50.15	0.00	0	313.82	0.00
50.20	0.00	0	313.82	0.00
50.25	0.00	0	313.82	0.00
50.30	0.00	0	313.82	0.00
50.35	0.00	0	313.82	0.00
50.40	0.00	0	313.82	0.00
50.45	0.00	0	313.82	0.00
50.50	0.00	0	313.82	0.00
50.55	0.00	0	313.82	0.00
50.60	0.00	0	313.82	0.00
50.65	0.00	0	313.82	0.00
50.70	0.00	0	313.82	0.00
50.75	0.00	0	313.82	0.00
50.80	0.00	0	313.82	0.00
50.85	0.00	0	313.82	0.00
50.90	0.00	0	313.82	0.00
50.95	0.00	0	313.82	0.00
51.00	0.00	0	313.82	0.00
51.05	0.00	0	313.82	0.00
51.10	0.00	0	313.82	0.00
51.15	0.00	0	313.82	0.00
51.20	0.00	0	313.82	0.00
51.25	0.00	0	313.82	0.00
51.30	0.00	0	313.82	0.00
51.35	0.00	0	313.82	0.00
51.40	0.00	0	313.82	0.00
51.45	0.00	0	313.82	0.00
51.50	0.00	0	313.82	0.00
51.55	0.00	0	313.82	0.00
51.60	0.00	0	313.82	0.00
51.65	0.00	0	313.82	0.00
51.70	0.00	0	313.82	0.00
51.75	0.00	0	313.82	0.00
51.80	0.00	0	313.82	0.00
51.85	0.00	0	313.82	0.00
51.90	0.00	0	313.82	0.00
51.95	0.00	0	313.82	0.00
52.00	0.00	0	313.82	0.00
52.05	0.00	0	313.82	0.00
52.10	0.00	0	313.82	0.00
52.15	0.00	0	313.82	0.00
52.20	0.00	0	313.82	0.00
52.25	0.00	0	313.82	0.00
52.30	0.00	0	313.82	0.00
52.35	0.00	0	313.82	0.00
52.40	0.00	0	313.82	0.00
52.45	0.00	0	313.82	0.00
52.50	0.00	0	313.82	0.00
52.55	0.00	0	313.82	0.00
52.60	0.00	0	313.82	0.00
52.65	0.00	0	313.82	0.00
52.70	0.00	0	313.82	0.00
52.75	0.00	0	313.82	0.00
52.80	0.00	0	313.82	0.00
52.85	0.00	0	313.82	0.00
52.90	0.00	0	313.82	0.00

52.95	0.00	0	313.82	0.00
53.00	0.00	0	313.82	0.00
53.05	0.00	0	313.82	0.00
53.10	0.00	0	313.82	0.00
53.15	0.00	0	313.82	0.00
53.20	0.00	0	313.82	0.00
53.25	0.00	0	313.82	0.00
53.30	0.00	0	313.82	0.00
53.35	0.00	0	313.82	0.00
53.40	0.00	0	313.82	0.00
53.45	0.00	0	313.82	0.00
53.50	0.00	0	313.82	0.00
53.55	0.00	0	313.82	0.00
53.60	0.00	0	313.82	0.00
53.65	0.00	0	313.82	0.00
53.70	0.00	0	313.82	0.00
53.75	0.00	0	313.82	0.00
53.80	0.00	0	313.82	0.00
53.85	0.00	0	313.82	0.00
53.90	0.00	0	313.82	0.00
53.95	0.00	0	313.82	0.00
54.00	0.00	0	313.82	0.00
54.05	0.00	0	313.82	0.00
54.10	0.00	0	313.82	0.00
54.15	0.00	0	313.82	0.00
54.20	0.00	0	313.82	0.00
54.25	0.00	0	313.82	0.00
54.30	0.00	0	313.82	0.00
54.35	0.00	0	313.82	0.00
54.40	0.00	0	313.82	0.00
54.45	0.00	0	313.82	0.00
54.50	0.00	0	313.82	0.00
54.55	0.00	0	313.82	0.00
54.60	0.00	0	313.82	0.00
54.65	0.00	0	313.82	0.00
54.70	0.00	0	313.82	0.00
54.75	0.00	0	313.82	0.00
54.80	0.00	0	313.82	0.00
54.85	0.00	0	313.82	0.00
54.90	0.00	0	313.82	0.00
54.95	0.00	0	313.82	0.00
55.00	0.00	0	313.82	0.00
55.05	0.00	0	313.82	0.00
55.10	0.00	0	313.82	0.00
55.15	0.00	0	313.82	0.00
55.20	0.00	0	313.82	0.00
55.25	0.00	0	313.82	0.00
55.30	0.00	0	313.82	0.00
55.35	0.00	0	313.82	0.00
55.40	0.00	0	313.82	0.00
55.45	0.00	0	313.82	0.00
55.50	0.00	0	313.82	0.00
55.55	0.00	0	313.82	0.00
55.60	0.00	0	313.82	0.00
55.65	0.00	0	313.82	0.00
55.70	0.00	0	313.82	0.00

55.75	0.00	0	313.82	0.00
55.80	0.00	0	313.82	0.00
55.85	0.00	0	313.82	0.00
55.90	0.00	0	313.82	0.00
55.95	0.00	0	313.82	0.00
56.00	0.00	0	313.82	0.00
56.05	0.00	0	313.82	0.00
56.10	0.00	0	313.82	0.00
56.15	0.00	0	313.82	0.00
56.20	0.00	0	313.82	0.00
56.25	0.00	0	313.82	0.00
56.30	0.00	0	313.82	0.00
56.35	0.00	0	313.82	0.00
56.40	0.00	0	313.82	0.00
56.45	0.00	0	313.82	0.00
56.50	0.00	0	313.82	0.00
56.55	0.00	0	313.82	0.00
56.60	0.00	0	313.82	0.00
56.65	0.00	0	313.82	0.00
56.70	0.00	0	313.82	0.00
56.75	0.00	0	313.82	0.00
56.80	0.00	0	313.82	0.00
56.85	0.00	0	313.82	0.00
56.90	0.00	0	313.82	0.00
56.95	0.00	0	313.82	0.00
57.00	0.00	0	313.82	0.00
57.05	0.00	0	313.82	0.00
57.10	0.00	0	313.82	0.00
57.15	0.00	0	313.82	0.00
57.20	0.00	0	313.82	0.00
57.25	0.00	0	313.82	0.00
57.30	0.00	0	313.82	0.00
57.35	0.00	0	313.82	0.00
57.40	0.00	0	313.82	0.00
57.45	0.00	0	313.82	0.00
57.50	0.00	0	313.82	0.00
57.55	0.00	0	313.82	0.00
57.60	0.00	0	313.82	0.00
57.65	0.00	0	313.82	0.00
57.70	0.00	0	313.82	0.00
57.75	0.00	0	313.82	0.00
57.80	0.00	0	313.82	0.00
57.85	0.00	0	313.82	0.00
57.90	0.00	0	313.82	0.00
57.95	0.00	0	313.82	0.00
58.00	0.00	0	313.82	0.00
58.05	0.00	0	313.82	0.00
58.10	0.00	0	313.82	0.00
58.15	0.00	0	313.82	0.00
58.20	0.00	0	313.82	0.00
58.25	0.00	0	313.82	0.00
58.30	0.00	0	313.82	0.00
58.35	0.00	0	313.82	0.00
58.40	0.00	0	313.82	0.00
58.45	0.00	0	313.82	0.00
58.50	0.00	0	313.82	0.00

58.55	0.00	0	313.82	0.00
58.60	0.00	0	313.82	0.00
58.65	0.00	0	313.82	0.00
58.70	0.00	0	313.82	0.00
58.75	0.00	0	313.82	0.00
58.80	0.00	0	313.82	0.00
58.85	0.00	0	313.82	0.00
58.90	0.00	0	313.82	0.00
58.95	0.00	0	313.82	0.00
59.00	0.00	0	313.82	0.00
59.05	0.00	0	313.82	0.00
59.10	0.00	0	313.82	0.00
59.15	0.00	0	313.82	0.00
59.20	0.00	0	313.82	0.00
59.25	0.00	0	313.82	0.00
59.30	0.00	0	313.82	0.00
59.35	0.00	0	313.82	0.00
59.40	0.00	0	313.82	0.00
59.45	0.00	0	313.82	0.00
59.50	0.00	0	313.82	0.00
59.55	0.00	0	313.82	0.00
59.60	0.00	0	313.82	0.00
59.65	0.00	0	313.82	0.00
59.70	0.00	0	313.82	0.00
59.75	0.00	0	313.82	0.00
59.80	0.00	0	313.82	0.00
59.85	0.00	0	313.82	0.00
59.90	0.00	0	313.82	0.00
59.95	0.00	0	313.82	0.00
60.00	0.00	0	313.82	0.00

CWM Chemical Services, LLC
Model City Facility
Cells 1 Through 14 Leachate Level Compliance Plan

Cell 11/13 Sump

Cell Floor Area Computation					
Elevation (ft)	Measured Area (sf)	Drainage Layer Area Adjustment For Porosity (sf)	Operations Layer Area Adjustment For Porosity (sf)	Waste Layer Area Adjustment For Porosity (sf)	Total Adjusted Area For Porosity (sf)
310.59	0	0	0	0	0
312.00	10,970	4,607	1,810	0	6,417
314.00	50,628	8,328	6,544	3,840	18,711

Volume Computation							
Elevation (ft)	Adjusted Area (sf)	Average Area (sf)	Depth Increment (ft)	Incremental Volume (cf)	Incremental Volume (yd3)	Cumulative Volume (cf)	Cumulative Volume (yd3)
310.59	0	-	-	-	-	-	-
312.00	6,417	3,209	1.41	4,524	168	4,524	168
314.00	18,711	12,564	2.00	25,129	931	29,653	1,098

Summary for Pond 24P: Cell 11/13

Inflow	=	1.62 cfs @	12.02 hrs, Volume=	0.249 af
Outflow	=	0.30 cfs @	11.69 hrs, Volume=	0.249 af, Atten= 82%, Lag= 0.0 min
Primary	=	0.30 cfs @	11.69 hrs, Volume=	0.249 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 311.43' @ 14.67 hrs Surf.Area= 0 sf Storage= 2,693 cf

Plug-Flow detention time= 79.9 min calculated for 0.249 af (100% of inflow)
Center-of-Mass det. time= 79.9 min (939.1 - 859.2)

Volume	Invert	Avail.Storage	Storage Description
#1	310.59'	29,653 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
310.59	0
312.00	4,524
314.00	29,653

Device	Routing	Invert	Outlet Devices
#1	Primary	310.59'	**11/13 Pump** Elev. (feet) 310.59 310.60 311.00 314.00 Disch. (cfs) 0.000 0.300 0.300 0.300

Primary OutFlow Max=0.30 cfs @ 11.69 hrs HW=310.60' (Free Discharge)
↑—**1=11/13 Pump** (Custom Controls 0.30 cfs)

Hydrograph for Pond 24P: Cell 11/13

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	310.59	0.00
0.05	0.00	0	310.59	0.00
0.10	0.00	0	310.59	0.00
0.15	0.00	0	310.59	0.00
0.20	0.00	0	310.59	0.00
0.25	0.00	0	310.59	0.00
0.30	0.00	0	310.59	0.00
0.35	0.00	0	310.59	0.00
0.40	0.00	0	310.59	0.00
0.45	0.00	0	310.59	0.00
0.50	0.00	0	310.59	0.00
0.55	0.00	0	310.59	0.00
0.60	0.00	0	310.59	0.00
0.65	0.00	0	310.59	0.00
0.70	0.00	0	310.59	0.00
0.75	0.00	0	310.59	0.00
0.80	0.00	0	310.59	0.00
0.85	0.00	0	310.59	0.00
0.90	0.00	0	310.59	0.00
0.95	0.00	0	310.59	0.00
1.00	0.00	0	310.59	0.00
1.05	0.00	0	310.59	0.00
1.10	0.00	0	310.59	0.00
1.15	0.00	0	310.59	0.00
1.20	0.00	0	310.59	0.00
1.25	0.00	0	310.59	0.00
1.30	0.00	0	310.59	0.00
1.35	0.00	0	310.59	0.00
1.40	0.00	0	310.59	0.00
1.45	0.00	0	310.59	0.00
1.50	0.00	0	310.59	0.00
1.55	0.00	0	310.59	0.00
1.60	0.00	0	310.59	0.00
1.65	0.00	0	310.59	0.00
1.70	0.00	0	310.59	0.00
1.75	0.00	0	310.59	0.00
1.80	0.00	0	310.59	0.00
1.85	0.00	0	310.59	0.00
1.90	0.00	0	310.59	0.00
1.95	0.00	0	310.59	0.00
2.00	0.00	0	310.59	0.00
2.05	0.00	0	310.59	0.00
2.10	0.00	0	310.59	0.00
2.15	0.00	0	310.59	0.00
2.20	0.00	0	310.59	0.00
2.25	0.00	0	310.59	0.00
2.30	0.00	0	310.59	0.00
2.35	0.00	0	310.59	0.00
2.40	0.00	0	310.59	0.00
2.45	0.00	0	310.59	0.00
2.50	0.00	0	310.59	0.00

2.55	0.00	0	310.59	0.00
2.60	0.00	0	310.59	0.00
2.65	0.00	0	310.59	0.00
2.70	0.00	0	310.59	0.00
2.75	0.00	0	310.59	0.00
2.80	0.00	0	310.59	0.00
2.85	0.00	0	310.59	0.00
2.90	0.00	0	310.59	0.00
2.95	0.00	0	310.59	0.00
3.00	0.00	0	310.59	0.00
3.05	0.00	0	310.59	0.00
3.10	0.00	0	310.59	0.00
3.15	0.00	0	310.59	0.00
3.20	0.00	0	310.59	0.00
3.25	0.00	0	310.59	0.00
3.30	0.00	0	310.59	0.00
3.35	0.00	0	310.59	0.00
3.40	0.00	0	310.59	0.00
3.45	0.00	0	310.59	0.00
3.50	0.00	0	310.59	0.00
3.55	0.00	0	310.59	0.00
3.60	0.00	0	310.59	0.00
3.65	0.00	0	310.59	0.00
3.70	0.00	0	310.59	0.00
3.75	0.00	0	310.59	0.00
3.80	0.00	0	310.59	0.00
3.85	0.00	0	310.59	0.00
3.90	0.00	0	310.59	0.00
3.95	0.00	0	310.59	0.00
4.00	0.00	0	310.59	0.00
4.05	0.00	0	310.59	0.00
4.10	0.00	0	310.59	0.00
4.15	0.00	0	310.59	0.00
4.20	0.00	0	310.59	0.00
4.25	0.00	0	310.59	0.00
4.30	0.00	0	310.59	0.00
4.35	0.00	0	310.59	0.00
4.40	0.00	0	310.59	0.00
4.45	0.00	0	310.59	0.00
4.50	0.00	0	310.59	0.00
4.55	0.00	0	310.59	0.00
4.60	0.00	0	310.59	0.00
4.65	0.00	0	310.59	0.00
4.70	0.00	0	310.59	0.00
4.75	0.00	0	310.59	0.00
4.80	0.00	0	310.59	0.00
4.85	0.00	0	310.59	0.00
4.90	0.00	0	310.59	0.00
4.95	0.00	0	310.59	0.00
5.00	0.00	0	310.59	0.00
5.05	0.00	0	310.59	0.00
5.10	0.00	0	310.59	0.00
5.15	0.00	0	310.59	0.00
5.20	0.00	0	310.59	0.00
5.25	0.00	0	310.59	0.00
5.30	0.01	1	310.59	0.01

5.35	0.01	1	310.59	0.01
5.40	0.01	1	310.59	0.01
5.45	0.01	1	310.59	0.01
5.50	0.01	1	310.59	0.01
5.55	0.01	1	310.59	0.01
5.60	0.01	1	310.59	0.01
5.65	0.01	1	310.59	0.01
5.70	0.01	1	310.59	0.01
5.75	0.01	1	310.59	0.01
5.80	0.01	1	310.59	0.01
5.85	0.01	1	310.59	0.01
5.90	0.01	1	310.59	0.01
5.95	0.01	1	310.59	0.01
6.00	0.01	1	310.59	0.01
6.05	0.01	1	310.59	0.01
6.10	0.01	1	310.59	0.01
6.15	0.01	1	310.59	0.01
6.20	0.01	1	310.59	0.01
6.25	0.01	1	310.59	0.01
6.30	0.01	1	310.59	0.01
6.35	0.01	1	310.59	0.01
6.40	0.01	1	310.59	0.01
6.45	0.01	1	310.59	0.01
6.50	0.01	1	310.59	0.01
6.55	0.01	1	310.59	0.01
6.60	0.01	1	310.59	0.01
6.65	0.01	1	310.59	0.01
6.70	0.01	1	310.59	0.01
6.75	0.02	2	310.59	0.02
6.80	0.02	2	310.59	0.02
6.85	0.02	2	310.59	0.02
6.90	0.02	2	310.59	0.02
6.95	0.02	2	310.59	0.02
7.00	0.02	2	310.59	0.02
7.05	0.02	2	310.59	0.02
7.10	0.02	2	310.59	0.02
7.15	0.02	2	310.59	0.02
7.20	0.02	2	310.59	0.02
7.25	0.02	2	310.59	0.02
7.30	0.02	2	310.59	0.02
7.35	0.02	2	310.59	0.02
7.40	0.02	2	310.59	0.02
7.45	0.02	2	310.59	0.02
7.50	0.02	2	310.59	0.02
7.55	0.02	2	310.59	0.02
7.60	0.02	2	310.59	0.02
7.65	0.02	2	310.59	0.02
7.70	0.02	2	310.59	0.02
7.75	0.02	2	310.59	0.02
7.80	0.02	2	310.59	0.02
7.85	0.02	2	310.59	0.02
7.90	0.02	2	310.59	0.02
7.95	0.02	2	310.59	0.02
8.00	0.03	3	310.59	0.03
8.05	0.03	3	310.59	0.03
8.10	0.03	3	310.59	0.03

8.15	0.03	3	310.59	0.03
8.20	0.03	3	310.59	0.03
8.25	0.03	3	310.59	0.03
8.30	0.03	3	310.59	0.03
8.35	0.03	3	310.59	0.03
8.40	0.03	3	310.59	0.03
8.45	0.03	3	310.59	0.03
8.50	0.03	3	310.59	0.03
8.55	0.03	3	310.59	0.03
8.60	0.03	3	310.59	0.03
8.65	0.03	3	310.59	0.03
8.70	0.04	4	310.59	0.04
8.75	0.04	4	310.59	0.04
8.80	0.04	4	310.59	0.04
8.85	0.04	4	310.59	0.04
8.90	0.04	4	310.59	0.04
8.95	0.04	4	310.59	0.04
9.00	0.04	4	310.59	0.04
9.05	0.04	4	310.59	0.04
9.10	0.04	5	310.59	0.04
9.15	0.05	5	310.59	0.04
9.20	0.05	5	310.59	0.05
9.25	0.05	5	310.59	0.05
9.30	0.05	5	310.59	0.05
9.35	0.05	5	310.59	0.05
9.40	0.05	5	310.59	0.05
9.45	0.05	5	310.59	0.05
9.50	0.05	5	310.59	0.05
9.55	0.05	5	310.59	0.05
9.60	0.05	5	310.59	0.05
9.65	0.05	5	310.59	0.05
9.70	0.05	5	310.59	0.05
9.75	0.05	6	310.59	0.05
9.80	0.05	6	310.59	0.05
9.85	0.05	6	310.59	0.05
9.90	0.06	6	310.59	0.06
9.95	0.06	6	310.59	0.06
10.00	0.06	6	310.59	0.06
10.05	0.06	7	310.59	0.06
10.10	0.06	7	310.59	0.06
10.15	0.06	7	310.59	0.06
10.20	0.07	7	310.59	0.07
10.25	0.07	7	310.59	0.07
10.30	0.07	8	310.59	0.07
10.35	0.07	8	310.59	0.07
10.40	0.08	8	310.59	0.08
10.45	0.08	8	310.59	0.08
10.50	0.08	9	310.59	0.08
10.55	0.09	9	310.59	0.08
10.60	0.09	9	310.59	0.09
10.65	0.09	10	310.59	0.09
10.70	0.10	10	310.59	0.09
10.75	0.10	10	310.59	0.10
10.80	0.10	11	310.59	0.10
10.85	0.11	11	310.59	0.10
10.90	0.11	12	310.59	0.11

10.95	0.12	12	310.59	0.11
11.00	0.12	13	310.59	0.12
11.05	0.13	13	310.59	0.12
11.10	0.13	14	310.59	0.13
11.15	0.13	14	310.59	0.13
11.20	0.14	15	310.59	0.14
11.25	0.15	16	310.59	0.15
11.30	0.16	17	310.60	0.16
11.35	0.17	18	310.60	0.17
11.40	0.18	19	310.60	0.18
11.45	0.19	20	310.60	0.18
11.50	0.20	21	310.60	0.20
11.55	0.21	22	310.60	0.21
11.60	0.23	24	310.60	0.22
11.65	0.28	27	310.60	0.25
11.70	0.39	35	310.60	0.30
11.75	0.53	60	310.61	0.30
11.80	0.69	113	310.63	0.30
11.85	0.85	194	310.65	0.30
11.90	1.06	307	310.69	0.30
11.95	1.34	463	310.73	0.30
12.00	1.59	669	310.80	0.30
12.05	1.50	900	310.87	0.30
12.10	1.13	1,093	310.93	0.30
12.15	0.82	1,219	310.97	0.30
12.20	0.65	1,297	310.99	0.30
12.25	0.59	1,355	311.01	0.30
12.30	0.56	1,405	311.03	0.30
12.35	0.53	1,449	311.04	0.30
12.40	0.51	1,489	311.05	0.30
12.45	0.50	1,526	311.07	0.30
12.50	0.49	1,561	311.08	0.30
12.55	0.50	1,596	311.09	0.30
12.60	0.50	1,631	311.10	0.30
12.65	0.50	1,667	311.11	0.30
12.70	0.50	1,703	311.12	0.30
12.75	0.51	1,740	311.13	0.30
12.80	0.51	1,777	311.14	0.30
12.85	0.51	1,816	311.16	0.30
12.90	0.51	1,854	311.17	0.30
12.95	0.52	1,893	311.18	0.30
13.00	0.52	1,932	311.19	0.30
13.05	0.51	1,971	311.20	0.30
13.10	0.51	2,010	311.22	0.30
13.15	0.51	2,048	311.23	0.30
13.20	0.51	2,085	311.24	0.30
13.25	0.50	2,122	311.25	0.30
13.30	0.50	2,159	311.26	0.30
13.35	0.49	2,194	311.27	0.30
13.40	0.49	2,229	311.28	0.30
13.45	0.49	2,263	311.30	0.30
13.50	0.48	2,296	311.31	0.30
13.55	0.47	2,327	311.32	0.30
13.60	0.46	2,357	311.32	0.30
13.65	0.46	2,386	311.33	0.30
13.70	0.45	2,414	311.34	0.30

13.75	0.45	2,441	311.35	0.30
13.80	0.44	2,467	311.36	0.30
13.85	0.43	2,491	311.37	0.30
13.90	0.42	2,514	311.37	0.30
13.95	0.42	2,535	311.38	0.30
14.00	0.41	2,556	311.39	0.30
14.05	0.40	2,575	311.39	0.30
14.10	0.39	2,592	311.40	0.30
14.15	0.39	2,609	311.40	0.30
14.20	0.38	2,624	311.41	0.30
14.25	0.37	2,637	311.41	0.30
14.30	0.36	2,650	311.42	0.30
14.35	0.36	2,661	311.42	0.30
14.40	0.35	2,670	311.42	0.30
14.45	0.34	2,678	311.42	0.30
14.50	0.33	2,684	311.43	0.30
14.55	0.32	2,688	311.43	0.30
14.60	0.31	2,691	311.43	0.30
14.65	0.30	2,693	311.43	0.30
14.70	0.29	2,692	311.43	0.30
14.75	0.29	2,691	311.43	0.30
14.80	0.28	2,688	311.43	0.30
14.85	0.27	2,684	311.43	0.30
14.90	0.27	2,679	311.42	0.30
14.95	0.26	2,672	311.42	0.30
15.00	0.26	2,665	311.42	0.30
15.05	0.25	2,657	311.42	0.30
15.10	0.24	2,647	311.41	0.30
15.15	0.24	2,637	311.41	0.30
15.20	0.24	2,626	311.41	0.30
15.25	0.23	2,615	311.40	0.30
15.30	0.23	2,603	311.40	0.30
15.35	0.23	2,590	311.40	0.30
15.40	0.23	2,577	311.39	0.30
15.45	0.22	2,563	311.39	0.30
15.50	0.22	2,549	311.38	0.30
15.55	0.22	2,535	311.38	0.30
15.60	0.22	2,520	311.38	0.30
15.65	0.22	2,505	311.37	0.30
15.70	0.21	2,490	311.37	0.30
15.75	0.21	2,474	311.36	0.30
15.80	0.21	2,457	311.36	0.30
15.85	0.21	2,440	311.35	0.30
15.90	0.20	2,423	311.35	0.30
15.95	0.20	2,406	311.34	0.30
16.00	0.20	2,388	311.33	0.30
16.05	0.20	2,369	311.33	0.30
16.10	0.19	2,351	311.32	0.30
16.15	0.19	2,331	311.32	0.30
16.20	0.19	2,312	311.31	0.30
16.25	0.19	2,292	311.30	0.30
16.30	0.19	2,271	311.30	0.30
16.35	0.18	2,251	311.29	0.30
16.40	0.18	2,230	311.29	0.30
16.45	0.18	2,209	311.28	0.30
16.50	0.18	2,187	311.27	0.30

16.55	0.18	2,165	311.26	0.30
16.60	0.18	2,143	311.26	0.30
16.65	0.17	2,121	311.25	0.30
16.70	0.17	2,098	311.24	0.30
16.75	0.17	2,075	311.24	0.30
16.80	0.17	2,051	311.23	0.30
16.85	0.17	2,028	311.22	0.30
16.90	0.17	2,004	311.21	0.30
16.95	0.17	1,980	311.21	0.30
17.00	0.16	1,955	311.20	0.30
17.05	0.16	1,930	311.19	0.30
17.10	0.16	1,905	311.18	0.30
17.15	0.16	1,880	311.18	0.30
17.20	0.16	1,854	311.17	0.30
17.25	0.16	1,828	311.16	0.30
17.30	0.15	1,802	311.15	0.30
17.35	0.15	1,776	311.14	0.30
17.40	0.15	1,749	311.14	0.30
17.45	0.15	1,723	311.13	0.30
17.50	0.15	1,695	311.12	0.30
17.55	0.15	1,668	311.11	0.30
17.60	0.14	1,640	311.10	0.30
17.65	0.14	1,612	311.09	0.30
17.70	0.14	1,584	311.08	0.30
17.75	0.14	1,555	311.07	0.30
17.80	0.14	1,526	311.07	0.30
17.85	0.14	1,497	311.06	0.30
17.90	0.14	1,468	311.05	0.30
17.95	0.13	1,438	311.04	0.30
18.00	0.13	1,408	311.03	0.30
18.05	0.13	1,378	311.02	0.30
18.10	0.13	1,348	311.01	0.30
18.15	0.13	1,317	311.00	0.30
18.20	0.13	1,286	310.99	0.30
18.25	0.13	1,255	310.98	0.30
18.30	0.13	1,223	310.97	0.30
18.35	0.12	1,192	310.96	0.30
18.40	0.12	1,160	310.95	0.30
18.45	0.12	1,127	310.94	0.30
18.50	0.12	1,095	310.93	0.30
18.55	0.12	1,062	310.92	0.30
18.60	0.12	1,029	310.91	0.30
18.65	0.12	996	310.90	0.30
18.70	0.11	962	310.89	0.30
18.75	0.11	929	310.88	0.30
18.80	0.11	895	310.87	0.30
18.85	0.11	861	310.86	0.30
18.90	0.11	826	310.85	0.30
18.95	0.11	791	310.84	0.30
19.00	0.10	756	310.83	0.30
19.05	0.10	721	310.81	0.30
19.10	0.10	685	310.80	0.30
19.15	0.10	650	310.79	0.30
19.20	0.10	614	310.78	0.30
19.25	0.10	578	310.77	0.30
19.30	0.10	542	310.76	0.30

19.35	0.09	505	310.75	0.30
19.40	0.09	468	310.74	0.30
19.45	0.09	431	310.72	0.30
19.50	0.09	394	310.71	0.30
19.55	0.09	356	310.70	0.30
19.60	0.09	318	310.69	0.30
19.65	0.09	280	310.68	0.30
19.70	0.09	242	310.67	0.30
19.75	0.08	203	310.65	0.30
19.80	0.08	164	310.64	0.30
19.85	0.08	125	310.63	0.30
19.90	0.08	86	310.62	0.30
19.95	0.08	46	310.60	0.30
20.00	0.08	15	310.59	0.14
20.05	0.08	9	310.59	0.09
20.10	0.08	8	310.59	0.08
20.15	0.08	8	310.59	0.08
20.20	0.07	8	310.59	0.07
20.25	0.07	8	310.59	0.07
20.30	0.07	8	310.59	0.07
20.35	0.07	8	310.59	0.07
20.40	0.07	7	310.59	0.07
20.45	0.07	7	310.59	0.07
20.50	0.07	7	310.59	0.07
20.55	0.07	7	310.59	0.07
20.60	0.07	7	310.59	0.07
20.65	0.06	7	310.59	0.07
20.70	0.06	7	310.59	0.06
20.75	0.06	7	310.59	0.06
20.80	0.06	7	310.59	0.06
20.85	0.06	7	310.59	0.06
20.90	0.06	7	310.59	0.06
20.95	0.06	6	310.59	0.06
21.00	0.06	6	310.59	0.06
21.05	0.06	6	310.59	0.06
21.10	0.06	6	310.59	0.06
21.15	0.05	6	310.59	0.06
21.20	0.05	6	310.59	0.05
21.25	0.05	6	310.59	0.05
21.30	0.05	6	310.59	0.05
21.35	0.05	6	310.59	0.05
21.40	0.05	6	310.59	0.05
21.45	0.05	6	310.59	0.05
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21.65	0.05	5	310.59	0.05
21.70	0.05	5	310.59	0.05
21.75	0.05	5	310.59	0.05
21.80	0.05	5	310.59	0.05
21.85	0.04	5	310.59	0.05
21.90	0.04	5	310.59	0.04
21.95	0.04	5	310.59	0.04
22.00	0.04	5	310.59	0.04
22.05	0.04	5	310.59	0.04
22.10	0.04	5	310.59	0.04

22.15	0.04	5	310.59	0.04
22.20	0.04	4	310.59	0.04
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23.80	0.04	4	310.59	0.04
23.85	0.04	4	310.59	0.04
23.90	0.04	4	310.59	0.04
23.95	0.04	4	310.59	0.04
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24.35	0.01	1	310.59	0.01
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24.90	0.00	0	310.59	0.00

24.95	0.00	0	310.59	0.00
25.00	0.00	0	310.59	0.00
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26.90	0.00	0	310.59	0.00
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27.70	0.00	0	310.59	0.00

27.75	0.00	0	310.59	0.00
27.80	0.00	0	310.59	0.00
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37.80	0.00	0	310.59	0.00
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38.90	0.00	0	310.59	0.00

38.95	0.00	0	310.59	0.00
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41.60	0.00	0	310.59	0.00
41.65	0.00	0	310.59	0.00
41.70	0.00	0	310.59	0.00

41.75	0.00	0	310.59	0.00
41.80	0.00	0	310.59	0.00
41.85	0.00	0	310.59	0.00
41.90	0.00	0	310.59	0.00
41.95	0.00	0	310.59	0.00
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42.85	0.00	0	310.59	0.00
42.90	0.00	0	310.59	0.00
42.95	0.00	0	310.59	0.00
43.00	0.00	0	310.59	0.00
43.05	0.00	0	310.59	0.00
43.10	0.00	0	310.59	0.00
43.15	0.00	0	310.59	0.00
43.20	0.00	0	310.59	0.00
43.25	0.00	0	310.59	0.00
43.30	0.00	0	310.59	0.00
43.35	0.00	0	310.59	0.00
43.40	0.00	0	310.59	0.00
43.45	0.00	0	310.59	0.00
43.50	0.00	0	310.59	0.00
43.55	0.00	0	310.59	0.00
43.60	0.00	0	310.59	0.00
43.65	0.00	0	310.59	0.00
43.70	0.00	0	310.59	0.00
43.75	0.00	0	310.59	0.00
43.80	0.00	0	310.59	0.00
43.85	0.00	0	310.59	0.00
43.90	0.00	0	310.59	0.00
43.95	0.00	0	310.59	0.00
44.00	0.00	0	310.59	0.00
44.05	0.00	0	310.59	0.00
44.10	0.00	0	310.59	0.00
44.15	0.00	0	310.59	0.00
44.20	0.00	0	310.59	0.00
44.25	0.00	0	310.59	0.00
44.30	0.00	0	310.59	0.00
44.35	0.00	0	310.59	0.00
44.40	0.00	0	310.59	0.00
44.45	0.00	0	310.59	0.00
44.50	0.00	0	310.59	0.00

44.55	0.00	0	310.59	0.00
44.60	0.00	0	310.59	0.00
44.65	0.00	0	310.59	0.00
44.70	0.00	0	310.59	0.00
44.75	0.00	0	310.59	0.00
44.80	0.00	0	310.59	0.00
44.85	0.00	0	310.59	0.00
44.90	0.00	0	310.59	0.00
44.95	0.00	0	310.59	0.00
45.00	0.00	0	310.59	0.00
45.05	0.00	0	310.59	0.00
45.10	0.00	0	310.59	0.00
45.15	0.00	0	310.59	0.00
45.20	0.00	0	310.59	0.00
45.25	0.00	0	310.59	0.00
45.30	0.00	0	310.59	0.00
45.35	0.00	0	310.59	0.00
45.40	0.00	0	310.59	0.00
45.45	0.00	0	310.59	0.00
45.50	0.00	0	310.59	0.00
45.55	0.00	0	310.59	0.00
45.60	0.00	0	310.59	0.00
45.65	0.00	0	310.59	0.00
45.70	0.00	0	310.59	0.00
45.75	0.00	0	310.59	0.00
45.80	0.00	0	310.59	0.00
45.85	0.00	0	310.59	0.00
45.90	0.00	0	310.59	0.00
45.95	0.00	0	310.59	0.00
46.00	0.00	0	310.59	0.00
46.05	0.00	0	310.59	0.00
46.10	0.00	0	310.59	0.00
46.15	0.00	0	310.59	0.00
46.20	0.00	0	310.59	0.00
46.25	0.00	0	310.59	0.00
46.30	0.00	0	310.59	0.00
46.35	0.00	0	310.59	0.00
46.40	0.00	0	310.59	0.00
46.45	0.00	0	310.59	0.00
46.50	0.00	0	310.59	0.00
46.55	0.00	0	310.59	0.00
46.60	0.00	0	310.59	0.00
46.65	0.00	0	310.59	0.00
46.70	0.00	0	310.59	0.00
46.75	0.00	0	310.59	0.00
46.80	0.00	0	310.59	0.00
46.85	0.00	0	310.59	0.00
46.90	0.00	0	310.59	0.00
46.95	0.00	0	310.59	0.00
47.00	0.00	0	310.59	0.00
47.05	0.00	0	310.59	0.00
47.10	0.00	0	310.59	0.00
47.15	0.00	0	310.59	0.00
47.20	0.00	0	310.59	0.00
47.25	0.00	0	310.59	0.00
47.30	0.00	0	310.59	0.00

47.35	0.00	0	310.59	0.00
47.40	0.00	0	310.59	0.00
47.45	0.00	0	310.59	0.00
47.50	0.00	0	310.59	0.00
47.55	0.00	0	310.59	0.00
47.60	0.00	0	310.59	0.00
47.65	0.00	0	310.59	0.00
47.70	0.00	0	310.59	0.00
47.75	0.00	0	310.59	0.00
47.80	0.00	0	310.59	0.00
47.85	0.00	0	310.59	0.00
47.90	0.00	0	310.59	0.00
47.95	0.00	0	310.59	0.00
48.00	0.00	0	310.59	0.00
48.05	0.00	0	310.59	0.00
48.10	0.00	0	310.59	0.00
48.15	0.00	0	310.59	0.00
48.20	0.00	0	310.59	0.00
48.25	0.00	0	310.59	0.00
48.30	0.00	0	310.59	0.00
48.35	0.00	0	310.59	0.00
48.40	0.00	0	310.59	0.00
48.45	0.00	0	310.59	0.00
48.50	0.00	0	310.59	0.00
48.55	0.00	0	310.59	0.00
48.60	0.00	0	310.59	0.00
48.65	0.00	0	310.59	0.00
48.70	0.00	0	310.59	0.00
48.75	0.00	0	310.59	0.00
48.80	0.00	0	310.59	0.00
48.85	0.00	0	310.59	0.00
48.90	0.00	0	310.59	0.00
48.95	0.00	0	310.59	0.00
49.00	0.00	0	310.59	0.00
49.05	0.00	0	310.59	0.00
49.10	0.00	0	310.59	0.00
49.15	0.00	0	310.59	0.00
49.20	0.00	0	310.59	0.00
49.25	0.00	0	310.59	0.00
49.30	0.00	0	310.59	0.00
49.35	0.00	0	310.59	0.00
49.40	0.00	0	310.59	0.00
49.45	0.00	0	310.59	0.00
49.50	0.00	0	310.59	0.00
49.55	0.00	0	310.59	0.00
49.60	0.00	0	310.59	0.00
49.65	0.00	0	310.59	0.00
49.70	0.00	0	310.59	0.00
49.75	0.00	0	310.59	0.00
49.80	0.00	0	310.59	0.00
49.85	0.00	0	310.59	0.00
49.90	0.00	0	310.59	0.00
49.95	0.00	0	310.59	0.00
50.00	0.00	0	310.59	0.00
50.05	0.00	0	310.59	0.00
50.10	0.00	0	310.59	0.00

50.15	0.00	0	310.59	0.00
50.20	0.00	0	310.59	0.00
50.25	0.00	0	310.59	0.00
50.30	0.00	0	310.59	0.00
50.35	0.00	0	310.59	0.00
50.40	0.00	0	310.59	0.00
50.45	0.00	0	310.59	0.00
50.50	0.00	0	310.59	0.00
50.55	0.00	0	310.59	0.00
50.60	0.00	0	310.59	0.00
50.65	0.00	0	310.59	0.00
50.70	0.00	0	310.59	0.00
50.75	0.00	0	310.59	0.00
50.80	0.00	0	310.59	0.00
50.85	0.00	0	310.59	0.00
50.90	0.00	0	310.59	0.00
50.95	0.00	0	310.59	0.00
51.00	0.00	0	310.59	0.00
51.05	0.00	0	310.59	0.00
51.10	0.00	0	310.59	0.00
51.15	0.00	0	310.59	0.00
51.20	0.00	0	310.59	0.00
51.25	0.00	0	310.59	0.00
51.30	0.00	0	310.59	0.00
51.35	0.00	0	310.59	0.00
51.40	0.00	0	310.59	0.00
51.45	0.00	0	310.59	0.00
51.50	0.00	0	310.59	0.00
51.55	0.00	0	310.59	0.00
51.60	0.00	0	310.59	0.00
51.65	0.00	0	310.59	0.00
51.70	0.00	0	310.59	0.00
51.75	0.00	0	310.59	0.00
51.80	0.00	0	310.59	0.00
51.85	0.00	0	310.59	0.00
51.90	0.00	0	310.59	0.00
51.95	0.00	0	310.59	0.00
52.00	0.00	0	310.59	0.00
52.05	0.00	0	310.59	0.00
52.10	0.00	0	310.59	0.00
52.15	0.00	0	310.59	0.00
52.20	0.00	0	310.59	0.00
52.25	0.00	0	310.59	0.00
52.30	0.00	0	310.59	0.00
52.35	0.00	0	310.59	0.00
52.40	0.00	0	310.59	0.00
52.45	0.00	0	310.59	0.00
52.50	0.00	0	310.59	0.00
52.55	0.00	0	310.59	0.00
52.60	0.00	0	310.59	0.00
52.65	0.00	0	310.59	0.00
52.70	0.00	0	310.59	0.00
52.75	0.00	0	310.59	0.00
52.80	0.00	0	310.59	0.00
52.85	0.00	0	310.59	0.00
52.90	0.00	0	310.59	0.00

52.95	0.00	0	310.59	0.00
53.00	0.00	0	310.59	0.00
53.05	0.00	0	310.59	0.00
53.10	0.00	0	310.59	0.00
53.15	0.00	0	310.59	0.00
53.20	0.00	0	310.59	0.00
53.25	0.00	0	310.59	0.00
53.30	0.00	0	310.59	0.00
53.35	0.00	0	310.59	0.00
53.40	0.00	0	310.59	0.00
53.45	0.00	0	310.59	0.00
53.50	0.00	0	310.59	0.00
53.55	0.00	0	310.59	0.00
53.60	0.00	0	310.59	0.00
53.65	0.00	0	310.59	0.00
53.70	0.00	0	310.59	0.00
53.75	0.00	0	310.59	0.00
53.80	0.00	0	310.59	0.00
53.85	0.00	0	310.59	0.00
53.90	0.00	0	310.59	0.00
53.95	0.00	0	310.59	0.00
54.00	0.00	0	310.59	0.00
54.05	0.00	0	310.59	0.00
54.10	0.00	0	310.59	0.00
54.15	0.00	0	310.59	0.00
54.20	0.00	0	310.59	0.00
54.25	0.00	0	310.59	0.00
54.30	0.00	0	310.59	0.00
54.35	0.00	0	310.59	0.00
54.40	0.00	0	310.59	0.00
54.45	0.00	0	310.59	0.00
54.50	0.00	0	310.59	0.00
54.55	0.00	0	310.59	0.00
54.60	0.00	0	310.59	0.00
54.65	0.00	0	310.59	0.00
54.70	0.00	0	310.59	0.00
54.75	0.00	0	310.59	0.00
54.80	0.00	0	310.59	0.00
54.85	0.00	0	310.59	0.00
54.90	0.00	0	310.59	0.00
54.95	0.00	0	310.59	0.00
55.00	0.00	0	310.59	0.00
55.05	0.00	0	310.59	0.00
55.10	0.00	0	310.59	0.00
55.15	0.00	0	310.59	0.00
55.20	0.00	0	310.59	0.00
55.25	0.00	0	310.59	0.00
55.30	0.00	0	310.59	0.00
55.35	0.00	0	310.59	0.00
55.40	0.00	0	310.59	0.00
55.45	0.00	0	310.59	0.00
55.50	0.00	0	310.59	0.00
55.55	0.00	0	310.59	0.00
55.60	0.00	0	310.59	0.00
55.65	0.00	0	310.59	0.00
55.70	0.00	0	310.59	0.00

55.75	0.00	0	310.59	0.00
55.80	0.00	0	310.59	0.00
55.85	0.00	0	310.59	0.00
55.90	0.00	0	310.59	0.00
55.95	0.00	0	310.59	0.00
56.00	0.00	0	310.59	0.00
56.05	0.00	0	310.59	0.00
56.10	0.00	0	310.59	0.00
56.15	0.00	0	310.59	0.00
56.20	0.00	0	310.59	0.00
56.25	0.00	0	310.59	0.00
56.30	0.00	0	310.59	0.00
56.35	0.00	0	310.59	0.00
56.40	0.00	0	310.59	0.00
56.45	0.00	0	310.59	0.00
56.50	0.00	0	310.59	0.00
56.55	0.00	0	310.59	0.00
56.60	0.00	0	310.59	0.00
56.65	0.00	0	310.59	0.00
56.70	0.00	0	310.59	0.00
56.75	0.00	0	310.59	0.00
56.80	0.00	0	310.59	0.00
56.85	0.00	0	310.59	0.00
56.90	0.00	0	310.59	0.00
56.95	0.00	0	310.59	0.00
57.00	0.00	0	310.59	0.00
57.05	0.00	0	310.59	0.00
57.10	0.00	0	310.59	0.00
57.15	0.00	0	310.59	0.00
57.20	0.00	0	310.59	0.00
57.25	0.00	0	310.59	0.00
57.30	0.00	0	310.59	0.00
57.35	0.00	0	310.59	0.00
57.40	0.00	0	310.59	0.00
57.45	0.00	0	310.59	0.00
57.50	0.00	0	310.59	0.00
57.55	0.00	0	310.59	0.00
57.60	0.00	0	310.59	0.00
57.65	0.00	0	310.59	0.00
57.70	0.00	0	310.59	0.00
57.75	0.00	0	310.59	0.00
57.80	0.00	0	310.59	0.00
57.85	0.00	0	310.59	0.00
57.90	0.00	0	310.59	0.00
57.95	0.00	0	310.59	0.00
58.00	0.00	0	310.59	0.00
58.05	0.00	0	310.59	0.00
58.10	0.00	0	310.59	0.00
58.15	0.00	0	310.59	0.00
58.20	0.00	0	310.59	0.00
58.25	0.00	0	310.59	0.00
58.30	0.00	0	310.59	0.00
58.35	0.00	0	310.59	0.00
58.40	0.00	0	310.59	0.00
58.45	0.00	0	310.59	0.00
58.50	0.00	0	310.59	0.00

58.55	0.00	0	310.59	0.00
58.60	0.00	0	310.59	0.00
58.65	0.00	0	310.59	0.00
58.70	0.00	0	310.59	0.00
58.75	0.00	0	310.59	0.00
58.80	0.00	0	310.59	0.00
58.85	0.00	0	310.59	0.00
58.90	0.00	0	310.59	0.00
58.95	0.00	0	310.59	0.00
59.00	0.00	0	310.59	0.00
59.05	0.00	0	310.59	0.00
59.10	0.00	0	310.59	0.00
59.15	0.00	0	310.59	0.00
59.20	0.00	0	310.59	0.00
59.25	0.00	0	310.59	0.00
59.30	0.00	0	310.59	0.00
59.35	0.00	0	310.59	0.00
59.40	0.00	0	310.59	0.00
59.45	0.00	0	310.59	0.00
59.50	0.00	0	310.59	0.00
59.55	0.00	0	310.59	0.00
59.60	0.00	0	310.59	0.00
59.65	0.00	0	310.59	0.00
59.70	0.00	0	310.59	0.00
59.75	0.00	0	310.59	0.00
59.80	0.00	0	310.59	0.00
59.85	0.00	0	310.59	0.00
59.90	0.00	0	310.59	0.00
59.95	0.00	0	310.59	0.00
60.00	0.00	0	310.59	0.00

Summary for Pond 5P: Cell 12/14

Inflow Area = 1.210 ac, 0.00% Impervious, Inflow Depth = 5.83"
Inflow = 5.61 cfs @ 12.03 hrs, Volume= 0.588 af
Outflow = 0.30 cfs @ 10.95 hrs, Volume= 0.588 af, Atten= 95%, Lag= 0.0 min
Primary = 0.30 cfs @ 10.95 hrs, Volume= 0.588 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 312.98' @ 16.88 hrs Surf.Area= 0 sf Storage= 13,175 cf

Plug-Flow detention time= 432.2 min calculated for 0.588 af (100% of inflow)
Center-of-Mass det. time= 432.2 min (1,266.3 - 834.1)

Volume	Invert	Avail.Storage	Storage Description
#1	310.75'	72,329 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
310.75	0
312.00	3,053
314.00	23,754
316.00	72,329

Device	Routing	Invert	Outlet Devices
#1	Primary	310.75'	**12/14 Pump** Elev. (feet) 310.75 310.76 314.00 Disch. (cfs) 0.000 0.300 0.300

Primary OutFlow Max=0.30 cfs @ 10.95 hrs HW=310.76' (Free Discharge)
↑—**1=12/14 Pump** (Custom Controls 0.30 cfs)

Hydrograph for Pond 5P: Cell 12/14

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	310.75	0.00
0.05	0.00	0	310.75	0.00
0.10	0.00	0	310.75	0.00
0.15	0.00	0	310.75	0.00
0.20	0.00	0	310.75	0.00
0.25	0.00	0	310.75	0.00
0.30	0.00	0	310.75	0.00
0.35	0.00	0	310.75	0.00
0.40	0.00	0	310.75	0.00
0.45	0.00	0	310.75	0.00
0.50	0.00	0	310.75	0.00
0.55	0.00	0	310.75	0.00
0.60	0.00	0	310.75	0.00
0.65	0.00	0	310.75	0.00
0.70	0.00	0	310.75	0.00
0.75	0.00	0	310.75	0.00
0.80	0.00	0	310.75	0.00
0.85	0.00	0	310.75	0.00
0.90	0.00	0	310.75	0.00
0.95	0.00	0	310.75	0.00
1.00	0.00	0	310.75	0.00
1.05	0.00	0	310.75	0.00
1.10	0.00	0	310.75	0.00
1.15	0.00	0	310.75	0.00
1.20	0.00	0	310.75	0.00
1.25	0.00	0	310.75	0.00
1.30	0.00	0	310.75	0.00
1.35	0.00	0	310.75	0.00
1.40	0.00	0	310.75	0.00
1.45	0.00	0	310.75	0.00
1.50	0.00	0	310.75	0.00
1.55	0.00	0	310.75	0.00
1.60	0.00	0	310.75	0.00
1.65	0.00	0	310.75	0.00
1.70	0.00	0	310.75	0.00
1.75	0.00	0	310.75	0.00
1.80	0.00	0	310.75	0.00
1.85	0.00	0	310.75	0.00
1.90	0.00	0	310.75	0.00
1.95	0.00	0	310.75	0.00
2.00	0.00	0	310.75	0.00
2.05	0.00	0	310.75	0.00
2.10	0.00	0	310.75	0.00
2.15	0.00	0	310.75	0.00
2.20	0.00	0	310.75	0.00
2.25	0.00	0	310.75	0.00
2.30	0.00	0	310.75	0.00
2.35	0.00	0	310.75	0.00
2.40	0.00	0	310.75	0.00
2.45	0.00	0	310.75	0.00
2.50	0.00	0	310.75	0.00

2.55	0.00	0	310.75	0.00
2.60	0.00	0	310.75	0.00
2.65	0.00	0	310.75	0.00
2.70	0.00	0	310.75	0.00
2.75	0.00	0	310.75	0.00
2.80	0.00	0	310.75	0.00
2.85	0.00	0	310.75	0.00
2.90	0.00	0	310.75	0.00
2.95	0.00	0	310.75	0.00
3.00	0.00	0	310.75	0.00
3.05	0.00	0	310.75	0.00
3.10	0.00	0	310.75	0.00
3.15	0.00	0	310.75	0.00
3.20	0.00	0	310.75	0.00
3.25	0.00	0	310.75	0.00
3.30	0.00	0	310.75	0.00
3.35	0.00	0	310.75	0.00
3.40	0.00	0	310.75	0.00
3.45	0.00	0	310.75	0.00
3.50	0.00	0	310.75	0.00
3.55	0.00	0	310.75	0.00
3.60	0.00	0	310.75	0.00
3.65	0.00	0	310.75	0.00
3.70	0.00	0	310.75	0.00
3.75	0.00	0	310.75	0.00
3.80	0.00	0	310.75	0.00
3.85	0.00	0	310.75	0.00
3.90	0.00	0	310.75	0.00
3.95	0.00	0	310.75	0.00
4.00	0.00	0	310.75	0.00
4.05	0.00	0	310.75	0.00
4.10	0.00	0	310.75	0.00
4.15	0.00	0	310.75	0.00
4.20	0.00	0	310.75	0.00
4.25	0.00	0	310.75	0.00
4.30	0.00	0	310.75	0.00
4.35	0.00	0	310.75	0.00
4.40	0.00	0	310.75	0.00
4.45	0.00	0	310.75	0.00
4.50	0.00	0	310.75	0.00
4.55	0.00	0	310.75	0.00
4.60	0.00	0	310.75	0.00
4.65	0.00	0	310.75	0.00
4.70	0.00	0	310.75	0.00
4.75	0.00	0	310.75	0.00
4.80	0.00	0	310.75	0.00
4.85	0.00	0	310.75	0.00
4.90	0.00	0	310.75	0.00
4.95	0.00	0	310.75	0.00
5.00	0.00	0	310.75	0.00
5.05	0.00	0	310.75	0.00
5.10	0.00	0	310.75	0.00
5.15	0.00	0	310.75	0.00
5.20	0.00	0	310.75	0.00
5.25	0.01	0	310.75	0.01
5.30	0.01	1	310.75	0.01

5.35	0.01	1	310.75	0.01
5.40	0.01	1	310.75	0.01
5.45	0.01	1	310.75	0.01
5.50	0.01	1	310.75	0.01
5.55	0.01	1	310.75	0.01
5.60	0.01	1	310.75	0.01
5.65	0.01	1	310.75	0.01
5.70	0.01	1	310.75	0.01
5.75	0.01	1	310.75	0.01
5.80	0.01	1	310.75	0.01
5.85	0.02	1	310.75	0.01
5.90	0.02	1	310.75	0.02
5.95	0.02	1	310.75	0.02
6.00	0.02	2	310.75	0.02
6.05	0.02	2	310.75	0.02
6.10	0.02	2	310.75	0.02
6.15	0.02	2	310.75	0.02
6.20	0.02	2	310.75	0.02
6.25	0.02	2	310.75	0.02
6.30	0.03	2	310.75	0.02
6.35	0.03	2	310.75	0.03
6.40	0.03	2	310.75	0.03
6.45	0.03	2	310.75	0.03
6.50	0.03	2	310.75	0.03
6.55	0.03	2	310.75	0.03
6.60	0.03	2	310.75	0.03
6.65	0.03	2	310.75	0.03
6.70	0.03	3	310.75	0.03
6.75	0.04	3	310.75	0.04
6.80	0.04	3	310.75	0.04
6.85	0.04	3	310.75	0.04
6.90	0.04	3	310.75	0.04
6.95	0.04	3	310.75	0.04
7.00	0.04	3	310.75	0.04
7.05	0.04	3	310.75	0.04
7.10	0.04	3	310.75	0.04
7.15	0.04	3	310.75	0.04
7.20	0.04	3	310.75	0.04
7.25	0.04	3	310.75	0.04
7.30	0.04	3	310.75	0.04
7.35	0.05	4	310.75	0.04
7.40	0.05	4	310.75	0.05
7.45	0.05	4	310.75	0.05
7.50	0.05	4	310.75	0.05
7.55	0.05	4	310.75	0.05
7.60	0.05	4	310.75	0.05
7.65	0.05	4	310.75	0.05
7.70	0.05	4	310.75	0.05
7.75	0.05	4	310.75	0.05
7.80	0.05	4	310.75	0.05
7.85	0.05	4	310.75	0.05
7.90	0.05	4	310.75	0.05
7.95	0.06	5	310.75	0.06
8.00	0.06	5	310.75	0.06
8.05	0.06	5	310.75	0.06
8.10	0.06	5	310.75	0.06

8.15	0.06	5	310.75	0.06
8.20	0.06	5	310.75	0.06
8.25	0.07	5	310.75	0.06
8.30	0.07	5	310.75	0.07
8.35	0.07	5	310.75	0.07
8.40	0.07	6	310.75	0.07
8.45	0.08	6	310.75	0.07
8.50	0.08	6	310.75	0.08
8.55	0.08	6	310.75	0.08
8.60	0.08	6	310.75	0.08
8.65	0.09	7	310.75	0.08
8.70	0.09	7	310.75	0.09
8.75	0.09	7	310.75	0.09
8.80	0.09	7	310.75	0.09
8.85	0.09	7	310.75	0.09
8.90	0.10	8	310.75	0.10
8.95	0.10	8	310.75	0.10
9.00	0.10	8	310.75	0.10
9.05	0.11	8	310.75	0.10
9.10	0.11	9	310.75	0.11
9.15	0.11	9	310.75	0.11
9.20	0.12	9	310.75	0.11
9.25	0.12	9	310.75	0.12
9.30	0.12	10	310.75	0.12
9.35	0.12	10	310.75	0.12
9.40	0.13	10	310.75	0.12
9.45	0.13	10	310.75	0.13
9.50	0.13	10	310.75	0.13
9.55	0.13	10	310.75	0.13
9.60	0.13	10	310.75	0.13
9.65	0.13	11	310.75	0.13
9.70	0.13	11	310.75	0.13
9.75	0.14	11	310.75	0.13
9.80	0.14	11	310.75	0.14
9.85	0.14	12	310.75	0.14
9.90	0.15	12	310.75	0.15
9.95	0.15	12	310.76	0.15
10.00	0.16	13	310.76	0.15
10.05	0.16	13	310.76	0.16
10.10	0.17	13	310.76	0.16
10.15	0.17	14	310.76	0.17
10.20	0.18	14	310.76	0.17
10.25	0.18	15	310.76	0.18
10.30	0.19	15	310.76	0.19
10.35	0.19	16	310.76	0.19
10.40	0.20	16	310.76	0.20
10.45	0.21	17	310.76	0.21
10.50	0.22	17	310.76	0.21
10.55	0.23	18	310.76	0.22
10.60	0.23	19	310.76	0.23
10.65	0.24	19	310.76	0.24
10.70	0.25	20	310.76	0.25
10.75	0.26	21	310.76	0.26
10.80	0.27	22	310.76	0.26
10.85	0.28	23	310.76	0.28
10.90	0.29	24	310.76	0.29

10.95	0.31	25	310.76	0.30
11.00	0.32	27	310.76	0.30
11.05	0.33	31	310.76	0.30
11.10	0.35	38	310.77	0.30
11.15	0.36	47	310.77	0.30
11.20	0.38	60	310.77	0.30
11.25	0.41	76	310.78	0.30
11.30	0.43	97	310.79	0.30
11.35	0.46	123	310.80	0.30
11.40	0.48	153	310.81	0.30
11.45	0.51	189	310.83	0.30
11.50	0.55	229	310.84	0.30
11.55	0.58	276	310.86	0.30
11.60	0.64	329	310.88	0.30
11.65	0.78	398	310.91	0.30
11.70	1.06	503	310.96	0.30
11.75	1.47	668	311.02	0.30
11.80	1.95	913	311.12	0.30
11.85	2.51	1,248	311.26	0.30
11.90	3.28	1,698	311.45	0.30
11.95	4.35	2,307	311.69	0.30
12.00	5.39	3,116	312.01	0.30
12.05	5.55	4,060	312.10	0.30
12.10	4.78	4,960	312.18	0.30
12.15	3.85	5,696	312.26	0.30
12.20	3.15	6,281	312.31	0.30
12.25	2.65	6,756	312.36	0.30
12.30	2.28	7,151	312.40	0.30
12.35	1.99	7,485	312.43	0.30
12.40	1.77	7,773	312.46	0.30
12.45	1.60	8,024	312.48	0.30
12.50	1.46	8,247	312.50	0.30
12.55	1.36	8,449	312.52	0.30
12.60	1.27	8,633	312.54	0.30
12.65	1.21	8,803	312.56	0.30
12.70	1.16	8,962	312.57	0.30
12.75	1.12	9,113	312.59	0.30
12.80	1.08	9,258	312.60	0.30
12.85	1.06	9,397	312.61	0.30
12.90	1.04	9,532	312.63	0.30
12.95	1.02	9,663	312.64	0.30
13.00	1.00	9,791	312.65	0.30
13.05	0.98	9,915	312.66	0.30
13.10	0.96	10,036	312.67	0.30
13.15	0.94	10,153	312.69	0.30
13.20	0.93	10,268	312.70	0.30
13.25	0.91	10,380	312.71	0.30
13.30	0.90	10,489	312.72	0.30
13.35	0.88	10,596	312.73	0.30
13.40	0.87	10,700	312.74	0.30
13.45	0.86	10,801	312.75	0.30
13.50	0.84	10,900	312.76	0.30
13.55	0.83	10,996	312.77	0.30
13.60	0.81	11,090	312.78	0.30
13.65	0.80	11,181	312.79	0.30
13.70	0.78	11,269	312.79	0.30

13.75	0.77	11,355	312.80	0.30
13.80	0.75	11,438	312.81	0.30
13.85	0.74	11,519	312.82	0.30
13.90	0.73	11,597	312.83	0.30
13.95	0.71	11,672	312.83	0.30
14.00	0.70	11,746	312.84	0.30
14.05	0.68	11,817	312.85	0.30
14.10	0.67	11,885	312.85	0.30
14.15	0.66	11,951	312.86	0.30
14.20	0.64	12,014	312.87	0.30
14.25	0.63	12,075	312.87	0.30
14.30	0.62	12,134	312.88	0.30
14.35	0.61	12,191	312.88	0.30
14.40	0.59	12,245	312.89	0.30
14.45	0.58	12,297	312.89	0.30
14.50	0.57	12,346	312.90	0.30
14.55	0.55	12,393	312.90	0.30
14.60	0.54	12,438	312.91	0.30
14.65	0.53	12,481	312.91	0.30
14.70	0.52	12,521	312.91	0.30
14.75	0.51	12,559	312.92	0.30
14.80	0.50	12,595	312.92	0.30
14.85	0.49	12,630	312.93	0.30
14.90	0.48	12,663	312.93	0.30
14.95	0.47	12,694	312.93	0.30
15.00	0.46	12,723	312.93	0.30
15.05	0.45	12,751	312.94	0.30
15.10	0.44	12,777	312.94	0.30
15.15	0.44	12,802	312.94	0.30
15.20	0.43	12,826	312.94	0.30
15.25	0.42	12,849	312.95	0.30
15.30	0.42	12,871	312.95	0.30
15.35	0.41	12,892	312.95	0.30
15.40	0.41	12,912	312.95	0.30
15.45	0.41	12,931	312.95	0.30
15.50	0.40	12,950	312.96	0.30
15.55	0.40	12,968	312.96	0.30
15.60	0.39	12,985	312.96	0.30
15.65	0.39	13,001	312.96	0.30
15.70	0.38	13,016	312.96	0.30
15.75	0.38	13,031	312.96	0.30
15.80	0.37	13,044	312.97	0.30
15.85	0.37	13,057	312.97	0.30
15.90	0.36	13,070	312.97	0.30
15.95	0.36	13,081	312.97	0.30
16.00	0.36	13,092	312.97	0.30
16.05	0.35	13,101	312.97	0.30
16.10	0.35	13,111	312.97	0.30
16.15	0.34	13,119	312.97	0.30
16.20	0.34	13,126	312.97	0.30
16.25	0.34	13,133	312.97	0.30
16.30	0.34	13,140	312.97	0.30
16.35	0.33	13,146	312.98	0.30
16.40	0.33	13,151	312.98	0.30
16.45	0.32	13,156	312.98	0.30
16.50	0.32	13,160	312.98	0.30

16.55	0.32	13,163	312.98	0.30
16.60	0.32	13,167	312.98	0.30
16.65	0.31	13,169	312.98	0.30
16.70	0.31	13,172	312.98	0.30
16.75	0.31	13,173	312.98	0.30
16.80	0.31	13,174	312.98	0.30
16.85	0.30	13,175	312.98	0.30
16.90	0.30	13,175	312.98	0.30
16.95	0.30	13,175	312.98	0.30
17.00	0.29	13,175	312.98	0.30
17.05	0.29	13,173	312.98	0.30
17.10	0.29	13,172	312.98	0.30
17.15	0.29	13,170	312.98	0.30
17.20	0.29	13,168	312.98	0.30
17.25	0.28	13,165	312.98	0.30
17.30	0.28	13,162	312.98	0.30
17.35	0.28	13,158	312.98	0.30
17.40	0.28	13,154	312.98	0.30
17.45	0.27	13,150	312.98	0.30
17.50	0.27	13,144	312.97	0.30
17.55	0.27	13,139	312.97	0.30
17.60	0.26	13,133	312.97	0.30
17.65	0.26	13,127	312.97	0.30
17.70	0.26	13,120	312.97	0.30
17.75	0.26	13,113	312.97	0.30
17.80	0.26	13,105	312.97	0.30
17.85	0.26	13,097	312.97	0.30
17.90	0.25	13,089	312.97	0.30
17.95	0.25	13,080	312.97	0.30
18.00	0.25	13,071	312.97	0.30
18.05	0.24	13,061	312.97	0.30
18.10	0.24	13,051	312.97	0.30
18.15	0.24	13,040	312.96	0.30
18.20	0.24	13,029	312.96	0.30
18.25	0.23	13,017	312.96	0.30
18.30	0.23	13,005	312.96	0.30
18.35	0.23	12,993	312.96	0.30
18.40	0.23	12,980	312.96	0.30
18.45	0.23	12,967	312.96	0.30
18.50	0.22	12,953	312.96	0.30
18.55	0.22	12,939	312.96	0.30
18.60	0.22	12,924	312.95	0.30
18.65	0.22	12,910	312.95	0.30
18.70	0.21	12,895	312.95	0.30
18.75	0.21	12,879	312.95	0.30
18.80	0.21	12,863	312.95	0.30
18.85	0.21	12,847	312.95	0.30
18.90	0.20	12,830	312.94	0.30
18.95	0.20	12,812	312.94	0.30
19.00	0.20	12,795	312.94	0.30
19.05	0.20	12,776	312.94	0.30
19.10	0.20	12,758	312.94	0.30
19.15	0.20	12,739	312.94	0.30
19.20	0.19	12,720	312.93	0.30
19.25	0.19	12,700	312.93	0.30
19.30	0.19	12,680	312.93	0.30

19.35	0.18	12,660	312.93	0.30
19.40	0.18	12,639	312.93	0.30
19.45	0.18	12,617	312.92	0.30
19.50	0.18	12,596	312.92	0.30
19.55	0.17	12,573	312.92	0.30
19.60	0.17	12,550	312.92	0.30
19.65	0.17	12,528	312.92	0.30
19.70	0.17	12,505	312.91	0.30
19.75	0.17	12,481	312.91	0.30
19.80	0.17	12,457	312.91	0.30
19.85	0.16	12,432	312.91	0.30
19.90	0.16	12,407	312.90	0.30
19.95	0.16	12,382	312.90	0.30
20.00	0.16	12,356	312.90	0.30
20.05	0.15	12,330	312.90	0.30
20.10	0.15	12,304	312.89	0.30
20.15	0.15	12,277	312.89	0.30
20.20	0.15	12,250	312.89	0.30
20.25	0.14	12,222	312.89	0.30
20.30	0.14	12,194	312.88	0.30
20.35	0.14	12,166	312.88	0.30
20.40	0.14	12,138	312.88	0.30
20.45	0.14	12,109	312.87	0.30
20.50	0.14	12,079	312.87	0.30
20.55	0.14	12,050	312.87	0.30
20.60	0.14	12,021	312.87	0.30
20.65	0.13	11,992	312.86	0.30
20.70	0.13	11,961	312.86	0.30
20.75	0.13	11,931	312.86	0.30
20.80	0.13	11,901	312.85	0.30
20.85	0.13	11,870	312.85	0.30
20.90	0.13	11,840	312.85	0.30
20.95	0.13	11,808	312.85	0.30
21.00	0.13	11,777	312.84	0.30
21.05	0.13	11,746	312.84	0.30
21.10	0.13	11,714	312.84	0.30
21.15	0.12	11,682	312.83	0.30
21.20	0.12	11,650	312.83	0.30
21.25	0.12	11,618	312.83	0.30
21.30	0.12	11,585	312.82	0.30
21.35	0.12	11,552	312.82	0.30
21.40	0.12	11,520	312.82	0.30
21.45	0.11	11,487	312.81	0.30
21.50	0.11	11,453	312.81	0.30
21.55	0.11	11,420	312.81	0.30
21.60	0.11	11,386	312.81	0.30
21.65	0.11	11,352	312.80	0.30
21.70	0.11	11,319	312.80	0.30
21.75	0.11	11,285	312.80	0.30
21.80	0.11	11,251	312.79	0.30
21.85	0.11	11,216	312.79	0.30
21.90	0.11	11,182	312.79	0.30
21.95	0.11	11,147	312.78	0.30
22.00	0.11	11,112	312.78	0.30
22.05	0.11	11,077	312.78	0.30
22.10	0.11	11,042	312.77	0.30

22.15	0.10	11,007	312.77	0.30
22.20	0.10	10,971	312.77	0.30
22.25	0.10	10,935	312.76	0.30
22.30	0.10	10,899	312.76	0.30
22.35	0.10	10,863	312.75	0.30
22.40	0.10	10,827	312.75	0.30
22.45	0.10	10,791	312.75	0.30
22.50	0.10	10,755	312.74	0.30
22.55	0.10	10,719	312.74	0.30
22.60	0.10	10,683	312.74	0.30
22.65	0.10	10,647	312.73	0.30
22.70	0.10	10,611	312.73	0.30
22.75	0.10	10,575	312.73	0.30
22.80	0.10	10,539	312.72	0.30
22.85	0.10	10,502	312.72	0.30
22.90	0.10	10,466	312.72	0.30
22.95	0.10	10,430	312.71	0.30
23.00	0.10	10,394	312.71	0.30
23.05	0.10	10,357	312.71	0.30
23.10	0.10	10,321	312.70	0.30
23.15	0.10	10,285	312.70	0.30
23.20	0.10	10,249	312.70	0.30
23.25	0.09	10,212	312.69	0.30
23.30	0.09	10,175	312.69	0.30
23.35	0.09	10,137	312.68	0.30
23.40	0.09	10,100	312.68	0.30
23.45	0.09	10,062	312.68	0.30
23.50	0.09	10,025	312.67	0.30
23.55	0.09	9,987	312.67	0.30
23.60	0.09	9,950	312.67	0.30
23.65	0.09	9,912	312.66	0.30
23.70	0.09	9,875	312.66	0.30
23.75	0.09	9,837	312.66	0.30
23.80	0.09	9,800	312.65	0.30
23.85	0.09	9,762	312.65	0.30
23.90	0.09	9,725	312.64	0.30
23.95	0.09	9,687	312.64	0.30
24.00	0.09	9,649	312.64	0.30
24.05	0.09	9,612	312.63	0.30
24.10	0.09	9,574	312.63	0.30
24.15	0.07	9,534	312.63	0.30
24.20	0.05	9,491	312.62	0.30
24.25	0.04	9,445	312.62	0.30
24.30	0.03	9,398	312.61	0.30
24.35	0.02	9,349	312.61	0.30
24.40	0.02	9,299	312.60	0.30
24.45	0.01	9,249	312.60	0.30
24.50	0.01	9,197	312.59	0.30
24.55	0.01	9,145	312.59	0.30
24.60	0.01	9,092	312.58	0.30
24.65	0.00	9,039	312.58	0.30
24.70	0.00	8,986	312.57	0.30
24.75	0.00	8,932	312.57	0.30
24.80	0.00	8,878	312.56	0.30
24.85	0.00	8,824	312.56	0.30
24.90	0.00	8,771	312.55	0.30

24.95	0.00	8,717	312.55	0.30
25.00	0.00	8,663	312.54	0.30
25.05	0.00	8,609	312.54	0.30
25.10	0.00	8,555	312.53	0.30
25.15	0.00	8,501	312.53	0.30
25.20	0.00	8,447	312.52	0.30
25.25	0.00	8,393	312.52	0.30
25.30	0.00	8,339	312.51	0.30
25.35	0.00	8,285	312.51	0.30
25.40	0.00	8,231	312.50	0.30
25.45	0.00	8,177	312.50	0.30
25.50	0.00	8,123	312.49	0.30
25.55	0.00	8,069	312.48	0.30
25.60	0.00	8,015	312.48	0.30
25.65	0.00	7,961	312.47	0.30
25.70	0.00	7,907	312.47	0.30
25.75	0.00	7,853	312.46	0.30
25.80	0.00	7,799	312.46	0.30
25.85	0.00	7,745	312.45	0.30
25.90	0.00	7,691	312.45	0.30
25.95	0.00	7,637	312.44	0.30
26.00	0.00	7,583	312.44	0.30
26.05	0.00	7,529	312.43	0.30
26.10	0.00	7,475	312.43	0.30
26.15	0.00	7,421	312.42	0.30
26.20	0.00	7,367	312.42	0.30
26.25	0.00	7,313	312.41	0.30
26.30	0.00	7,259	312.41	0.30
26.35	0.00	7,205	312.40	0.30
26.40	0.00	7,151	312.40	0.30
26.45	0.00	7,097	312.39	0.30
26.50	0.00	7,043	312.39	0.30
26.55	0.00	6,989	312.38	0.30
26.60	0.00	6,935	312.38	0.30
26.65	0.00	6,881	312.37	0.30
26.70	0.00	6,827	312.36	0.30
26.75	0.00	6,773	312.36	0.30
26.80	0.00	6,719	312.35	0.30
26.85	0.00	6,665	312.35	0.30
26.90	0.00	6,611	312.34	0.30
26.95	0.00	6,557	312.34	0.30
27.00	0.00	6,503	312.33	0.30
27.05	0.00	6,449	312.33	0.30
27.10	0.00	6,395	312.32	0.30
27.15	0.00	6,341	312.32	0.30
27.20	0.00	6,287	312.31	0.30
27.25	0.00	6,233	312.31	0.30
27.30	0.00	6,179	312.30	0.30
27.35	0.00	6,125	312.30	0.30
27.40	0.00	6,071	312.29	0.30
27.45	0.00	6,017	312.29	0.30
27.50	0.00	5,963	312.28	0.30
27.55	0.00	5,909	312.28	0.30
27.60	0.00	5,855	312.27	0.30
27.65	0.00	5,801	312.27	0.30
27.70	0.00	5,747	312.26	0.30

27.75	0.00	5,693	312.26	0.30
27.80	0.00	5,639	312.25	0.30
27.85	0.00	5,585	312.24	0.30
27.90	0.00	5,531	312.24	0.30
27.95	0.00	5,477	312.23	0.30
28.00	0.00	5,423	312.23	0.30
28.05	0.00	5,369	312.22	0.30
28.10	0.00	5,315	312.22	0.30
28.15	0.00	5,261	312.21	0.30
28.20	0.00	5,207	312.21	0.30
28.25	0.00	5,153	312.20	0.30
28.30	0.00	5,099	312.20	0.30
28.35	0.00	5,045	312.19	0.30
28.40	0.00	4,991	312.19	0.30
28.45	0.00	4,937	312.18	0.30
28.50	0.00	4,883	312.18	0.30
28.55	0.00	4,829	312.17	0.30
28.60	0.00	4,775	312.17	0.30
28.65	0.00	4,721	312.16	0.30
28.70	0.00	4,667	312.16	0.30
28.75	0.00	4,613	312.15	0.30
28.80	0.00	4,559	312.15	0.30
28.85	0.00	4,505	312.14	0.30
28.90	0.00	4,451	312.14	0.30
28.95	0.00	4,397	312.13	0.30
29.00	0.00	4,343	312.12	0.30
29.05	0.00	4,289	312.12	0.30
29.10	0.00	4,235	312.11	0.30
29.15	0.00	4,181	312.11	0.30
29.20	0.00	4,127	312.10	0.30
29.25	0.00	4,073	312.10	0.30
29.30	0.00	4,019	312.09	0.30
29.35	0.00	3,965	312.09	0.30
29.40	0.00	3,911	312.08	0.30
29.45	0.00	3,857	312.08	0.30
29.50	0.00	3,803	312.07	0.30
29.55	0.00	3,749	312.07	0.30
29.60	0.00	3,695	312.06	0.30
29.65	0.00	3,641	312.06	0.30
29.70	0.00	3,587	312.05	0.30
29.75	0.00	3,533	312.05	0.30
29.80	0.00	3,479	312.04	0.30
29.85	0.00	3,425	312.04	0.30
29.90	0.00	3,371	312.03	0.30
29.95	0.00	3,317	312.03	0.30
30.00	0.00	3,263	312.02	0.30
30.05	0.00	3,209	312.02	0.30
30.10	0.00	3,155	312.01	0.30
30.15	0.00	3,101	312.00	0.30
30.20	0.00	3,047	312.00	0.30
30.25	0.00	2,993	311.98	0.30
30.30	0.00	2,939	311.95	0.30
30.35	0.00	2,885	311.93	0.30
30.40	0.00	2,831	311.91	0.30
30.45	0.00	2,777	311.89	0.30
30.50	0.00	2,723	311.86	0.30

30.55	0.00	2,669	311.84	0.30
30.60	0.00	2,615	311.82	0.30
30.65	0.00	2,561	311.80	0.30
30.70	0.00	2,507	311.78	0.30
30.75	0.00	2,453	311.75	0.30
30.80	0.00	2,399	311.73	0.30
30.85	0.00	2,345	311.71	0.30
30.90	0.00	2,291	311.69	0.30
30.95	0.00	2,237	311.67	0.30
31.00	0.00	2,183	311.64	0.30
31.05	0.00	2,129	311.62	0.30
31.10	0.00	2,075	311.60	0.30
31.15	0.00	2,021	311.58	0.30
31.20	0.00	1,967	311.56	0.30
31.25	0.00	1,913	311.53	0.30
31.30	0.00	1,859	311.51	0.30
31.35	0.00	1,805	311.49	0.30
31.40	0.00	1,751	311.47	0.30
31.45	0.00	1,697	311.44	0.30
31.50	0.00	1,643	311.42	0.30
31.55	0.00	1,589	311.40	0.30
31.60	0.00	1,535	311.38	0.30
31.65	0.00	1,481	311.36	0.30
31.70	0.00	1,427	311.33	0.30
31.75	0.00	1,373	311.31	0.30
31.80	0.00	1,319	311.29	0.30
31.85	0.00	1,265	311.27	0.30
31.90	0.00	1,211	311.25	0.30
31.95	0.00	1,157	311.22	0.30
32.00	0.00	1,103	311.20	0.30
32.05	0.00	1,049	311.18	0.30
32.10	0.00	995	311.16	0.30
32.15	0.00	941	311.14	0.30
32.20	0.00	887	311.11	0.30
32.25	0.00	833	311.09	0.30
32.30	0.00	779	311.07	0.30
32.35	0.00	725	311.05	0.30
32.40	0.00	671	311.02	0.30
32.45	0.00	617	311.00	0.30
32.50	0.00	563	310.98	0.30
32.55	0.00	509	310.96	0.30
32.60	0.00	455	310.94	0.30
32.65	0.00	401	310.91	0.30
32.70	0.00	347	310.89	0.30
32.75	0.00	293	310.87	0.30
32.80	0.00	239	310.85	0.30
32.85	0.00	185	310.83	0.30
32.90	0.00	131	310.80	0.30
32.95	0.00	77	310.78	0.30
33.00	0.00	23	310.76	0.28
33.05	0.00	1	310.75	0.02
33.10	0.00	0	310.75	0.00
33.15	0.00	0	310.75	0.00
33.20	0.00	0	310.75	0.00
33.25	0.00	0	310.75	0.00
33.30	0.00	0	310.75	0.00

33.35	0.00	0	310.75	0.00
33.40	0.00	0	310.75	0.00
33.45	0.00	0	310.75	0.00
33.50	0.00	0	310.75	0.00
33.55	0.00	0	310.75	0.00
33.60	0.00	0	310.75	0.00
33.65	0.00	0	310.75	0.00
33.70	0.00	0	310.75	0.00
33.75	0.00	0	310.75	0.00
33.80	0.00	0	310.75	0.00
33.85	0.00	0	310.75	0.00
33.90	0.00	0	310.75	0.00
33.95	0.00	0	310.75	0.00
34.00	0.00	0	310.75	0.00
34.05	0.00	0	310.75	0.00
34.10	0.00	0	310.75	0.00
34.15	0.00	0	310.75	0.00
34.20	0.00	0	310.75	0.00
34.25	0.00	0	310.75	0.00
34.30	0.00	0	310.75	0.00
34.35	0.00	0	310.75	0.00
34.40	0.00	0	310.75	0.00
34.45	0.00	0	310.75	0.00
34.50	0.00	0	310.75	0.00
34.55	0.00	0	310.75	0.00
34.60	0.00	0	310.75	0.00
34.65	0.00	0	310.75	0.00
34.70	0.00	0	310.75	0.00
34.75	0.00	0	310.75	0.00
34.80	0.00	0	310.75	0.00
34.85	0.00	0	310.75	0.00
34.90	0.00	0	310.75	0.00
34.95	0.00	0	310.75	0.00
35.00	0.00	0	310.75	0.00
35.05	0.00	0	310.75	0.00
35.10	0.00	0	310.75	0.00
35.15	0.00	0	310.75	0.00
35.20	0.00	0	310.75	0.00
35.25	0.00	0	310.75	0.00
35.30	0.00	0	310.75	0.00
35.35	0.00	0	310.75	0.00
35.40	0.00	0	310.75	0.00
35.45	0.00	0	310.75	0.00
35.50	0.00	0	310.75	0.00
35.55	0.00	0	310.75	0.00
35.60	0.00	0	310.75	0.00
35.65	0.00	0	310.75	0.00
35.70	0.00	0	310.75	0.00
35.75	0.00	0	310.75	0.00
35.80	0.00	0	310.75	0.00
35.85	0.00	0	310.75	0.00
35.90	0.00	0	310.75	0.00
35.95	0.00	0	310.75	0.00
36.00	0.00	0	310.75	0.00
36.05	0.00	0	310.75	0.00
36.10	0.00	0	310.75	0.00

36.15	0.00	0	310.75	0.00
36.20	0.00	0	310.75	0.00
36.25	0.00	0	310.75	0.00
36.30	0.00	0	310.75	0.00
36.35	0.00	0	310.75	0.00
36.40	0.00	0	310.75	0.00
36.45	0.00	0	310.75	0.00
36.50	0.00	0	310.75	0.00
36.55	0.00	0	310.75	0.00
36.60	0.00	0	310.75	0.00
36.65	0.00	0	310.75	0.00
36.70	0.00	0	310.75	0.00
36.75	0.00	0	310.75	0.00
36.80	0.00	0	310.75	0.00
36.85	0.00	0	310.75	0.00
36.90	0.00	0	310.75	0.00
36.95	0.00	0	310.75	0.00
37.00	0.00	0	310.75	0.00
37.05	0.00	0	310.75	0.00
37.10	0.00	0	310.75	0.00
37.15	0.00	0	310.75	0.00
37.20	0.00	0	310.75	0.00
37.25	0.00	0	310.75	0.00
37.30	0.00	0	310.75	0.00
37.35	0.00	0	310.75	0.00
37.40	0.00	0	310.75	0.00
37.45	0.00	0	310.75	0.00
37.50	0.00	0	310.75	0.00
37.55	0.00	0	310.75	0.00
37.60	0.00	0	310.75	0.00
37.65	0.00	0	310.75	0.00
37.70	0.00	0	310.75	0.00
37.75	0.00	0	310.75	0.00
37.80	0.00	0	310.75	0.00
37.85	0.00	0	310.75	0.00
37.90	0.00	0	310.75	0.00
37.95	0.00	0	310.75	0.00
38.00	0.00	0	310.75	0.00
38.05	0.00	0	310.75	0.00
38.10	0.00	0	310.75	0.00
38.15	0.00	0	310.75	0.00
38.20	0.00	0	310.75	0.00
38.25	0.00	0	310.75	0.00
38.30	0.00	0	310.75	0.00
38.35	0.00	0	310.75	0.00
38.40	0.00	0	310.75	0.00
38.45	0.00	0	310.75	0.00
38.50	0.00	0	310.75	0.00
38.55	0.00	0	310.75	0.00
38.60	0.00	0	310.75	0.00
38.65	0.00	0	310.75	0.00
38.70	0.00	0	310.75	0.00
38.75	0.00	0	310.75	0.00
38.80	0.00	0	310.75	0.00
38.85	0.00	0	310.75	0.00
38.90	0.00	0	310.75	0.00

38.95	0.00	0	310.75	0.00
39.00	0.00	0	310.75	0.00
39.05	0.00	0	310.75	0.00
39.10	0.00	0	310.75	0.00
39.15	0.00	0	310.75	0.00
39.20	0.00	0	310.75	0.00
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39.35	0.00	0	310.75	0.00
39.40	0.00	0	310.75	0.00
39.45	0.00	0	310.75	0.00
39.50	0.00	0	310.75	0.00
39.55	0.00	0	310.75	0.00
39.60	0.00	0	310.75	0.00
39.65	0.00	0	310.75	0.00
39.70	0.00	0	310.75	0.00
39.75	0.00	0	310.75	0.00
39.80	0.00	0	310.75	0.00
39.85	0.00	0	310.75	0.00
39.90	0.00	0	310.75	0.00
39.95	0.00	0	310.75	0.00
40.00	0.00	0	310.75	0.00
40.05	0.00	0	310.75	0.00
40.10	0.00	0	310.75	0.00
40.15	0.00	0	310.75	0.00
40.20	0.00	0	310.75	0.00
40.25	0.00	0	310.75	0.00
40.30	0.00	0	310.75	0.00
40.35	0.00	0	310.75	0.00
40.40	0.00	0	310.75	0.00
40.45	0.00	0	310.75	0.00
40.50	0.00	0	310.75	0.00
40.55	0.00	0	310.75	0.00
40.60	0.00	0	310.75	0.00
40.65	0.00	0	310.75	0.00
40.70	0.00	0	310.75	0.00
40.75	0.00	0	310.75	0.00
40.80	0.00	0	310.75	0.00
40.85	0.00	0	310.75	0.00
40.90	0.00	0	310.75	0.00
40.95	0.00	0	310.75	0.00
41.00	0.00	0	310.75	0.00
41.05	0.00	0	310.75	0.00
41.10	0.00	0	310.75	0.00
41.15	0.00	0	310.75	0.00
41.20	0.00	0	310.75	0.00
41.25	0.00	0	310.75	0.00
41.30	0.00	0	310.75	0.00
41.35	0.00	0	310.75	0.00
41.40	0.00	0	310.75	0.00
41.45	0.00	0	310.75	0.00
41.50	0.00	0	310.75	0.00
41.55	0.00	0	310.75	0.00
41.60	0.00	0	310.75	0.00
41.65	0.00	0	310.75	0.00
41.70	0.00	0	310.75	0.00

41.75	0.00	0	310.75	0.00
41.80	0.00	0	310.75	0.00
41.85	0.00	0	310.75	0.00
41.90	0.00	0	310.75	0.00
41.95	0.00	0	310.75	0.00
42.00	0.00	0	310.75	0.00
42.05	0.00	0	310.75	0.00
42.10	0.00	0	310.75	0.00
42.15	0.00	0	310.75	0.00
42.20	0.00	0	310.75	0.00
42.25	0.00	0	310.75	0.00
42.30	0.00	0	310.75	0.00
42.35	0.00	0	310.75	0.00
42.40	0.00	0	310.75	0.00
42.45	0.00	0	310.75	0.00
42.50	0.00	0	310.75	0.00
42.55	0.00	0	310.75	0.00
42.60	0.00	0	310.75	0.00
42.65	0.00	0	310.75	0.00
42.70	0.00	0	310.75	0.00
42.75	0.00	0	310.75	0.00
42.80	0.00	0	310.75	0.00
42.85	0.00	0	310.75	0.00
42.90	0.00	0	310.75	0.00
42.95	0.00	0	310.75	0.00
43.00	0.00	0	310.75	0.00
43.05	0.00	0	310.75	0.00
43.10	0.00	0	310.75	0.00
43.15	0.00	0	310.75	0.00
43.20	0.00	0	310.75	0.00
43.25	0.00	0	310.75	0.00
43.30	0.00	0	310.75	0.00
43.35	0.00	0	310.75	0.00
43.40	0.00	0	310.75	0.00
43.45	0.00	0	310.75	0.00
43.50	0.00	0	310.75	0.00
43.55	0.00	0	310.75	0.00
43.60	0.00	0	310.75	0.00
43.65	0.00	0	310.75	0.00
43.70	0.00	0	310.75	0.00
43.75	0.00	0	310.75	0.00
43.80	0.00	0	310.75	0.00
43.85	0.00	0	310.75	0.00
43.90	0.00	0	310.75	0.00
43.95	0.00	0	310.75	0.00
44.00	0.00	0	310.75	0.00
44.05	0.00	0	310.75	0.00
44.10	0.00	0	310.75	0.00
44.15	0.00	0	310.75	0.00
44.20	0.00	0	310.75	0.00
44.25	0.00	0	310.75	0.00
44.30	0.00	0	310.75	0.00
44.35	0.00	0	310.75	0.00
44.40	0.00	0	310.75	0.00
44.45	0.00	0	310.75	0.00
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44.55	0.00	0	310.75	0.00
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44.85	0.00	0	310.75	0.00
44.90	0.00	0	310.75	0.00
44.95	0.00	0	310.75	0.00
45.00	0.00	0	310.75	0.00
45.05	0.00	0	310.75	0.00
45.10	0.00	0	310.75	0.00
45.15	0.00	0	310.75	0.00
45.20	0.00	0	310.75	0.00
45.25	0.00	0	310.75	0.00
45.30	0.00	0	310.75	0.00
45.35	0.00	0	310.75	0.00
45.40	0.00	0	310.75	0.00
45.45	0.00	0	310.75	0.00
45.50	0.00	0	310.75	0.00
45.55	0.00	0	310.75	0.00
45.60	0.00	0	310.75	0.00
45.65	0.00	0	310.75	0.00
45.70	0.00	0	310.75	0.00
45.75	0.00	0	310.75	0.00
45.80	0.00	0	310.75	0.00
45.85	0.00	0	310.75	0.00
45.90	0.00	0	310.75	0.00
45.95	0.00	0	310.75	0.00
46.00	0.00	0	310.75	0.00
46.05	0.00	0	310.75	0.00
46.10	0.00	0	310.75	0.00
46.15	0.00	0	310.75	0.00
46.20	0.00	0	310.75	0.00
46.25	0.00	0	310.75	0.00
46.30	0.00	0	310.75	0.00
46.35	0.00	0	310.75	0.00
46.40	0.00	0	310.75	0.00
46.45	0.00	0	310.75	0.00
46.50	0.00	0	310.75	0.00
46.55	0.00	0	310.75	0.00
46.60	0.00	0	310.75	0.00
46.65	0.00	0	310.75	0.00
46.70	0.00	0	310.75	0.00
46.75	0.00	0	310.75	0.00
46.80	0.00	0	310.75	0.00
46.85	0.00	0	310.75	0.00
46.90	0.00	0	310.75	0.00
46.95	0.00	0	310.75	0.00
47.00	0.00	0	310.75	0.00
47.05	0.00	0	310.75	0.00
47.10	0.00	0	310.75	0.00
47.15	0.00	0	310.75	0.00
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47.45	0.00	0	310.75	0.00
47.50	0.00	0	310.75	0.00
47.55	0.00	0	310.75	0.00
47.60	0.00	0	310.75	0.00
47.65	0.00	0	310.75	0.00
47.70	0.00	0	310.75	0.00
47.75	0.00	0	310.75	0.00
47.80	0.00	0	310.75	0.00
47.85	0.00	0	310.75	0.00
47.90	0.00	0	310.75	0.00
47.95	0.00	0	310.75	0.00
48.00	0.00	0	310.75	0.00
48.05	0.00	0	310.75	0.00
48.10	0.00	0	310.75	0.00
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48.20	0.00	0	310.75	0.00
48.25	0.00	0	310.75	0.00
48.30	0.00	0	310.75	0.00
48.35	0.00	0	310.75	0.00
48.40	0.00	0	310.75	0.00
48.45	0.00	0	310.75	0.00
48.50	0.00	0	310.75	0.00
48.55	0.00	0	310.75	0.00
48.60	0.00	0	310.75	0.00
48.65	0.00	0	310.75	0.00
48.70	0.00	0	310.75	0.00
48.75	0.00	0	310.75	0.00
48.80	0.00	0	310.75	0.00
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51.70	0.00	0	310.75	0.00
51.75	0.00	0	310.75	0.00
51.80	0.00	0	310.75	0.00
51.85	0.00	0	310.75	0.00
51.90	0.00	0	310.75	0.00
51.95	0.00	0	310.75	0.00
52.00	0.00	0	310.75	0.00
52.05	0.00	0	310.75	0.00
52.10	0.00	0	310.75	0.00
52.15	0.00	0	310.75	0.00
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54.70	0.00	0	310.75	0.00
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54.80	0.00	0	310.75	0.00
54.85	0.00	0	310.75	0.00
54.90	0.00	0	310.75	0.00
54.95	0.00	0	310.75	0.00
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55.05	0.00	0	310.75	0.00
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55.15	0.00	0	310.75	0.00
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56.55	0.00	0	310.75	0.00
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56.75	0.00	0	310.75	0.00
56.80	0.00	0	310.75	0.00
56.85	0.00	0	310.75	0.00
56.90	0.00	0	310.75	0.00
56.95	0.00	0	310.75	0.00
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57.05	0.00	0	310.75	0.00
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57.45	0.00	0	310.75	0.00
57.50	0.00	0	310.75	0.00
57.55	0.00	0	310.75	0.00
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57.65	0.00	0	310.75	0.00
57.70	0.00	0	310.75	0.00
57.75	0.00	0	310.75	0.00
57.80	0.00	0	310.75	0.00
57.85	0.00	0	310.75	0.00
57.90	0.00	0	310.75	0.00
57.95	0.00	0	310.75	0.00
58.00	0.00	0	310.75	0.00
58.05	0.00	0	310.75	0.00
58.10	0.00	0	310.75	0.00
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58.85	0.00	0	310.75	0.00
58.90	0.00	0	310.75	0.00
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59.00	0.00	0	310.75	0.00
59.05	0.00	0	310.75	0.00
59.10	0.00	0	310.75	0.00
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59.30	0.00	0	310.75	0.00
59.35	0.00	0	310.75	0.00
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ARCADIS

Attachment 4

Culvert Design

ARCADIS

ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse
New York 13214-0066
Tel 315.671.9445
Fax 315.671.9450

MEMO

To:
John Hino, CWM Chemical Services, LLC

Copies:
Phil Batten, ARCADIS

From:
Brian M. Stone, P.E.

Date:
March 6, 2009

ARCADIS Project No.:
B0023726.0000

Subject:
RMU-1 Leachate Level Compliance Plan – Applicability of Appendix A-4 Calculations

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The document entitled *Leachate Level Compliance Plan for Residuals Management Unit – One, Final Sequence Phase 1* (ARCADIS, December 2007; LLCP) includes several calculations in Appendices A and B to evaluate the Model City facility's ability to manage RMU-1-generated leachate during the 25-year, 24-hour design storm.

Appendix A-4 of the December 2007 LLCP contains design calculations for temporary culverts located in and around RMU-1. These culverts are to be retained for the new fill progression plan (ARCADIS, March 2009). The design of these culverts is based on the original design acreages of the watersheds that drain to the culverts, which are obtained from the fill progression plan contained in the December 2007 LLCP.

The March 2009 fill progression includes changes in waste grades throughout uncapped portions of RMU-1. However, these changes do not substantially alter the watershed acreages to the temporary culverts and so the hydraulic conditions and culvert configurations determined in Appendix A-4 of the December 2007 LLCP remain applicable to the March 2009 LLCP. For instance the following peak discharges are estimated at culvert CV-2:

- 9.35 cubic feet surface (cfs) (December 2007 LLCP)
- 9.50 cfs (March 2009 LLCP)

There is expected to be no change to the other temporary culvert (CV-1) because that culvert conveys drainage from outside the landfill and is therefore unaffected by the fill progression plan. Appendix A-4

from the December 2007 LLCP has, therefore, been included in the March 2009 LLCP with no modifications.

ARCADIS BBL
Infrastructure, environment, facilities

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B0005105

Subject: Culvert Design Calculations

Prepared By: BMS/PTO **Date:** December 2007

Reviewed By: BMS **Date:** December 2007

Checked By: PHB **Date:** December 2007

TASK

Demonstrate that the culvert configurations depicted on the drawing entitled *Residuals Management Unit – One Fill Progression and Truck Routes, Cells 1 Through 14 – Final Sequence Phase I* provide sufficient hydraulic capacity to convey the estimated peak discharge from the 25-year, 24-hour storm.

REFERENCES

1. Proposed grading design for waste fill progression and capping for Cells 1 through 14 presented on Figure 1 entitled *Residuals Management Unit – One Fill Progression and Truck Routes, Cells 1 Through 14 – Final Sequence Phase I*, prepared by ARCADIS BBL, dated December 2007.

2. PondPack for Windows, Version 9.0, hydrology modeling program, Haestad Methods, Inc.

3. *Engineer-in-Training Reference Manual*, 8th Edition, Lindeburg, Michael R., P.E., pp. A-45, 1992.

4. Calculation sheet entitled *Infiltration Channel Routing Calculations (Cells 7/8, 9/10, 11/13, and 12/14)*, prepared by ARCADIS BBL dated December 2007.

5. Appendix I of the RMU-1 engineering report entitled *Surface Water Drainage and Erosion Calculations*.

6. HydroCAD Version 8.5, hydrologic evaluation software, HydroCad Software Solutions LLC, 2006.

ASSUMPTIONS

1. Reference 1 includes two culverts, identified as CV-1 and CV-2. Culvert CV-1 is an existing culvert that conveys flow from the perimeter ditch at the toe of the landfill perimeter berm beneath the RMU-1 access ramp. As shown on Reference 1, the downstream end of existing culvert CV-1 will be extended to accommodate widening of the RMU-1 access ramp. Culvert CV-2 is a new culvert that will convey flow from the east perimeter channel into Detention Basin G.

2. The culvert configuration for CV-1 is deemed acceptable if the design can convey the 25-year, 24-hour estimated peak discharge without causing the upgradient channel to overflow. Based on as-built survey data for the perimeter ditch, the channel reach upgradient of culvert CV-1 is 2.46 feet deep.

   The culvert configuration for CV-2 is deemed acceptable if the design can convey the 25-year, 24-hour estimated peak discharge without causing a headwater condition that encroaches on the

Calculation Sheet

required freeboard for the east perimeter channel. Based on Reference 4, the east perimeter channel is lined to a minimum depth of approximately 2.3 feet. Therefore, the maximum allowable headwater is assumed to equal 1.3 feet above the culvert invert (2.3 feet – 1 foot freeboard = 1.3 feet).

3. The 25-year, 24-hour estimated peak discharge for culvert CV-1 is based on the graphical summation of the hydrographs from the three contributing drainage areas as defined in Reference 5. The respective hydrographs are calculated using Reference 2 and based on watershed characteristics presented in Reference 5.

4. The 25-year, 24-hour estimated peak discharge for culvert CV-2 is based on routing calculations presented in Reference 4.

5. Existing culvert CV-1 consists of two 18-inch-diameter corrugated smooth-bore HDPE pipes having a Manning "n" of 0.012 based on Reference 3. The piping to be used to extend culvert CV-1 will be of identical construction and hydraulic roughness. Culvert CV-2 is assumed to be corrugated metal, having a Manning "n" of 0.022 based on Reference 3. Other pipe materials may be substituted for culvert CV-2 assuming the overall capacity of the culvert is not adversely affected. The length and slope of the culvert pipes are calculated from Reference 1.

7. The flow capacity of the culverts is modeled using References 2 and 6, which account for both pipe friction losses and energy losses at the culvert entrances and exits.

CALCULATIONS

1. Estimated Peak Discharge to Culvert

The following table summarizes the watershed acreage and estimated peak discharge to the culvert location during the 25-year, 24-hour storm.

Culvert ID	Watershed Area (acres)	25-Year, 24-Hour Estimated Peak Discharge (cfs)
CV-1	3.96[1]	13.14[2]
CV-2	2.40	9.35[3]

Notes:

1. The watershed area for culvert CV-1 was determined from Reference 5, and consists of drainage areas A16 (0.46 acres, CN = 86), A5 (2.30 acres, CN=86), and P9 (1.20 acres, CN=86).
2. The 25-year, 24-hour estimated peak discharge through culvert CV-1 is the flow resulting from the combined watershed area runoff hydrograph from areas A16, A5, and P9, as determined using Reference 2.
3. The 25-year, 24-hour estimated peak discharge through culvert CV-2 is the flow resulting from the watershed area runoff minus the infiltration into the channel reaches of the east perimeter channel, based on routing calculations contained in Reference 4.

Supporting output from References 2, 4, and 6 for the determination of estimated peak discharges is included as an attachment to this calculation.

Calculation Sheet

2. Culvert Capacity

The following table summarizes the estimated peak discharge to the culverts, as well as the culvert configurations (i.e., number and diameter of pipes, pipe construction, and pipe slope). Also presented below is the capacity of the culverts as determined using References 2 and 6.

Culvert ID	25-Year, 24-Hour Estimated Peak Discharge (cfs)	Culvert Configuration	Culvert Capacity (cfs)
CV-1	13.14	Two 18-inch HDPE@ 0.25%	15.73
CV-2	9.35	Three 18-inch HDPE @ 1.5%	14.96

The rating curves for the two culverts, as determined using References 2 and 6, are included as an attachment.

SUMMARY

The hydraulic capacity of the culverts depicted on Reference 1 is sufficient to convey the estimated peak discharge from the 25-year, 24-hour storm.

25-Year, 24-Hour Estimated Peak Discharge

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 4.0000 in
Rain Dir = G:\TMProj\051\05105\LLCP Appendix A\A-4 Culvert Design\
Rain File - ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = G:\TMProj\051\05105\LLCP Appendix A\A-4 Culvert Design\
HYG File - ID = - CV-1(A16) 25
Tc = .1000 hrs
Drainage Area = .460 acres Runoff CN= 86

==========
Computational Time Increment = .01333 hrs
Computed Peak Time = 11.9333 hrs
Computed Peak Flow = 1.77 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 11.9500 hrs
Peak Flow, Interpolated Output = 1.73 cfs
WARNING: The difference between calculated peak flow
and interpolated peak flow is greater than 1.50%
==========

DRAINAGE AREA

ID:CV-1(A16)
CN = 86
Area = .460 acres <- A16 contributing drainage area
S = 1.6279 in
0.2S = .3256 in

Cumulative Runoff

2.5463 in
.098 ac-ft

HYG Volume... .098 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .10000 hrs (ID: CV-1(A16))
[illegible]

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 5.21 cfs
Unit peak time Tp = .06667 hrs
Unit receding limb, Tr = .26667 hrs
Total unit time, Tb = .33333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 4.0000 in
Rain Dir = G:\TMProj\051\05105\LLCP Appendix A\A-4 Culvert Design\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = G:\TMProj\051\05105\LLCP Appendix A\A-4 Culvert Design\
HYG File - ID = - CV-1(A5) 25
Tc = .2000 hrs
Drainage Area = 2.300 acres Runoff CN= 86

==========
Computational Time Increment = .02667 hrs
Computed Peak Time = 12.0000 hrs
Computed Peak Flow = 7.58 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0000 hrs
Peak Flow, Interpolated Output = 7.58 cfs
==========

DRAINAGE AREA

ID:CV-1(A5)
CN = 86
Area = 2.300 acres <-A5 contributing drainage area
S = 1.6279 in
0.2S = .3256 in

Cumulative Runoff

2.5463 in
.488 ac-ft

HYG Volume... .488 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .20000 hrs (ID: CV-1(A5))
Computational Incr, Tm = .02667 hrs = 0.20000 Tp

Unit Hyd. Equiv Shape = 132.132 (37.1% under curve, Tp-Tr)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 13.03 cfs
Unit peak time Tp = .13333 hrs
Unit receding limb, Tr = .53333 hrs
Total unit time, Tb = .66667 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 4.0000 in
Rain Dir = G:\TMProj\051\05105\LLCP Appendix A\A-4 Culvert Design\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = G:\TMProj\051\05105\LLCP Appendix A\A-4 Culvert Design\
HYG File - ID = - CV-1(P9) 25
Tc = .1000 hrs
Drainage Area = 1.200 acres Runoff CN= 86

==========
Computational Time Increment = .01333 hrs
Computed Peak Time = 11.9333 hrs
Computed Peak Flow = 4.62 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 11.9500 hrs
Peak Flow, Interpolated Output = 4.52 cfs
WARNING: The difference between calculated peak flow
and interpolated peak flow is greater than 1.50%
==========

DRAINAGE AREA

ID:CV-1(P9)
CN = 86
Area = 1.200 acres <- P9 contributing drainage area
S = 1.6279 in
0.2S = .3256 in

Cumulative Runoff

2.5463 in
.255 ac-ft

HYG Volume... .255 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .10000 hrs (ID: CV-1(P9))
[illegible]

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 13.60 cfs
Unit peak time Tp = .06667 hrs
Unit receding limb, Tr = .26667 hrs
Total unit time, Tb = .33333 hrs

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P 10 IN

HYG Directory: G:\TMProj\051\05105\LLCP Appendix A\A-4 Culvert Design\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
A 140	CV-1(A16)		CV-1(A16)	25
A 120	CV-1(P9)		CV-1(P9)	25
A 130	CV-1(A5)		CV-1(A5)	25

INFLOWS TO: P 10 IN

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	CV-1(A16)	25	.098	11.9500	1.73
	CV-1(P9)	25	.255	11.9500	4.52
	CV-1(A5)	25	.488	12.0000	7.58

TOTAL FLOW INTO: P 10 IN

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	P 10 IN	25	.840	12.0000	13.14 *

* Combined watershed area stormwater runoff hydrograph, peak discharge from areas A16, A5, and P9 through culvert CV-1.

Pond 39P: Reach 11

[78] Warning: Submerged Pond 38P Primary device # 2 by 0.96'
[81] Warning: Exceeded Pond 38P by 0.06' @ 18.00 hrs

Inflow Area =	2.406 ac,	Inflow Depth =	2.60"	
Inflow =	9.69 cfs @	12.00 hrs, Volume=	0.521 af	
Outflow =	9.68 cfs @	12.01 hrs, Volume=	0.521 af,	Atten= 0%, Lag= 0.3 min
Primary =	9.51 cfs @	12.01 hrs, Volume=	0.510 af	
Secondary =	0.17 cfs @	12.01 hrs, Volume=	0.011 af	

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.05 hrs
Peak Elev= 0.96' @ 12.01 hrs Surf.Area= 0 sf Storage= 214 cf

Plug-Flow detention time= 0.9 min calculated for 0.521 af (100% of inflow)
Center-of-Mass det. time= 0.9 min (801.7 - 800.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	891 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
0.00	0
0.25	33
0.50	81
0.75	145
1.00	225
1.25	320
1.50	431
1.75	558
2.00	700
2.25	858
2.30	891

Device	Routing	Invert	Outlet Devices
#1	Secondary	0.00'	**Special & User-Defined** Elev. (feet) 0.00 0.25 0.50 0.75 1.00 1.25 1.50 1.75 2.00 2.25 2.30 Disch. (cfs) 0.000 0.010 0.040 0.100 0.180 0.280 0.400 0.540 0.710 0.890 0.930
	Primary	0.00'	**18.0" x 92.0' long Culvert X 3.00** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= -1.40' S= 0.0152 '/' Cc= 0.900 n= 0.022

PEAK DISCHARGE TO CV-2

Primary OutFlow Max=9.35 cfs @ 12.01 hrs HW=0.95' (Free Discharge)
└**2=Culvert** (Inlet Controls 9.35 cfs @ 2.63 fps)

Secondary OutFlow Max=0.17 cfs @ 12.01 hrs HW=0.95' (Free Discharge)
└**1=Special & User-Defined** (Custom Controls 0.17 cfs)

Culvert Capacities

File.... G:\TMProj\051\05105\LLCP Appendix A\A-4 Culvert Design\CULVERT.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= .00 ft
Increment = .50 ft
Max. Elev.= 2.46 ft

Spot Elevations, ft
2.46

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.	Outfall	E1, ft	E2, ft
Culvert-Circular	CV	---> TW	.000	2.460

TW SETUP, DS Channel

File.... G:\IMProj\051\05105\LLCP Appendix A\A-4 Culvert Design\CULVERT.PPW

OUTLET STRUCTURE INPUT DATA

Structure ID	=	cv	
Structure Type	=	Culvert-Circular	
No. Barrels	=	2	
Barrel Diameter	=	1.5000	ft
Upstream Invert	=	.00	ft
Dnstream Invert	=	-.83	ft
Horiz. Length	=	330.00	ft
Barrel Length	=	330.00	ft
Barrel Slope	=	.00250	ft/ft

OUTLET CONTROL DATA...

Mannings n	=	.0120	
Ke	=	.5000	(forward entrance loss)
Kb	=	.015519	(per ft of full flow)
Kr	=	.5000	(reverse entrance loss)
HW Convergence	=	.001	+/- ft

INLET CONTROL DATA...

Equation form	=	1	
Inlet Control K	=	.0098	
Inlet Control M	=	2.0000	
Inlet Control c	=	.03980	
Inlet Control Y	=	.6700	
T1 ratio (HW/D)	=	1.159	
T2 ratio (HW/D)	=	1.306	
[illegible]	=	.[illegible]	

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

At T1 Elev =	1.74 ft	-->	Flow =	7.58 cfs
At T2 Elev =	1.96 ft	-->	Flow =	8.66 cfs

File.... G:\TMProj\051\05105\LLCP Appendix A\A-4 Culvert Design\CULVERT.PPW

OUTLET STRUCTURE INPUT DATA

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

File.... G:\TMProj\051\05105\LLCP Appendix A\A-4 Culvert Design\CULVERT.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Elev. ft	Total Q, Q cfs	Converge, TW Elev ft	Converge, Error +/-ft	Notes, Contributing Structures
.00	.00	Free Outfall		None contributing
.50	1.60	Free Outfall		cv
1.00	5.76	Free Outfall		cv
1.50	11.05	Free Outfall		cv
2.00	14.13	Free Outfall		cv
-> 2.46	15.73	Free Outfall		cv

Stage-Discharge for Pond 19P: Reach 11 Chan

CVZ

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
333.40	0.00	0.00	0.00
333.50	0.11	0.11	0.00
333.60	0.47	0.47	0.00
333.70	1.09	1.09	0.00
333.80	1.93	1.93	0.00
333.90	2.94	2.94	0.00
334.00	4.12	4.12	0.00
334.10	5.46	5.46	0.00
334.20	6.91	6.91	0.00
334.30	8.47	8.47	0.00
334.40	10.09	10.09	0.00
334.50	11.75	11.75	0.00
334.60	13.40	13.39	0.01
334.70	14.98	14.96	0.02
334.80	16.41	16.38	0.03
334.90	17.49	17.45	0.04
335.00	18.64	18.58	0.06
335.10	19.73	19.64	0.09
335.20	20.77	20.65	0.12
335.30	21.76	21.61	0.15
335.40	22.71	22.53	0.18
335.50	23.43	23.21	0.22
335.60	24.05	23.79	0.26
335.70	24.65	24.35	0.30
335.80	25.24	24.89	0.35
335.90	25.83	25.43	0.40
336.00	26.41	25.95	0.46
336.10	26.98	26.47	0.51
336.20	27.54	26.97	0.57
336.30	28.11	27.46	0.64
336.40	28.66	27.95	0.71
336.50	29.21	28.43	0.78
336.60	29.75	28.90	0.85
336.70	30.26	29.36	0.90
336.80	30.73	29.82	0.91
336.90	**31.19**	**30.26**	**0.93**

invert EL

1.3' DEPTH

ARCADIS

Attachment 5

Interim Drainage Feature Design

ARCADIS
Infrastructure, environment, buildings

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B0023726

Subject: Interim Drainage Feature Design

Prepared By: BMS/PTO **Date:** December 2007

Reviewed By: BMS **Date:** December 2007

Checked By: PHB **Date:** December 2007

TASK

Demonstrate that the interim drainage features depicted on the drawing entitled *Residuals Management Unit – One Fill Progression and Truck Routes, Cells 1 Through 14 – Final Sequence Phase 2* provide sufficient hydraulic capacity to convey the estimated peak discharge from the 25-year, 24-hour storm.

REFERENCES

1. Proposed grading design for waste fill progression and capping for Cells 1 through 14 presented on Figure 1 entitled *Residuals Management Unit – One Fill Progression and Truck Routes, Cells 1 Through 14 – Final Sequence Phase 2*, prepared by ARCADIS, dated October 2009, revised December 2009.

2. HydroCAD Version 8.5, hydrologic evaluation software, HydroCAD Software Solutions, LLC, 2006.

3. *Engineer-in-Training Reference Manual*, 8th Edition, Lindeburg, Michael R., P.E., pp. A-45, 1992.

4. *Operations and Maintenance Manual for Residuals Management Unit-1*, dated September 1997 (latest revised date December 2009).

5. Proposed grading design for waste fill progression and capping for Cells 1 through 14 presented on Figure 1 entitled *Residuals Management Unit – One Fill Progression and Truck Routes, Cells 1 Through 14 – Final Sequence Phase 1*, prepared by ARCADIS-BBL, dated December 2007.

ASSUMPTIONS

1. Several interim drainage features are depicted on Reference 1, including the following:

   - An upper and lower diversion ditch on the western face of RMU-1.
   - A north downchute consisting of two corrugated metal pipes on the eastern face of RMU-1.
   - Diversion berms along certain edges of the proposed Phase VII final cover area.

   The upper and lower diversion ditches are used to redirect stormwater runoff into Basin G and reduce the drainage area to the perimeter infiltration channels on the western edge of RMU-1. A downchute (identified in Reference 1 as the north downchute) consisting of two corrugated metal pipes is used to convey concentrated stormwater flows from the stormwater benches on the

Calculation Sheet

eastern face of RMU-1 and into the east perimeter channel. The two north downchute pipes discharge into a north downchute header pipe (not shown on Reference 1 but shown in Reference 4). This header pipe receives flow from the two north downchute pipes and redirects the flow towards the south along the alignment of the east perimeter channel. Diversion berms constructed of clean soil are used to provide gravity drainage of contact water runoff along the upgradient edges of the proposed Phase VII final cover area. These diversion berms are necessary because the permanent surface water diversion berms on which the Phase VII final cover area terminate drain in the opposite direction from that required for contact water runoff.

2. The designs of the interim drainage features are deemed acceptable if the hydraulic capacities equal or exceed the respective peak discharges from the 25-year, 24-hour storm. The capacities of diversion ditches and the diversion berm are based on providing a minimum freeboard of 6 inches. The capacity of the pipe downchute is based on a headwater depth of 1 foot. The capacity of the downchute header pipe is based on a headwater depth of 1.3 feet, which provides for the required 1 foot of freeboard within the east perimeter channel.

3. The 25-year, 24-hour estimated peak discharges for the interim drainage features are calculated using Reference 2. The watersheds for the diversion ditches and the north downchute pipe were previously delineated from the December 2007 fill progression plan as detailed in Reference 5. The tributary watersheds to these existing features are recalculated based on Reference 1 and the adequacy of the features confirmed using the worst-case watershed. The worst-case watershed for the two diversion berms to be constructed along the Phase VII final cover edges is delineated from Reference 1. The worst-case watershed for the diversion berms occurs on the western side of RMU-1. The runoff curve number for all watersheds is assumed to be 90, which is consistent with other stormwater calculations for active portions of the landfill. A minimum time of concentration of 0.1 hours is assumed for all watersheds, which is also consistent with other stormwater calculations for active portions of the landfill.

4. The designs for the interim drainage features are depicted in Reference 4 and are summarized below.

   - The upper diversion ditch has a triangular cross section, 1.5H:1V sideslopes, a 1 percent minimum bed slope, and a minimum depth of 2.5 feet.

   - The lower diversion ditch has a triangular cross section, 1.5H:1V sideslopes, a 1 percent minimum bed slope, and a minimum depth of 1.5 feet.

   - The north downchute pipes consist of corrugated metal pipes (corrugated high-density polyethylene [HDPE] pipes may also be used). The north downchute includes two pipes in parallel – one receiving flow from the uppermost stormwater bench and one receiving flow from the middle stormwater bench. The north downchute pipe draining the uppermost bench is 12 inches in diameter and the north downchute pipe draining the middle bench is 24 inches in diameter. Although the downchute pipes typically mimic the design waste slope (i.e., either 33 or 50 percent), there are areas (such as inlets and intersections with stormwater benches) where the slope reduces to 10 percent. This flatter slope is used to compute hydraulic capacity for all downchute pipes.

   - The north downchute header pipe consists of a corrugated metal pipe (a corrugated HDPE pipe may also be used). The pipe is 30 inches in diameter and receives flow from the two pipes comprising the north downchute.

Calculation Sheet

- The diversion berm intersects the 33 percent waste slope to create a ditch with a triangular cross section, 2H:1V outboard sideslope (against diversion berm), 3H:1V inboard sideslope (against waste surface), a 1 percent minimum bed slope, and a minimum depth of 1.5 feet.

CALCULATIONS

1. Estimated Peak Discharges

The following table summarizes the watershed acreages and estimated peak discharges to the various interim drainage features during the 25-year, 24-hour storm. As discussed in Assumption 3, watersheds to existing features that were originally designed for Reference 5 are recalculated for Reference 1 and the worst-case watershed is used for the remainder of the assessment.

Interim Drainage Feature	Watershed Area from Reference 1 (acres)	Watershed Area from Reference 5 (acres)	Worst-Case 25-Year, 24-Hour Estimated Peak Discharge (cfs)
Upper Diversion Ditch	4.85	4.01	23.26
Lower Diversion Ditch	1.33	1.33	6.38
North Downchute Pipe – Uppermost Stormwater Bench	0.26	0.29	1.39
North Downchute Pipe – Middle Stormwater Bench	0.63	0.94	4.51
North Downchute Header Pipe	0.89	1.23	5.90
Diversion Berm	2.19	-	10.75

Supporting output from Reference 2 for the determination of estimated peak discharges for the worst-case watersheds is included as an attachment.

2. Hydraulic Capacity of Interim Drainage Features

The following table summarizes the estimated peak discharges to the interim drainage features and the hydraulic capacities of the features.

Calculation Sheet

Interim Drainage Feature	Worst-Case 25-Year, 24-Hour Estimated Peak Discharge (cfs)	Hydraulic Capacity (cfs)
Upper Diversion Ditch	23.26	49.43
Lower Diversion Ditch	6.38	7.78
North Downchute Pipe (Draining Uppermost Stormwater Bench)	1.39	2.67
North Downchute Pipe (Draining Middle Stormwater Bench)	4.51	5.35
North Downchute Header Pipe	5.90	6.68
Diversion Berm	10.75	13.94

As indicated in the above table, the hydraulic capacity of each interim drainage feature exceeds the peak discharge from the 25-year, 24-hour storm. Hydraulic capacity calculations for the interim drainage features are included as an attachment.

SUMMARY

Based on the assumptions and calculations above, the hydraulic capacities of the interim drainage features depicted on Reference 1 are sufficient to convey the estimated peak discharges from the 25-year, 24-hour storm.

Estimated Peak Discharges

Summary for Subcatchment 10S: Upper Diversion Ditch

Runoff = 23.26 cfs @ 11.97 hrs, Volume= 1.180 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-36.00 hrs, dt= 0.05 hrs
Type II 24-hr Model City 25yr Rainfall=4.00"

	Area (ac)	CN	Description
*	4.850	90	
	4.850		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 28S: Lower Diversion Ditch

Runoff = 6.38 cfs @ 11.97 hrs, Volume= 0.323 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-36.00 hrs, dt= 0.05 hrs
Type II 24-hr Model City 25yr Rainfall=4.00"

	Area (ac)	CN	Description
*	1.330	90	
	1.330		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 1S: Upper Bench

Runoff = 1.39 cfs @ 11.97 hrs, Volume= 0.071 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-36.00 hrs, dt= 0.05 hrs
Type II 24-hr Model City 25yr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.290	90	
	0.290		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 3S: Middle Bench

Runoff = 4.51 cfs @ 11.97 hrs, Volume= 0.229 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-36.00 hrs, dt= 0.05 hrs
Type II 24-hr Model City 25yr Rainfall=4.00"

	Area (ac)	CN	Description
*	0.940	90	
	0.940		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 30S: North Downchute Header

Runoff = 5.90 cfs @ 11.97 hrs, Volume= 0.299 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-36.00 hrs, dt= 0.05 hrs
Type II 24-hr Model City 25yr Rainfall=4.00"

	Area (ac)	CN	Description
*	1.230	90	
	1.230		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Hydraulic Capacity of Interim
Drainage Features

Upper Diversion Ditch

Channel Design (Input)	
Channel Depth (ft)	2.50
Base Width (ft)	0.00
Left Side Slope (x:1)	1.50
Right Side Slope (x:1)	1.50
Bed Slope	0.010
Manning "n"	0.016

Flow Conditions (Output) with 6" Freeboard	
Flowrate from Manning Equation (cfs)	49.43
Resulting Flow Depth (ft)	2.00
Resulting Flow Velocity (ft/s)	8.24
Resulting Flow Width at Top (ft)	6.00
Resulting Flow Area (ft^2)	6.00
Resulting Wetted Perimeter (ft)	7.21
Resulting Hydraulic Radius (ft)	0.83

Lower Diversion Ditch

Channel Design (Input)	
Channel Depth (ft)	1.50
Base Width (ft)	0.00
Left Side Slope (x:1)	1.50
Right Side Slope (x:1)	1.50
Bed Slope	0.010
Manning "n"	0.016

Flow Conditions (Output) with 6" Freeboard	
Flowrate from Manning Equation (cfs)	7.78
Resulting Flow Depth (ft)	1.00
Resulting Flow Velocity (ft/s)	5.19
Resulting Flow Width at Top (ft)	3.00
Resulting Flow Area (ft^2)	1.50
Resulting Wetted Perimeter (ft)	3.61
Resulting Hydraulic Radius (ft)	0.42

Summary for Pond 2P: North Downchute - Upper Bench

[57] Hint: Peaked at 0.63' (Flood elevation advised)

Inflow Area =	0.290 ac,	0.00% Impervious,	Inflow Depth >	2.92"	for Model City 25yr event
Inflow =	1.39 cfs @	11.97 hrs,	Volume=	0.071 af	
Outflow =	1.39 cfs @	11.97 hrs,	Volume=	0.071 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.39 cfs @	11.97 hrs,	Volume=	0.071 af	

Routing by Stor-Ind method, Time Span= 5.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 0.63' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**12.0" x 220.0' long Culvert** CMP, end-section conforming to fill, Ke= 0.500 Outlet Invert= -22.00' S= 0.1000 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=1.35 cfs @ 11.97 hrs HW=0.61' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 1.35 cfs @ 2.67 fps)

Stage-Discharge for Pond 2P: North Downchute - Upper Bench

Elevation (feet)	Primary (cfs)
0.00	0.00
0.01	0.00
0.02	0.00
0.03	0.00
0.04	0.01
0.05	0.01
0.06	0.02
0.07	0.02
0.08	0.03
0.09	0.04
0.10	0.04
0.11	0.05
0.12	0.06
0.13	0.07
0.14	0.09
0.15	0.10
0.16	0.11
0.17	0.12
0.18	0.14
0.19	0.15
0.20	0.17
0.21	0.19
0.22	0.20
0.23	0.22
0.24	0.24
0.25	0.26
0.26	0.28
0.27	0.30
0.28	0.32
0.29	0.35
0.30	0.37
0.31	0.39
0.32	0.42
0.33	0.44
0.34	0.47
0.35	0.49
0.36	0.52
0.37	0.55
0.38	0.57
0.39	0.60
0.40	0.63
0.41	0.66
0.42	0.69
0.43	0.72
0.44	0.75
0.45	0.78
0.46	0.81
0.47	0.85
0.48	0.88
0.49	0.91
0.50	0.95
0.51	0.98
0.52	1.01
0.53	1.05
0.54	1.08
0.55	1.12
0.56	1.15
0.57	1.19
0.58	1.22
0.59	1.26
0.60	1.30
0.61	1.33
0.62	1.37
0.63	1.41
0.64	1.45
0.65	1.48
0.66	1.52
0.67	1.56
0.68	1.60
0.69	1.63
0.70	1.67
0.71	1.71
0.72	1.75
0.73	1.79
0.74	1.83
0.75	1.86
0.76	1.90
0.77	1.94
0.78	1.98
0.79	2.01
0.80	2.05
0.81	2.09
0.82	2.13
0.83	2.16
0.84	2.20
0.85	2.23
0.86	2.27
0.87	2.30
0.88	2.34
0.89	2.37
0.90	2.40
0.91	2.44
0.92	2.47
0.93	2.50
0.94	2.53
0.95	2.56
0.96	2.58
0.97	2.61
0.98	2.63
0.99	2.66
1.00	2.67

Summary for Pond 4P: North Downchute - Middle Bench

[57] Hint: Peaked at 0.91' (Flood elevation advised)

Inflow Area = 0.940 ac, 0.00% Impervious, Inflow Depth > 2.92" for Model City 25yr event
Inflow = 4.51 cfs @ 11.97 hrs, Volume= 0.229 af
Outflow = 4.51 cfs @ 11.97 hrs, Volume= 0.229 af, Atten= 0%, Lag= 0.0 min
Primary = 4.51 cfs @ 11.97 hrs, Volume= 0.229 af

Routing by Stor-Ind method, Time Span= 5.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 0.91' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**24.0" x 105.0' long Culvert** CMP, end-section conforming to fill, Ke= 0.500 Outlet Invert= -10.50' S= 0.1000 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=4.38 cfs @ 11.97 hrs HW=0.89' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 4.38 cfs @ 3.22 fps)

Stage-Discharge for Pond 4P: North Downchute - Middle Bench

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.52	1.59	1.04	5.73	1.56	11.18
0.01	0.00	0.53	1.65	1.05	5.83	1.57	11.29
0.02	0.00	0.54	1.71	1.06	5.93	1.58	11.39
0.03	0.01	0.55	1.77	1.07	6.02	1.59	11.50
0.04	0.01	0.56	1.83	1.08	6.12	1.60	11.60
0.05	0.02	0.57	1.90	1.09	6.22	1.61	11.71
0.06	0.02	0.58	1.96	1.10	6.32	1.62	11.81
0.07	0.03	0.59	2.03	1.11	6.42	1.63	11.92
0.08	0.04	0.60	2.09	1.12	6.52	1.64	12.02
0.09	0.05	0.61	2.16	1.13	6.62	1.65	12.12
0.10	0.06	0.62	2.22	1.14	6.72	1.66	12.23
0.11	0.08	0.63	2.29	1.15	6.83	1.67	12.33
0.12	0.09	0.64	2.36	1.16	6.93	1.68	12.43
0.13	0.11	0.65	2.43	1.17	7.03	1.69	12.53
0.14	0.12	0.66	2.50	1.18	7.13	1.70	12.63
0.15	0.14	0.67	2.57	1.19	7.24	1.71	12.73
0.16	0.16	0.68	2.64	1.20	7.34	1.72	12.83
0.17	0.18	0.69	2.72	1.21	7.44	1.73	12.93
0.18	0.20	0.70	2.79	1.22	7.55	1.74	13.03
0.19	0.23	0.71	2.87	1.23	7.65	1.75	13.13
0.20	0.25	0.72	2.94	1.24	7.76	1.76	13.23
0.21	0.27	0.73	3.02	1.25	7.86	1.77	13.32
0.22	0.30	0.74	3.09	1.26	7.97	1.78	13.42
0.23	0.33	0.75	3.17	1.27	8.07	1.79	13.51
0.24	0.36	0.76	3.25	1.28	8.18	1.80	13.60
0.25	0.39	0.77	3.33	1.29	8.29	1.81	13.70
0.26	0.42	0.78	3.41	1.30	8.39	1.82	13.79
0.27	0.45	0.79	3.49	1.31	8.50	1.83	13.88
0.28	0.48	0.80	3.57	1.32	8.60	1.84	13.97
0.29	0.52	0.81	3.66	1.33	8.71	1.85	14.05
0.30	0.55	0.82	3.74	1.34	8.82	1.86	14.14
0.31	0.59	0.83	3.82	1.35	8.93	1.87	14.22
0.32	0.62	0.84	3.91	1.36	9.03	1.88	14.31
0.33	0.66	0.85	3.99	1.37	9.14	1.89	14.39
0.34	0.70	0.86	4.08	1.38	9.25	1.90	14.47
0.35	0.74	0.87	4.17	1.39	9.36	1.91	14.55
0.36	0.79	0.88	4.25	1.40	9.46	1.92	14.62
0.37	0.83	0.89	4.34	1.41	9.57	1.93	14.70
0.38	0.87	0.90	4.43	1.42	9.68	1.94	14.77
0.39	0.92	0.91	4.52	1.43	9.79	1.95	14.84
0.40	0.96	0.92	4.61	1.44	9.89	1.96	14.90
0.41	1.01	0.93	4.70	1.45	10.00	1.97	14.97
0.42	1.06	0.94	4.79	1.46	10.11	1.98	15.03
0.43	1.11	0.95	4.88	1.47	10.22	1.99	15.08
0.44	1.16	0.96	4.97	1.48	10.32	2.00	**15.13**
0.45	1.21	0.97	5.07	1.49	10.43		
0.46	1.26	0.98	5.16	1.50	10.54		
0.47	1.31	0.99	5.25	1.51	10.65		
0.48	1.37	1.00	5.35	1.52	10.75		
0.49	1.42	1.01	5.44	1.53	10.86		
0.50	1.48	1.02	5.54	1.54	10.97		
0.51	1.54	1.03	5.64	1.55	11.07		

Summary for Pond 7P: North Downchute - Header

[57] Hint: Peaked at 1.22' (Flood elevation advised)
[81] Warning: Exceeded Pond 2P by 0.59' @ 11.95 hrs
[81] Warning: Exceeded Pond 4P by 0.31' @ 11.95 hrs

Inflow Area =	1.230 ac,	0.00% Impervious,	Inflow Depth >	2.92"	for Model City 25yr event
Inflow =	5.90 cfs @	11.97 hrs, Volume=	0.299 af		
Outflow =	5.90 cfs @	11.97 hrs, Volume=	0.299 af,	Atten= 0%,	Lag= 0.0 min
Primary =	5.90 cfs @	11.97 hrs, Volume=	0.299 af		

Routing by Stor-Ind method, Time Span= 5.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 1.22' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**30.0" x 15.0' long Culvert** Ke= 0.010 Outlet Invert= -0.04' S= 0.0027 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=5.73 cfs @ 11.97 hrs HW=1.20' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 5.73 cfs @ 3.58 fps)

Stage-Discharge for Pond 7P: North Downchute - Header

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.52	0.96	1.04	4.25	1.56	9.52
0.01	0.00	0.53	1.00	1.05	4.34	1.57	9.63
0.02	0.00	0.54	1.04	1.06	4.42	1.58	9.75
0.03	0.00	0.55	1.09	1.07	4.51	1.59	9.87
0.04	0.00	0.56	1.13	1.08	4.60	1.60	9.99
0.05	0.00	0.57	1.18	1.09	4.68	1.61	10.10
0.06	0.01	0.58	1.22	1.10	4.77	1.62	10.22
0.07	0.01	0.59	1.27	1.11	4.86	1.63	10.34
0.08	0.01	0.60	1.32	1.12	4.95	1.64	10.46
0.09	0.02	0.61	1.36	1.13	5.04	1.65	10.58
0.10	0.02	0.62	1.41	1.14	5.13	1.66	10.70
0.11	0.03	0.63	1.46	1.15	5.22	1.67	10.82
0.12	0.03	0.64	1.52	1.16	5.31	1.68	10.95
0.13	0.04	0.65	1.57	1.17	5.41	1.69	11.07
0.14	0.05	0.66	1.62	1.18	5.50	1.70	11.19
0.15	0.06	0.67	1.68	1.19	5.60	1.71	11.31
0.16	0.06	0.68	1.73	1.20	5.69	1.72	11.44
0.17	0.07	0.69	1.79	1.21	5.79	1.73	11.56
0.18	0.08	0.70	1.84	1.22	5.88	1.74	11.68
0.19	0.10	0.71	1.90	1.23	5.98	1.75	11.81
0.20	0.11	0.72	1.96	1.24	6.08	1.76	11.93
0.21	0.12	0.73	2.02	1.25	6.18	1.77	12.06
0.22	0.13	0.74	2.08	1.26	6.27	1.78	12.18
0.23	0.15	0.75	2.14	1.27	6.37	1.79	12.31
0.24	0.17	0.76	2.20	1.28	6.47	1.80	12.44
0.25	0.18	0.77	2.26	1.29	6.57	1.81	12.56
0.26	0.20	0.78	2.33	1.30	6.68	1.82	12.69
0.27	0.22	0.79	2.39	1.31	6.78	1.83	12.82
0.28	0.24	0.80	2.45	1.32	6.88	1.84	12.94
0.29	0.26	0.81	2.52	1.33	6.98	1.85	13.07
0.30	0.28	0.82	2.59	1.34	7.09	1.86	13.20
0.31	0.30	0.83	2.65	1.35	7.19	1.87	13.33
0.32	0.32	0.84	2.72	1.36	7.30	1.88	13.46
0.33	0.34	0.85	2.79	1.37	7.40	1.89	13.59
0.34	0.37	0.86	2.86	1.38	7.51	1.90	13.72
0.35	0.39	0.87	2.93	1.39	7.62	1.91	13.85
0.36	0.42	0.88	3.00	1.40	7.72	1.92	13.98
0.37	0.45	0.89	3.08	1.41	7.83	1.93	14.11
0.38	0.47	0.90	3.15	1.42	7.94	1.94	14.24
0.39	0.50	0.91	3.22	1.43	8.05	1.95	14.37
0.40	0.53	0.92	3.30	1.44	8.16	1.96	14.50
0.41	0.56	0.93	3.37	1.45	8.27	1.97	14.63
0.42	0.59	0.94	3.45	1.46	8.38	1.98	14.76
0.43	0.63	0.95	3.53	1.47	8.49	1.99	14.89
0.44	0.66	0.96	3.60	1.48	8.60	2.00	15.03
0.45	0.69	0.97	3.68	1.49	8.72	2.01	15.16
0.46	0.73	0.98	3.76	1.50	8.83	2.02	15.29
0.47	0.77	0.99	3.84	1.51	8.94	2.03	15.42
0.48	0.80	1.00	3.92	1.52	9.06	2.04	15.56
0.49	0.84	1.01	4.00	1.53	9.17	2.05	15.69
0.50	0.88	1.02	4.09	1.54	9.29	2.06	15.82
0.51	0.92	1.03	4.17	1.55	9.40	2.07	15.96

Stage-Discharge for Pond 7P: North Downchute - Header (continued)

Elevation (feet)	Primary (cfs)
2.08	16.09
2.09	16.23
2.10	16.36
2.11	16.49
2.12	16.63
2.13	16.76
2.14	16.90
2.15	17.03
2.16	17.17
2.17	17.30
2.18	17.44
2.19	17.57
2.20	17.71
2.21	17.84
2.22	17.98
2.23	18.11
2.24	18.25
2.25	18.39
2.26	18.52
2.27	18.66
2.28	18.79
2.29	18.93
2.30	19.06
2.31	19.20
2.32	19.34
2.33	19.47
2.34	19.61
2.35	19.74
2.36	19.88
2.37	20.01
2.38	20.15
2.39	20.29
2.40	20.42
2.41	20.56
2.42	20.69
2.43	20.83
2.44	20.96
2.45	21.10
2.46	21.23
2.47	21.36
2.48	21.50
2.49	21.63
2.50	21.77

Diversion Berm

Channel Design (Input)	
Channel Depth (ft)	1.50
Base Width (ft)	0.00
Left Side Slope (x:1)	2.00
Right Side Slope (x:1)	3.00
Bed Slope	0.010
Manning "n"	0.016

Flow Conditions (Output) with 6" Freeboard	
Flowrate from Manning Equation (cfs)	13.94
Resulting Flow Depth (ft)	1.00
Resulting Flow Velocity (ft/s)	5.57
Resulting Flow Width at Top (ft)	5.00
Resulting Flow Area (ft^2)	2.50
Resulting Wetted Perimeter (ft)	5.40
Resulting Hydraulic Radius (ft)	0.46

ARCADIS

Attachment 6

Detention Basin Transition Analysis

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B0023726

Subject: Detention Basin Transition Analysis

Prepared By: PTO **Date:** October 2009

Reviewed By: BMS **Date:** October 2009

Checked By: BMS **Date:** October 2009

TASK

Demonstrate that proposed Detention Basins H and I provide sufficient capacity to manage the 25-year, 24-hour design storm during the transition from existing Detention Basin G. Determine the required storage capacity of the temporary retention area to be constructed upgradient of Detention Basin I.

REFERENCES

1. *Operations and Maintenance Manual For Residuals Management Unit-1*, dated September, 1997.

2. Proposed grading design for waste fill progression and capping for Cells 1 through 14 presented on Figure 1 entitled *Residuals Management Unit-1, Fill Progression and Truck Routes, Cells 1 Through 14 – Final Sequence Phase 2*, prepared by ARCADIS, dated October, 2009.

3. HydroCAD Software Solutions LLC. HydroCAD. Vers. 8.5. Computer Software. 2006. (Output attached).

4. Calculation sheet entitled *Infiltration Channel Routing Calculations (Cells 7/8, 9/10, 11/13, and 12/14)*, prepared by ARCADIS, dated March, 2009.

5. Calculation sheet entitled *Detention Basin Pump Through RMU-1 Lift Station to OWS Building*, prepared by ARCADIS, dated October, 2009.

6. Calculation sheet entitled *Detention Basin H and I Storage Capacity*, prepared by ARCADIS, dated October 2009.

7. Calculation sheet entitled *Detention Basin G Storage Capacity*, prepared by ARCADIS, dated December 2007.

ASSUMPTIONS

1. Proposed Detention Basins H and I will be constructed by building a dividing berm within existing Detention Basin G. The capacity of existing Detention Basin G has been found to be sufficient to manage runoff from its tributary watershed (Reference 7). The capacities of proposed Detention Basins H and I, once fully constructed, has been found to be sufficient to manage runoff from their tributary watersheds (Reference 6). During the transition from existing Detention Basin G to proposed Detention Basins H and I, the construction of the dividing berm will reduce the capacity of existing Detention Basin G. Additionally, in the early stages of berm construction, the berm top

Calculation Sheet

elevation will not be sufficiently high to allow proposed Detention Basin I to store liquid at elevations above the maximum allowable value for existing Detention Basin G. The degree to which the berm construction affects stormwater storage capacity varies over time.

For the purposes of this evaluation, a worst-case period is expected to occur when the top of the dividing berm reaches approximately elevation 330.0. At that elevation, nearly all of the berm fill is below the maximum allowable liquid elevation of 329.09 (based on the lowest liner crest elevation of 330.09 in the south perimeter channel) and the maximum liquid elevation in Detention Basin I is still limited to 329.09. Beyond this elevation, the containment capacity of Detention Basin I will continue to increase with each incremental rise in the berm elevation because the allowable liquid elevation in the basin will continue to rise with additional berm construction.

2. Prior to transitioning from existing Detention Basin G to proposed Detention Basins H and I, approximately 7.1 acres of new final cover will be installed. The approximate limits of this Phase VII final cover area are depicted on Reference 2.

3. Prior to transitioning from existing Detention Basin G to proposed Detention Basins H and I, a temporary retention area will be constructed upgradient of proposed Detention Basin I to mitigate the temporary loss of basin capacity associated with the construction of the berm dividing proposed Detention Basins H and I. The temporary retention area receives inflow from the upgradient tributary watershed. Liquids collected in the temporary retention area will normally be removed by pumping into the primary leachate forcemain, similar to the detention basins. If necessary, runoff in excess of the storage capacity of the temporary retention area will overflow into Detention Basin I via a weir at the north end of the temporary retention area.

4. Tributary watersheds to proposed Detention Basins H and I are depicted on a watershed area map included as an attachment to this calculation. The watersheds are based on the construction of the Phase VII final cover area (Assumption 2) and the predicted interim grading for the dividing berm during the worst-case period of the basin transition.

5. Proposed Detention Basin H receives inflow from its tributary watershed, as well as through open channel flow from the south perimeter channel and through culvert flow (via culvert CV-2) from the east perimeter channel. The aforementioned perimeter channels are routed in a manner that is consistent with Reference 4 and infiltration to the landfill cells is considered. Consequently, stormwater runoff reaching proposed Detention Basin H is reduced by infiltration that occurs in the south and east perimeter channels. Primary outflow from proposed Detention Basin H occurs at approximately 33 gpm via Pump 1, as discussed in Reference 6, whenever the basin liquid elevation is greater than or equal to 323.31 feet (i.e., 1 foot above basin low point).

6. Proposed Detention Basin I receives inflow from its tributary watershed that cannot be contained in the upgradient temporary retention area. An overflow weir will be constructed in the containment wall of the temporary retention area to allow controlled outflow once liquid elevations in the temporary retention area reach elevation 337.00. Outflow from proposed Detention Basin I is zero for the duration of the design storm.

7. A minimum 1 foot of freeboard (vertical distance between the estimated peak liquid elevations within the basins and the lowest lined crest elevations of the basins' berms) must be provided for the design storm.

Calculation Sheet

8. Detention basin hydraulic conditions are determined based on two initial conditions:

   - No liquid in the basins and retention area prior to the beginning of the design storm.
   - 1 foot of liquid in the basins above the basin low points prior to the beginning of the design storm.

9. Detention Basins H and I are lined to an elevation of 330.09 (based on the lowest liner crest elevation in the south perimeter channel). The temporary retention area is lined to an elevation of 339.10.

METHODOLOGY

The methodology used to determine the stormwater runoff (leachate) conditions into proposed Detention Basins H and I in this evaluation is based on that presented in Reference 6. Refer to Reference 6 for additional detail regarding the methodology.

CALCULATIONS

1. Stormwater Runoff Hydrographs for Detention Basin Watersheds

Table 1 below summarizes the hydrologic parameters for the tributary watershed that drains directly to proposed Detention Basin H and the resulting stormwater runoff conditions into the basin from the tributary watershed.

Table 1

Watershed Area (acres)	Runoff Curve Number	Time of Concentration (hr)	Runoff (in)	Estimated Peak Discharge into Basin (cfs)	Total Stormwater Runoff Volume (cu. ft.)
1.00	90	0.1	2.92	4.95	10,585

Table 2 below summarizes the hydrologic parameters for the tributary watershed that drains directly to the temporary retention area and proposed Detention Basin I as well as the resulting stormwater runoff conditions into the basin from the tributary watershed.

Table 2

Watershed Area (acres)	Runoff Curve Number	Time of Concentration (hr)	Runoff (in)	Estimated Peak Discharge into Basin (cfs)	Total Stormwater Runoff Volume (cu. ft.)
11.61	90	0.1	2.92	57.45	123,013

It should be noted that the watershed times of concentration and estimated peak discharges for the tributary areas to proposed Detention Basins H and I are presented to maintain consistency with previous LLCP evaluations. The total stormwater runoff volume for each watershed is dependent only on the amount of precipitation, watershed acreage and runoff curve number and is independent of the watershed time of concentration. The runoff hydrographs for the tributary areas to proposed Detention Basins H and I are included as an attachment to this calculation.

Calculation Sheet

2. Detention Basin H Routing and Peak Liquid Elevations

A rating curve is used to route the various inflows to proposed Detention Basin H. The results of the routing procedure, including peak liquid elevations, for each initial condition are presented in Table 3 below.

Table 3

Starting Liquid El. (ft)	Peak Inflow[1] (cfs)	Peak Outflow (cfs)	Peak Liquid El. (ft)	Lowest Lined Crest El. (ft)	Freeboard (ft)
322.31 (Basin Floor)	14.25	0.07	327.46	330.09	2.63
323.31 (1 Foot Above Basin Floor)	14.25	0.07	327.46		2.63

Notes:
1. Peak inflow is a composite value including direct contribution from the tributary watershed and gravity drainage from the south and east perimeter channels respectively.

3. Detention Basin I Routing and Peak Liquid Elevations

Routing to proposed Detention Basin I is based on the direct watershed contribution, and the contribution from weir flow from the temporary retention area. The results of the routing procedure, including peak liquid elevations, for each initial condition are presented in Table 4 below.

Table 4

Starting Liquid El. (ft)	Peak Inflow[1] (cfs)	Peak Liquid El. (ft)	Lowest Lined Crest El. (ft)	Freeboard (ft)
319.00 (Basin Floor)	53.86	328.55	330.09	1.54
320.00 (1 Foot Above Basin Floor)	53.86	328.75		1.34

Notes:
1. Peak inflow is a composite value including direct contribution from the tributary watershed and weir flow from the temporary retention area.

4. Temporary Retention Area Routing and Peak Liquid Elevations

The results of the routing procedure for the temporary retention area including peak liquid elevations for each initial condition are presented in Table 5 below.

Calculation Sheet

Table 5

Starting Liquid El. (ft)	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Liquid El. (ft)	Weir Crest Elevation (ft)	Storage Capacity Below Weir Crest Elevation (Including Lowest 1 ft) (Cu. Ft)
333.00 (Retention Area Floor)	57.45	53.86	338.09	337.00	16,553
334.00 (1 Foot Above Retention Area Floor)	57.45	53.86	338.09		

The minimum required storage for the temporary retention area is determined by comparing the stormwater runoff volume for the Basin I watershed (123,013 cu. ft) to the usable Basin I storage capacity (113,256 cu. ft). The Basin I usable storage capacity is determined based on a maximum allowable liquid elevation of 329.09 and allowing for 1-foot of liquid in the basin at the beginning of the storm event. The resulting minimum required capacity for the temporary retention area is 9,757 cu. Ft, excluding the volume within the lowermost 1-foot of retention area.

SUMMARY

Based on the assumptions and calculations presented above, proposed Detention Basins H and I provide sufficient storage to contain stormwater runoff from the 25-year, 24-hour storm event during the worst-case basin transition grading period. The temporary retention area to be constructed upgradient of proposed Detention Basin I must provide a minimum storage capacity of 9,757 cu. ft to the invert of the overflow weir (elevation 337.00).

ARCADIS

Stormwater Runoff
Hydrographs

Basin H

Summary for Subcatchment 30S: Direct flow to Basin H

Runoff = 4.95 cfs @ 11.97 hrs, Volume= 0.243 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	1.000	90	
	1.000		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Hydrograph for Subcatchment 30S: Direct flow to Basin H

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	5.30	0.27	0.00	0.00
0.10	0.00	0.00	0.00	5.40	0.28	0.00	0.01
0.20	0.01	0.00	0.00	5.50	0.28	0.00	0.01
0.30	0.01	0.00	0.00	5.60	0.29	0.00	0.01
0.40	0.02	0.00	0.00	5.70	0.30	0.00	0.01
0.50	0.02	0.00	0.00	5.80	0.31	0.01	0.01
0.60	0.02	0.00	0.00	5.90	0.31	0.01	0.01
0.70	0.03	0.00	0.00	6.00	0.32	0.01	0.01
0.80	0.03	0.00	0.00	6.10	0.33	0.01	0.01
0.90	0.04	0.00	0.00	6.20	0.33	0.01	0.01
1.00	0.04	0.00	0.00	6.30	0.34	0.01	0.01
1.10	0.05	0.00	0.00	6.40	0.35	0.01	0.01
1.20	0.05	0.00	0.00	6.50	0.36	0.01	0.01
1.30	0.06	0.00	0.00	6.60	0.36	0.02	0.02
1.40	0.06	0.00	0.00	6.70	0.37	0.02	0.02
1.50	0.06	0.00	0.00	6.80	0.38	0.02	0.02
1.60	0.07	0.00	0.00	6.90	0.39	0.02	0.02
1.70	0.07	0.00	0.00	7.00	0.40	0.02	0.02
1.80	0.08	0.00	0.00	7.10	0.40	0.03	0.02
1.90	0.08	0.00	0.00	7.20	0.41	0.03	0.02
2.00	0.09	0.00	0.00	7.30	0.42	0.03	0.02
2.10	0.09	0.00	0.00	7.40	0.43	0.03	0.02
2.20	0.10	0.00	0.00	7.50	0.44	0.03	0.02
2.30	0.10	0.00	0.00	7.60	0.45	0.04	0.03
2.40	0.11	0.00	0.00	7.70	0.45	0.04	0.03
2.50	0.11	0.00	0.00	7.80	0.46	0.04	0.03
2.60	0.12	0.00	0.00	7.90	0.47	0.05	0.03
2.70	0.12	0.00	0.00	8.00	0.48	0.05	0.03
2.80	0.13	0.00	0.00	8.10	0.49	0.05	0.03
2.90	0.13	0.00	0.00	8.20	0.50	0.05	0.03
3.00	0.14	0.00	0.00	8.30	0.51	0.06	0.03
3.10	0.14	0.00	0.00	8.40	0.52	0.06	0.04
3.20	0.15	0.00	0.00	8.50	0.53	0.07	0.04
3.30	0.15	0.00	0.00	8.60	0.54	0.07	0.04
3.40	0.16	0.00	0.00	8.70	0.55	0.08	0.04
3.50	0.16	0.00	0.00	8.80	0.56	0.08	0.05
3.60	0.17	0.00	0.00	8.90	0.58	0.09	0.05
3.70	0.18	0.00	0.00	9.00	0.59	0.09	0.05
3.80	0.18	0.00	0.00	9.10	0.60	0.10	0.06
3.90	0.19	0.00	0.00	9.20	0.61	0.10	0.06
4.00	0.19	0.00	0.00	9.30	0.63	0.11	0.06
4.10	0.20	0.00	0.00	9.40	0.64	0.11	0.06
4.20	0.20	0.00	0.00	9.50	0.65	0.12	0.06
4.30	0.21	0.00	0.00	9.60	0.67	0.13	0.06
4.40	0.22	0.00	0.00	9.70	0.68	0.13	0.07
4.50	0.22	0.00	0.00	9.80	0.69	0.14	0.07
4.60	0.23	0.00	0.00	9.90	0.71	0.15	0.08
4.70	0.23	0.00	0.00	10.00	0.72	0.16	0.08
4.80	0.24	0.00	0.00	10.10	0.74	0.16	0.09
4.90	0.25	0.00	0.00	10.20	0.76	0.17	0.09
5.00	0.25	0.00	0.00	10.30	0.78	0.18	0.10
5.10	0.26	0.00	0.00	10.40	0.80	0.20	0.11
5.20	0.26	0.00	0.00	10.50	0.82	0.21	0.11

Hydrograph for Subcatchment 30S: Direct flow to Basin H (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
10.60	0.84	0.22	0.12	15.90	3.51	2.46	0.09
10.70	0.86	0.23	0.13	16.00	3.52	2.47	0.09
10.80	0.89	0.25	0.15	16.10	3.53	2.48	0.09
10.90	0.91	0.26	0.16	16.20	3.54	2.48	0.09
11.00	0.94	0.28	0.17	16.30	3.55	2.49	0.08
11.10	0.97	0.30	0.19	16.40	3.56	2.50	0.08
11.20	1.01	0.32	0.21	16.50	3.56	2.51	0.08
11.30	1.04	0.35	0.24	16.60	3.57	2.52	0.08
11.40	1.09	0.38	0.27	16.70	3.58	2.52	0.08
11.50	1.13	0.41	0.31	16.80	3.59	2.53	0.08
11.60	1.23	0.48	0.48	16.90	3.60	2.54	0.08
11.70	1.42	0.62	1.11	17.00	3.61	2.55	0.08
11.80	1.72	0.86	1.93	17.10	3.62	2.56	0.08
11.90	2.27	1.33	**3.70**	17.20	3.62	2.56	0.08
12.00	2.65	1.67	**4.56**	17.30	3.63	2.57	0.08
12.10	2.73	1.74	1.38	17.40	3.64	2.58	0.07
12.20	2.79	1.80	0.70	17.50	3.65	2.59	0.07
12.30	2.85	1.85	0.56	17.60	3.65	2.59	0.07
12.40	2.90	1.89	0.48	17.70	3.66	2.60	0.07
12.50	2.94	1.93	0.40	17.80	3.67	2.61	0.07
12.60	2.97	1.96	0.33	17.90	3.68	2.61	0.07
12.70	3.01	1.99	0.30	18.00	3.68	2.62	0.07
12.80	3.04	2.02	0.28	18.10	3.69	2.63	0.07
12.90	3.06	2.04	0.26	18.20	3.70	2.63	0.07
13.00	3.09	2.07	0.24	18.30	3.71	2.64	0.07
13.10	3.11	2.09	0.23	18.40	3.71	2.65	0.07
13.20	3.13	2.11	0.22	18.50	3.72	2.65	0.06
13.30	3.16	2.13	0.21	18.60	3.73	2.66	0.06
13.40	3.18	2.15	0.20	18.70	3.73	2.67	0.06
13.50	3.20	2.16	0.19	18.80	3.74	2.67	0.06
13.60	3.21	2.18	0.18	18.90	3.74	2.68	0.06
13.70	3.23	2.20	0.17	19.00	3.75	2.68	0.06
13.80	3.25	2.21	0.16	19.10	3.76	2.69	0.06
13.90	3.26	2.23	0.15	19.20	3.76	2.70	0.06
14.00	3.28	2.24	0.15	19.30	3.77	2.70	0.06
14.10	3.29	2.26	0.14	19.40	3.77	2.71	0.06
14.20	3.31	2.27	0.14	19.50	3.78	2.71	0.06
14.30	3.32	2.28	0.13	19.60	3.79	2.72	0.05
14.40	3.34	2.30	0.13	19.70	3.79	2.72	0.05
14.50	3.35	2.31	0.13	19.80	3.80	2.73	0.05
14.60	3.36	2.32	0.13	19.90	3.80	2.73	0.05
14.70	3.38	2.33	0.12	20.00	3.81	2.74	0.05
14.80	3.39	2.34	0.12	20.10	3.81	2.74	0.05
14.90	3.40	2.36	0.12	20.20	3.82	2.75	0.05
15.00	3.41	2.37	0.12	20.30	3.82	2.75	0.05
15.10	3.43	2.38	0.11	20.40	3.83	2.76	0.05
15.20	3.44	2.39	0.11	20.50	3.83	2.76	0.05
15.30	3.45	2.40	0.11	20.60	3.84	2.77	0.05
15.40	3.46	2.41	0.10	20.70	3.84	2.77	0.05
15.50	3.47	2.42	0.10	20.80	3.85	2.78	0.05
15.60	3.48	2.43	0.10	20.90	3.85	2.78	0.05
15.70	3.49	2.44	0.10	21.00	3.86	2.79	0.05
15.80	3.50	2.45	0.09	21.10	3.86	2.79	0.05

Hydrograph for Subcatchment 30S: Direct flow to Basin H (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
21.20	3.87	2.80	0.05	26.50	4.00	2.92	0.00
21.30	3.87	2.80	0.05	26.60	4.00	2.92	0.00
21.40	3.88	2.80	0.05	26.70	4.00	2.92	0.00
21.50	3.88	2.81	0.05	26.80	4.00	2.92	0.00
21.60	3.89	2.81	0.05	26.90	4.00	2.92	0.00
21.70	3.89	2.82	0.05	27.00	4.00	2.92	0.00
21.80	3.90	2.82	0.05	27.10	4.00	2.92	0.00
21.90	3.90	2.83	0.05	27.20	4.00	2.92	0.00
22.00	3.91	2.83	0.05	27.30	4.00	2.92	0.00
22.10	3.91	2.84	0.05	27.40	4.00	2.92	0.00
22.20	3.92	2.84	0.05	27.50	4.00	2.92	0.00
22.30	3.92	2.85	0.05	27.60	4.00	2.92	0.00
22.40	3.93	2.85	0.05	27.70	4.00	2.92	0.00
22.50	3.93	2.85	0.05	27.80	4.00	2.92	0.00
22.60	3.94	2.86	0.04	27.90	4.00	2.92	0.00
22.70	3.94	2.86	0.04	28.00	4.00	2.92	0.00
22.80	3.95	2.87	0.04	28.10	4.00	2.92	0.00
22.90	3.95	2.87	0.04	28.20	4.00	2.92	0.00
23.00	3.95	2.88	0.04	28.30	4.00	2.92	0.00
23.10	3.96	2.88	0.04	28.40	4.00	2.92	0.00
23.20	3.96	2.89	0.04	28.50	4.00	2.92	0.00
23.30	3.97	2.89	0.04	28.60	4.00	2.92	0.00
23.40	3.97	2.89	0.04	28.70	4.00	2.92	0.00
23.50	3.98	2.90	0.04	28.80	4.00	2.92	0.00
23.60	3.98	2.90	0.04	28.90	4.00	2.92	0.00
23.70	3.99	2.91	0.04	29.00	4.00	2.92	0.00
23.80	3.99	2.91	0.04	29.10	4.00	2.92	0.00
23.90	4.00	2.92	0.04	29.20	4.00	2.92	0.00
24.00	**4.00**	**2.92**	0.04	29.30	4.00	2.92	0.00
24.10	4.00	2.92	0.01	29.40	4.00	2.92	0.00
24.20	4.00	2.92	0.00	29.50	4.00	2.92	0.00
24.30	4.00	2.92	0.00	29.60	4.00	2.92	0.00
24.40	4.00	2.92	0.00	29.70	4.00	2.92	0.00
24.50	4.00	2.92	0.00	29.80	4.00	2.92	0.00
24.60	4.00	2.92	0.00	29.90	4.00	2.92	0.00
24.70	4.00	2.92	0.00	30.00	4.00	2.92	0.00
24.80	4.00	2.92	0.00	30.10	4.00	2.92	0.00
24.90	4.00	2.92	0.00	30.20	4.00	2.92	0.00
25.00	4.00	2.92	0.00	30.30	4.00	2.92	0.00
25.10	4.00	2.92	0.00	30.40	4.00	2.92	0.00
25.20	4.00	2.92	0.00	30.50	4.00	2.92	0.00
25.30	4.00	2.92	0.00	30.60	4.00	2.92	0.00
25.40	4.00	2.92	0.00	30.70	4.00	2.92	0.00
25.50	4.00	2.92	0.00	30.80	4.00	2.92	0.00
25.60	4.00	2.92	0.00	30.90	4.00	2.92	0.00
25.70	4.00	2.92	0.00	31.00	4.00	2.92	0.00
25.80	4.00	2.92	0.00	31.10	4.00	2.92	0.00
25.90	4.00	2.92	0.00	31.20	4.00	2.92	0.00
26.00	4.00	2.92	0.00	31.30	4.00	2.92	0.00
26.10	4.00	2.92	0.00	31.40	4.00	2.92	0.00
26.20	4.00	2.92	0.00	31.50	4.00	2.92	0.00
26.30	4.00	2.92	0.00	31.60	4.00	2.92	0.00
26.40	4.00	2.92	0.00	31.70	4.00	2.92	0.00

Hydrograph for Subcatchment 30S: Direct flow to Basin H (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
31.80	4.00	2.92	0.00	37.10	4.00	2.92	0.00
31.90	4.00	2.92	0.00	37.20	4.00	2.92	0.00
32.00	4.00	2.92	0.00	37.30	4.00	2.92	0.00
32.10	4.00	2.92	0.00	37.40	4.00	2.92	0.00
32.20	4.00	2.92	0.00	37.50	4.00	2.92	0.00
32.30	4.00	2.92	0.00	37.60	4.00	2.92	0.00
32.40	4.00	2.92	0.00	37.70	4.00	2.92	0.00
32.50	4.00	2.92	0.00	37.80	4.00	2.92	0.00
32.60	4.00	2.92	0.00	37.90	4.00	2.92	0.00
32.70	4.00	2.92	0.00	38.00	4.00	2.92	0.00
32.80	4.00	2.92	0.00	38.10	4.00	2.92	0.00
32.90	4.00	2.92	0.00	38.20	4.00	2.92	0.00
33.00	4.00	2.92	0.00	38.30	4.00	2.92	0.00
33.10	4.00	2.92	0.00	38.40	4.00	2.92	0.00
33.20	4.00	2.92	0.00	38.50	4.00	2.92	0.00
33.30	4.00	2.92	0.00	38.60	4.00	2.92	0.00
33.40	4.00	2.92	0.00	38.70	4.00	2.92	0.00
33.50	4.00	2.92	0.00	38.80	4.00	2.92	0.00
33.60	4.00	2.92	0.00	38.90	4.00	2.92	0.00
33.70	4.00	2.92	0.00	39.00	4.00	2.92	0.00
33.80	4.00	2.92	0.00	39.10	4.00	2.92	0.00
33.90	4.00	2.92	0.00	39.20	4.00	2.92	0.00
34.00	4.00	2.92	0.00	39.30	4.00	2.92	0.00
34.10	4.00	2.92	0.00	39.40	4.00	2.92	0.00
34.20	4.00	2.92	0.00	39.50	4.00	2.92	0.00
34.30	4.00	2.92	0.00	39.60	4.00	2.92	0.00
34.40	4.00	2.92	0.00	39.70	4.00	2.92	0.00
34.50	4.00	2.92	0.00	39.80	4.00	2.92	0.00
34.60	4.00	2.92	0.00	39.90	4.00	2.92	0.00
34.70	4.00	2.92	0.00	40.00	4.00	2.92	0.00
34.80	4.00	2.92	0.00	40.10	4.00	2.92	0.00
34.90	4.00	2.92	0.00	40.20	4.00	2.92	0.00
35.00	4.00	2.92	0.00	40.30	4.00	2.92	0.00
35.10	4.00	2.92	0.00	40.40	4.00	2.92	0.00
35.20	4.00	2.92	0.00	40.50	4.00	2.92	0.00
35.30	4.00	2.92	0.00	40.60	4.00	2.92	0.00
35.40	4.00	2.92	0.00	40.70	4.00	2.92	0.00
35.50	4.00	2.92	0.00	40.80	4.00	2.92	0.00
35.60	4.00	2.92	0.00	40.90	4.00	2.92	0.00
35.70	4.00	2.92	0.00	41.00	4.00	2.92	0.00
35.80	4.00	2.92	0.00	41.10	4.00	2.92	0.00
35.90	4.00	2.92	0.00	41.20	4.00	2.92	0.00
36.00	4.00	2.92	0.00	41.30	4.00	2.92	0.00
36.10	4.00	2.92	0.00	41.40	4.00	2.92	0.00
36.20	4.00	2.92	0.00	41.50	4.00	2.92	0.00
36.30	4.00	2.92	0.00	41.60	4.00	2.92	0.00
36.40	4.00	2.92	0.00	41.70	4.00	2.92	0.00
36.50	4.00	2.92	0.00	41.80	4.00	2.92	0.00
36.60	4.00	2.92	0.00	41.90	4.00	2.92	0.00
36.70	4.00	2.92	0.00	42.00	4.00	2.92	0.00
36.80	4.00	2.92	0.00	42.10	4.00	2.92	0.00
36.90	4.00	2.92	0.00	42.20	4.00	2.92	0.00
37.00	4.00	2.92	0.00	42.30	4.00	2.92	0.00

Hydrograph for Subcatchment 30S: Direct flow to Basin H (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
42.40	4.00	2.92	0.00	47.70	4.00	2.92	0.00
42.50	4.00	2.92	0.00	47.80	4.00	2.92	0.00
42.60	4.00	2.92	0.00	47.90	4.00	2.92	0.00
42.70	4.00	2.92	0.00	48.00	4.00	2.92	0.00
42.80	4.00	2.92	0.00	48.10	4.00	2.92	0.00
42.90	4.00	2.92	0.00	48.20	4.00	2.92	0.00
43.00	4.00	2.92	0.00	48.30	4.00	2.92	0.00
43.10	4.00	2.92	0.00	48.40	4.00	2.92	0.00
43.20	4.00	2.92	0.00	48.50	4.00	2.92	0.00
43.30	4.00	2.92	0.00	48.60	4.00	2.92	0.00
43.40	4.00	2.92	0.00	48.70	4.00	2.92	0.00
43.50	4.00	2.92	0.00	48.80	4.00	2.92	0.00
43.60	4.00	2.92	0.00	48.90	4.00	2.92	0.00
43.70	4.00	2.92	0.00	49.00	4.00	2.92	0.00
43.80	4.00	2.92	0.00	49.10	4.00	2.92	0.00
43.90	4.00	2.92	0.00	49.20	4.00	2.92	0.00
44.00	4.00	2.92	0.00	49.30	4.00	2.92	0.00
44.10	4.00	2.92	0.00	49.40	4.00	2.92	0.00
44.20	4.00	2.92	0.00	49.50	4.00	2.92	0.00
44.30	4.00	2.92	0.00	49.60	4.00	2.92	0.00
44.40	4.00	2.92	0.00	49.70	4.00	2.92	0.00
44.50	4.00	2.92	0.00	49.80	4.00	2.92	0.00
44.60	4.00	2.92	0.00	49.90	4.00	2.92	0.00
44.70	4.00	2.92	0.00	50.00	4.00	2.92	0.00
44.80	4.00	2.92	0.00	50.10	4.00	2.92	0.00
44.90	4.00	2.92	0.00	50.20	4.00	2.92	0.00
45.00	4.00	2.92	0.00	50.30	4.00	2.92	0.00
45.10	4.00	2.92	0.00	50.40	4.00	2.92	0.00
45.20	4.00	2.92	0.00	50.50	4.00	2.92	0.00
45.30	4.00	2.92	0.00	50.60	4.00	2.92	0.00
45.40	4.00	2.92	0.00	50.70	4.00	2.92	0.00
45.50	4.00	2.92	0.00	50.80	4.00	2.92	0.00
45.60	4.00	2.92	0.00	50.90	4.00	2.92	0.00
45.70	4.00	2.92	0.00	51.00	4.00	2.92	0.00
45.80	4.00	2.92	0.00	51.10	4.00	2.92	0.00
45.90	4.00	2.92	0.00	51.20	4.00	2.92	0.00
46.00	4.00	2.92	0.00	51.30	4.00	2.92	0.00
46.10	4.00	2.92	0.00	51.40	4.00	2.92	0.00
46.20	4.00	2.92	0.00	51.50	4.00	2.92	0.00
46.30	4.00	2.92	0.00	51.60	4.00	2.92	0.00
46.40	4.00	2.92	0.00	51.70	4.00	2.92	0.00
46.50	4.00	2.92	0.00	51.80	4.00	2.92	0.00
46.60	4.00	2.92	0.00	51.90	4.00	2.92	0.00
46.70	4.00	2.92	0.00	52.00	4.00	2.92	0.00
46.80	4.00	2.92	0.00	52.10	4.00	2.92	0.00
46.90	4.00	2.92	0.00	52.20	4.00	2.92	0.00
47.00	4.00	2.92	0.00	52.30	4.00	2.92	0.00
47.10	4.00	2.92	0.00	52.40	4.00	2.92	0.00
47.20	4.00	2.92	0.00	52.50	4.00	2.92	0.00
47.30	4.00	2.92	0.00	52.60	4.00	2.92	0.00
47.40	4.00	2.92	0.00	52.70	4.00	2.92	0.00
47.50	4.00	2.92	0.00	52.80	4.00	2.92	0.00
47.60	4.00	2.92	0.00	52.90	4.00	2.92	0.00

Hydrograph for Subcatchment 30S: Direct flow to Basin H (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
53.00	4.00	2.92	0.00
53.10	4.00	2.92	0.00
53.20	4.00	2.92	0.00
53.30	4.00	2.92	0.00
53.40	4.00	2.92	0.00
53.50	4.00	2.92	0.00
53.60	4.00	2.92	0.00
53.70	4.00	2.92	0.00
53.80	4.00	2.92	0.00
53.90	4.00	2.92	0.00
54.00	4.00	2.92	0.00
54.10	4.00	2.92	0.00
54.20	4.00	2.92	0.00
54.30	4.00	2.92	0.00
54.40	4.00	2.92	0.00
54.50	4.00	2.92	0.00
54.60	4.00	2.92	0.00
54.70	4.00	2.92	0.00
54.80	4.00	2.92	0.00
54.90	4.00	2.92	0.00
55.00	4.00	2.92	0.00
55.10	4.00	2.92	0.00
55.20	4.00	2.92	0.00
55.30	4.00	2.92	0.00
55.40	4.00	2.92	0.00
55.50	4.00	2.92	0.00
55.60	4.00	2.92	0.00
55.70	4.00	2.92	0.00
55.80	4.00	2.92	0.00
55.90	4.00	2.92	0.00
56.00	4.00	2.92	0.00
56.10	4.00	2.92	0.00
56.20	4.00	2.92	0.00
56.30	4.00	2.92	0.00
56.40	4.00	2.92	0.00
56.50	4.00	2.92	0.00
56.60	4.00	2.92	0.00
56.70	4.00	2.92	0.00
56.80	4.00	2.92	0.00
56.90	4.00	2.92	0.00
57.00	4.00	2.92	0.00
57.10	4.00	2.92	0.00
57.20	4.00	2.92	0.00
57.30	4.00	2.92	0.00
57.40	4.00	2.92	0.00
57.50	4.00	2.92	0.00
57.60	4.00	2.92	0.00
57.70	4.00	2.92	0.00
57.80	4.00	2.92	0.00
57.90	4.00	2.92	0.00
58.00	4.00	2.92	0.00
58.10	4.00	2.92	0.00
58.20	4.00	2.92	0.00
58.30	4.00	2.92	0.00
58.40	4.00	2.92	0.00
58.50	4.00	2.92	0.00
58.60	4.00	2.92	0.00
58.70	4.00	2.92	0.00
58.80	4.00	2.92	0.00
58.90	4.00	2.92	0.00
59.00	4.00	2.92	0.00
59.10	4.00	2.92	0.00
59.20	4.00	2.92	0.00
59.30	4.00	2.92	0.00
59.40	4.00	2.92	0.00
59.50	4.00	2.92	0.00
59.60	4.00	2.92	0.00
59.70	4.00	2.92	0.00
59.80	4.00	2.92	0.00
59.90	4.00	2.92	0.00
60.00	4.00	2.92	0.00

Basin I

Summary for Subcatchment 118S: Direct Contribution to temporary retention area

Runoff = 57.45 cfs @ 11.97 hrs, Volume= 2.824 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	11.610	90	
	11.610		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Hydrograph for Subcatchment 118S: Direct Contribution to temporary retention area

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	5.30	0.27	0.00	0.06
0.10	0.00	0.00	0.00	5.40	0.28	0.00	0.07
0.20	0.01	0.00	0.00	5.50	0.28	0.00	0.07
0.30	0.01	0.00	0.00	5.60	0.29	0.00	0.08
0.40	0.02	0.00	0.00	5.70	0.30	0.00	0.09
0.50	0.02	0.00	0.00	5.80	0.31	0.01	0.10
0.60	0.02	0.00	0.00	5.90	0.31	0.01	0.11
0.70	0.03	0.00	0.00	6.00	0.32	0.01	0.12
0.80	0.03	0.00	0.00	6.10	0.33	0.01	0.13
0.90	0.04	0.00	0.00	6.20	0.33	0.01	0.14
1.00	0.04	0.00	0.00	6.30	0.34	0.01	0.15
1.10	0.05	0.00	0.00	6.40	0.35	0.01	0.16
1.20	0.05	0.00	0.00	6.50	0.36	0.01	0.17
1.30	0.06	0.00	0.00	6.60	0.36	0.02	0.18
1.40	0.06	0.00	0.00	6.70	0.37	0.02	0.19
1.50	0.06	0.00	0.00	6.80	0.38	0.02	0.20
1.60	0.07	0.00	0.00	6.90	0.39	0.02	0.22
1.70	0.07	0.00	0.00	7.00	0.40	0.02	0.23
1.80	0.08	0.00	0.00	7.10	0.40	0.03	0.24
1.90	0.08	0.00	0.00	7.20	0.41	0.03	0.25
2.00	0.09	0.00	0.00	7.30	0.42	0.03	0.26
2.10	0.09	0.00	0.00	7.40	0.43	0.03	0.27
2.20	0.10	0.00	0.00	7.50	0.44	0.03	0.28
2.30	0.10	0.00	0.00	7.60	0.45	0.04	0.29
2.40	0.11	0.00	0.00	7.70	0.45	0.04	0.31
2.50	0.11	0.00	0.00	7.80	0.46	0.04	0.32
2.60	0.12	0.00	0.00	7.90	0.47	0.05	0.33
2.70	0.12	0.00	0.00	8.00	0.48	0.05	0.34
2.80	0.13	0.00	0.00	8.10	0.49	0.05	0.36
2.90	0.13	0.00	0.00	8.20	0.50	0.05	0.38
3.00	0.14	0.00	0.00	8.30	0.51	0.06	0.41
3.10	0.14	0.00	0.00	8.40	0.52	0.06	0.43
3.20	0.15	0.00	0.00	8.50	0.53	0.07	0.46
3.30	0.15	0.00	0.00	8.60	0.54	0.07	0.49
3.40	0.16	0.00	0.00	8.70	0.55	0.08	0.52
3.50	0.16	0.00	0.00	8.80	0.56	0.08	0.55
3.60	0.17	0.00	0.00	8.90	0.58	0.09	0.58
3.70	0.18	0.00	0.00	9.00	0.59	0.09	0.62
3.80	0.18	0.00	0.00	9.10	0.60	0.10	0.65
3.90	0.19	0.00	0.00	9.20	0.61	0.10	0.67
4.00	0.19	0.00	0.00	9.30	0.63	0.11	0.68
4.10	0.20	0.00	0.00	9.40	0.64	0.11	0.69
4.20	0.20	0.00	0.00	9.50	0.65	0.12	0.71
4.30	0.21	0.00	0.00	9.60	0.67	0.13	0.73
4.40	0.22	0.00	0.00	9.70	0.68	0.13	0.77
4.50	0.22	0.00	0.00	9.80	0.69	0.14	0.82
4.60	0.23	0.00	0.00	9.90	0.71	0.15	0.88
4.70	0.23	0.00	0.01	10.00	0.72	0.16	0.93
4.80	0.24	0.00	0.01	10.10	0.74	0.16	0.99
4.90	0.25	0.00	0.02	10.20	0.76	0.17	1.07
5.00	0.25	0.00	0.03	10.30	0.78	0.18	1.15
5.10	0.26	0.00	0.04	10.40	0.80	0.20	1.23
5.20	0.26	0.00	0.05	10.50	0.82	0.21	1.32

Hydrograph for Subcatchment 118S: Direct Contribution to temporary retention area (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
10.60	0.84	0.22	1.42	15.90	3.51	2.46	1.07
10.70	0.86	0.23	1.55	16.00	3.52	2.47	1.04
10.80	0.89	0.25	1.69	16.10	3.53	2.48	1.01
10.90	0.91	0.26	1.83	16.20	3.54	2.48	1.00
11.00	0.94	0.28	1.98	16.30	3.55	2.49	0.99
11.10	0.97	0.30	2.18	16.40	3.56	2.50	0.98
11.20	1.01	0.32	2.48	16.50	3.56	2.51	0.97
11.30	1.04	0.35	2.83	16.60	3.57	2.52	0.95
11.40	1.09	0.38	3.19	16.70	3.58	2.52	0.94
11.50	1.13	0.41	3.56	16.80	3.59	2.53	0.93
11.60	1.23	0.48	5.56	16.90	3.60	2.54	0.92
11.70	1.42	0.62	12.91	17.00	3.61	2.55	0.91
11.80	1.72	0.86	22.43	17.10	3.62	2.56	0.90
11.90	2.27	1.33	**42.96**	17.20	3.62	2.56	0.89
12.00	2.65	1.67	**52.92**	17.30	3.63	2.57	0.88
12.10	2.73	1.74	16.06	17.40	3.64	2.58	0.87
12.20	2.79	1.80	8.10	17.50	3.65	2.59	0.86
12.30	2.85	1.85	6.56	17.60	3.65	2.59	0.85
12.40	2.90	1.89	5.59	17.70	3.66	2.60	0.84
12.50	2.94	1.93	4.63	17.80	3.67	2.61	0.82
12.60	2.97	1.96	3.82	17.90	3.68	2.61	0.81
12.70	3.01	1.99	3.51	18.00	3.68	2.62	0.80
12.80	3.04	2.02	3.28	18.10	3.69	2.63	0.79
12.90	3.06	2.04	3.06	18.20	3.70	2.63	0.78
13.00	3.09	2.07	2.84	18.30	3.71	2.64	0.77
13.10	3.11	2.09	2.64	18.40	3.71	2.65	0.76
13.20	3.13	2.11	2.51	18.50	3.72	2.65	0.75
13.30	3.16	2.13	2.39	18.60	3.73	2.66	0.74
13.40	3.18	2.15	2.27	18.70	3.73	2.67	0.73
13.50	3.20	2.16	2.15	18.80	3.74	2.67	0.72
13.60	3.21	2.18	2.04	18.90	3.74	2.68	0.71
13.70	3.23	2.20	1.95	19.00	3.75	2.68	0.69
13.80	3.25	2.21	1.86	19.10	3.76	2.69	0.68
13.90	3.26	2.23	1.78	19.20	3.76	2.70	0.67
14.00	3.28	2.24	1.69	19.30	3.77	2.70	0.66
14.10	3.29	2.26	1.62	19.40	3.77	2.71	0.65
14.20	3.31	2.27	1.58	19.50	3.78	2.71	0.64
14.30	3.32	2.28	1.55	19.60	3.79	2.72	0.63
14.40	3.34	2.30	1.52	19.70	3.79	2.72	0.62
14.50	3.35	2.31	1.49	19.80	3.80	2.73	0.61
14.60	3.36	2.32	1.46	19.90	3.80	2.73	0.60
14.70	3.38	2.33	1.43	20.00	3.81	2.74	0.58
14.80	3.39	2.34	1.40	20.10	3.81	2.74	0.58
14.90	3.40	2.36	1.37	20.20	3.82	2.75	0.57
15.00	3.41	2.37	1.34	20.30	3.82	2.75	0.57
15.10	3.43	2.38	1.31	20.40	3.83	2.76	0.57
15.20	3.44	2.39	1.28	20.50	3.83	2.76	0.57
15.30	3.45	2.40	1.25	20.60	3.84	2.77	0.56
15.40	3.46	2.41	1.22	20.70	3.84	2.77	0.56
15.50	3.47	2.42	1.19	20.80	3.85	2.78	0.56
15.60	3.48	2.43	1.16	20.90	3.85	2.78	0.56
15.70	3.49	2.44	1.13	21.00	3.86	2.79	0.56
15.80	3.50	2.45	1.10	21.10	3.86	2.79	0.55

Hydrograph for Subcatchment 118S: Direct Contribution to temporary retention area (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
21.20	3.87	2.80	0.55	26.50	4.00	2.92	0.00
21.30	3.87	2.80	0.55	26.60	4.00	2.92	0.00
21.40	3.88	2.80	0.55	26.70	4.00	2.92	0.00
21.50	3.88	2.81	0.54	26.80	4.00	2.92	0.00
21.60	3.89	2.81	0.54	26.90	4.00	2.92	0.00
21.70	3.89	2.82	0.54	27.00	4.00	2.92	0.00
21.80	3.90	2.82	0.54	27.10	4.00	2.92	0.00
21.90	3.90	2.83	0.54	27.20	4.00	2.92	0.00
22.00	3.91	2.83	0.53	27.30	4.00	2.92	0.00
22.10	3.91	2.84	0.53	27.40	4.00	2.92	0.00
22.20	3.92	2.84	0.53	27.50	4.00	2.92	0.00
22.30	3.92	2.85	0.53	27.60	4.00	2.92	0.00
22.40	3.93	2.85	0.53	27.70	4.00	2.92	0.00
22.50	3.93	2.85	0.52	27.80	4.00	2.92	0.00
22.60	3.94	2.86	0.52	27.90	4.00	2.92	0.00
22.70	3.94	2.86	0.52	28.00	4.00	2.92	0.00
22.80	3.95	2.87	0.52	28.10	4.00	2.92	0.00
22.90	3.95	2.87	0.51	28.20	4.00	2.92	0.00
23.00	3.95	2.88	0.51	28.30	4.00	2.92	0.00
23.10	3.96	2.88	0.51	28.40	4.00	2.92	0.00
23.20	3.96	2.89	0.51	28.50	4.00	2.92	0.00
23.30	3.97	2.89	0.51	28.60	4.00	2.92	0.00
23.40	3.97	2.89	0.50	28.70	4.00	2.92	0.00
23.50	3.98	2.90	0.50	28.80	4.00	2.92	0.00
23.60	3.98	2.90	0.50	28.90	4.00	2.92	0.00
23.70	3.99	2.91	0.50	29.00	4.00	2.92	0.00
23.80	3.99	2.91	0.49	29.10	4.00	2.92	0.00
23.90	4.00	2.92	0.49	29.20	4.00	2.92	0.00
24.00	**4.00**	**2.92**	0.49	29.30	4.00	2.92	0.00
24.10	4.00	2.92	0.17	29.40	4.00	2.92	0.00
24.20	4.00	2.92	0.01	29.50	4.00	2.92	0.00
24.30	4.00	2.92	0.00	29.60	4.00	2.92	0.00
24.40	4.00	2.92	0.00	29.70	4.00	2.92	0.00
24.50	4.00	2.92	0.00	29.80	4.00	2.92	0.00
24.60	4.00	2.92	0.00	29.90	4.00	2.92	0.00
24.70	4.00	2.92	0.00	30.00	4.00	2.92	0.00
24.80	4.00	2.92	0.00	30.10	4.00	2.92	0.00
24.90	4.00	2.92	0.00	30.20	4.00	2.92	0.00
25.00	4.00	2.92	0.00	30.30	4.00	2.92	0.00
25.10	4.00	2.92	0.00	30.40	4.00	2.92	0.00
25.20	4.00	2.92	0.00	30.50	4.00	2.92	0.00
25.30	4.00	2.92	0.00	30.60	4.00	2.92	0.00
25.40	4.00	2.92	0.00	30.70	4.00	2.92	0.00
25.50	4.00	2.92	0.00	30.80	4.00	2.92	0.00
25.60	4.00	2.92	0.00	30.90	4.00	2.92	0.00
25.70	4.00	2.92	0.00	31.00	4.00	2.92	0.00
25.80	4.00	2.92	0.00	31.10	4.00	2.92	0.00
25.90	4.00	2.92	0.00	31.20	4.00	2.92	0.00
26.00	4.00	2.92	0.00	31.30	4.00	2.92	0.00
26.10	4.00	2.92	0.00	31.40	4.00	2.92	0.00
26.20	4.00	2.92	0.00	31.50	4.00	2.92	0.00
26.30	4.00	2.92	0.00	31.60	4.00	2.92	0.00
26.40	4.00	2.92	0.00	31.70	4.00	2.92	0.00

Hydrograph for Subcatchment 118S: Direct Contribution to temporary retention area (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
31.80	4.00	2.92	0.00	37.10	4.00	2.92	0.00
31.90	4.00	2.92	0.00	37.20	4.00	2.92	0.00
32.00	4.00	2.92	0.00	37.30	4.00	2.92	0.00
32.10	4.00	2.92	0.00	37.40	4.00	2.92	0.00
32.20	4.00	2.92	0.00	37.50	4.00	2.92	0.00
32.30	4.00	2.92	0.00	37.60	4.00	2.92	0.00
32.40	4.00	2.92	0.00	37.70	4.00	2.92	0.00
32.50	4.00	2.92	0.00	37.80	4.00	2.92	0.00
32.60	4.00	2.92	0.00	37.90	4.00	2.92	0.00
32.70	4.00	2.92	0.00	38.00	4.00	2.92	0.00
32.80	4.00	2.92	0.00	38.10	4.00	2.92	0.00
32.90	4.00	2.92	0.00	38.20	4.00	2.92	0.00
33.00	4.00	2.92	0.00	38.30	4.00	2.92	0.00
33.10	4.00	2.92	0.00	38.40	4.00	2.92	0.00
33.20	4.00	2.92	0.00	38.50	4.00	2.92	0.00
33.30	4.00	2.92	0.00	38.60	4.00	2.92	0.00
33.40	4.00	2.92	0.00	38.70	4.00	2.92	0.00
33.50	4.00	2.92	0.00	38.80	4.00	2.92	0.00
33.60	4.00	2.92	0.00	38.90	4.00	2.92	0.00
33.70	4.00	2.92	0.00	39.00	4.00	2.92	0.00
33.80	4.00	2.92	0.00	39.10	4.00	2.92	0.00
33.90	4.00	2.92	0.00	39.20	4.00	2.92	0.00
34.00	4.00	2.92	0.00	39.30	4.00	2.92	0.00
34.10	4.00	2.92	0.00	39.40	4.00	2.92	0.00
34.20	4.00	2.92	0.00	39.50	4.00	2.92	0.00
34.30	4.00	2.92	0.00	39.60	4.00	2.92	0.00
34.40	4.00	2.92	0.00	39.70	4.00	2.92	0.00
34.50	4.00	2.92	0.00	39.80	4.00	2.92	0.00
34.60	4.00	2.92	0.00	39.90	4.00	2.92	0.00
34.70	4.00	2.92	0.00	40.00	4.00	2.92	0.00
34.80	4.00	2.92	0.00	40.10	4.00	2.92	0.00
34.90	4.00	2.92	0.00	40.20	4.00	2.92	0.00
35.00	4.00	2.92	0.00	40.30	4.00	2.92	0.00
35.10	4.00	2.92	0.00	40.40	4.00	2.92	0.00
35.20	4.00	2.92	0.00	40.50	4.00	2.92	0.00
35.30	4.00	2.92	0.00	40.60	4.00	2.92	0.00
35.40	4.00	2.92	0.00	40.70	4.00	2.92	0.00
35.50	4.00	2.92	0.00	40.80	4.00	2.92	0.00
35.60	4.00	2.92	0.00	40.90	4.00	2.92	0.00
35.70	4.00	2.92	0.00	41.00	4.00	2.92	0.00
35.80	4.00	2.92	0.00	41.10	4.00	2.92	0.00
35.90	4.00	2.92	0.00	41.20	4.00	2.92	0.00
36.00	4.00	2.92	0.00	41.30	4.00	2.92	0.00
36.10	4.00	2.92	0.00	41.40	4.00	2.92	0.00
36.20	4.00	2.92	0.00	41.50	4.00	2.92	0.00
36.30	4.00	2.92	0.00	41.60	4.00	2.92	0.00
36.40	4.00	2.92	0.00	41.70	4.00	2.92	0.00
36.50	4.00	2.92	0.00	41.80	4.00	2.92	0.00
36.60	4.00	2.92	0.00	41.90	4.00	2.92	0.00
36.70	4.00	2.92	0.00	42.00	4.00	2.92	0.00
36.80	4.00	2.92	0.00	42.10	4.00	2.92	0.00
36.90	4.00	2.92	0.00	42.20	4.00	2.92	0.00
37.00	4.00	2.92	0.00	42.30	4.00	2.92	0.00

Hydrograph for Subcatchment 118S: Direct Contribution to temporary retention area (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
42.40	4.00	2.92	0.00	47.70	4.00	2.92	0.00
42.50	4.00	2.92	0.00	47.80	4.00	2.92	0.00
42.60	4.00	2.92	0.00	47.90	4.00	2.92	0.00
42.70	4.00	2.92	0.00	48.00	4.00	2.92	0.00
42.80	4.00	2.92	0.00	48.10	4.00	2.92	0.00
42.90	4.00	2.92	0.00	48.20	4.00	2.92	0.00
43.00	4.00	2.92	0.00	48.30	4.00	2.92	0.00
43.10	4.00	2.92	0.00	48.40	4.00	2.92	0.00
43.20	4.00	2.92	0.00	48.50	4.00	2.92	0.00
43.30	4.00	2.92	0.00	48.60	4.00	2.92	0.00
43.40	4.00	2.92	0.00	48.70	4.00	2.92	0.00
43.50	4.00	2.92	0.00	48.80	4.00	2.92	0.00
43.60	4.00	2.92	0.00	48.90	4.00	2.92	0.00
43.70	4.00	2.92	0.00	49.00	4.00	2.92	0.00
43.80	4.00	2.92	0.00	49.10	4.00	2.92	0.00
43.90	4.00	2.92	0.00	49.20	4.00	2.92	0.00
44.00	4.00	2.92	0.00	49.30	4.00	2.92	0.00
44.10	4.00	2.92	0.00	49.40	4.00	2.92	0.00
44.20	4.00	2.92	0.00	49.50	4.00	2.92	0.00
44.30	4.00	2.92	0.00	49.60	4.00	2.92	0.00
44.40	4.00	2.92	0.00	49.70	4.00	2.92	0.00
44.50	4.00	2.92	0.00	49.80	4.00	2.92	0.00
44.60	4.00	2.92	0.00	49.90	4.00	2.92	0.00
44.70	4.00	2.92	0.00	50.00	4.00	2.92	0.00
44.80	4.00	2.92	0.00	50.10	4.00	2.92	0.00
44.90	4.00	2.92	0.00	50.20	4.00	2.92	0.00
45.00	4.00	2.92	0.00	50.30	4.00	2.92	0.00
45.10	4.00	2.92	0.00	50.40	4.00	2.92	0.00
45.20	4.00	2.92	0.00	50.50	4.00	2.92	0.00
45.30	4.00	2.92	0.00	50.60	4.00	2.92	0.00
45.40	4.00	2.92	0.00	50.70	4.00	2.92	0.00
45.50	4.00	2.92	0.00	50.80	4.00	2.92	0.00
45.60	4.00	2.92	0.00	50.90	4.00	2.92	0.00
45.70	4.00	2.92	0.00	51.00	4.00	2.92	0.00
45.80	4.00	2.92	0.00	51.10	4.00	2.92	0.00
45.90	4.00	2.92	0.00	51.20	4.00	2.92	0.00
46.00	4.00	2.92	0.00	51.30	4.00	2.92	0.00
46.10	4.00	2.92	0.00	51.40	4.00	2.92	0.00
46.20	4.00	2.92	0.00	51.50	4.00	2.92	0.00
46.30	4.00	2.92	0.00	51.60	4.00	2.92	0.00
46.40	4.00	2.92	0.00	51.70	4.00	2.92	0.00
46.50	4.00	2.92	0.00	51.80	4.00	2.92	0.00
46.60	4.00	2.92	0.00	51.90	4.00	2.92	0.00
46.70	4.00	2.92	0.00	52.00	4.00	2.92	0.00
46.80	4.00	2.92	0.00	52.10	4.00	2.92	0.00
46.90	4.00	2.92	0.00	52.20	4.00	2.92	0.00
47.00	4.00	2.92	0.00	52.30	4.00	2.92	0.00
47.10	4.00	2.92	0.00	52.40	4.00	2.92	0.00
47.20	4.00	2.92	0.00	52.50	4.00	2.92	0.00
47.30	4.00	2.92	0.00	52.60	4.00	2.92	0.00
47.40	4.00	2.92	0.00	52.70	4.00	2.92	0.00
47.50	4.00	2.92	0.00	52.80	4.00	2.92	0.00
47.60	4.00	2.92	0.00	52.90	4.00	2.92	0.00

Hydrograph for Subcatchment 118S: Direct Contribution to temporary retention area (continued)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
53.00	4.00	2.92	0.00
53.10	4.00	2.92	0.00
53.20	4.00	2.92	0.00
53.30	4.00	2.92	0.00
53.40	4.00	2.92	0.00
53.50	4.00	2.92	0.00
53.60	4.00	2.92	0.00
53.70	4.00	2.92	0.00
53.80	4.00	2.92	0.00
53.90	4.00	2.92	0.00
54.00	4.00	2.92	0.00
54.10	4.00	2.92	0.00
54.20	4.00	2.92	0.00
54.30	4.00	2.92	0.00
54.40	4.00	2.92	0.00
54.50	4.00	2.92	0.00
54.60	4.00	2.92	0.00
54.70	4.00	2.92	0.00
54.80	4.00	2.92	0.00
54.90	4.00	2.92	0.00
55.00	4.00	2.92	0.00
55.10	4.00	2.92	0.00
55.20	4.00	2.92	0.00
55.30	4.00	2.92	0.00
55.40	4.00	2.92	0.00
55.50	4.00	2.92	0.00
55.60	4.00	2.92	0.00
55.70	4.00	2.92	0.00
55.80	4.00	2.92	0.00
55.90	4.00	2.92	0.00
56.00	4.00	2.92	0.00
56.10	4.00	2.92	0.00
56.20	4.00	2.92	0.00
56.30	4.00	2.92	0.00
56.40	4.00	2.92	0.00
56.50	4.00	2.92	0.00
56.60	4.00	2.92	0.00
56.70	4.00	2.92	0.00
56.80	4.00	2.92	0.00
56.90	4.00	2.92	0.00
57.00	4.00	2.92	0.00
57.10	4.00	2.92	0.00
57.20	4.00	2.92	0.00
57.30	4.00	2.92	0.00
57.40	4.00	2.92	0.00
57.50	4.00	2.92	0.00
57.60	4.00	2.92	0.00
57.70	4.00	2.92	0.00
57.80	4.00	2.92	0.00
57.90	4.00	2.92	0.00
58.00	4.00	2.92	0.00
58.10	4.00	2.92	0.00
58.20	4.00	2.92	0.00
58.30	4.00	2.92	0.00
58.40	4.00	2.92	0.00
58.50	4.00	2.92	0.00
58.60	4.00	2.92	0.00
58.70	4.00	2.92	0.00
58.80	4.00	2.92	0.00
58.90	4.00	2.92	0.00
59.00	4.00	2.92	0.00
59.10	4.00	2.92	0.00
59.20	4.00	2.92	0.00
59.30	4.00	2.92	0.00
59.40	4.00	2.92	0.00
59.50	4.00	2.92	0.00
59.60	4.00	2.92	0.00
59.70	4.00	2.92	0.00
59.80	4.00	2.92	0.00
59.90	4.00	2.92	0.00
60.00	4.00	2.92	0.00

Initial Condition #1:
No Liquid in Basin at Beginning of Storm Event

Basin H

Summary for Pond 118P: Basin H

Inflow	=	14.25 cfs @	12.00 hrs, Volume=	0.556 af
Outflow	=	0.07 cfs @	8.87 hrs, Volume=	0.313 af, Atten= 99%, Lag= 0.0 min
Discarded	=	0.07 cfs @	8.87 hrs, Volume=	0.313 af
Primary	=	0.00 cfs @	0.00 hrs, Volume=	0.000 af
Secondary	=	0.00 cfs @	0.00 hrs, Volume=	0.000 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 327.46' @ 24.06 hrs Surf.Area= 0.190 ac Storage= 0.462 af

Plug-Flow detention time= 1,372.0 min calculated for 0.313 af (56% of inflow)
Center-of-Mass det. time= 1,281.2 min (2,064.9 - 783.7)

Volume	Invert	Avail.Storage	Storage Description
#1	322.31'	0.866 af	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
322.31	0.000	0.000	0.000
322.50	0.001	0.000	0.000
323.00	0.015	0.004	0.004
323.50	0.036	0.013	0.017
324.00	0.058	0.024	0.040
324.50	0.076	0.033	0.074
325.00	0.094	0.042	0.116
325.50	0.112	0.052	0.168
326.00	0.131	0.061	0.229
326.50	0.151	0.070	0.299
327.00	0.171	0.080	0.380
327.50	0.192	0.091	0.470
328.00	0.214	0.101	0.572
328.50	0.284	0.125	0.696
329.00	0.396	0.170	0.866

Device	Routing	Invert	Outlet Devices
#1	Primary	327.48'	**Outflow to South Channel** Elev. (feet) 327.48 328.00 328.25 328.50 328.75 329.00 329.25 329.50 329.75 330.00 Disch. (cfs) 0.000 0.000 0.310 1.770 4.890 10.030 17.520 27.640 40.640 56.750
#2	Discarded	322.31'	**Pump 1** Elev. (feet) 322.31 323.30 323.31 324.00 325.00 326.00 327.00 328.00 329.00 Disch. (cfs) 0.000 0.000 0.074 0.074 0.074 0.074 0.074 0.074 0.074
#3	Secondary	322.31'	**Pump 2** Elev. (feet) 322.31 327.99 328.00 329.00 330.00 Disch. (cfs) 0.000 0.000 0.149 0.149 0.149

Discarded OutFlow Max=0.07 cfs @ 8.87 hrs HW=323.31' (Free Discharge)
↑—**2=Pump 1** (Custom Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=322.31' TW=327.48' (Dynamic Tailwater)
↑—**1=Outflow to South Channel** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=322.31' TW=319.00' (Dynamic Tailwater)
↑—**3=Pump 2** (Controls 0.00 cfs)

Hydrograph for Pond 118P: Basin H

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.012	323.31	**0.07**	**0.07**	**0.00**	**0.00**
0.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
0.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
0.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
0.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
5.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
5.20	0.01	0.012	323.30	0.01	0.01	0.00	0.00
5.40	0.01	0.012	323.30	0.01	0.01	0.00	0.00
5.60	0.01	0.012	323.30	0.01	0.01	0.00	0.00
5.80	0.02	0.012	323.30	0.02	0.02	0.00	0.00
6.00	0.02	0.012	323.30	0.02	0.02	0.00	0.00
6.20	0.02	0.012	323.30	0.02	0.02	0.00	0.00
6.40	0.03	0.012	323.30	0.02	0.02	0.00	0.00
6.60	0.03	0.012	323.30	0.03	0.03	0.00	0.00
6.80	0.03	0.012	323.30	0.03	0.03	0.00	0.00
7.00	0.04	0.012	323.30	0.04	0.04	0.00	0.00
7.20	0.04	0.012	323.31	0.04	0.04	0.00	0.00
7.40	0.04	0.012	323.31	0.04	0.04	0.00	0.00
7.60	0.05	0.012	323.31	0.05	0.05	0.00	0.00
7.80	0.05	0.012	323.31	0.05	0.05	0.00	0.00
8.00	0.05	0.012	323.31	0.05	0.05	0.00	0.00
8.20	0.06	0.012	323.31	0.06	0.06	0.00	0.00
8.40	0.07	0.012	323.31	0.07	0.07	0.00	0.00
8.60	0.08	0.012	323.31	0.07	0.07	0.00	0.00
8.80	0.09	0.012	323.32	0.07	0.07	0.00	0.00
9.00	0.10	0.012	323.33	0.07	0.07	0.00	0.00
9.20	0.11	0.013	323.35	0.07	0.07	0.00	0.00
9.40	0.11	0.014	323.37	0.07	0.07	0.00	0.00
9.60	0.12	0.014	323.39	0.07	0.07	0.00	0.00
9.80	0.13	0.015	323.43	0.07	0.07	0.00	0.00
10.00	0.15	0.016	323.47	0.07	0.07	0.00	0.00
10.20	0.17	0.017	323.51	0.07	0.07	0.00	0.00
10.40	0.20	0.019	323.55	0.07	0.07	0.00	0.00

Hydrograph for Pond 118P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
10.60	0.22	0.021	323.60	0.07	0.07	0.00	0.00
10.80	0.27	0.024	323.66	0.07	0.07	0.00	0.00
11.00	0.31	0.028	323.73	0.07	0.07	0.00	0.00
11.20	0.39	0.032	323.83	0.07	0.07	0.00	0.00
11.40	0.50	0.038	323.95	0.07	0.07	0.00	0.00
11.60	0.78	0.046	324.09	0.07	0.07	0.00	0.00
11.80	**4.26**	0.077	324.54	0.07	0.07	0.00	0.00
12.00	**13.34**	0.225	325.97	0.07	0.07	0.00	0.00
12.20	1.84	0.338	326.74	0.07	0.07	0.00	0.00
12.40	1.02	0.359	326.87	0.07	0.07	0.00	0.00
12.60	0.64	0.371	326.95	0.07	0.07	0.00	0.00
12.80	0.54	0.379	327.00	0.07	0.07	0.00	0.00
13.00	0.47	0.386	327.04	0.07	0.07	0.00	0.00
13.20	0.41	0.392	327.07	0.07	0.07	0.00	0.00
13.40	0.37	0.397	327.10	0.07	0.07	0.00	0.00
13.60	0.33	0.402	327.12	0.07	0.07	0.00	0.00
13.80	0.30	0.406	327.15	0.07	0.07	0.00	0.00
14.00	0.28	0.410	327.17	0.07	0.07	0.00	0.00
14.20	0.26	0.413	327.18	0.07	0.07	0.00	0.00
14.40	0.25	0.416	327.20	0.07	0.07	0.00	0.00
14.60	0.24	0.418	327.21	0.07	0.07	0.00	0.00
14.80	0.23	0.421	327.23	0.07	0.07	0.00	0.00
15.00	0.22	0.423	327.24	0.07	0.07	0.00	0.00
15.20	0.21	0.426	327.25	0.07	0.07	0.00	0.00
15.40	0.20	0.428	327.27	0.07	0.07	0.00	0.00
15.60	0.19	0.430	327.28	0.07	0.07	0.00	0.00
15.80	0.18	0.432	327.29	0.07	0.07	0.00	0.00
16.00	0.17	0.433	327.30	0.07	0.07	0.00	0.00
16.20	0.16	0.435	327.30	0.07	0.07	0.00	0.00
16.40	0.16	0.436	327.31	0.07	0.07	0.00	0.00
16.60	0.15	0.438	327.32	0.07	0.07	0.00	0.00
16.80	0.15	0.439	327.33	0.07	0.07	0.00	0.00
17.00	0.15	0.440	327.33	0.07	0.07	0.00	0.00
17.20	0.14	0.441	327.34	0.07	0.07	0.00	0.00
17.40	0.14	0.442	327.35	0.07	0.07	0.00	0.00
17.60	0.14	0.443	327.35	0.07	0.07	0.00	0.00
17.80	0.13	0.444	327.36	0.07	0.07	0.00	0.00
18.00	0.13	0.445	327.36	0.07	0.07	0.00	0.00
18.20	0.13	0.446	327.37	0.07	0.07	0.00	0.00
18.40	0.12	0.447	327.37	0.07	0.07	0.00	0.00
18.60	0.12	0.448	327.38	0.07	0.07	0.00	0.00
18.80	0.12	0.449	327.38	0.07	0.07	0.00	0.00
19.00	0.11	0.449	327.38	0.07	0.07	0.00	0.00
19.20	0.11	0.450	327.39	0.07	0.07	0.00	0.00
19.40	0.11	0.450	327.39	0.07	0.07	0.00	0.00
19.60	0.10	0.451	327.39	0.07	0.07	0.00	0.00
19.80	0.10	0.451	327.40	0.07	0.07	0.00	0.00
20.00	0.09	0.452	327.40	0.07	0.07	0.00	0.00
20.20	0.09	0.452	327.40	0.07	0.07	0.00	0.00
20.40	0.09	0.452	327.40	0.07	0.07	0.00	0.00
20.60	0.09	0.453	327.40	0.07	0.07	0.00	0.00
20.80	0.09	0.453	327.40	0.07	0.07	0.00	0.00
21.00	0.09	0.453	327.41	0.07	0.07	0.00	0.00

Hydrograph for Pond 118P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
21.20	0.09	0.453	327.41	0.07	0.07	0.00	0.00
21.40	0.09	0.454	327.41	0.07	0.07	0.00	0.00
21.60	0.09	0.454	327.41	0.07	0.07	0.00	0.00
21.80	0.09	0.454	327.41	0.07	0.07	0.00	0.00
22.00	0.09	0.454	327.41	0.07	0.07	0.00	0.00
22.20	0.09	0.454	327.41	0.07	0.07	0.00	0.00
22.40	0.08	0.455	327.41	0.07	0.07	0.00	0.00
22.60	0.08	0.455	327.41	0.07	0.07	0.00	0.00
22.80	0.08	0.455	327.42	0.07	0.07	0.00	0.00
23.00	0.08	0.455	327.42	0.07	0.07	0.00	0.00
23.20	0.08	0.455	327.42	0.07	0.07	0.00	0.00
23.40	0.08	0.455	327.42	0.07	0.07	0.00	0.00
23.60	0.08	0.456	327.42	0.07	0.07	0.00	0.00
23.80	0.08	0.456	327.42	0.07	0.07	0.00	0.00
24.00	0.08	**0.456**	**327.42**	0.07	0.07	0.00	0.00
24.20	0.01	**0.455**	**327.42**	0.07	0.07	0.00	0.00
24.40	0.00	0.454	327.41	0.07	0.07	0.00	0.00
24.60	0.00	0.453	327.40	0.07	0.07	0.00	0.00
24.80	0.00	0.452	327.40	0.07	0.07	0.00	0.00
25.00	0.00	0.450	327.39	0.07	0.07	0.00	0.00
25.20	0.00	0.449	327.38	0.07	0.07	0.00	0.00
25.40	0.00	0.448	327.38	0.07	0.07	0.00	0.00
25.60	0.00	0.447	327.37	0.07	0.07	0.00	0.00
25.80	0.00	0.445	327.36	0.07	0.07	0.00	0.00
26.00	0.00	0.444	327.36	0.07	0.07	0.00	0.00
26.20	0.00	0.443	327.35	0.07	0.07	0.00	0.00
26.40	0.00	0.442	327.34	0.07	0.07	0.00	0.00
26.60	0.00	0.441	327.34	0.07	0.07	0.00	0.00
26.80	0.00	0.439	327.33	0.07	0.07	0.00	0.00
27.00	0.00	0.438	327.32	0.07	0.07	0.00	0.00
27.20	0.00	0.437	327.32	0.07	0.07	0.00	0.00
27.40	0.00	0.436	327.31	0.07	0.07	0.00	0.00
27.60	0.00	0.434	327.30	0.07	0.07	0.00	0.00
27.80	0.00	0.433	327.30	0.07	0.07	0.00	0.00
28.00	0.00	0.432	327.29	0.07	0.07	0.00	0.00
28.20	0.00	0.431	327.28	0.07	0.07	0.00	0.00
28.40	0.00	0.430	327.28	0.07	0.07	0.00	0.00
28.60	0.00	0.428	327.27	0.07	0.07	0.00	0.00
28.80	0.00	0.427	327.26	0.07	0.07	0.00	0.00
29.00	0.00	0.426	327.26	0.07	0.07	0.00	0.00
29.20	0.00	0.425	327.25	0.07	0.07	0.00	0.00
29.40	0.00	0.423	327.24	0.07	0.07	0.00	0.00
29.60	0.00	0.422	327.24	0.07	0.07	0.00	0.00
29.80	0.00	0.421	327.23	0.07	0.07	0.00	0.00
30.00	0.00	0.420	327.22	0.07	0.07	0.00	0.00
30.20	0.00	0.419	327.21	0.07	0.07	0.00	0.00
30.40	0.00	0.417	327.21	0.07	0.07	0.00	0.00
30.60	0.00	0.416	327.20	0.07	0.07	0.00	0.00
30.80	0.00	0.415	327.19	0.07	0.07	0.00	0.00
31.00	0.00	0.414	327.19	0.07	0.07	0.00	0.00
31.20	0.00	0.412	327.18	0.07	0.07	0.00	0.00
31.40	0.00	0.411	327.17	0.07	0.07	0.00	0.00
31.60	0.00	0.410	327.17	0.07	0.07	0.00	0.00

Hydrograph for Pond 118P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
31.80	0.00	0.409	327.16	0.07	0.07	0.00	0.00
32.00	0.00	0.408	327.15	0.07	0.07	0.00	0.00
32.20	0.00	0.406	327.15	0.07	0.07	0.00	0.00
32.40	0.00	0.405	327.14	0.07	0.07	0.00	0.00
32.60	0.00	0.404	327.13	0.07	0.07	0.00	0.00
32.80	0.00	0.403	327.13	0.07	0.07	0.00	0.00
33.00	0.00	0.401	327.12	0.07	0.07	0.00	0.00
33.20	0.00	0.400	327.11	0.07	0.07	0.00	0.00
33.40	0.00	0.399	327.11	0.07	0.07	0.00	0.00
33.60	0.00	0.398	327.10	0.07	0.07	0.00	0.00
33.80	0.00	0.397	327.09	0.07	0.07	0.00	0.00
34.00	0.00	0.395	327.09	0.07	0.07	0.00	0.00
34.20	0.00	0.394	327.08	0.07	0.07	0.00	0.00
34.40	0.00	0.393	327.07	0.07	0.07	0.00	0.00
34.60	0.00	0.392	327.07	0.07	0.07	0.00	0.00
34.80	0.00	0.390	327.06	0.07	0.07	0.00	0.00
35.00	0.00	0.389	327.05	0.07	0.07	0.00	0.00
35.20	0.00	0.388	327.05	0.07	0.07	0.00	0.00
35.40	0.00	0.387	327.04	0.07	0.07	0.00	0.00
35.60	0.00	0.386	327.03	0.07	0.07	0.00	0.00
35.80	0.00	0.384	327.03	0.07	0.07	0.00	0.00
36.00	0.00	0.383	327.02	0.07	0.07	0.00	0.00
36.20	0.00	0.382	327.01	0.07	0.07	0.00	0.00
36.40	0.00	0.381	327.01	0.07	0.07	0.00	0.00
36.60	0.00	0.379	327.00	0.07	0.07	0.00	0.00
36.80	0.00	0.378	326.99	0.07	0.07	0.00	0.00
37.00	0.00	0.377	326.98	0.07	0.07	0.00	0.00
37.20	0.00	0.376	326.98	0.07	0.07	0.00	0.00
37.40	0.00	0.375	326.97	0.07	0.07	0.00	0.00
37.60	0.00	0.373	326.96	0.07	0.07	0.00	0.00
37.80	0.00	0.372	326.95	0.07	0.07	0.00	0.00
38.00	0.00	0.371	326.95	0.07	0.07	0.00	0.00
38.20	0.00	0.370	326.94	0.07	0.07	0.00	0.00
38.40	0.00	0.368	326.93	0.07	0.07	0.00	0.00
38.60	0.00	0.367	326.92	0.07	0.07	0.00	0.00
38.80	0.00	0.366	326.92	0.07	0.07	0.00	0.00
39.00	0.00	0.365	326.91	0.07	0.07	0.00	0.00
39.20	0.00	0.364	326.90	0.07	0.07	0.00	0.00
39.40	0.00	0.362	326.89	0.07	0.07	0.00	0.00
39.60	0.00	0.361	326.89	0.07	0.07	0.00	0.00
39.80	0.00	0.360	326.88	0.07	0.07	0.00	0.00
40.00	0.00	0.359	326.87	0.07	0.07	0.00	0.00
40.20	0.00	0.357	326.86	0.07	0.07	0.00	0.00
40.40	0.00	0.356	326.85	0.07	0.07	0.00	0.00
40.60	0.00	0.355	326.85	0.07	0.07	0.00	0.00
40.80	0.00	0.354	326.84	0.07	0.07	0.00	0.00
41.00	0.00	0.353	326.83	0.07	0.07	0.00	0.00
41.20	0.00	0.351	326.82	0.07	0.07	0.00	0.00
41.40	0.00	0.350	326.82	0.07	0.07	0.00	0.00
41.60	0.00	0.349	326.81	0.07	0.07	0.00	0.00
41.80	0.00	0.348	326.80	0.07	0.07	0.00	0.00
42.00	0.00	0.346	326.79	0.07	0.07	0.00	0.00
42.20	0.00	0.345	326.79	0.07	0.07	0.00	0.00

Hydrograph for Pond 118P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
42.40	0.00	0.344	326.78	0.07	0.07	0.00	0.00
42.60	0.00	0.343	326.77	0.07	0.07	0.00	0.00
42.80	0.00	0.342	326.76	0.07	0.07	0.00	0.00
43.00	0.00	0.340	326.76	0.07	0.07	0.00	0.00
43.20	0.00	0.339	326.75	0.07	0.07	0.00	0.00
43.40	0.00	0.338	326.74	0.07	0.07	0.00	0.00
43.60	0.00	0.337	326.73	0.07	0.07	0.00	0.00
43.80	0.00	0.335	326.73	0.07	0.07	0.00	0.00
44.00	0.00	0.334	326.72	0.07	0.07	0.00	0.00
44.20	0.00	0.333	326.71	0.07	0.07	0.00	0.00
44.40	0.00	0.332	326.70	0.07	0.07	0.00	0.00
44.60	0.00	0.331	326.70	0.07	0.07	0.00	0.00
44.80	0.00	0.329	326.69	0.07	0.07	0.00	0.00
45.00	0.00	0.328	326.68	0.07	0.07	0.00	0.00
45.20	0.00	0.327	326.67	0.07	0.07	0.00	0.00
45.40	0.00	0.326	326.66	0.07	0.07	0.00	0.00
45.60	0.00	0.324	326.66	0.07	0.07	0.00	0.00
45.80	0.00	0.323	326.65	0.07	0.07	0.00	0.00
46.00	0.00	0.322	326.64	0.07	0.07	0.00	0.00
46.20	0.00	0.321	326.63	0.07	0.07	0.00	0.00
46.40	0.00	0.320	326.63	0.07	0.07	0.00	0.00
46.60	0.00	0.318	326.62	0.07	0.07	0.00	0.00
46.80	0.00	0.317	326.61	0.07	0.07	0.00	0.00
47.00	0.00	0.316	326.60	0.07	0.07	0.00	0.00
47.20	0.00	0.315	326.60	0.07	0.07	0.00	0.00
47.40	0.00	0.313	326.59	0.07	0.07	0.00	0.00
47.60	0.00	0.312	326.58	0.07	0.07	0.00	0.00
47.80	0.00	0.311	326.57	0.07	0.07	0.00	0.00
48.00	0.00	0.310	326.57	0.07	0.07	0.00	0.00
48.20	0.00	0.309	326.56	0.07	0.07	0.00	0.00
48.40	0.00	0.307	326.55	0.07	0.07	0.00	0.00
48.60	0.00	0.306	326.54	0.07	0.07	0.00	0.00
48.80	0.00	0.305	326.54	0.07	0.07	0.00	0.00
49.00	0.00	0.304	326.53	0.07	0.07	0.00	0.00
49.20	0.00	0.302	326.52	0.07	0.07	0.00	0.00
49.40	0.00	0.301	326.51	0.07	0.07	0.00	0.00
49.60	0.00	0.300	326.51	0.07	0.07	0.00	0.00
49.80	0.00	0.299	326.50	0.07	0.07	0.00	0.00
50.00	0.00	0.297	326.49	0.07	0.07	0.00	0.00
50.20	0.00	0.296	326.48	0.07	0.07	0.00	0.00
50.40	0.00	0.295	326.47	0.07	0.07	0.00	0.00
50.60	0.00	0.294	326.46	0.07	0.07	0.00	0.00
50.80	0.00	0.293	326.45	0.07	0.07	0.00	0.00
51.00	0.00	0.291	326.45	0.07	0.07	0.00	0.00
51.20	0.00	0.290	326.44	0.07	0.07	0.00	0.00
51.40	0.00	0.289	326.43	0.07	0.07	0.00	0.00
51.60	0.00	0.288	326.42	0.07	0.07	0.00	0.00
51.80	0.00	0.286	326.41	0.07	0.07	0.00	0.00
52.00	0.00	0.285	326.40	0.07	0.07	0.00	0.00
52.20	0.00	0.284	326.39	0.07	0.07	0.00	0.00
52.40	0.00	0.283	326.38	0.07	0.07	0.00	0.00
52.60	0.00	0.282	326.38	0.07	0.07	0.00	0.00
52.80	0.00	0.280	326.37	0.07	0.07	0.00	0.00

Hydrograph for Pond 118P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
53.00	0.00	0.279	326.36	0.07	0.07	0.00	0.00
53.20	0.00	0.278	326.35	0.07	0.07	0.00	0.00
53.40	0.00	0.277	326.34	0.07	0.07	0.00	0.00
53.60	0.00	0.275	326.33	0.07	0.07	0.00	0.00
53.80	0.00	0.274	326.32	0.07	0.07	0.00	0.00
54.00	0.00	0.273	326.32	0.07	0.07	0.00	0.00
54.20	0.00	0.272	326.31	0.07	0.07	0.00	0.00
54.40	0.00	0.271	326.30	0.07	0.07	0.00	0.00
54.60	0.00	0.269	326.29	0.07	0.07	0.00	0.00
54.80	0.00	0.268	326.28	0.07	0.07	0.00	0.00
55.00	0.00	0.267	326.27	0.07	0.07	0.00	0.00
55.20	0.00	0.266	326.26	0.07	0.07	0.00	0.00
55.40	0.00	0.264	326.25	0.07	0.07	0.00	0.00
55.60	0.00	0.263	326.25	0.07	0.07	0.00	0.00
55.80	0.00	0.262	326.24	0.07	0.07	0.00	0.00
56.00	0.00	0.261	326.23	0.07	0.07	0.00	0.00
56.20	0.00	0.260	326.22	0.07	0.07	0.00	0.00
56.40	0.00	0.258	326.21	0.07	0.07	0.00	0.00
56.60	0.00	0.257	326.20	0.07	0.07	0.00	0.00
56.80	0.00	0.256	326.19	0.07	0.07	0.00	0.00
57.00	0.00	0.255	326.19	0.07	0.07	0.00	0.00
57.20	0.00	0.253	326.18	0.07	0.07	0.00	0.00
57.40	0.00	0.252	326.17	0.07	0.07	0.00	0.00
57.60	0.00	0.251	326.16	0.07	0.07	0.00	0.00
57.80	0.00	0.250	326.15	0.07	0.07	0.00	0.00
58.00	0.00	0.249	326.14	0.07	0.07	0.00	0.00
58.20	0.00	0.247	326.13	0.07	0.07	0.00	0.00
58.40	0.00	0.246	326.12	0.07	0.07	0.00	0.00
58.60	0.00	0.245	326.12	0.07	0.07	0.00	0.00
58.80	0.00	0.244	326.11	0.07	0.07	0.00	0.00
59.00	0.00	0.242	326.10	0.07	0.07	0.00	0.00
59.20	0.00	0.241	326.09	0.07	0.07	0.00	0.00
59.40	0.00	0.240	326.08	0.07	0.07	0.00	0.00
59.60	0.00	0.239	326.07	0.07	0.07	0.00	0.00
59.80	0.00	0.238	326.06	0.07	0.07	0.00	0.00
60.00	0.00	0.236	326.05	0.07	0.07	0.00	0.00

Basin I

Summary for Pond 75P: Basin I

[78] Warning: Submerged Pond 118P Secondary device # 3 by 6.24'
[80] Warning: Exceeded Pond 118P by 2.50' @ 59.99 hrs (0.15 cfs 0.500 af)

Inflow = 53.86 cfs @ 12.00 hrs, Volume= 2.444 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 328.55' @ 60.00 hrs Surf.Area= 0.411 ac Storage= 2.444 af

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	319.00'	3.008 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
319.00	0.000	0.000	0.000
319.50	0.074	0.019	0.019
320.00	0.161	0.059	0.077
320.50	0.173	0.084	0.161
321.00	0.185	0.090	0.250
321.50	0.197	0.095	0.346
322.00	0.210	0.102	0.447
322.50	0.223	0.108	0.556
323.00	0.236	0.115	0.670
323.50	0.250	0.122	0.792
324.00	0.264	0.129	0.920
324.50	0.279	0.136	1.056
325.00	0.294	0.143	1.200
325.50	0.309	0.151	1.350
326.00	0.324	0.158	1.508
326.50	0.340	0.166	1.675
327.00	0.357	0.174	1.849
327.50	0.374	0.183	2.032
328.00	0.391	0.191	2.223
328.50	0.409	0.200	2.423
329.00	0.427	0.209	2.632
329.50	0.446	0.218	2.850
329.85	0.456	0.158	3.008

Hydrograph for Pond 75P: Basin I

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
0.00	0.00	0.000	319.00	5.30	0.00	0.000	319.00
0.10	0.00	0.000	319.00	5.40	0.00	0.000	319.00
0.20	0.00	0.000	319.00	5.50	0.00	0.000	319.00
0.30	0.00	0.000	319.00	5.60	0.00	0.000	319.00
0.40	0.00	0.000	319.00	5.70	0.00	0.000	319.00
0.50	0.00	0.000	319.00	5.80	0.00	0.000	319.00
0.60	0.00	0.000	319.00	5.90	0.00	0.000	319.00
0.70	0.00	0.000	319.00	6.00	0.00	0.000	319.00
0.80	0.00	0.000	319.00	6.10	0.00	0.000	319.00
0.90	0.00	0.000	319.00	6.20	0.00	0.000	319.00
1.00	0.00	0.000	319.00	6.30	0.00	0.000	319.00
1.10	0.00	0.000	319.00	6.40	0.00	0.000	319.00
1.20	0.00	0.000	319.00	6.50	0.00	0.000	319.00
1.30	0.00	0.000	319.00	6.60	0.00	0.000	319.00
1.40	0.00	0.000	319.00	6.70	0.00	0.000	319.00
1.50	0.00	0.000	319.00	6.80	0.00	0.000	319.00
1.60	0.00	0.000	319.00	6.90	0.00	0.000	319.00
1.70	0.00	0.000	319.00	7.00	0.00	0.000	319.00
1.80	0.00	0.000	319.00	7.10	0.00	0.000	319.00
1.90	0.00	0.000	319.00	7.20	0.00	0.000	319.00
2.00	0.00	0.000	319.00	7.30	0.00	0.000	319.00
2.10	0.00	0.000	319.00	7.40	0.00	0.000	319.00
2.20	0.00	0.000	319.00	7.50	0.00	0.000	319.00
2.30	0.00	0.000	319.00	7.60	0.00	0.000	319.00
2.40	0.00	0.000	319.00	7.70	0.00	0.000	319.00
2.50	0.00	0.000	319.00	7.80	0.00	0.000	319.00
2.60	0.00	0.000	319.00	7.90	0.00	0.000	319.00
2.70	0.00	0.000	319.00	8.00	0.00	0.000	319.00
2.80	0.00	0.000	319.00	8.10	0.00	0.000	319.00
2.90	0.00	0.000	319.00	8.20	0.00	0.000	319.00
3.00	0.00	0.000	319.00	8.30	0.00	0.000	319.00
3.10	0.00	0.000	319.00	8.40	0.00	0.000	319.00
3.20	0.00	0.000	319.00	8.50	0.00	0.000	319.00
3.30	0.00	0.000	319.00	8.60	0.00	0.000	319.00
3.40	0.00	0.000	319.00	8.70	0.00	0.000	319.00
3.50	0.00	0.000	319.00	8.80	0.00	0.000	319.00
3.60	0.00	0.000	319.00	8.90	0.00	0.000	319.00
3.70	0.00	0.000	319.00	9.00	0.00	0.000	319.00
3.80	0.00	0.000	319.00	9.10	0.00	0.000	319.00
3.90	0.00	0.000	319.00	9.20	0.00	0.000	319.00
4.00	0.00	0.000	319.00	9.30	0.00	0.000	319.00
4.10	0.00	0.000	319.00	9.40	0.00	0.000	319.00
4.20	0.00	0.000	319.00	9.50	0.00	0.000	319.00
4.30	0.00	0.000	319.00	9.60	0.00	0.000	319.00
4.40	0.00	0.000	319.00	9.70	0.00	0.000	319.00
4.50	0.00	0.000	319.00	9.80	0.00	0.000	319.00
4.60	0.00	0.000	319.00	9.90	0.00	0.000	319.00
4.70	0.00	0.000	319.00	10.00	0.00	0.000	319.00
4.80	0.00	0.000	319.00	10.10	0.00	0.000	319.00
4.90	0.00	0.000	319.00	10.20	0.00	0.000	319.00
5.00	0.00	0.000	319.00	10.30	0.00	0.000	319.00
5.10	0.00	0.000	319.00	10.40	0.00	0.000	319.00
5.20	0.00	0.000	319.00	10.50	0.00	0.000	319.00

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
10.60	0.00	0.000	319.00	15.90	1.11	1.972	327.34
10.70	0.00	0.000	319.00	16.00	1.08	1.981	327.36
10.80	0.00	0.000	319.00	16.10	1.05	1.989	327.39
10.90	0.00	0.000	319.00	16.20	1.02	1.998	327.41
11.00	0.00	0.000	319.00	16.30	1.01	2.006	327.43
11.10	0.00	0.000	319.00	16.40	0.99	2.015	327.45
11.20	0.00	0.000	319.00	16.50	0.98	2.023	327.48
11.30	0.00	0.000	319.00	16.60	0.97	2.031	327.50
11.40	0.00	0.000	319.00	16.70	0.96	2.039	327.52
11.50	0.00	0.000	319.00	16.80	0.95	2.047	327.54
11.60	1.12	0.002	319.14	16.90	0.94	2.054	327.56
11.70	7.14	0.029	319.63	17.00	0.93	2.062	327.58
11.80	17.02	0.124	320.28	17.10	0.92	2.070	327.60
11.90	32.81	0.315	321.34	17.20	0.90	2.077	327.62
12.00	**53.84**	0.676	323.02	17.30	0.89	2.085	327.64
12.10	29.09	1.052	324.48	17.40	0.88	2.092	327.66
12.20	11.99	1.213	325.04	17.50	0.87	2.099	327.68
12.30	7.89	1.293	325.31	17.60	0.86	2.106	327.70
12.40	6.38	1.352	325.51	17.70	0.85	2.114	327.72
12.50	5.35	1.401	325.66	17.80	0.84	2.121	327.74
12.60	4.43	1.441	325.79	17.90	0.83	2.127	327.75
12.70	3.85	1.476	325.90	18.00	0.82	2.134	327.77
12.80	3.52	1.506	325.99	18.10	0.81	2.141	327.79
12.90	3.27	1.534	326.08	18.20	0.80	2.148	327.81
13.00	3.05	1.560	326.16	18.30	0.79	2.154	327.82
13.10	2.83	1.585	326.23	18.40	0.78	2.161	327.84
13.20	2.66	1.607	326.30	18.50	0.76	2.167	327.86
13.30	2.52	1.629	326.36	18.60	0.75	2.173	327.87
13.40	2.39	1.649	326.43	18.70	0.74	2.179	327.89
13.50	2.27	1.669	326.48	18.80	0.73	2.186	327.90
13.60	2.15	1.687	326.54	18.90	0.72	2.192	327.92
13.70	2.05	1.704	326.59	19.00	0.71	2.198	327.94
13.80	1.96	1.721	326.64	19.10	0.70	2.203	327.95
13.90	1.87	1.737	326.68	19.20	0.69	2.209	327.96
14.00	1.78	1.752	326.72	19.30	0.68	2.215	327.98
14.10	1.70	1.766	326.77	19.40	0.67	2.220	327.99
14.20	1.64	1.780	326.81	19.50	0.66	2.226	328.01
14.30	1.59	1.793	326.84	19.60	0.65	2.231	328.02
14.40	1.56	1.806	326.88	19.70	0.63	2.236	328.03
14.50	1.52	1.819	326.92	19.80	0.62	2.242	328.05
14.60	1.49	1.832	326.95	19.90	0.61	2.247	328.06
14.70	1.46	1.844	326.99	20.00	0.60	2.252	328.07
14.80	1.43	1.856	327.02	20.10	0.59	2.257	328.09
14.90	1.40	1.868	327.05	20.20	0.58	2.262	328.10
15.00	1.38	1.879	327.08	20.30	0.58	2.266	328.11
15.10	1.35	1.890	327.12	20.40	0.57	2.271	328.12
15.20	1.32	1.901	327.15	20.50	0.57	2.276	328.13
15.30	1.29	1.912	327.18	20.60	0.57	2.281	328.15
15.40	1.26	1.923	327.20	20.70	0.57	2.285	328.16
15.50	1.23	1.933	327.23	20.80	0.56	2.290	328.17
15.60	1.20	1.943	327.26	20.90	0.56	2.295	328.18
15.70	1.17	1.953	327.29	21.00	0.56	2.299	328.19
15.80	1.14	1.962	327.31	21.10	0.56	2.304	328.21

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
21.20	0.55	2.308	328.22	26.50	0.00	2.444	328.55
21.30	0.55	2.313	328.23	26.60	0.00	2.444	328.55
21.40	0.55	2.318	328.24	26.70	0.00	2.444	328.55
21.50	0.55	2.322	328.25	26.80	0.00	2.444	328.55
21.60	0.55	2.327	328.26	26.90	0.00	2.444	328.55
21.70	0.54	2.331	328.27	27.00	0.00	2.444	328.55
21.80	0.54	2.336	328.28	27.10	0.00	2.444	328.55
21.90	0.54	2.340	328.30	27.20	0.00	2.444	328.55
22.00	0.54	2.345	328.31	27.30	0.00	2.444	328.55
22.10	0.54	2.349	328.32	27.40	0.00	2.444	328.55
22.20	0.53	2.353	328.33	27.50	0.00	2.444	328.55
22.30	0.53	2.358	328.34	27.60	0.00	2.444	328.55
22.40	0.53	2.362	328.35	27.70	0.00	2.444	328.55
22.50	0.53	2.366	328.36	27.80	0.00	2.444	328.55
22.60	0.52	2.371	328.37	27.90	0.00	2.444	328.55
22.70	0.52	2.375	328.38	28.00	0.00	2.444	328.55
22.80	0.52	2.379	328.39	28.10	0.00	2.444	328.55
22.90	0.52	2.384	328.40	28.20	0.00	2.444	328.55
23.00	0.52	2.388	328.41	28.30	0.00	2.444	328.55
23.10	0.51	2.392	328.43	28.40	0.00	2.444	328.55
23.20	0.51	2.397	328.44	28.50	0.00	2.444	328.55
23.30	0.51	2.401	328.45	28.60	0.00	2.444	328.55
23.40	0.51	2.405	328.46	28.70	0.00	2.444	328.55
23.50	0.50	2.409	328.47	28.80	0.00	2.444	328.55
23.60	0.50	2.413	328.48	28.90	0.00	2.444	328.55
23.70	0.50	2.417	328.49	29.00	0.00	2.444	328.55
23.80	0.50	2.422	328.50	29.10	0.00	2.444	328.55
23.90	0.50	2.426	328.51	29.20	0.00	2.444	328.55
24.00	0.49	2.430	328.52	29.30	0.00	2.444	328.55
24.10	0.45	2.434	328.53	29.40	0.00	2.444	328.55
24.20	0.29	2.437	328.53	29.50	0.00	2.444	328.55
24.30	0.18	2.439	328.54	29.60	0.00	2.444	328.55
24.40	0.12	2.440	328.54	29.70	0.00	2.444	328.55
24.50	0.08	2.441	328.54	29.80	0.00	2.444	328.55
24.60	0.06	2.441	328.55	29.90	0.00	2.444	328.55
24.70	0.05	2.442	328.55	30.00	0.00	2.444	328.55
24.80	0.04	2.442	328.55	30.10	0.00	2.444	328.55
24.90	0.03	2.443	328.55	30.20	0.00	2.444	328.55
25.00	0.02	2.443	328.55	30.30	0.00	2.444	328.55
25.10	0.02	2.443	328.55	30.40	0.00	2.444	328.55
25.20	0.02	2.443	328.55	30.50	0.00	2.444	328.55
25.30	0.01	2.443	328.55	30.60	0.00	2.444	328.55
25.40	0.01	2.443	328.55	30.70	0.00	2.444	328.55
25.50	0.01	2.443	328.55	30.80	0.00	2.444	328.55
25.60	0.01	2.443	328.55	30.90	0.00	2.444	328.55
25.70	0.01	2.443	328.55	31.00	0.00	2.444	328.55
25.80	0.01	2.444	328.55	31.10	0.00	2.444	328.55
25.90	0.01	2.444	328.55	31.20	0.00	2.444	328.55
26.00	0.00	2.444	328.55	31.30	0.00	2.444	328.55
26.10	0.00	2.444	328.55	31.40	0.00	2.444	328.55
26.20	0.00	2.444	328.55	31.50	0.00	2.444	328.55
26.30	0.00	2.444	328.55	31.60	0.00	2.444	328.55
26.40	0.00	2.444	328.55	31.70	0.00	2.444	328.55

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
31.80	0.00	2.444	328.55	37.10	0.00	2.444	328.55
31.90	0.00	2.444	328.55	37.20	0.00	2.444	328.55
32.00	0.00	2.444	328.55	37.30	0.00	2.444	328.55
32.10	0.00	2.444	328.55	37.40	0.00	2.444	328.55
32.20	0.00	2.444	328.55	37.50	0.00	2.444	328.55
32.30	0.00	2.444	328.55	37.60	0.00	2.444	328.55
32.40	0.00	2.444	328.55	37.70	0.00	2.444	328.55
32.50	0.00	2.444	328.55	37.80	0.00	2.444	328.55
32.60	0.00	2.444	328.55	37.90	0.00	2.444	328.55
32.70	0.00	2.444	328.55	38.00	0.00	2.444	328.55
32.80	0.00	2.444	328.55	38.10	0.00	2.444	328.55
32.90	0.00	2.444	328.55	38.20	0.00	2.444	328.55
33.00	0.00	2.444	328.55	38.30	0.00	2.444	328.55
33.10	0.00	2.444	328.55	38.40	0.00	2.444	328.55
33.20	0.00	2.444	328.55	38.50	0.00	2.444	328.55
33.30	0.00	2.444	328.55	38.60	0.00	2.444	328.55
33.40	0.00	2.444	328.55	38.70	0.00	2.444	328.55
33.50	0.00	2.444	328.55	38.80	0.00	2.444	328.55
33.60	0.00	2.444	328.55	38.90	0.00	2.444	328.55
33.70	0.00	2.444	328.55	39.00	0.00	2.444	328.55
33.80	0.00	2.444	328.55	39.10	0.00	2.444	328.55
33.90	0.00	2.444	328.55	39.20	0.00	2.444	328.55
34.00	0.00	2.444	328.55	39.30	0.00	2.444	328.55
34.10	0.00	2.444	328.55	39.40	0.00	2.444	328.55
34.20	0.00	2.444	328.55	39.50	0.00	2.444	328.55
34.30	0.00	2.444	328.55	39.60	0.00	2.444	328.55
34.40	0.00	2.444	328.55	39.70	0.00	2.444	328.55
34.50	0.00	2.444	328.55	39.80	0.00	2.444	328.55
34.60	0.00	2.444	328.55	39.90	0.00	2.444	328.55
34.70	0.00	2.444	328.55	40.00	0.00	2.444	328.55
34.80	0.00	2.444	328.55	40.10	0.00	2.444	328.55
34.90	0.00	2.444	328.55	40.20	0.00	2.444	328.55
35.00	0.00	2.444	328.55	40.30	0.00	2.444	328.55
35.10	0.00	2.444	328.55	40.40	0.00	2.444	328.55
35.20	0.00	2.444	328.55	40.50	0.00	2.444	328.55
35.30	0.00	2.444	328.55	40.60	0.00	2.444	328.55
35.40	0.00	2.444	328.55	40.70	0.00	2.444	328.55
35.50	0.00	2.444	328.55	40.80	0.00	2.444	328.55
35.60	0.00	2.444	328.55	40.90	0.00	2.444	328.55
35.70	0.00	2.444	328.55	41.00	0.00	2.444	328.55
35.80	0.00	2.444	328.55	41.10	0.00	2.444	328.55
35.90	0.00	2.444	328.55	41.20	0.00	2.444	328.55
36.00	0.00	2.444	328.55	41.30	0.00	2.444	328.55
36.10	0.00	2.444	328.55	41.40	0.00	2.444	328.55
36.20	0.00	2.444	328.55	41.50	0.00	2.444	328.55
36.30	0.00	2.444	328.55	41.60	0.00	2.444	328.55
36.40	0.00	2.444	328.55	41.70	0.00	2.444	328.55
36.50	0.00	2.444	328.55	41.80	0.00	2.444	328.55
36.60	0.00	2.444	328.55	41.90	0.00	2.444	328.55
36.70	0.00	2.444	328.55	42.00	0.00	2.444	328.55
36.80	0.00	2.444	328.55	42.10	0.00	2.444	328.55
36.90	0.00	2.444	328.55	42.20	0.00	2.444	328.55
37.00	0.00	2.444	328.55	42.30	0.00	2.444	328.55

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
42.40	0.00	2.444	328.55	47.70	0.00	2.444	328.55
42.50	0.00	2.444	328.55	47.80	0.00	2.444	328.55
42.60	0.00	2.444	328.55	47.90	0.00	2.444	328.55
42.70	0.00	2.444	328.55	48.00	0.00	2.444	328.55
42.80	0.00	2.444	328.55	48.10	0.00	2.444	328.55
42.90	0.00	2.444	328.55	48.20	0.00	2.444	328.55
43.00	0.00	2.444	328.55	48.30	0.00	2.444	328.55
43.10	0.00	2.444	328.55	48.40	0.00	2.444	328.55
43.20	0.00	2.444	328.55	48.50	0.00	2.444	328.55
43.30	0.00	2.444	328.55	48.60	0.00	2.444	328.55
43.40	0.00	2.444	328.55	48.70	0.00	2.444	328.55
43.50	0.00	2.444	328.55	48.80	0.00	2.444	328.55
43.60	0.00	2.444	328.55	48.90	0.00	2.444	328.55
43.70	0.00	2.444	328.55	49.00	0.00	2.444	328.55
43.80	0.00	2.444	328.55	49.10	0.00	2.444	328.55
43.90	0.00	2.444	328.55	49.20	0.00	2.444	328.55
44.00	0.00	2.444	328.55	49.30	0.00	2.444	328.55
44.10	0.00	2.444	328.55	49.40	0.00	2.444	328.55
44.20	0.00	2.444	328.55	49.50	0.00	2.444	328.55
44.30	0.00	2.444	328.55	49.60	0.00	2.444	328.55
44.40	0.00	2.444	328.55	49.70	0.00	2.444	328.55
44.50	0.00	2.444	328.55	49.80	0.00	2.444	328.55
44.60	0.00	2.444	328.55	49.90	0.00	2.444	328.55
44.70	0.00	2.444	328.55	50.00	0.00	2.444	328.55
44.80	0.00	2.444	328.55	50.10	0.00	2.444	328.55
44.90	0.00	2.444	328.55	50.20	0.00	2.444	328.55
45.00	0.00	2.444	328.55	50.30	0.00	2.444	328.55
45.10	0.00	2.444	328.55	50.40	0.00	2.444	328.55
45.20	0.00	2.444	328.55	50.50	0.00	2.444	328.55
45.30	0.00	2.444	328.55	50.60	0.00	2.444	328.55
45.40	0.00	2.444	328.55	50.70	0.00	2.444	328.55
45.50	0.00	2.444	328.55	50.80	0.00	2.444	328.55
45.60	0.00	2.444	328.55	50.90	0.00	2.444	328.55
45.70	0.00	2.444	328.55	51.00	0.00	2.444	328.55
45.80	0.00	2.444	328.55	51.10	0.00	2.444	328.55
45.90	0.00	2.444	328.55	51.20	0.00	2.444	328.55
46.00	0.00	2.444	328.55	51.30	0.00	2.444	328.55
46.10	0.00	2.444	328.55	51.40	0.00	2.444	328.55
46.20	0.00	2.444	328.55	51.50	0.00	2.444	328.55
46.30	0.00	2.444	328.55	51.60	0.00	2.444	328.55
46.40	0.00	2.444	328.55	51.70	0.00	2.444	328.55
46.50	0.00	2.444	328.55	51.80	0.00	2.444	328.55
46.60	0.00	2.444	328.55	51.90	0.00	2.444	328.55
46.70	0.00	2.444	328.55	52.00	0.00	2.444	328.55
46.80	0.00	2.444	328.55	52.10	0.00	2.444	328.55
46.90	0.00	2.444	328.55	52.20	0.00	2.444	328.55
47.00	0.00	2.444	328.55	52.30	0.00	2.444	328.55
47.10	0.00	2.444	328.55	52.40	0.00	2.444	328.55
47.20	0.00	2.444	328.55	52.50	0.00	2.444	328.55
47.30	0.00	2.444	328.55	52.60	0.00	2.444	328.55
47.40	0.00	2.444	328.55	52.70	0.00	2.444	328.55
47.50	0.00	2.444	328.55	52.80	0.00	2.444	328.55
47.60	0.00	2.444	328.55	52.90	0.00	2.444	328.55

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
53.00	0.00	2.444	328.55
53.10	0.00	2.444	328.55
53.20	0.00	2.444	328.55
53.30	0.00	2.444	328.55
53.40	0.00	2.444	328.55
53.50	0.00	2.444	328.55
53.60	0.00	2.444	328.55
53.70	0.00	2.444	328.55
53.80	0.00	2.444	328.55
53.90	0.00	2.444	328.55
54.00	0.00	2.444	328.55
54.10	0.00	2.444	328.55
54.20	0.00	2.444	328.55
54.30	0.00	2.444	328.55
54.40	0.00	2.444	328.55
54.50	0.00	2.444	328.55
54.60	0.00	2.444	328.55
54.70	0.00	2.444	328.55
54.80	0.00	2.444	328.55
54.90	0.00	2.444	328.55
55.00	0.00	2.444	328.55
55.10	0.00	2.444	328.55
55.20	0.00	2.444	328.55
55.30	0.00	2.444	328.55
55.40	0.00	2.444	328.55
55.50	0.00	2.444	328.55
55.60	0.00	2.444	328.55
55.70	0.00	2.444	328.55
55.80	0.00	2.444	328.55
55.90	0.00	2.444	328.55
56.00	0.00	2.444	328.55
56.10	0.00	2.444	328.55
56.20	0.00	2.444	328.55
56.30	0.00	2.444	328.55
56.40	0.00	2.444	328.55
56.50	0.00	2.444	328.55
56.60	0.00	2.444	328.55
56.70	0.00	2.444	328.55
56.80	0.00	2.444	328.55
56.90	0.00	2.444	328.55
57.00	0.00	2.444	328.55
57.10	0.00	2.444	328.55
57.20	0.00	2.444	328.55
57.30	0.00	2.444	328.55
57.40	0.00	2.444	328.55
57.50	0.00	2.444	328.55
57.60	0.00	2.444	328.55
57.70	0.00	2.444	328.55
57.80	0.00	2.444	328.55
57.90	0.00	2.444	328.55
58.00	0.00	2.444	328.55
58.10	0.00	2.444	328.55
58.20	0.00	2.444	328.55
58.30	0.00	2.444	328.55
58.40	0.00	2.444	328.55
58.50	0.00	2.444	328.55
58.60	0.00	2.444	328.55
58.70	0.00	2.444	328.55
58.80	0.00	2.444	328.55
58.90	0.00	2.444	328.55
59.00	0.00	2.444	328.55
59.10	0.00	2.444	328.55
59.20	0.00	2.444	328.55
59.30	0.00	2.444	328.55
59.40	0.00	2.444	328.55
59.50	0.00	2.444	328.55
59.60	0.00	2.444	328.55
59.70	0.00	2.444	328.55
59.80	0.00	2.444	328.55
59.90	0.00	2.444	328.55
60.00	0.00	**2.444**	**328.55**

Temporary Retention Area

Summary for Pond 104P: Temporary retention area

Inflow Area = 11.610 ac, 0.00% Impervious, Inflow Depth = 2.92"
Inflow = 57.45 cfs @ 11.97 hrs, Volume= 2.824 af
Outflow = 53.86 cfs @ 12.00 hrs, Volume= 2.444 af, Atten= 6%, Lag= 1.9 min
Primary = 53.86 cfs @ 12.00 hrs, Volume= 2.444 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 338.09' @ 12.00 hrs Surf.Area= 0.235 ac Storage= 0.619 af

Plug-Flow detention time= 100.8 min calculated for 2.444 af (87% of inflow)
Center-of-Mass det. time= 37.6 min (833.0 - 795.4)

Volume	Invert	Avail.Storage	Storage Description
#1	333.00'	0.820 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
333.00	0.000	0.000	0.000
333.50	0.005	0.001	0.001
334.00	0.017	0.006	0.007
334.50	0.063	0.020	0.027
335.00	0.095	0.039	0.066
335.50	0.131	0.057	0.123
336.00	0.158	0.072	0.195
336.50	0.189	0.087	0.282
337.00	0.205	0.098	0.380
337.50	0.219	0.106	0.486
338.00	0.233	0.113	0.599
338.50	0.247	0.120	0.719
338.90	0.259	0.101	0.820

Device	Routing	Invert	Outlet Devices
#1	Primary	337.00'	**18.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=53.80 cfs @ 12.00 hrs HW=338.08' TW=323.06' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 53.80 cfs @ 2.76 fps)

Hydrograph for Pond 104P: Temporary retention area

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	333.00	0.00
0.20	0.00	0.000	333.00	0.00
0.40	0.00	0.000	333.00	0.00
0.60	0.00	0.000	333.00	0.00
0.80	0.00	0.000	333.00	0.00
1.00	0.00	0.000	333.00	0.00
1.20	0.00	0.000	333.00	0.00
1.40	0.00	0.000	333.00	0.00
1.60	0.00	0.000	333.00	0.00
1.80	0.00	0.000	333.00	0.00
2.00	0.00	0.000	333.00	0.00
2.20	0.00	0.000	333.00	0.00
2.40	0.00	0.000	333.00	0.00
2.60	0.00	0.000	333.00	0.00
2.80	0.00	0.000	333.00	0.00
3.00	0.00	0.000	333.00	0.00
3.20	0.00	0.000	333.00	0.00
3.40	0.00	0.000	333.00	0.00
3.60	0.00	0.000	333.00	0.00
3.80	0.00	0.000	333.00	0.00
4.00	0.00	0.000	333.00	0.00
4.20	0.00	0.000	333.00	0.00
4.40	0.00	0.000	333.00	0.00
4.60	0.00	0.000	333.00	0.00
4.80	0.01	0.000	333.15	0.00
5.00	0.03	0.000	333.31	0.00
5.20	0.05	0.001	333.47	0.00
5.40	0.07	0.002	333.62	0.00
5.60	0.08	0.003	333.75	0.00
5.80	0.10	0.005	333.87	0.00
6.00	0.12	0.007	333.99	0.00
6.20	0.14	0.009	334.09	0.00
6.40	0.16	0.011	334.18	0.00
6.60	0.18	0.014	334.26	0.00
6.80	0.20	0.017	334.33	0.00
7.00	0.23	0.021	334.40	0.00
7.20	0.25	0.025	334.47	0.00
7.40	0.27	0.029	334.54	0.00
7.60	0.29	0.034	334.60	0.00
7.80	0.32	0.039	334.67	0.00
8.00	0.34	0.044	334.75	0.00
8.20	0.38	0.050	334.82	0.00
8.40	0.43	0.057	334.90	0.00
8.60	0.49	0.064	334.98	0.00
8.80	0.55	0.073	335.07	0.00
9.00	0.62	0.083	335.16	0.00
9.20	0.67	0.093	335.26	0.00
9.40	0.69	0.104	335.35	0.00
9.60	0.73	0.116	335.45	0.00
9.80	0.82	0.129	335.55	0.00
10.00	0.93	0.143	335.65	0.00
10.20	1.07	0.160	335.77	0.00
10.40	1.23	0.179	335.89	0.00

Hydrograph for Pond 104P: Temporary retention area (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
10.60	1.42	0.200	336.03	0.00
10.80	1.69	0.226	336.19	0.00
11.00	1.98	0.256	336.36	0.00
11.20	2.48	0.292	336.56	0.00
11.40	3.19	0.339	336.79	0.00
11.60	5.56	0.398	337.09	1.12
11.80	**22.43**	0.487	337.51	17.02
12.00	**52.92**	**0.619**	**338.09**	**53.84**
12.20	8.10	0.466	337.41	11.99
12.40	5.59	0.437	337.27	6.38
12.60	3.82	0.425	337.22	4.43
12.80	3.28	0.419	337.19	3.52
13.00	2.84	0.415	337.17	3.05
13.20	2.51	0.412	337.15	2.66
13.40	2.27	0.410	337.14	2.39
13.60	2.04	0.408	337.13	2.15
13.80	1.86	0.406	337.13	1.96
14.00	1.69	0.405	337.12	1.78
14.20	1.58	0.403	337.11	1.64
14.40	1.52	0.403	337.11	1.56
14.60	1.46	0.402	337.10	1.49
14.80	1.40	0.401	337.10	1.43
15.00	1.34	0.401	337.10	1.38
15.20	1.28	0.400	337.10	1.32
15.40	1.22	0.400	337.09	1.26
15.60	1.16	0.399	337.09	1.20
15.80	1.10	0.398	337.09	1.14
16.00	1.04	0.398	337.08	1.08
16.20	1.00	0.397	337.08	1.02
16.40	0.98	0.397	337.08	0.99
16.60	0.95	0.396	337.08	0.97
16.80	0.93	0.396	337.08	0.95
17.00	0.91	0.396	337.08	0.93
17.20	0.89	0.396	337.08	0.90
17.40	0.87	0.395	337.07	0.88
17.60	0.85	0.395	337.07	0.86
17.80	0.82	0.395	337.07	0.84
18.00	0.80	0.395	337.07	0.82
18.20	0.78	0.394	337.07	0.80
18.40	0.76	0.394	337.07	0.78
18.60	0.74	0.394	337.07	0.75
18.80	0.72	0.394	337.07	0.73
19.00	0.69	0.393	337.06	0.71
19.20	0.67	0.393	337.06	0.69
19.40	0.65	0.393	337.06	0.67
19.60	0.63	0.393	337.06	0.65
19.80	0.61	0.392	337.06	0.62
20.00	0.58	0.392	337.06	0.60
20.20	0.57	0.392	337.06	0.58
20.40	0.57	0.392	337.06	0.57
20.60	0.56	0.392	337.06	0.57
20.80	0.56	0.392	337.05	0.56
21.00	0.56	0.391	337.05	0.56

Hydrograph for Pond 104P: Temporary retention area (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
21.20	0.55	0.391	337.05	0.55
21.40	0.55	0.391	337.05	0.55
21.60	0.54	0.391	337.05	0.55
21.80	0.54	0.391	337.05	0.54
22.00	0.53	0.391	337.05	0.54
22.20	0.53	0.391	337.05	0.53
22.40	0.53	0.391	337.05	0.53
22.60	0.52	0.391	337.05	0.52
22.80	0.52	0.391	337.05	0.52
23.00	0.51	0.391	337.05	0.52
23.20	0.51	0.391	337.05	0.51
23.40	0.50	0.391	337.05	0.51
23.60	0.50	0.391	337.05	0.50
23.80	0.49	0.391	337.05	0.50
24.00	0.49	0.391	337.05	0.49
24.20	0.01	0.387	337.03	0.29
24.40	0.00	0.384	337.02	0.12
24.60	0.00	0.383	337.01	0.06
24.80	0.00	0.382	337.01	0.04
25.00	0.00	0.382	337.01	0.02
25.20	0.00	0.381	337.00	0.02
25.40	0.00	0.381	337.00	0.01
25.60	0.00	0.381	337.00	0.01
25.80	0.00	0.381	337.00	0.01
26.00	0.00	0.381	337.00	0.00
26.20	0.00	0.381	337.00	0.00
26.40	0.00	0.381	337.00	0.00
26.60	0.00	0.381	337.00	0.00
26.80	0.00	0.381	337.00	0.00
27.00	0.00	0.380	337.00	0.00
27.20	0.00	0.380	337.00	0.00
27.40	0.00	0.380	337.00	0.00
27.60	0.00	0.380	337.00	0.00
27.80	0.00	0.380	337.00	0.00
28.00	0.00	0.380	337.00	0.00
28.20	0.00	0.380	337.00	0.00
28.40	0.00	0.380	337.00	0.00
28.60	0.00	0.380	337.00	0.00
28.80	0.00	0.380	337.00	0.00
29.00	0.00	0.380	337.00	0.00
29.20	0.00	0.380	337.00	0.00
29.40	0.00	0.380	337.00	0.00
29.60	0.00	0.380	337.00	0.00
29.80	0.00	0.380	337.00	0.00
30.00	0.00	0.380	337.00	0.00
30.20	0.00	0.380	337.00	0.00
30.40	0.00	0.380	337.00	0.00
30.60	0.00	0.380	337.00	0.00
30.80	0.00	0.380	337.00	0.00
31.00	0.00	0.380	337.00	0.00
31.20	0.00	0.380	337.00	0.00
31.40	0.00	0.380	337.00	0.00
31.60	0.00	0.380	337.00	0.00

Hydrograph for Pond 104P: Temporary retention area (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
31.80	0.00	0.380	337.00	0.00
32.00	0.00	0.380	337.00	0.00
32.20	0.00	0.380	337.00	0.00
32.40	0.00	0.380	337.00	0.00
32.60	0.00	0.380	337.00	0.00
32.80	0.00	0.380	337.00	0.00
33.00	0.00	0.380	337.00	0.00
33.20	0.00	0.380	337.00	0.00
33.40	0.00	0.380	337.00	0.00
33.60	0.00	0.380	337.00	0.00
33.80	0.00	0.380	337.00	0.00
34.00	0.00	0.380	337.00	0.00
34.20	0.00	0.380	337.00	0.00
34.40	0.00	0.380	337.00	0.00
34.60	0.00	0.380	337.00	0.00
34.80	0.00	0.380	337.00	0.00
35.00	0.00	0.380	337.00	0.00
35.20	0.00	0.380	337.00	0.00
35.40	0.00	0.380	337.00	0.00
35.60	0.00	0.380	337.00	0.00
35.80	0.00	0.380	337.00	0.00
36.00	0.00	0.380	337.00	0.00
36.20	0.00	0.380	337.00	0.00
36.40	0.00	0.380	337.00	0.00
36.60	0.00	0.380	337.00	0.00
36.80	0.00	0.380	337.00	0.00
37.00	0.00	0.380	337.00	0.00
37.20	0.00	0.380	337.00	0.00
37.40	0.00	0.380	337.00	0.00
37.60	0.00	0.380	337.00	0.00
37.80	0.00	0.380	337.00	0.00
38.00	0.00	0.380	337.00	0.00
38.20	0.00	0.380	337.00	0.00
38.40	0.00	0.380	337.00	0.00
38.60	0.00	0.380	337.00	0.00
38.80	0.00	0.380	337.00	0.00
39.00	0.00	0.380	337.00	0.00
39.20	0.00	0.380	337.00	0.00
39.40	0.00	0.380	337.00	0.00
39.60	0.00	0.380	337.00	0.00
39.80	0.00	0.380	337.00	0.00
40.00	0.00	0.380	337.00	0.00
40.20	0.00	0.380	337.00	0.00
40.40	0.00	0.380	337.00	0.00
40.60	0.00	0.380	337.00	0.00
40.80	0.00	0.380	337.00	0.00
41.00	0.00	0.380	337.00	0.00
41.20	0.00	0.380	337.00	0.00
41.40	0.00	0.380	337.00	0.00
41.60	0.00	0.380	337.00	0.00
41.80	0.00	0.380	337.00	0.00
42.00	0.00	0.380	337.00	0.00
42.20	0.00	0.380	337.00	0.00

Hydrograph for Pond 104P: Temporary retention area (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
42.40	0.00	0.380	337.00	0.00
42.60	0.00	0.380	337.00	0.00
42.80	0.00	0.380	337.00	0.00
43.00	0.00	0.380	337.00	0.00
43.20	0.00	0.380	337.00	0.00
43.40	0.00	0.380	337.00	0.00
43.60	0.00	0.380	337.00	0.00
43.80	0.00	0.380	337.00	0.00
44.00	0.00	0.380	337.00	0.00
44.20	0.00	0.380	337.00	0.00
44.40	0.00	0.380	337.00	0.00
44.60	0.00	0.380	337.00	0.00
44.80	0.00	0.380	337.00	0.00
45.00	0.00	0.380	337.00	0.00
45.20	0.00	0.380	337.00	0.00
45.40	0.00	0.380	337.00	0.00
45.60	0.00	0.380	337.00	0.00
45.80	0.00	0.380	337.00	0.00
46.00	0.00	0.380	337.00	0.00
46.20	0.00	0.380	337.00	0.00
46.40	0.00	0.380	337.00	0.00
46.60	0.00	0.380	337.00	0.00
46.80	0.00	0.380	337.00	0.00
47.00	0.00	0.380	337.00	0.00
47.20	0.00	0.380	337.00	0.00
47.40	0.00	0.380	337.00	0.00
47.60	0.00	0.380	337.00	0.00
47.80	0.00	0.380	337.00	0.00
48.00	0.00	0.380	337.00	0.00
48.20	0.00	0.380	337.00	0.00
48.40	0.00	0.380	337.00	0.00
48.60	0.00	0.380	337.00	0.00
48.80	0.00	0.380	337.00	0.00
49.00	0.00	0.380	337.00	0.00
49.20	0.00	0.380	337.00	0.00
49.40	0.00	0.380	337.00	0.00
49.60	0.00	0.380	337.00	0.00
49.80	0.00	0.380	337.00	0.00
50.00	0.00	0.380	337.00	0.00
50.20	0.00	0.380	337.00	0.00
50.40	0.00	0.380	337.00	0.00
50.60	0.00	0.380	337.00	0.00
50.80	0.00	0.380	337.00	0.00
51.00	0.00	0.380	337.00	0.00
51.20	0.00	0.380	337.00	0.00
51.40	0.00	0.380	337.00	0.00
51.60	0.00	0.380	337.00	0.00
51.80	0.00	0.380	337.00	0.00
52.00	0.00	0.380	337.00	0.00
52.20	0.00	0.380	337.00	0.00
52.40	0.00	0.380	337.00	0.00
52.60	0.00	0.380	337.00	0.00
52.80	0.00	0.380	337.00	0.00

Hydrograph for Pond 104P: Temporary retention area (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
53.00	0.00	0.380	337.00	0.00
53.20	0.00	0.380	337.00	0.00
53.40	0.00	0.380	337.00	0.00
53.60	0.00	0.380	337.00	0.00
53.80	0.00	0.380	337.00	0.00
54.00	0.00	0.380	337.00	0.00
54.20	0.00	0.380	337.00	0.00
54.40	0.00	0.380	337.00	0.00
54.60	0.00	0.380	337.00	0.00
54.80	0.00	0.380	337.00	0.00
55.00	0.00	0.380	337.00	0.00
55.20	0.00	0.380	337.00	0.00
55.40	0.00	0.380	337.00	0.00
55.60	0.00	0.380	337.00	0.00
55.80	0.00	0.380	337.00	0.00
56.00	0.00	0.380	337.00	0.00
56.20	0.00	0.380	337.00	0.00
56.40	0.00	0.380	337.00	0.00
56.60	0.00	0.380	337.00	0.00
56.80	0.00	0.380	337.00	0.00
57.00	0.00	0.380	337.00	0.00
57.20	0.00	0.380	337.00	0.00
57.40	0.00	0.380	337.00	0.00
57.60	0.00	0.380	337.00	0.00
57.80	0.00	0.380	337.00	0.00
58.00	0.00	0.380	337.00	0.00
58.20	0.00	0.380	337.00	0.00
58.40	0.00	0.380	337.00	0.00
58.60	0.00	0.380	337.00	0.00
58.80	0.00	0.380	337.00	0.00
59.00	0.00	0.380	337.00	0.00
59.20	0.00	0.380	337.00	0.00
59.40	0.00	0.380	337.00	0.00
59.60	0.00	0.380	337.00	0.00
59.80	0.00	0.380	337.00	0.00
60.00	0.00	0.380	337.00	0.00

Initial Condition #2:
1 Foot of Liquid in Basin at the Beginning of Storm Event

Basin H

Summary for Pond 118P: Basin H

Inflow	=	14.25 cfs @	12.00 hrs, Volume=	0.556 af
Outflow	=	0.07 cfs @	0.00 hrs, Volume=	0.325 af, Atten= 99%, Lag= 0.0 min
Discarded	=	0.07 cfs @	0.00 hrs, Volume=	0.325 af
Primary	=	0.00 cfs @	0.00 hrs, Volume=	0.000 af
Secondary	=	0.00 cfs @	0.00 hrs, Volume=	0.000 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Starting Elev= 323.31' Surf.Area= 0.028 ac Storage= 0.012 af
Peak Elev= 327.46' @ 24.06 hrs Surf.Area= 0.190 ac Storage= 0.463 af (0.451 af above start)

Plug-Flow detention time= 1,373.4 min calculated for 0.313 af (56% of inflow)
Center-of-Mass det. time= 1,222.5 min (2,006.2 - 783.7)

Volume	Invert	Avail.Storage	Storage Description
#1	322.31'	0.866 af	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
322.31	0.000	0.000	0.000
322.50	0.001	0.000	0.000
323.00	0.015	0.004	0.004
323.50	0.036	0.013	0.017
324.00	0.058	0.024	0.040
324.50	0.076	0.033	0.074
325.00	0.094	0.042	0.116
325.50	0.112	0.052	0.168
326.00	0.131	0.061	0.229
326.50	0.151	0.070	0.299
327.00	0.171	0.080	0.380
327.50	0.192	0.091	0.470
328.00	0.214	0.101	0.572
328.50	0.284	0.125	0.696
329.00	0.396	0.170	0.866

Device	Routing	Invert	Outlet Devices
#1	Primary	327.48'	**Outflow to South Channel** Elev. (feet) 327.48 328.00 328.25 328.50 328.75 329.00 329.25 329.50 329.75 330.00 Disch. (cfs) 0.000 0.000 0.310 1.770 4.890 10.030 17.520 27.640 40.640 56.750
#2	Discarded	322.31'	**Pump 1** Elev. (feet) 322.31 323.30 323.31 324.00 325.00 326.00 327.00 328.00 329.00 Disch. (cfs) 0.000 0.000 0.074 0.074 0.074 0.074 0.074 0.074 0.074
#3	Secondary	322.31'	**Pump 2** Elev. (feet) 322.31 327.99 328.00 329.00 330.00 Disch. (cfs) 0.000 0.000 0.149 0.149 0.149

Discarded OutFlow Max=0.07 cfs @ 0.00 hrs HW=323.31' (Free Discharge)
↑—**2=Pump 1** (Custom Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=323.31' TW=327.48' (Dynamic Tailwater)
↑—**1=Outflow to South Channel** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=323.31' TW=320.00' (Dynamic Tailwater)
↑—**3=Pump 2** (Custom Controls 0.00 cfs)

Hydrograph for Pond 118P: Basin H

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.012	323.31	**0.07**	**0.07**	**0.00**	**0.00**
0.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
0.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
0.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
0.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
1.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
2.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
3.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.20	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.40	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.60	0.00	0.012	323.30	0.00	0.00	0.00	0.00
4.80	0.00	0.012	323.30	0.00	0.00	0.00	0.00
5.00	0.00	0.012	323.30	0.00	0.00	0.00	0.00
5.20	0.01	0.012	323.30	0.01	0.01	0.00	0.00
5.40	0.01	0.012	323.30	0.01	0.01	0.00	0.00
5.60	0.01	0.012	323.30	0.01	0.01	0.00	0.00
5.80	0.02	0.012	323.30	0.02	0.02	0.00	0.00
6.00	0.02	0.012	323.30	0.02	0.02	0.00	0.00
6.20	0.02	0.012	323.30	0.02	0.02	0.00	0.00
6.40	0.03	0.012	323.30	0.03	0.03	0.00	0.00
6.60	0.03	0.012	323.30	0.03	0.03	0.00	0.00
6.80	0.03	0.012	323.30	0.03	0.03	0.00	0.00
7.00	0.04	0.012	323.30	0.04	0.04	0.00	0.00
7.20	0.04	0.012	323.31	0.04	0.04	0.00	0.00
7.40	0.04	0.012	323.31	0.04	0.04	0.00	0.00
7.60	0.05	0.012	323.31	0.05	0.05	0.00	0.00
7.80	0.05	0.012	323.31	0.05	0.05	0.00	0.00
8.00	0.06	0.012	323.31	0.05	0.05	0.00	0.00
8.20	0.06	0.012	323.31	0.06	0.06	0.00	0.00
8.40	0.07	0.012	323.31	0.07	0.07	0.00	0.00
8.60	0.08	0.012	323.31	0.07	0.07	0.00	0.00
8.80	0.09	0.012	323.32	0.07	0.07	0.00	0.00
9.00	0.10	0.013	323.33	0.07	0.07	0.00	0.00
9.20	0.11	0.013	323.35	0.07	0.07	0.00	0.00
9.40	0.11	0.014	323.37	0.07	0.07	0.00	0.00
9.60	0.12	0.014	323.40	0.07	0.07	0.00	0.00
9.80	0.13	0.015	323.43	0.07	0.07	0.00	0.00
10.00	0.15	0.016	323.48	0.07	0.07	0.00	0.00
10.20	0.17	0.018	323.52	0.07	0.07	0.00	0.00
10.40	0.20	0.019	323.56	0.07	0.07	0.00	0.00

Hydrograph for Pond 118P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
10.60	0.23	0.022	323.60	0.07	0.07	0.00	0.00
10.80	0.27	0.025	323.66	0.07	0.07	0.00	0.00
11.00	0.32	0.028	323.74	0.07	0.07	0.00	0.00
11.20	0.39	0.033	323.84	0.07	0.07	0.00	0.00
11.40	0.51	0.039	323.97	0.07	0.07	0.00	0.00
11.60	0.79	0.047	324.10	0.07	0.07	0.00	0.00
11.80	4.22	0.078	324.55	0.07	0.07	0.00	0.00
12.00	**14.22**	0.227	325.99	0.07	0.07	0.00	0.00
12.20	1.86	0.342	326.76	0.07	0.07	0.00	0.00
12.40	1.03	0.363	326.90	0.07	0.07	0.00	0.00
12.60	0.65	0.375	326.97	0.07	0.07	0.00	0.00
12.80	0.54	0.384	327.02	0.07	0.07	0.00	0.00
13.00	0.47	0.391	327.06	0.07	0.07	0.00	0.00
13.20	0.41	0.397	327.10	0.07	0.07	0.00	0.00
13.40	0.38	0.402	327.13	0.07	0.07	0.00	0.00
13.60	0.34	0.407	327.15	0.07	0.07	0.00	0.00
13.80	0.31	0.411	327.17	0.07	0.07	0.00	0.00
14.00	0.28	0.415	327.19	0.07	0.07	0.00	0.00
14.20	0.26	0.418	327.21	0.07	0.07	0.00	0.00
14.40	0.25	0.421	327.23	0.07	0.07	0.00	0.00
14.60	0.24	0.424	327.24	0.07	0.07	0.00	0.00
14.80	0.23	0.427	327.26	0.07	0.07	0.00	0.00
15.00	0.22	0.429	327.27	0.07	0.07	0.00	0.00
15.20	0.21	0.431	327.29	0.07	0.07	0.00	0.00
15.40	0.20	0.434	327.30	0.07	0.07	0.00	0.00
15.60	0.19	0.436	327.31	0.07	0.07	0.00	0.00
15.80	0.18	0.437	327.32	0.07	0.07	0.00	0.00
16.00	0.17	0.439	327.33	0.07	0.07	0.00	0.00
16.20	0.16	0.441	327.34	0.07	0.07	0.00	0.00
16.40	0.16	0.442	327.34	0.07	0.07	0.00	0.00
16.60	0.16	0.443	327.35	0.07	0.07	0.00	0.00
16.80	0.15	0.445	327.36	0.07	0.07	0.00	0.00
17.00	0.15	0.446	327.37	0.07	0.07	0.00	0.00
17.20	0.15	0.447	327.37	0.07	0.07	0.00	0.00
17.40	0.14	0.448	327.38	0.07	0.07	0.00	0.00
17.60	0.14	0.450	327.39	0.07	0.07	0.00	0.00
17.80	0.14	0.451	327.39	0.07	0.07	0.00	0.00
18.00	0.13	0.452	327.40	0.07	0.07	0.00	0.00
18.20	0.13	0.452	327.40	0.07	0.07	0.00	0.00
18.40	0.12	0.453	327.41	0.07	0.07	0.00	0.00
18.60	0.12	0.454	327.41	0.07	0.07	0.00	0.00
18.80	0.12	0.455	327.41	0.07	0.07	0.00	0.00
19.00	0.11	0.456	327.42	0.07	0.07	0.00	0.00
19.20	0.11	0.456	327.42	0.07	0.07	0.00	0.00
19.40	0.11	0.457	327.43	0.07	0.07	0.00	0.00
19.60	0.10	0.457	327.43	0.07	0.07	0.00	0.00
19.80	0.10	0.458	327.43	0.07	0.07	0.00	0.00
20.00	0.10	0.458	327.43	0.07	0.07	0.00	0.00
20.20	0.09	0.459	327.43	0.07	0.07	0.00	0.00
20.40	0.09	0.459	327.44	0.07	0.07	0.00	0.00
20.60	0.09	0.459	327.44	0.07	0.07	0.00	0.00
20.80	0.09	0.459	327.44	0.07	0.07	0.00	0.00
21.00	0.09	0.460	327.44	0.07	0.07	0.00	0.00

Hydrograph for Pond 118P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
21.20	0.09	0.460	327.44	0.07	0.07	0.00	0.00
21.40	0.09	0.460	327.44	0.07	0.07	0.00	0.00
21.60	0.09	0.461	327.45	0.07	0.07	0.00	0.00
21.80	0.09	0.461	327.45	0.07	0.07	0.00	0.00
22.00	0.09	0.461	327.45	0.07	0.07	0.00	0.00
22.20	0.09	0.461	327.45	0.07	0.07	0.00	0.00
22.40	0.09	0.461	327.45	0.07	0.07	0.00	0.00
22.60	0.09	0.462	327.45	0.07	0.07	0.00	0.00
22.80	0.08	0.462	327.45	0.07	0.07	0.00	0.00
23.00	0.08	0.462	327.45	0.07	0.07	0.00	0.00
23.20	0.08	0.462	327.45	0.07	0.07	0.00	0.00
23.40	0.08	0.462	327.46	0.07	0.07	0.00	0.00
23.60	0.08	0.462	327.46	0.07	0.07	0.00	0.00
23.80	0.08	0.462	327.46	0.07	0.07	0.00	0.00
24.00	0.08	**0.463**	**327.46**	0.07	0.07	0.00	0.00
24.20	0.01	**0.462**	**327.45**	0.07	0.07	0.00	0.00
24.40	0.00	0.461	327.45	0.07	0.07	0.00	0.00
24.60	0.00	0.460	327.44	0.07	0.07	0.00	0.00
24.80	0.00	0.459	327.43	0.07	0.07	0.00	0.00
25.00	0.00	0.457	327.43	0.07	0.07	0.00	0.00
25.20	0.00	0.456	327.42	0.07	0.07	0.00	0.00
25.40	0.00	0.455	327.41	0.07	0.07	0.00	0.00
25.60	0.00	0.454	327.41	0.07	0.07	0.00	0.00
25.80	0.00	0.452	327.40	0.07	0.07	0.00	0.00
26.00	0.00	0.451	327.39	0.07	0.07	0.00	0.00
26.20	0.00	0.450	327.39	0.07	0.07	0.00	0.00
26.40	0.00	0.449	327.38	0.07	0.07	0.00	0.00
26.60	0.00	0.448	327.37	0.07	0.07	0.00	0.00
26.80	0.00	0.446	327.37	0.07	0.07	0.00	0.00
27.00	0.00	0.445	327.36	0.07	0.07	0.00	0.00
27.20	0.00	0.444	327.35	0.07	0.07	0.00	0.00
27.40	0.00	0.443	327.35	0.07	0.07	0.00	0.00
27.60	0.00	0.441	327.34	0.07	0.07	0.00	0.00
27.80	0.00	0.440	327.33	0.07	0.07	0.00	0.00
28.00	0.00	0.439	327.33	0.07	0.07	0.00	0.00
28.20	0.00	0.438	327.32	0.07	0.07	0.00	0.00
28.40	0.00	0.436	327.31	0.07	0.07	0.00	0.00
28.60	0.00	0.435	327.31	0.07	0.07	0.00	0.00
28.80	0.00	0.434	327.30	0.07	0.07	0.00	0.00
29.00	0.00	0.433	327.29	0.07	0.07	0.00	0.00
29.20	0.00	0.432	327.29	0.07	0.07	0.00	0.00
29.40	0.00	0.430	327.28	0.07	0.07	0.00	0.00
29.60	0.00	0.429	327.27	0.07	0.07	0.00	0.00
29.80	0.00	0.428	327.27	0.07	0.07	0.00	0.00
30.00	0.00	0.427	327.26	0.07	0.07	0.00	0.00
30.20	0.00	0.425	327.25	0.07	0.07	0.00	0.00
30.40	0.00	0.424	327.25	0.07	0.07	0.00	0.00
30.60	0.00	0.423	327.24	0.07	0.07	0.00	0.00
30.80	0.00	0.422	327.23	0.07	0.07	0.00	0.00
31.00	0.00	0.421	327.23	0.07	0.07	0.00	0.00
31.20	0.00	0.419	327.22	0.07	0.07	0.00	0.00
31.40	0.00	0.418	327.21	0.07	0.07	0.00	0.00
31.60	0.00	0.417	327.21	0.07	0.07	0.00	0.00

Hydrograph for Pond 118P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
31.80	0.00	0.416	327.20	0.07	0.07	0.00	0.00
32.00	0.00	0.414	327.19	0.07	0.07	0.00	0.00
32.20	0.00	0.413	327.19	0.07	0.07	0.00	0.00
32.40	0.00	0.412	327.18	0.07	0.07	0.00	0.00
32.60	0.00	0.411	327.17	0.07	0.07	0.00	0.00
32.80	0.00	0.410	327.17	0.07	0.07	0.00	0.00
33.00	0.00	0.408	327.16	0.07	0.07	0.00	0.00
33.20	0.00	0.407	327.15	0.07	0.07	0.00	0.00
33.40	0.00	0.406	327.15	0.07	0.07	0.00	0.00
33.60	0.00	0.405	327.14	0.07	0.07	0.00	0.00
33.80	0.00	0.403	327.13	0.07	0.07	0.00	0.00
34.00	0.00	0.402	327.12	0.07	0.07	0.00	0.00
34.20	0.00	0.401	327.12	0.07	0.07	0.00	0.00
34.40	0.00	0.400	327.11	0.07	0.07	0.00	0.00
34.60	0.00	0.399	327.10	0.07	0.07	0.00	0.00
34.80	0.00	0.397	327.10	0.07	0.07	0.00	0.00
35.00	0.00	0.396	327.09	0.07	0.07	0.00	0.00
35.20	0.00	0.395	327.08	0.07	0.07	0.00	0.00
35.40	0.00	0.394	327.08	0.07	0.07	0.00	0.00
35.60	0.00	0.392	327.07	0.07	0.07	0.00	0.00
35.80	0.00	0.391	327.06	0.07	0.07	0.00	0.00
36.00	0.00	0.390	327.06	0.07	0.07	0.00	0.00
36.20	0.00	0.389	327.05	0.07	0.07	0.00	0.00
36.40	0.00	0.388	327.04	0.07	0.07	0.00	0.00
36.60	0.00	0.386	327.04	0.07	0.07	0.00	0.00
36.80	0.00	0.385	327.03	0.07	0.07	0.00	0.00
37.00	0.00	0.384	327.02	0.07	0.07	0.00	0.00
37.20	0.00	0.383	327.02	0.07	0.07	0.00	0.00
37.40	0.00	0.381	327.01	0.07	0.07	0.00	0.00
37.60	0.00	0.380	327.00	0.07	0.07	0.00	0.00
37.80	0.00	0.379	327.00	0.07	0.07	0.00	0.00
38.00	0.00	0.378	326.99	0.07	0.07	0.00	0.00
38.20	0.00	0.377	326.98	0.07	0.07	0.00	0.00
38.40	0.00	0.375	326.97	0.07	0.07	0.00	0.00
38.60	0.00	0.374	326.97	0.07	0.07	0.00	0.00
38.80	0.00	0.373	326.96	0.07	0.07	0.00	0.00
39.00	0.00	0.372	326.95	0.07	0.07	0.00	0.00
39.20	0.00	0.370	326.94	0.07	0.07	0.00	0.00
39.40	0.00	0.369	326.94	0.07	0.07	0.00	0.00
39.60	0.00	0.368	326.93	0.07	0.07	0.00	0.00
39.80	0.00	0.367	326.92	0.07	0.07	0.00	0.00
40.00	0.00	0.366	326.91	0.07	0.07	0.00	0.00
40.20	0.00	0.364	326.91	0.07	0.07	0.00	0.00
40.40	0.00	0.363	326.90	0.07	0.07	0.00	0.00
40.60	0.00	0.362	326.89	0.07	0.07	0.00	0.00
40.80	0.00	0.361	326.88	0.07	0.07	0.00	0.00
41.00	0.00	0.359	326.87	0.07	0.07	0.00	0.00
41.20	0.00	0.358	326.87	0.07	0.07	0.00	0.00
41.40	0.00	0.357	326.86	0.07	0.07	0.00	0.00
41.60	0.00	0.356	326.85	0.07	0.07	0.00	0.00
41.80	0.00	0.355	326.84	0.07	0.07	0.00	0.00
42.00	0.00	0.353	326.84	0.07	0.07	0.00	0.00
42.20	0.00	0.352	326.83	0.07	0.07	0.00	0.00

Hydrograph for Pond 118P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
42.40	0.00	0.351	326.82	0.07	0.07	0.00	0.00
42.60	0.00	0.350	326.81	0.07	0.07	0.00	0.00
42.80	0.00	0.348	326.81	0.07	0.07	0.00	0.00
43.00	0.00	0.347	326.80	0.07	0.07	0.00	0.00
43.20	0.00	0.346	326.79	0.07	0.07	0.00	0.00
43.40	0.00	0.345	326.78	0.07	0.07	0.00	0.00
43.60	0.00	0.344	326.78	0.07	0.07	0.00	0.00
43.80	0.00	0.342	326.77	0.07	0.07	0.00	0.00
44.00	0.00	0.341	326.76	0.07	0.07	0.00	0.00
44.20	0.00	0.340	326.75	0.07	0.07	0.00	0.00
44.40	0.00	0.339	326.75	0.07	0.07	0.00	0.00
44.60	0.00	0.337	326.74	0.07	0.07	0.00	0.00
44.80	0.00	0.336	326.73	0.07	0.07	0.00	0.00
45.00	0.00	0.335	326.72	0.07	0.07	0.00	0.00
45.20	0.00	0.334	326.72	0.07	0.07	0.00	0.00
45.40	0.00	0.333	326.71	0.07	0.07	0.00	0.00
45.60	0.00	0.331	326.70	0.07	0.07	0.00	0.00
45.80	0.00	0.330	326.69	0.07	0.07	0.00	0.00
46.00	0.00	0.329	326.68	0.07	0.07	0.00	0.00
46.20	0.00	0.328	326.68	0.07	0.07	0.00	0.00
46.40	0.00	0.326	326.67	0.07	0.07	0.00	0.00
46.60	0.00	0.325	326.66	0.07	0.07	0.00	0.00
46.80	0.00	0.324	326.65	0.07	0.07	0.00	0.00
47.00	0.00	0.323	326.65	0.07	0.07	0.00	0.00
47.20	0.00	0.322	326.64	0.07	0.07	0.00	0.00
47.40	0.00	0.320	326.63	0.07	0.07	0.00	0.00
47.60	0.00	0.319	326.62	0.07	0.07	0.00	0.00
47.80	0.00	0.318	326.62	0.07	0.07	0.00	0.00
48.00	0.00	0.317	326.61	0.07	0.07	0.00	0.00
48.20	0.00	0.315	326.60	0.07	0.07	0.00	0.00
48.40	0.00	0.314	326.59	0.07	0.07	0.00	0.00
48.60	0.00	0.313	326.59	0.07	0.07	0.00	0.00
48.80	0.00	0.312	326.58	0.07	0.07	0.00	0.00
49.00	0.00	0.311	326.57	0.07	0.07	0.00	0.00
49.20	0.00	0.309	326.56	0.07	0.07	0.00	0.00
49.40	0.00	0.308	326.56	0.07	0.07	0.00	0.00
49.60	0.00	0.307	326.55	0.07	0.07	0.00	0.00
49.80	0.00	0.306	326.54	0.07	0.07	0.00	0.00
50.00	0.00	0.304	326.53	0.07	0.07	0.00	0.00
50.20	0.00	0.303	326.53	0.07	0.07	0.00	0.00
50.40	0.00	0.302	326.52	0.07	0.07	0.00	0.00
50.60	0.00	0.301	326.51	0.07	0.07	0.00	0.00
50.80	0.00	0.300	326.50	0.07	0.07	0.00	0.00
51.00	0.00	0.298	326.49	0.07	0.07	0.00	0.00
51.20	0.00	0.297	326.49	0.07	0.07	0.00	0.00
51.40	0.00	0.296	326.48	0.07	0.07	0.00	0.00
51.60	0.00	0.295	326.47	0.07	0.07	0.00	0.00
51.80	0.00	0.293	326.46	0.07	0.07	0.00	0.00
52.00	0.00	0.292	326.45	0.07	0.07	0.00	0.00
52.20	0.00	0.291	326.44	0.07	0.07	0.00	0.00
52.40	0.00	0.290	326.43	0.07	0.07	0.00	0.00
52.60	0.00	0.288	326.42	0.07	0.07	0.00	0.00
52.80	0.00	0.287	326.42	0.07	0.07	0.00	0.00

Hydrograph for Pond 118P: Basin H (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
53.00	0.00	0.286	326.41	0.07	0.07	0.00	0.00
53.20	0.00	0.285	326.40	0.07	0.07	0.00	0.00
53.40	0.00	0.284	326.39	0.07	0.07	0.00	0.00
53.60	0.00	0.282	326.38	0.07	0.07	0.00	0.00
53.80	0.00	0.281	326.37	0.07	0.07	0.00	0.00
54.00	0.00	0.280	326.36	0.07	0.07	0.00	0.00
54.20	0.00	0.279	326.36	0.07	0.07	0.00	0.00
54.40	0.00	0.277	326.35	0.07	0.07	0.00	0.00
54.60	0.00	0.276	326.34	0.07	0.07	0.00	0.00
54.80	0.00	0.275	326.33	0.07	0.07	0.00	0.00
55.00	0.00	0.274	326.32	0.07	0.07	0.00	0.00
55.20	0.00	0.273	326.31	0.07	0.07	0.00	0.00
55.40	0.00	0.271	326.30	0.07	0.07	0.00	0.00
55.60	0.00	0.270	326.29	0.07	0.07	0.00	0.00
55.80	0.00	0.269	326.29	0.07	0.07	0.00	0.00
56.00	0.00	0.268	326.28	0.07	0.07	0.00	0.00
56.20	0.00	0.266	326.27	0.07	0.07	0.00	0.00
56.40	0.00	0.265	326.26	0.07	0.07	0.00	0.00
56.60	0.00	0.264	326.25	0.07	0.07	0.00	0.00
56.80	0.00	0.263	326.24	0.07	0.07	0.00	0.00
57.00	0.00	0.262	326.23	0.07	0.07	0.00	0.00
57.20	0.00	0.260	326.23	0.07	0.07	0.00	0.00
57.40	0.00	0.259	326.22	0.07	0.07	0.00	0.00
57.60	0.00	0.258	326.21	0.07	0.07	0.00	0.00
57.80	0.00	0.257	326.20	0.07	0.07	0.00	0.00
58.00	0.00	0.255	326.19	0.07	0.07	0.00	0.00
58.20	0.00	0.254	326.18	0.07	0.07	0.00	0.00
58.40	0.00	0.253	326.17	0.07	0.07	0.00	0.00
58.60	0.00	0.252	326.16	0.07	0.07	0.00	0.00
58.80	0.00	0.251	326.16	0.07	0.07	0.00	0.00
59.00	0.00	0.249	326.15	0.07	0.07	0.00	0.00
59.20	0.00	0.248	326.14	0.07	0.07	0.00	0.00
59.40	0.00	0.247	326.13	0.07	0.07	0.00	0.00
59.60	0.00	0.246	326.12	0.07	0.07	0.00	0.00
59.80	0.00	0.244	326.11	0.07	0.07	0.00	0.00
60.00	0.00	0.243	326.10	0.07	0.07	0.00	0.00

Basin I

Summary for Pond 75P: Basin I

[78] Warning: Submerged Pond 118P Secondary device # 3 by 6.44'
[80] Warning: Exceeded Pond 118P by 2.70' @ 59.99 hrs (0.15 cfs 0.517 af)

Inflow = 53.86 cfs @ 12.00 hrs, Volume= 2.451 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Starting Elev= 320.00' Surf.Area= 0.161 ac Storage= 0.077 af
Peak Elev= 328.75' @ 60.00 hrs Surf.Area= 0.418 ac Storage= 2.528 af (2.451 af above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	319.00'	3.008 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
319.00	0.000	0.000	0.000
319.50	0.074	0.019	0.019
320.00	0.161	0.059	0.077
320.50	0.173	0.084	0.161
321.00	0.185	0.090	0.250
321.50	0.197	0.095	0.346
322.00	0.210	0.102	0.447
322.50	0.223	0.108	0.556
323.00	0.236	0.115	0.670
323.50	0.250	0.122	0.792
324.00	0.264	0.129	0.920
324.50	0.279	0.136	1.056
325.00	0.294	0.143	1.200
325.50	0.309	0.151	1.350
326.00	0.324	0.158	1.508
326.50	0.340	0.166	1.675
327.00	0.357	0.174	1.849
327.50	0.374	0.183	2.032
328.00	0.391	0.191	2.223
328.50	0.409	0.200	2.423
329.00	0.427	0.209	2.632
329.50	0.446	0.218	2.850
329.85	0.456	0.158	3.008

Hydrograph for Pond 75P: Basin I

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
0.00	0.00	0.077	320.00	5.30	0.00	0.077	320.00
0.10	0.00	0.077	320.00	5.40	0.00	0.077	320.00
0.20	0.00	0.077	320.00	5.50	0.00	0.077	320.00
0.30	0.00	0.077	320.00	5.60	0.00	0.077	320.00
0.40	0.00	0.077	320.00	5.70	0.00	0.077	320.00
0.50	0.00	0.077	320.00	5.80	0.00	0.077	320.00
0.60	0.00	0.077	320.00	5.90	0.00	0.077	320.00
0.70	0.00	0.077	320.00	6.00	0.00	0.077	320.00
0.80	0.00	0.077	320.00	6.10	0.00	0.077	320.00
0.90	0.00	0.077	320.00	6.20	0.00	0.077	320.00
1.00	0.00	0.077	320.00	6.30	0.00	0.077	320.00
1.10	0.00	0.077	320.00	6.40	0.00	0.077	320.00
1.20	0.00	0.077	320.00	6.50	0.00	0.077	320.00
1.30	0.00	0.077	320.00	6.60	0.00	0.077	320.00
1.40	0.00	0.077	320.00	6.70	0.00	0.077	320.00
1.50	0.00	0.077	320.00	6.80	0.00	0.077	320.00
1.60	0.00	0.077	320.00	6.90	0.00	0.077	320.00
1.70	0.00	0.077	320.00	7.00	0.00	0.077	320.00
1.80	0.00	0.077	320.00	7.10	0.00	0.077	320.00
1.90	0.00	0.077	320.00	7.20	0.00	0.077	320.00
2.00	0.00	0.077	320.00	7.30	0.00	0.077	320.00
2.10	0.00	0.077	320.00	7.40	0.00	0.077	320.00
2.20	0.00	0.077	320.00	7.50	0.00	0.077	320.00
2.30	0.00	0.077	320.00	7.60	0.00	0.077	320.00
2.40	0.00	0.077	320.00	7.70	0.00	0.077	320.00
2.50	0.00	0.077	320.00	7.80	0.00	0.077	320.00
2.60	0.00	0.077	320.00	7.90	0.00	0.077	320.00
2.70	0.00	0.077	320.00	8.00	0.00	0.077	320.00
2.80	0.00	0.077	320.00	8.10	0.00	0.077	320.00
2.90	0.00	0.077	320.00	8.20	0.00	0.077	320.00
3.00	0.00	0.077	320.00	8.30	0.00	0.077	320.00
3.10	0.00	0.077	320.00	8.40	0.00	0.077	320.00
3.20	0.00	0.077	320.00	8.50	0.00	0.077	320.00
3.30	0.00	0.077	320.00	8.60	0.00	0.077	320.00
3.40	0.00	0.077	320.00	8.70	0.00	0.077	320.00
3.50	0.00	0.077	320.00	8.80	0.00	0.077	320.00
3.60	0.00	0.077	320.00	8.90	0.00	0.077	320.00
3.70	0.00	0.077	320.00	9.00	0.00	0.077	320.00
3.80	0.00	0.077	320.00	9.10	0.00	0.077	320.00
3.90	0.00	0.077	320.00	9.20	0.00	0.077	320.00
4.00	0.00	0.077	320.00	9.30	0.00	0.077	320.00
4.10	0.00	0.077	320.00	9.40	0.00	0.077	320.00
4.20	0.00	0.077	320.00	9.50	0.00	0.077	320.00
4.30	0.00	0.077	320.00	9.60	0.00	0.077	320.00
4.40	0.00	0.077	320.00	9.70	0.00	0.077	320.00
4.50	0.00	0.077	320.00	9.80	0.00	0.077	320.00
4.60	0.00	0.077	320.00	9.90	0.00	0.077	320.00
4.70	0.00	0.077	320.00	10.00	0.00	0.077	320.00
4.80	0.00	0.077	320.00	10.10	0.00	0.077	320.00
4.90	0.00	0.077	320.00	10.20	0.00	0.077	320.00
5.00	0.00	0.077	320.00	10.30	0.00	0.077	320.00
5.10	0.00	0.077	320.00	10.40	0.00	0.077	320.00
5.20	0.00	0.077	320.00	10.50	0.00	0.077	320.00

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
10.60	0.00	0.077	320.00	15.90	1.11	2.056	327.56
10.70	0.00	0.077	320.00	16.00	1.08	2.065	327.59
10.80	0.00	0.077	320.00	16.10	1.05	2.073	327.61
10.90	0.00	0.077	320.00	16.20	1.02	2.082	327.63
11.00	0.00	0.077	320.00	16.30	1.01	2.090	327.66
11.10	0.00	0.077	320.00	16.40	0.99	2.099	327.68
11.20	0.00	0.077	320.00	16.50	0.98	2.107	327.70
11.30	0.00	0.077	320.00	16.60	0.97	2.115	327.72
11.40	0.00	0.077	320.00	16.70	0.96	2.123	327.74
11.50	0.00	0.077	320.00	16.80	0.95	2.131	327.76
11.60	1.61	0.081	320.02	16.90	0.94	2.138	327.78
11.70	7.41	0.112	320.21	17.00	0.93	2.146	327.80
11.80	17.07	0.208	320.77	17.10	0.92	2.154	327.82
11.90	32.81	0.399	321.76	17.20	0.90	2.161	327.84
12.00	**53.84**	0.760	323.37	17.30	0.89	2.169	327.86
12.10	29.09	1.136	324.78	17.40	0.88	2.176	327.88
12.20	11.99	1.297	325.32	17.50	0.87	2.183	327.90
12.30	7.89	1.377	325.59	17.60	0.86	2.190	327.92
12.40	6.38	1.436	325.77	17.70	0.85	2.198	327.94
12.50	5.35	1.485	325.93	17.80	0.84	2.205	327.95
12.60	4.43	1.525	326.05	17.90	0.83	2.211	327.97
12.70	3.85	1.560	326.16	18.00	0.82	2.218	327.99
12.80	3.52	1.590	326.25	18.10	0.81	2.225	328.01
12.90	3.27	1.618	326.33	18.20	0.80	2.232	328.02
13.00	3.05	1.644	326.41	18.30	0.79	2.238	328.04
13.10	2.83	1.669	326.48	18.40	0.78	2.245	328.06
13.20	2.66	1.691	326.55	18.50	0.76	2.251	328.07
13.30	2.52	1.713	326.61	18.60	0.75	2.257	328.09
13.40	2.39	1.733	326.67	18.70	0.74	2.263	328.10
13.50	2.27	1.753	326.73	18.80	0.73	2.270	328.12
13.60	2.15	1.771	326.78	18.90	0.72	2.276	328.13
13.70	2.05	1.788	326.83	19.00	0.71	2.282	328.15
13.80	1.96	1.805	326.88	19.10	0.70	2.287	328.16
13.90	1.87	1.821	326.92	19.20	0.69	2.293	328.18
14.00	1.78	1.836	326.96	19.30	0.68	2.299	328.19
14.10	1.70	1.850	327.00	19.40	0.67	2.304	328.21
14.20	1.64	1.864	327.04	19.50	0.66	2.310	328.22
14.30	1.59	1.877	327.08	19.60	0.65	2.315	328.23
14.40	1.56	1.890	327.12	19.70	0.63	2.320	328.25
14.50	1.52	1.903	327.15	19.80	0.62	2.326	328.26
14.60	1.49	1.916	327.19	19.90	0.61	2.331	328.27
14.70	1.46	1.928	327.22	20.00	0.60	2.336	328.29
14.80	1.43	1.940	327.25	20.10	0.59	2.341	328.30
14.90	1.40	1.952	327.28	20.20	0.58	2.346	328.31
15.00	1.38	1.963	327.32	20.30	0.58	2.350	328.32
15.10	1.35	1.974	327.35	20.40	0.57	2.355	328.33
15.20	1.32	1.985	327.38	20.50	0.57	2.360	328.35
15.30	1.29	1.996	327.40	20.60	0.57	2.365	328.36
15.40	1.26	2.007	327.43	20.70	0.57	2.369	328.37
15.50	1.23	2.017	327.46	20.80	0.56	2.374	328.38
15.60	1.20	2.027	327.49	20.90	0.56	2.379	328.39
15.70	1.17	2.037	327.51	21.00	0.56	2.383	328.40
15.80	1.14	2.046	327.54	21.10	0.56	2.388	328.41

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
21.20	0.55	2.392	328.43	26.50	0.00	2.528	328.75
21.30	0.55	2.397	328.44	26.60	0.00	2.528	328.75
21.40	0.55	2.402	328.45	26.70	0.00	2.528	328.75
21.50	0.55	2.406	328.46	26.80	0.00	2.528	328.75
21.60	0.55	2.411	328.47	26.90	0.00	2.528	328.75
21.70	0.54	2.415	328.48	27.00	0.00	2.528	328.75
21.80	0.54	2.420	328.49	27.10	0.00	2.528	328.75
21.90	0.54	2.424	328.50	27.20	0.00	2.528	328.75
22.00	0.54	2.429	328.51	27.30	0.00	2.528	328.75
22.10	0.54	2.433	328.52	27.40	0.00	2.528	328.75
22.20	0.53	2.437	328.54	27.50	0.00	2.528	328.75
22.30	0.53	2.442	328.55	27.60	0.00	2.528	328.75
22.40	0.53	2.446	328.56	27.70	0.00	2.528	328.75
22.50	0.53	2.450	328.57	27.80	0.00	2.528	328.75
22.60	0.52	2.455	328.58	27.90	0.00	2.528	328.75
22.70	0.52	2.459	328.59	28.00	0.00	2.528	328.75
22.80	0.52	2.463	328.60	28.10	0.00	2.528	328.75
22.90	0.52	2.468	328.61	28.20	0.00	2.528	328.75
23.00	0.52	2.472	328.62	28.30	0.00	2.528	328.75
23.10	0.51	2.476	328.63	28.40	0.00	2.528	328.75
23.20	0.51	2.481	328.64	28.50	0.00	2.528	328.75
23.30	0.51	2.485	328.65	28.60	0.00	2.528	328.75
23.40	0.51	2.489	328.66	28.70	0.00	2.528	328.75
23.50	0.50	2.493	328.67	28.80	0.00	2.528	328.75
23.60	0.50	2.497	328.68	28.90	0.00	2.528	328.75
23.70	0.50	2.501	328.69	29.00	0.00	2.528	328.75
23.80	0.50	2.506	328.70	29.10	0.00	2.528	328.75
23.90	0.50	2.510	328.71	29.20	0.00	2.528	328.75
24.00	0.49	2.514	328.72	29.30	0.00	2.528	328.75
24.10	0.45	2.518	328.73	29.40	0.00	2.528	328.75
24.20	0.29	2.521	328.74	29.50	0.00	2.528	328.75
24.30	0.18	2.523	328.74	29.60	0.00	2.528	328.75
24.40	0.12	2.524	328.74	29.70	0.00	2.528	328.75
24.50	0.08	2.525	328.75	29.80	0.00	2.528	328.75
24.60	0.06	2.525	328.75	29.90	0.00	2.528	328.75
24.70	0.05	2.526	328.75	30.00	0.00	2.528	328.75
24.80	0.04	2.526	328.75	30.10	0.00	2.528	328.75
24.90	0.03	2.527	328.75	30.20	0.00	2.528	328.75
25.00	0.02	2.527	328.75	30.30	0.00	2.528	328.75
25.10	0.02	2.527	328.75	30.40	0.00	2.528	328.75
25.20	0.02	2.527	328.75	30.50	0.00	2.528	328.75
25.30	0.01	2.527	328.75	30.60	0.00	2.528	328.75
25.40	0.01	2.527	328.75	30.70	0.00	2.528	328.75
25.50	0.01	2.527	328.75	30.80	0.00	2.528	328.75
25.60	0.01	2.527	328.75	30.90	0.00	2.528	328.75
25.70	0.01	2.527	328.75	31.00	0.00	2.528	328.75
25.80	0.01	2.528	328.75	31.10	0.00	2.528	328.75
25.90	0.01	2.528	328.75	31.20	0.00	2.528	328.75
26.00	0.00	2.528	328.75	31.30	0.00	2.528	328.75
26.10	0.00	2.528	328.75	31.40	0.00	2.528	328.75
26.20	0.00	2.528	328.75	31.50	0.00	2.528	328.75
26.30	0.00	2.528	328.75	31.60	0.00	2.528	328.75
26.40	0.00	2.528	328.75	31.70	0.00	2.528	328.75

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
31.80	0.00	2.528	328.75	37.10	0.00	2.528	328.75
31.90	0.00	2.528	328.75	37.20	0.00	2.528	328.75
32.00	0.00	2.528	328.75	37.30	0.00	2.528	328.75
32.10	0.00	2.528	328.75	37.40	0.00	2.528	328.75
32.20	0.00	2.528	328.75	37.50	0.00	2.528	328.75
32.30	0.00	2.528	328.75	37.60	0.00	2.528	328.75
32.40	0.00	2.528	328.75	37.70	0.00	2.528	328.75
32.50	0.00	2.528	328.75	37.80	0.00	2.528	328.75
32.60	0.00	2.528	328.75	37.90	0.00	2.528	328.75
32.70	0.00	2.528	328.75	38.00	0.00	2.528	328.75
32.80	0.00	2.528	328.75	38.10	0.00	2.528	328.75
32.90	0.00	2.528	328.75	38.20	0.00	2.528	328.75
33.00	0.00	2.528	328.75	38.30	0.00	2.528	328.75
33.10	0.00	2.528	328.75	38.40	0.00	2.528	328.75
33.20	0.00	2.528	328.75	38.50	0.00	2.528	328.75
33.30	0.00	2.528	328.75	38.60	0.00	2.528	328.75
33.40	0.00	2.528	328.75	38.70	0.00	2.528	328.75
33.50	0.00	2.528	328.75	38.80	0.00	2.528	328.75
33.60	0.00	2.528	328.75	38.90	0.00	2.528	328.75
33.70	0.00	2.528	328.75	39.00	0.00	2.528	328.75
33.80	0.00	2.528	328.75	39.10	0.00	2.528	328.75
33.90	0.00	2.528	328.75	39.20	0.00	2.528	328.75
34.00	0.00	2.528	328.75	39.30	0.00	2.528	328.75
34.10	0.00	2.528	328.75	39.40	0.00	2.528	328.75
34.20	0.00	2.528	328.75	39.50	0.00	2.528	328.75
34.30	0.00	2.528	328.75	39.60	0.00	2.528	328.75
34.40	0.00	2.528	328.75	39.70	0.00	2.528	328.75
34.50	0.00	2.528	328.75	39.80	0.00	2.528	328.75
34.60	0.00	2.528	328.75	39.90	0.00	2.528	328.75
34.70	0.00	2.528	328.75	40.00	0.00	2.528	328.75
34.80	0.00	2.528	328.75	40.10	0.00	2.528	328.75
34.90	0.00	2.528	328.75	40.20	0.00	2.528	328.75
35.00	0.00	2.528	328.75	40.30	0.00	2.528	328.75
35.10	0.00	2.528	328.75	40.40	0.00	2.528	328.75
35.20	0.00	2.528	328.75	40.50	0.00	2.528	328.75
35.30	0.00	2.528	328.75	40.60	0.00	2.528	328.75
35.40	0.00	2.528	328.75	40.70	0.00	2.528	328.75
35.50	0.00	2.528	328.75	40.80	0.00	2.528	328.75
35.60	0.00	2.528	328.75	40.90	0.00	2.528	328.75
35.70	0.00	2.528	328.75	41.00	0.00	2.528	328.75
35.80	0.00	2.528	328.75	41.10	0.00	2.528	328.75
35.90	0.00	2.528	328.75	41.20	0.00	2.528	328.75
36.00	0.00	2.528	328.75	41.30	0.00	2.528	328.75
36.10	0.00	2.528	328.75	41.40	0.00	2.528	328.75
36.20	0.00	2.528	328.75	41.50	0.00	2.528	328.75
36.30	0.00	2.528	328.75	41.60	0.00	2.528	328.75
36.40	0.00	2.528	328.75	41.70	0.00	2.528	328.75
36.50	0.00	2.528	328.75	41.80	0.00	2.528	328.75
36.60	0.00	2.528	328.75	41.90	0.00	2.528	328.75
36.70	0.00	2.528	328.75	42.00	0.00	2.528	328.75
36.80	0.00	2.528	328.75	42.10	0.00	2.528	328.75
36.90	0.00	2.528	328.75	42.20	0.00	2.528	328.75
37.00	0.00	2.528	328.75	42.30	0.00	2.528	328.75

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
42.40	0.00	2.528	328.75	47.70	0.00	2.528	328.75
42.50	0.00	2.528	328.75	47.80	0.00	2.528	328.75
42.60	0.00	2.528	328.75	47.90	0.00	2.528	328.75
42.70	0.00	2.528	328.75	48.00	0.00	2.528	328.75
42.80	0.00	2.528	328.75	48.10	0.00	2.528	328.75
42.90	0.00	2.528	328.75	48.20	0.00	2.528	328.75
43.00	0.00	2.528	328.75	48.30	0.00	2.528	328.75
43.10	0.00	2.528	328.75	48.40	0.00	2.528	328.75
43.20	0.00	2.528	328.75	48.50	0.00	2.528	328.75
43.30	0.00	2.528	328.75	48.60	0.00	2.528	328.75
43.40	0.00	2.528	328.75	48.70	0.00	2.528	328.75
43.50	0.00	2.528	328.75	48.80	0.00	2.528	328.75
43.60	0.00	2.528	328.75	48.90	0.00	2.528	328.75
43.70	0.00	2.528	328.75	49.00	0.00	2.528	328.75
43.80	0.00	2.528	328.75	49.10	0.00	2.528	328.75
43.90	0.00	2.528	328.75	49.20	0.00	2.528	328.75
44.00	0.00	2.528	328.75	49.30	0.00	2.528	328.75
44.10	0.00	2.528	328.75	49.40	0.00	2.528	328.75
44.20	0.00	2.528	328.75	49.50	0.00	2.528	328.75
44.30	0.00	2.528	328.75	49.60	0.00	2.528	328.75
44.40	0.00	2.528	328.75	49.70	0.00	2.528	328.75
44.50	0.00	2.528	328.75	49.80	0.00	2.528	328.75
44.60	0.00	2.528	328.75	49.90	0.00	2.528	328.75
44.70	0.00	2.528	328.75	50.00	0.00	2.528	328.75
44.80	0.00	2.528	328.75	50.10	0.00	2.528	328.75
44.90	0.00	2.528	328.75	50.20	0.00	2.528	328.75
45.00	0.00	2.528	328.75	50.30	0.00	2.528	328.75
45.10	0.00	2.528	328.75	50.40	0.00	2.528	328.75
45.20	0.00	2.528	328.75	50.50	0.00	2.528	328.75
45.30	0.00	2.528	328.75	50.60	0.00	2.528	328.75
45.40	0.00	2.528	328.75	50.70	0.00	2.528	328.75
45.50	0.00	2.528	328.75	50.80	0.00	2.528	328.75
45.60	0.00	2.528	328.75	50.90	0.00	2.528	328.75
45.70	0.00	2.528	328.75	51.00	0.00	2.528	328.75
45.80	0.00	2.528	328.75	51.10	0.00	2.528	328.75
45.90	0.00	2.528	328.75	51.20	0.00	2.528	328.75
46.00	0.00	2.528	328.75	51.30	0.00	2.528	328.75
46.10	0.00	2.528	328.75	51.40	0.00	2.528	328.75
46.20	0.00	2.528	328.75	51.50	0.00	2.528	328.75
46.30	0.00	2.528	328.75	51.60	0.00	2.528	328.75
46.40	0.00	2.528	328.75	51.70	0.00	2.528	328.75
46.50	0.00	2.528	328.75	51.80	0.00	2.528	328.75
46.60	0.00	2.528	328.75	51.90	0.00	2.528	328.75
46.70	0.00	2.528	328.75	52.00	0.00	2.528	328.75
46.80	0.00	2.528	328.75	52.10	0.00	2.528	328.75
46.90	0.00	2.528	328.75	52.20	0.00	2.528	328.75
47.00	0.00	2.528	328.75	52.30	0.00	2.528	328.75
47.10	0.00	2.528	328.75	52.40	0.00	2.528	328.75
47.20	0.00	2.528	328.75	52.50	0.00	2.528	328.75
47.30	0.00	2.528	328.75	52.60	0.00	2.528	328.75
47.40	0.00	2.528	328.75	52.70	0.00	2.528	328.75
47.50	0.00	2.528	328.75	52.80	0.00	2.528	328.75
47.60	0.00	2.528	328.75	52.90	0.00	2.528	328.75

Hydrograph for Pond 75P: Basin I (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)
53.00	0.00	2.528	328.75
53.10	0.00	2.528	328.75
53.20	0.00	2.528	328.75
53.30	0.00	2.528	328.75
53.40	0.00	2.528	328.75
53.50	0.00	2.528	328.75
53.60	0.00	2.528	328.75
53.70	0.00	2.528	328.75
53.80	0.00	2.528	328.75
53.90	0.00	2.528	328.75
54.00	0.00	2.528	328.75
54.10	0.00	2.528	328.75
54.20	0.00	2.528	328.75
54.30	0.00	2.528	328.75
54.40	0.00	2.528	328.75
54.50	0.00	2.528	328.75
54.60	0.00	2.528	328.75
54.70	0.00	2.528	328.75
54.80	0.00	2.528	328.75
54.90	0.00	2.528	328.75
55.00	0.00	2.528	328.75
55.10	0.00	2.528	328.75
55.20	0.00	2.528	328.75
55.30	0.00	2.528	328.75
55.40	0.00	2.528	328.75
55.50	0.00	2.528	328.75
55.60	0.00	2.528	328.75
55.70	0.00	2.528	328.75
55.80	0.00	2.528	328.75
55.90	0.00	2.528	328.75
56.00	0.00	2.528	328.75
56.10	0.00	2.528	328.75
56.20	0.00	2.528	328.75
56.30	0.00	2.528	328.75
56.40	0.00	2.528	328.75
56.50	0.00	2.528	328.75
56.60	0.00	2.528	328.75
56.70	0.00	2.528	328.75
56.80	0.00	2.528	328.75
56.90	0.00	2.528	328.75
57.00	0.00	2.528	328.75
57.10	0.00	2.528	328.75
57.20	0.00	2.528	328.75
57.30	0.00	2.528	328.75
57.40	0.00	2.528	328.75
57.50	0.00	2.528	328.75
57.60	0.00	2.528	328.75
57.70	0.00	2.528	328.75
57.80	0.00	2.528	328.75
57.90	0.00	2.528	328.75
58.00	0.00	2.528	328.75
58.10	0.00	2.528	328.75
58.20	0.00	2.528	328.75
58.30	0.00	2.528	328.75
58.40	0.00	2.528	328.75
58.50	0.00	2.528	328.75
58.60	0.00	2.528	328.75
58.70	0.00	2.528	328.75
58.80	0.00	2.528	328.75
58.90	0.00	2.528	328.75
59.00	0.00	2.528	328.75
59.10	0.00	2.528	328.75
59.20	0.00	2.528	328.75
59.30	0.00	2.528	328.75
59.40	0.00	2.528	328.75
59.50	0.00	2.528	328.75
59.60	0.00	2.528	328.75
59.70	0.00	2.528	328.75
59.80	0.00	2.528	328.75
59.90	0.00	2.528	328.75
60.00	0.00	**2.528**	**328.75**

Temporary Retention Area

Summary for Pond 104P: Temporary retention area

Inflow Area = 11.610 ac, 0.00% Impervious, Inflow Depth = 2.92"
Inflow = 57.45 cfs @ 11.97 hrs, Volume= 2.824 af
Outflow = 53.86 cfs @ 12.00 hrs, Volume= 2.451 af, Atten= 6%, Lag= 1.9 min
Primary = 53.86 cfs @ 12.00 hrs, Volume= 2.451 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Starting Elev= 334.00' Surf.Area= 0.017 ac Storage= 0.007 af
Peak Elev= 338.09' @ 12.00 hrs Surf.Area= 0.235 ac Storage= 0.619 af (0.613 af above start)

Plug-Flow detention time= 100.8 min calculated for 2.444 af (87% of inflow)
Center-of-Mass det. time= 37.2 min (832.6 - 795.4)

Volume	Invert	Avail.Storage	Storage Description
#1	333.00'	0.820 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
333.00	0.000	0.000	0.000
333.50	0.005	0.001	0.001
334.00	0.017	0.006	0.007
334.50	0.063	0.020	0.027
335.00	0.095	0.039	0.066
335.50	0.131	0.057	0.123
336.00	0.158	0.072	0.195
336.50	0.189	0.087	0.282
337.00	0.205	0.098	0.380
337.50	0.219	0.106	0.486
338.00	0.233	0.113	0.599
338.50	0.247	0.120	0.719
338.90	0.259	0.101	0.820

Device	Routing	Invert	Outlet Devices
#1	Primary	337.00'	**18.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=53.80 cfs @ 12.00 hrs HW=338.08' TW=323.41' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 53.80 cfs @ 2.76 fps)

Hydrograph for Pond 104P: Temporary retention area

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.007	334.00	0.00
0.20	0.00	0.007	334.00	0.00
0.40	0.00	0.007	334.00	0.00
0.60	0.00	0.007	334.00	0.00
0.80	0.00	0.007	334.00	0.00
1.00	0.00	0.007	334.00	0.00
1.20	0.00	0.007	334.00	0.00
1.40	0.00	0.007	334.00	0.00
1.60	0.00	0.007	334.00	0.00
1.80	0.00	0.007	334.00	0.00
2.00	0.00	0.007	334.00	0.00
2.20	0.00	0.007	334.00	0.00
2.40	0.00	0.007	334.00	0.00
2.60	0.00	0.007	334.00	0.00
2.80	0.00	0.007	334.00	0.00
3.00	0.00	0.007	334.00	0.00
3.20	0.00	0.007	334.00	0.00
3.40	0.00	0.007	334.00	0.00
3.60	0.00	0.007	334.00	0.00
3.80	0.00	0.007	334.00	0.00
4.00	0.00	0.007	334.00	0.00
4.20	0.00	0.007	334.00	0.00
4.40	0.00	0.007	334.00	0.00
4.60	0.00	0.007	334.00	0.00
4.80	0.01	0.007	334.01	0.00
5.00	0.03	0.007	334.02	0.00
5.20	0.05	0.008	334.06	0.00
5.40	0.07	0.009	334.09	0.00
5.60	0.08	0.010	334.14	0.00
5.80	0.10	0.012	334.19	0.00
6.00	0.12	0.013	334.24	0.00
6.20	0.14	0.016	334.29	0.00
6.40	0.16	0.018	334.34	0.00
6.60	0.18	0.021	334.40	0.00
6.80	0.20	0.024	334.46	0.00
7.00	0.23	0.028	334.51	0.00
7.20	0.25	0.032	334.57	0.00
7.40	0.27	0.036	334.63	0.00
7.60	0.29	0.040	334.70	0.00
7.80	0.32	0.046	334.76	0.00
8.00	0.34	0.051	334.83	0.00
8.20	0.38	0.057	334.90	0.00
8.40	0.43	0.063	334.97	0.00
8.60	0.49	0.071	335.05	0.00
8.80	0.55	0.080	335.13	0.00
9.00	0.62	0.089	335.22	0.00
9.20	0.67	0.100	335.32	0.00
9.40	0.69	0.111	335.41	0.00
9.60	0.73	0.123	335.50	0.00
9.80	0.82	0.136	335.60	0.00
10.00	0.93	0.150	335.70	0.00
10.20	1.07	0.166	335.81	0.00
10.40	1.23	0.185	335.94	0.00

Hydrograph for Pond 104P: Temporary retention area (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
10.60	1.42	0.207	336.08	0.00
10.80	1.69	0.233	336.23	0.00
11.00	1.98	0.263	336.40	0.00
11.20	2.48	0.299	336.59	0.00
11.40	3.19	0.345	336.83	0.00
11.60	5.56	0.403	337.11	1.61
11.80	**22.43**	0.488	337.51	17.07
12.00	**52.92**	**0.619**	**338.09**	**53.84**
12.20	8.10	0.466	337.41	11.99
12.40	5.59	0.437	337.27	6.38
12.60	3.82	0.425	337.22	4.43
12.80	3.28	0.419	337.19	3.52
13.00	2.84	0.415	337.17	3.05
13.20	2.51	0.412	337.15	2.66
13.40	2.27	0.410	337.14	2.39
13.60	2.04	0.408	337.13	2.15
13.80	1.86	0.406	337.13	1.96
14.00	1.69	0.405	337.12	1.78
14.20	1.58	0.403	337.11	1.64
14.40	1.52	0.403	337.11	1.56
14.60	1.46	0.402	337.10	1.49
14.80	1.40	0.401	337.10	1.43
15.00	1.34	0.401	337.10	1.38
15.20	1.28	0.400	337.10	1.32
15.40	1.22	0.400	337.09	1.26
15.60	1.16	0.399	337.09	1.20
15.80	1.10	0.398	337.09	1.14
16.00	1.04	0.398	337.08	1.08
16.20	1.00	0.397	337.08	1.02
16.40	0.98	0.397	337.08	0.99
16.60	0.95	0.396	337.08	0.97
16.80	0.93	0.396	337.08	0.95
17.00	0.91	0.396	337.08	0.93
17.20	0.89	0.396	337.08	0.90
17.40	0.87	0.395	337.07	0.88
17.60	0.85	0.395	337.07	0.86
17.80	0.82	0.395	337.07	0.84
18.00	0.80	0.395	337.07	0.82
18.20	0.78	0.394	337.07	0.80
18.40	0.76	0.394	337.07	0.78
18.60	0.74	0.394	337.07	0.75
18.80	0.72	0.394	337.07	0.73
19.00	0.69	0.393	337.06	0.71
19.20	0.67	0.393	337.06	0.69
19.40	0.65	0.393	337.06	0.67
19.60	0.63	0.393	337.06	0.65
19.80	0.61	0.392	337.06	0.62
20.00	0.58	0.392	337.06	0.60
20.20	0.57	0.392	337.06	0.58
20.40	0.57	0.392	337.06	0.57
20.60	0.56	0.392	337.06	0.57
20.80	0.56	0.392	337.05	0.56
21.00	0.56	0.391	337.05	0.56

Hydrograph for Pond 104P: Temporary retention area (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
21.20	0.55	0.391	337.05	0.55
21.40	0.55	0.391	337.05	0.55
21.60	0.54	0.391	337.05	0.55
21.80	0.54	0.391	337.05	0.54
22.00	0.53	0.391	337.05	0.54
22.20	0.53	0.391	337.05	0.53
22.40	0.53	0.391	337.05	0.53
22.60	0.52	0.391	337.05	0.52
22.80	0.52	0.391	337.05	0.52
23.00	0.51	0.391	337.05	0.52
23.20	0.51	0.391	337.05	0.51
23.40	0.50	0.391	337.05	0.51
23.60	0.50	0.391	337.05	0.50
23.80	0.49	0.391	337.05	0.50
24.00	0.49	0.391	337.05	0.49
24.20	0.01	0.387	337.03	0.29
24.40	0.00	0.384	337.02	0.12
24.60	0.00	0.383	337.01	0.06
24.80	0.00	0.382	337.01	0.04
25.00	0.00	0.382	337.01	0.02
25.20	0.00	0.381	337.00	0.02
25.40	0.00	0.381	337.00	0.01
25.60	0.00	0.381	337.00	0.01
25.80	0.00	0.381	337.00	0.01
26.00	0.00	0.381	337.00	0.00
26.20	0.00	0.381	337.00	0.00
26.40	0.00	0.381	337.00	0.00
26.60	0.00	0.381	337.00	0.00
26.80	0.00	0.381	337.00	0.00
27.00	0.00	0.380	337.00	0.00
27.20	0.00	0.380	337.00	0.00
27.40	0.00	0.380	337.00	0.00
27.60	0.00	0.380	337.00	0.00
27.80	0.00	0.380	337.00	0.00
28.00	0.00	0.380	337.00	0.00
28.20	0.00	0.380	337.00	0.00
28.40	0.00	0.380	337.00	0.00
28.60	0.00	0.380	337.00	0.00
28.80	0.00	0.380	337.00	0.00
29.00	0.00	0.380	337.00	0.00
29.20	0.00	0.380	337.00	0.00
29.40	0.00	0.380	337.00	0.00
29.60	0.00	0.380	337.00	0.00
29.80	0.00	0.380	337.00	0.00
30.00	0.00	0.380	337.00	0.00
30.20	0.00	0.380	337.00	0.00
30.40	0.00	0.380	337.00	0.00
30.60	0.00	0.380	337.00	0.00
30.80	0.00	0.380	337.00	0.00
31.00	0.00	0.380	337.00	0.00
31.20	0.00	0.380	337.00	0.00
31.40	0.00	0.380	337.00	0.00
31.60	0.00	0.380	337.00	0.00

Hydrograph for Pond 104P: Temporary retention area (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
31.80	0.00	0.380	337.00	0.00
32.00	0.00	0.380	337.00	0.00
32.20	0.00	0.380	337.00	0.00
32.40	0.00	0.380	337.00	0.00
32.60	0.00	0.380	337.00	0.00
32.80	0.00	0.380	337.00	0.00
33.00	0.00	0.380	337.00	0.00
33.20	0.00	0.380	337.00	0.00
33.40	0.00	0.380	337.00	0.00
33.60	0.00	0.380	337.00	0.00
33.80	0.00	0.380	337.00	0.00
34.00	0.00	0.380	337.00	0.00
34.20	0.00	0.380	337.00	0.00
34.40	0.00	0.380	337.00	0.00
34.60	0.00	0.380	337.00	0.00
34.80	0.00	0.380	337.00	0.00
35.00	0.00	0.380	337.00	0.00
35.20	0.00	0.380	337.00	0.00
35.40	0.00	0.380	337.00	0.00
35.60	0.00	0.380	337.00	0.00
35.80	0.00	0.380	337.00	0.00
36.00	0.00	0.380	337.00	0.00
36.20	0.00	0.380	337.00	0.00
36.40	0.00	0.380	337.00	0.00
36.60	0.00	0.380	337.00	0.00
36.80	0.00	0.380	337.00	0.00
37.00	0.00	0.380	337.00	0.00
37.20	0.00	0.380	337.00	0.00
37.40	0.00	0.380	337.00	0.00
37.60	0.00	0.380	337.00	0.00
37.80	0.00	0.380	337.00	0.00
38.00	0.00	0.380	337.00	0.00
38.20	0.00	0.380	337.00	0.00
38.40	0.00	0.380	337.00	0.00
38.60	0.00	0.380	337.00	0.00
38.80	0.00	0.380	337.00	0.00
39.00	0.00	0.380	337.00	0.00
39.20	0.00	0.380	337.00	0.00
39.40	0.00	0.380	337.00	0.00
39.60	0.00	0.380	337.00	0.00
39.80	0.00	0.380	337.00	0.00
40.00	0.00	0.380	337.00	0.00
40.20	0.00	0.380	337.00	0.00
40.40	0.00	0.380	337.00	0.00
40.60	0.00	0.380	337.00	0.00
40.80	0.00	0.380	337.00	0.00
41.00	0.00	0.380	337.00	0.00
41.20	0.00	0.380	337.00	0.00
41.40	0.00	0.380	337.00	0.00
41.60	0.00	0.380	337.00	0.00
41.80	0.00	0.380	337.00	0.00
42.00	0.00	0.380	337.00	0.00
42.20	0.00	0.380	337.00	0.00

Hydrograph for Pond 104P: Temporary retention area (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
42.40	0.00	0.380	337.00	0.00
42.60	0.00	0.380	337.00	0.00
42.80	0.00	0.380	337.00	0.00
43.00	0.00	0.380	337.00	0.00
43.20	0.00	0.380	337.00	0.00
43.40	0.00	0.380	337.00	0.00
43.60	0.00	0.380	337.00	0.00
43.80	0.00	0.380	337.00	0.00
44.00	0.00	0.380	337.00	0.00
44.20	0.00	0.380	337.00	0.00
44.40	0.00	0.380	337.00	0.00
44.60	0.00	0.380	337.00	0.00
44.80	0.00	0.380	337.00	0.00
45.00	0.00	0.380	337.00	0.00
45.20	0.00	0.380	337.00	0.00
45.40	0.00	0.380	337.00	0.00
45.60	0.00	0.380	337.00	0.00
45.80	0.00	0.380	337.00	0.00
46.00	0.00	0.380	337.00	0.00
46.20	0.00	0.380	337.00	0.00
46.40	0.00	0.380	337.00	0.00
46.60	0.00	0.380	337.00	0.00
46.80	0.00	0.380	337.00	0.00
47.00	0.00	0.380	337.00	0.00
47.20	0.00	0.380	337.00	0.00
47.40	0.00	0.380	337.00	0.00
47.60	0.00	0.380	337.00	0.00
47.80	0.00	0.380	337.00	0.00
48.00	0.00	0.380	337.00	0.00
48.20	0.00	0.380	337.00	0.00
48.40	0.00	0.380	337.00	0.00
48.60	0.00	0.380	337.00	0.00
48.80	0.00	0.380	337.00	0.00
49.00	0.00	0.380	337.00	0.00
49.20	0.00	0.380	337.00	0.00
49.40	0.00	0.380	337.00	0.00
49.60	0.00	0.380	337.00	0.00
49.80	0.00	0.380	337.00	0.00
50.00	0.00	0.380	337.00	0.00
50.20	0.00	0.380	337.00	0.00
50.40	0.00	0.380	337.00	0.00
50.60	0.00	0.380	337.00	0.00
50.80	0.00	0.380	337.00	0.00
51.00	0.00	0.380	337.00	0.00
51.20	0.00	0.380	337.00	0.00
51.40	0.00	0.380	337.00	0.00
51.60	0.00	0.380	337.00	0.00
51.80	0.00	0.380	337.00	0.00
52.00	0.00	0.380	337.00	0.00
52.20	0.00	0.380	337.00	0.00
52.40	0.00	0.380	337.00	0.00
52.60	0.00	0.380	337.00	0.00
52.80	0.00	0.380	337.00	0.00

Hydrograph for Pond 104P: Temporary retention area (continued)

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
53.00	0.00	0.380	337.00	0.00
53.20	0.00	0.380	337.00	0.00
53.40	0.00	0.380	337.00	0.00
53.60	0.00	0.380	337.00	0.00
53.80	0.00	0.380	337.00	0.00
54.00	0.00	0.380	337.00	0.00
54.20	0.00	0.380	337.00	0.00
54.40	0.00	0.380	337.00	0.00
54.60	0.00	0.380	337.00	0.00
54.80	0.00	0.380	337.00	0.00
55.00	0.00	0.380	337.00	0.00
55.20	0.00	0.380	337.00	0.00
55.40	0.00	0.380	337.00	0.00
55.60	0.00	0.380	337.00	0.00
55.80	0.00	0.380	337.00	0.00
56.00	0.00	0.380	337.00	0.00
56.20	0.00	0.380	337.00	0.00
56.40	0.00	0.380	337.00	0.00
56.60	0.00	0.380	337.00	0.00
56.80	0.00	0.380	337.00	0.00
57.00	0.00	0.380	337.00	0.00
57.20	0.00	0.380	337.00	0.00
57.40	0.00	0.380	337.00	0.00
57.60	0.00	0.380	337.00	0.00
57.80	0.00	0.380	337.00	0.00
58.00	0.00	0.380	337.00	0.00
58.20	0.00	0.380	337.00	0.00
58.40	0.00	0.380	337.00	0.00
58.60	0.00	0.380	337.00	0.00
58.80	0.00	0.380	337.00	0.00
59.00	0.00	0.380	337.00	0.00
59.20	0.00	0.380	337.00	0.00
59.40	0.00	0.380	337.00	0.00
59.60	0.00	0.380	337.00	0.00
59.80	0.00	0.380	337.00	0.00
60.00	0.00	0.380	337.00	0.00

Output from Perimeter
Infiltration Channels Providing
Inflow to Basin H

South Perimeter Channel

Summary for Pond 13P: 14 s channel

[78] Warning: Submerged Pond 118P Primary device # 1 by 1.26'

Inflow	=	8.41 cfs @	11.97 hrs, Volume=	0.414 af
Outflow	=	7.69 cfs @	12.01 hrs, Volume=	0.414 af, Atten= 9%, Lag= 2.2 min
Discarded	=	2.92 cfs @	12.01 hrs, Volume=	0.319 af
Primary	=	4.77 cfs @	12.01 hrs, Volume=	0.095 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 328.74' @ 12.01 hrs Surf.Area= 0 sf Storage= 1,939 cf

Plug-Flow detention time= 9.0 min calculated for 0.413 af (100% of inflow)
Center-of-Mass det. time= 9.0 min (804.4 - 795.4)

Volume	Invert	Avail.Storage	Storage Description
#1	327.48'	8,494 cf	**Custom Stage Data**Listed below

Elevation (feet)	Cum.Store (cubic-feet)
327.48	0
328.50	1,181
329.00	2,758
329.50	5,187
330.00	8,494

Device	Routing	Invert	Outlet Devices
#1	Primary	327.48'	**Flow to Basin H** Elev. (feet) 327.48 328.00 328.25 328.48 328.50 328.75 329.00 329.25 329.50 329.75 330.00 Disch. (cfs) 0.000 0.000 0.310 1.590 1.770 4.890 10.030 17.520 27.640 40.640 56.750
#2	Discarded	327.48'	**Infiltration** Elev. (feet) 327.48 328.50 329.00 329.50 330.00 Disch. (cfs) 0.000 1.670 4.280 8.160 13.330

Discarded OutFlow Max=2.92 cfs @ 12.01 hrs HW=328.74' (Free Discharge)
↑—**2=Infiltration** (Custom Controls 2.92 cfs)

Primary OutFlow Max=4.76 cfs @ 12.01 hrs HW=328.74' TW=326.04' (Dynamic Tailwater)
↑—**1=Flow to Basin H** (Custom Controls 4.76 cfs)

Hydrograph for Pond 13P: 14 s channel

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
0.00	0.00	0	327.48	0.00	0.00	0.00
0.20	0.00	0	327.48	0.00	0.00	0.00
0.40	0.00	0	327.48	0.00	0.00	0.00
0.60	0.00	0	327.48	0.00	0.00	0.00
0.80	0.00	0	327.48	0.00	0.00	0.00
1.00	0.00	0	327.48	0.00	0.00	0.00
1.20	0.00	0	327.48	0.00	0.00	0.00
1.40	0.00	0	327.48	0.00	0.00	0.00
1.60	0.00	0	327.48	0.00	0.00	0.00
1.80	0.00	0	327.48	0.00	0.00	0.00
2.00	0.00	0	327.48	0.00	0.00	0.00
2.20	0.00	0	327.48	0.00	0.00	0.00
2.40	0.00	0	327.48	0.00	0.00	0.00
2.60	0.00	0	327.48	0.00	0.00	0.00
2.80	0.00	0	327.48	0.00	0.00	0.00
3.00	0.00	0	327.48	0.00	0.00	0.00
3.20	0.00	0	327.48	0.00	0.00	0.00
3.40	0.00	0	327.48	0.00	0.00	0.00
3.60	0.00	0	327.48	0.00	0.00	0.00
3.80	0.00	0	327.48	0.00	0.00	0.00
4.00	0.00	0	327.48	0.00	0.00	0.00
4.20	0.00	0	327.48	0.00	0.00	0.00
4.40	0.00	0	327.48	0.00	0.00	0.00
4.60	0.00	0	327.48	0.00	0.00	0.00
4.80	0.00	1	327.48	0.00	0.00	0.00
5.00	0.00	2	327.48	0.00	0.00	0.00
5.20	0.01	3	327.48	0.00	0.00	0.00
5.40	0.01	5	327.48	0.01	0.01	0.00
5.60	0.01	7	327.49	0.01	0.01	0.00
5.80	0.01	9	327.49	0.01	0.01	0.00
6.00	0.02	11	327.49	0.02	0.02	0.00
6.20	0.02	13	327.49	0.02	0.02	0.00
6.40	0.02	15	327.49	0.02	0.02	0.00
6.60	0.03	17	327.49	0.02	0.02	0.00
6.80	0.03	19	327.50	0.03	0.03	0.00
7.00	0.03	21	327.50	0.03	0.03	0.00
7.20	0.04	23	327.50	0.03	0.03	0.00
7.40	0.04	26	327.50	0.04	0.04	0.00
7.60	0.04	28	327.50	0.04	0.04	0.00
7.80	0.05	30	327.51	0.04	0.04	0.00
8.00	0.05	33	327.51	0.05	0.05	0.00
8.20	0.06	36	327.51	0.05	0.05	0.00
8.40	0.06	40	327.51	0.06	0.06	0.00
8.60	0.07	45	327.52	0.06	0.06	0.00
8.80	0.08	51	327.52	0.07	0.07	0.00
9.00	0.09	58	327.53	0.08	0.08	0.00
9.20	0.10	64	327.54	0.09	0.09	0.00
9.40	0.10	68	327.54	0.10	0.10	0.00
9.60	0.11	72	327.54	0.10	0.10	0.00
9.80	0.12	78	327.55	0.11	0.11	0.00
10.00	0.14	87	327.55	0.12	0.12	0.00
10.20	0.16	98	327.56	0.14	0.14	0.00
10.40	0.18	112	327.58	0.16	0.16	0.00

Hydrograph for Pond 13P: 14 s channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
10.60	0.21	129	327.59	0.18	0.18	0.00
10.80	0.25	150	327.61	0.21	0.21	0.00
11.00	0.29	177	327.63	0.25	0.25	0.00
11.20	0.36	212	327.66	0.30	0.30	0.00
11.40	0.47	267	327.71	0.38	0.38	0.00
11.60	0.81	351	327.78	0.50	0.50	0.00
11.80	**3.28**	1,006	328.35	2.28	1.42	0.86
12.00	**7.75**	**1,935**	**328.74**	**7.67**	**2.92**	**4.75**
12.20	1.19	**909**	**328.26**	**1.68**	**1.28**	**0.39**
12.40	0.82	676	328.06	1.04	0.96	0.08
12.60	0.56	535	327.94	0.76	0.76	0.00
12.80	0.48	422	327.84	0.60	0.60	0.00
13.00	0.42	352	327.78	0.50	0.50	0.00
13.20	0.37	301	327.74	0.42	0.42	0.00
13.40	0.33	265	327.71	0.37	0.37	0.00
13.60	0.30	237	327.68	0.33	0.33	0.00
13.80	0.27	213	327.66	0.30	0.30	0.00
14.00	0.25	193	327.65	0.27	0.27	0.00
14.20	0.23	177	327.63	0.25	0.25	0.00
14.40	0.22	166	327.62	0.23	0.23	0.00
14.60	0.21	158	327.62	0.22	0.22	0.00
14.80	0.20	151	327.61	0.21	0.21	0.00
15.00	0.20	145	327.61	0.20	0.20	0.00
15.20	0.19	139	327.60	0.20	0.20	0.00
15.40	0.18	132	327.59	0.19	0.19	0.00
15.60	0.17	126	327.59	0.18	0.18	0.00
15.80	0.16	120	327.58	0.17	0.17	0.00
16.00	0.15	114	327.58	0.16	0.16	0.00
16.20	0.15	108	327.57	0.15	0.15	0.00
16.40	0.14	104	327.57	0.15	0.15	0.00
16.60	0.14	101	327.57	0.14	0.14	0.00
16.80	0.14	99	327.57	0.14	0.14	0.00
17.00	0.13	97	327.56	0.14	0.14	0.00
17.20	0.13	94	327.56	0.13	0.13	0.00
17.40	0.13	92	327.56	0.13	0.13	0.00
17.60	0.12	90	327.56	0.13	0.13	0.00
17.80	0.12	88	327.56	0.12	0.12	0.00
18.00	0.12	85	327.55	0.12	0.12	0.00
18.20	0.11	83	327.55	0.12	0.12	0.00
18.40	0.11	81	327.55	0.11	0.11	0.00
18.60	0.11	79	327.55	0.11	0.11	0.00
18.80	0.10	76	327.55	0.11	0.11	0.00
19.00	0.10	74	327.54	0.10	0.10	0.00
19.20	0.10	72	327.54	0.10	0.10	0.00
19.40	0.10	70	327.54	0.10	0.10	0.00
19.60	0.09	67	327.54	0.10	0.10	0.00
19.80	0.09	65	327.54	0.09	0.09	0.00
20.00	0.09	63	327.53	0.09	0.09	0.00
20.20	0.08	61	327.53	0.09	0.09	0.00
20.40	0.08	60	327.53	0.08	0.08	0.00
20.60	0.08	59	327.53	0.08	0.08	0.00
20.80	0.08	58	327.53	0.08	0.08	0.00
21.00	0.08	58	327.53	0.08	0.08	0.00

Hydrograph for Pond 13P: 14 s channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
21.20	0.08	57	327.53	0.08	0.08	0.00
21.40	0.08	57	327.53	0.08	0.08	0.00
21.60	0.08	57	327.53	0.08	0.08	0.00
21.80	0.08	56	327.53	0.08	0.08	0.00
22.00	0.08	56	327.53	0.08	0.08	0.00
22.20	0.08	55	327.53	0.08	0.08	0.00
22.40	0.08	55	327.53	0.08	0.08	0.00
22.60	0.08	54	327.53	0.08	0.08	0.00
22.80	0.08	54	327.53	0.08	0.08	0.00
23.00	0.07	53	327.53	0.08	0.08	0.00
23.20	0.07	53	327.53	0.07	0.07	0.00
23.40	0.07	53	327.53	0.07	0.07	0.00
23.60	0.07	52	327.53	0.07	0.07	0.00
23.80	0.07	52	327.52	0.07	0.07	0.00
24.00	0.07	51	327.52	0.07	0.07	0.00
24.20	0.00	30	327.51	0.04	0.04	0.00
24.40	0.00	11	327.49	0.02	0.02	0.00
24.60	0.00	4	327.48	0.01	0.01	0.00
24.80	0.00	1	327.48	0.00	0.00	0.00
25.00	0.00	0	327.48	0.00	0.00	0.00
25.20	0.00	0	327.48	0.00	0.00	0.00
25.40	0.00	0	327.48	0.00	0.00	0.00
25.60	0.00	0	327.48	0.00	0.00	0.00
25.80	0.00	0	327.48	0.00	0.00	0.00
26.00	0.00	0	327.48	0.00	0.00	0.00
26.20	0.00	0	327.48	0.00	0.00	0.00
26.40	0.00	0	327.48	0.00	0.00	0.00
26.60	0.00	0	327.48	0.00	0.00	0.00
26.80	0.00	0	327.48	0.00	0.00	0.00
27.00	0.00	0	327.48	0.00	0.00	0.00
27.20	0.00	0	327.48	0.00	0.00	0.00
27.40	0.00	0	327.48	0.00	0.00	0.00
27.60	0.00	0	327.48	0.00	0.00	0.00
27.80	0.00	0	327.48	0.00	0.00	0.00
28.00	0.00	0	327.48	0.00	0.00	0.00
28.20	0.00	0	327.48	0.00	0.00	0.00
28.40	0.00	0	327.48	0.00	0.00	0.00
28.60	0.00	0	327.48	0.00	0.00	0.00
28.80	0.00	0	327.48	0.00	0.00	0.00
29.00	0.00	0	327.48	0.00	0.00	0.00
29.20	0.00	0	327.48	0.00	0.00	0.00
29.40	0.00	0	327.48	0.00	0.00	0.00
29.60	0.00	0	327.48	0.00	0.00	0.00
29.80	0.00	0	327.48	0.00	0.00	0.00
30.00	0.00	0	327.48	0.00	0.00	0.00
30.20	0.00	0	327.48	0.00	0.00	0.00
30.40	0.00	0	327.48	0.00	0.00	0.00
30.60	0.00	0	327.48	0.00	0.00	0.00
30.80	0.00	0	327.48	0.00	0.00	0.00
31.00	0.00	0	327.48	0.00	0.00	0.00
31.20	0.00	0	327.48	0.00	0.00	0.00
31.40	0.00	0	327.48	0.00	0.00	0.00
31.60	0.00	0	327.48	0.00	0.00	0.00

Hydrograph for Pond 13P: 14 s channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
31.80	0.00	0	327.48	0.00	0.00	0.00
32.00	0.00	0	327.48	0.00	0.00	0.00
32.20	0.00	0	327.48	0.00	0.00	0.00
32.40	0.00	0	327.48	0.00	0.00	0.00
32.60	0.00	0	327.48	0.00	0.00	0.00
32.80	0.00	0	327.48	0.00	0.00	0.00
33.00	0.00	0	327.48	0.00	0.00	0.00
33.20	0.00	0	327.48	0.00	0.00	0.00
33.40	0.00	0	327.48	0.00	0.00	0.00
33.60	0.00	0	327.48	0.00	0.00	0.00
33.80	0.00	0	327.48	0.00	0.00	0.00
34.00	0.00	0	327.48	0.00	0.00	0.00
34.20	0.00	0	327.48	0.00	0.00	0.00
34.40	0.00	0	327.48	0.00	0.00	0.00
34.60	0.00	0	327.48	0.00	0.00	0.00
34.80	0.00	0	327.48	0.00	0.00	0.00
35.00	0.00	0	327.48	0.00	0.00	0.00
35.20	0.00	0	327.48	0.00	0.00	0.00
35.40	0.00	0	327.48	0.00	0.00	0.00
35.60	0.00	0	327.48	0.00	0.00	0.00
35.80	0.00	0	327.48	0.00	0.00	0.00
36.00	0.00	0	327.48	0.00	0.00	0.00
36.20	0.00	0	327.48	0.00	0.00	0.00
36.40	0.00	0	327.48	0.00	0.00	0.00
36.60	0.00	0	327.48	0.00	0.00	0.00
36.80	0.00	0	327.48	0.00	0.00	0.00
37.00	0.00	0	327.48	0.00	0.00	0.00
37.20	0.00	0	327.48	0.00	0.00	0.00
37.40	0.00	0	327.48	0.00	0.00	0.00
37.60	0.00	0	327.48	0.00	0.00	0.00
37.80	0.00	0	327.48	0.00	0.00	0.00
38.00	0.00	0	327.48	0.00	0.00	0.00
38.20	0.00	0	327.48	0.00	0.00	0.00
38.40	0.00	0	327.48	0.00	0.00	0.00
38.60	0.00	0	327.48	0.00	0.00	0.00
38.80	0.00	0	327.48	0.00	0.00	0.00
39.00	0.00	0	327.48	0.00	0.00	0.00
39.20	0.00	0	327.48	0.00	0.00	0.00
39.40	0.00	0	327.48	0.00	0.00	0.00
39.60	0.00	0	327.48	0.00	0.00	0.00
39.80	0.00	0	327.48	0.00	0.00	0.00
40.00	0.00	0	327.48	0.00	0.00	0.00
40.20	0.00	0	327.48	0.00	0.00	0.00
40.40	0.00	0	327.48	0.00	0.00	0.00
40.60	0.00	0	327.48	0.00	0.00	0.00
40.80	0.00	0	327.48	0.00	0.00	0.00
41.00	0.00	0	327.48	0.00	0.00	0.00
41.20	0.00	0	327.48	0.00	0.00	0.00
41.40	0.00	0	327.48	0.00	0.00	0.00
41.60	0.00	0	327.48	0.00	0.00	0.00
41.80	0.00	0	327.48	0.00	0.00	0.00
42.00	0.00	0	327.48	0.00	0.00	0.00
42.20	0.00	0	327.48	0.00	0.00	0.00

Hydrograph for Pond 13P: 14 s channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
42.40	0.00	0	327.48	0.00	0.00	0.00
42.60	0.00	0	327.48	0.00	0.00	0.00
42.80	0.00	0	327.48	0.00	0.00	0.00
43.00	0.00	0	327.48	0.00	0.00	0.00
43.20	0.00	0	327.48	0.00	0.00	0.00
43.40	0.00	0	327.48	0.00	0.00	0.00
43.60	0.00	0	327.48	0.00	0.00	0.00
43.80	0.00	0	327.48	0.00	0.00	0.00
44.00	0.00	0	327.48	0.00	0.00	0.00
44.20	0.00	0	327.48	0.00	0.00	0.00
44.40	0.00	0	327.48	0.00	0.00	0.00
44.60	0.00	0	327.48	0.00	0.00	0.00
44.80	0.00	0	327.48	0.00	0.00	0.00
45.00	0.00	0	327.48	0.00	0.00	0.00
45.20	0.00	0	327.48	0.00	0.00	0.00
45.40	0.00	0	327.48	0.00	0.00	0.00
45.60	0.00	0	327.48	0.00	0.00	0.00
45.80	0.00	0	327.48	0.00	0.00	0.00
46.00	0.00	0	327.48	0.00	0.00	0.00
46.20	0.00	0	327.48	0.00	0.00	0.00
46.40	0.00	0	327.48	0.00	0.00	0.00
46.60	0.00	0	327.48	0.00	0.00	0.00
46.80	0.00	0	327.48	0.00	0.00	0.00
47.00	0.00	0	327.48	0.00	0.00	0.00
47.20	0.00	0	327.48	0.00	0.00	0.00
47.40	0.00	0	327.48	0.00	0.00	0.00
47.60	0.00	0	327.48	0.00	0.00	0.00
47.80	0.00	0	327.48	0.00	0.00	0.00
48.00	0.00	0	327.48	0.00	0.00	0.00
48.20	0.00	0	327.48	0.00	0.00	0.00
48.40	0.00	0	327.48	0.00	0.00	0.00
48.60	0.00	0	327.48	0.00	0.00	0.00
48.80	0.00	0	327.48	0.00	0.00	0.00
49.00	0.00	0	327.48	0.00	0.00	0.00
49.20	0.00	0	327.48	0.00	0.00	0.00
49.40	0.00	0	327.48	0.00	0.00	0.00
49.60	0.00	0	327.48	0.00	0.00	0.00
49.80	0.00	0	327.48	0.00	0.00	0.00
50.00	0.00	0	327.48	0.00	0.00	0.00
50.20	0.00	0	327.48	0.00	0.00	0.00
50.40	0.00	0	327.48	0.00	0.00	0.00
50.60	0.00	0	327.48	0.00	0.00	0.00
50.80	0.00	0	327.48	0.00	0.00	0.00
51.00	0.00	0	327.48	0.00	0.00	0.00
51.20	0.00	0	327.48	0.00	0.00	0.00
51.40	0.00	0	327.48	0.00	0.00	0.00
51.60	0.00	0	327.48	0.00	0.00	0.00
51.80	0.00	0	327.48	0.00	0.00	0.00
52.00	0.00	0	327.48	0.00	0.00	0.00
52.20	0.00	0	327.48	0.00	0.00	0.00
52.40	0.00	0	327.48	0.00	0.00	0.00
52.60	0.00	0	327.48	0.00	0.00	0.00
52.80	0.00	0	327.48	0.00	0.00	0.00

Hydrograph for Pond 13P: 14 s channel (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
53.00	0.00	0	327.48	0.00	0.00	0.00
53.20	0.00	0	327.48	0.00	0.00	0.00
53.40	0.00	0	327.48	0.00	0.00	0.00
53.60	0.00	0	327.48	0.00	0.00	0.00
53.80	0.00	0	327.48	0.00	0.00	0.00
54.00	0.00	0	327.48	0.00	0.00	0.00
54.20	0.00	0	327.48	0.00	0.00	0.00
54.40	0.00	0	327.48	0.00	0.00	0.00
54.60	0.00	0	327.48	0.00	0.00	0.00
54.80	0.00	0	327.48	0.00	0.00	0.00
55.00	0.00	0	327.48	0.00	0.00	0.00
55.20	0.00	0	327.48	0.00	0.00	0.00
55.40	0.00	0	327.48	0.00	0.00	0.00
55.60	0.00	0	327.48	0.00	0.00	0.00
55.80	0.00	0	327.48	0.00	0.00	0.00
56.00	0.00	0	327.48	0.00	0.00	0.00
56.20	0.00	0	327.48	0.00	0.00	0.00
56.40	0.00	0	327.48	0.00	0.00	0.00
56.60	0.00	0	327.48	0.00	0.00	0.00
56.80	0.00	0	327.48	0.00	0.00	0.00
57.00	0.00	0	327.48	0.00	0.00	0.00
57.20	0.00	0	327.48	0.00	0.00	0.00
57.40	0.00	0	327.48	0.00	0.00	0.00
57.60	0.00	0	327.48	0.00	0.00	0.00
57.80	0.00	0	327.48	0.00	0.00	0.00
58.00	0.00	0	327.48	0.00	0.00	0.00
58.20	0.00	0	327.48	0.00	0.00	0.00
58.40	0.00	0	327.48	0.00	0.00	0.00
58.60	0.00	0	327.48	0.00	0.00	0.00
58.80	0.00	0	327.48	0.00	0.00	0.00
59.00	0.00	0	327.48	0.00	0.00	0.00
59.20	0.00	0	327.48	0.00	0.00	0.00
59.40	0.00	0	327.48	0.00	0.00	0.00
59.60	0.00	0	327.48	0.00	0.00	0.00
59.80	0.00	0	327.48	0.00	0.00	0.00
60.00	0.00	0	327.48	0.00	0.00	0.00

East Perimeter Channel

Summary for Pond 115P: East Perimeter Channel Reach 5

[89] Warning: Qout>Qin may require smaller dt
[86] Warning: Oscillations may require smaller dt
[78] Warning: Submerged Pond 22P Primary device # 1 by 0.72'
[80] Warning: Exceeded Pond 22P by 0.07' @ 12.02 hrs (4.78 cfs 0.208 af)

Inflow Area =	0.951 ac,	0.00% Impervious,	Inflow Depth =	2.79"
Inflow =	4.63 cfs @	11.99 hrs, Volume=	0.221 af	
Outflow =	5.00 cfs @	12.00 hrs, Volume=	0.221 af,	Atten= 0%, Lag= 0.6 min
Primary =	4.91 cfs @	12.00 hrs, Volume=	0.218 af	
Secondary =	0.08 cfs @	12.00 hrs, Volume=	0.003 af	

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 334.12' @ 12.00 hrs Surf.Area= 0 sf Storage= 136 cf

Plug-Flow detention time= 0.7 min calculated for 0.221 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (798.3 - 797.6)

Volume	Invert	Avail.Storage	Storage Description
#1	333.40'	891 cf	**Custom Stage Data**Listed below

Elevation (feet)	Cum.Store (cubic-feet)
333.40	0
333.65	33
333.90	81
334.15	145
334.40	225
334.65	320
334.90	431
335.15	558
335.40	700
335.65	858
335.70	891

Device	Routing	Invert	Outlet Devices
#1	Primary	333.40'	**Flow to Basin H** Elev. (feet) 333.40 333.65 333.90 334.15 334.40 334.65 334.90 335.15 335.40 335.65 336.70 Disch. (cfs) 0.000 0.660 2.390 5.310 9.630 15.510 23.140 32.680 44.300 58.140 61.190
#2	Secondary	333.40'	**East Chan infilt** Elev. (feet) 333.40 333.65 333.90 334.15 334.40 334.65 334.90 335.15 335.40 335.65 335.70 Disch. (cfs) 0.000 0.010 0.040 0.090 0.160 0.240 0.350 0.480 0.620 0.790 0.820

Primary OutFlow Max=4.84 cfs @ 12.00 hrs HW=334.11' TW=325.98' (Dynamic Tailwater)
↑—**1=Flow to Basin H** (Custom Controls 4.84 cfs)

Secondary OutFlow Max=0.08 cfs @ 12.00 hrs HW=334.11' TW=310.77' (Dynamic Tailwater)
↑—**2=East Chan infilt** (Custom Controls 0.08 cfs)

Hydrograph for Pond 115P: East Perimeter Channel Reach 5

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	333.40	0.00	0.00	0.00
0.20	0.00	0	333.40	0.00	0.00	0.00
0.40	0.00	0	333.40	0.00	0.00	0.00
0.60	0.00	0	333.40	0.00	0.00	0.00
0.80	0.00	0	333.40	0.00	0.00	0.00
1.00	0.00	0	333.40	0.00	0.00	0.00
1.20	0.00	0	333.40	0.00	0.00	0.00
1.40	0.00	0	333.40	0.00	0.00	0.00
1.60	0.00	0	333.40	0.00	0.00	0.00
1.80	0.00	0	333.40	0.00	0.00	0.00
2.00	0.00	0	333.40	0.00	0.00	0.00
2.20	0.00	0	333.40	0.00	0.00	0.00
2.40	0.00	0	333.40	0.00	0.00	0.00
2.60	0.00	0	333.40	0.00	0.00	0.00
2.80	0.00	0	333.40	0.00	0.00	0.00
3.00	0.00	0	333.40	0.00	0.00	0.00
3.20	0.00	0	333.40	0.00	0.00	0.00
3.40	0.00	0	333.40	0.00	0.00	0.00
3.60	0.00	0	333.40	0.00	0.00	0.00
3.80	0.00	0	333.40	0.00	0.00	0.00
4.00	0.00	0	333.40	0.00	0.00	0.00
4.20	0.00	0	333.40	0.00	0.00	0.00
4.40	0.00	0	333.40	0.00	0.00	0.00
4.60	0.00	0	333.40	0.00	0.00	0.00
4.80	0.00	0	333.40	0.00	0.00	0.00
5.00	0.00	0	333.40	0.00	0.00	0.00
5.20	0.00	0	333.40	0.00	0.00	0.00
5.40	0.00	0	333.40	0.00	0.00	0.00
5.60	0.01	0	333.40	0.01	0.01	0.00
5.80	0.01	0	333.40	0.01	0.01	0.00
6.00	0.01	0	333.40	0.01	0.01	0.00
6.20	0.01	1	333.40	0.01	0.01	0.00
6.40	0.01	1	333.40	0.01	0.01	0.00
6.60	0.01	1	333.41	0.01	0.01	0.00
6.80	0.02	1	333.41	0.02	0.02	0.00
7.00	0.02	1	333.41	0.02	0.02	0.00
7.20	0.02	1	333.41	0.02	0.02	0.00
7.40	0.02	1	333.41	0.02	0.02	0.00
7.60	0.02	1	333.41	0.02	0.02	0.00
7.80	0.02	1	333.41	0.02	0.02	0.00
8.00	0.03	1	333.41	0.03	0.03	0.00
8.20	0.03	1	333.41	0.03	0.03	0.00
8.40	0.03	2	333.41	0.03	0.03	0.00
8.60	0.04	2	333.41	0.04	0.04	0.00
8.80	0.04	2	333.42	0.04	0.04	0.00
9.00	0.05	2	333.42	0.05	0.05	0.00
9.20	0.05	3	333.42	0.05	0.05	0.00
9.40	0.05	3	333.42	0.05	0.05	0.00
9.60	0.06	3	333.42	0.06	0.06	0.00
9.80	0.06	3	333.42	0.06	0.06	0.00
10.00	0.07	3	333.43	0.07	0.07	0.00
10.20	0.08	4	333.43	0.08	0.08	0.00
10.40	0.09	5	333.43	0.09	0.09	0.00

Hydrograph for Pond 115P: East Perimeter Channel Reach 5 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
10.60	0.11	5	333.44	0.11	0.11	0.00
10.80	0.13	6	333.45	0.13	0.12	0.00
11.00	0.15	7	333.46	0.15	0.15	0.00
11.20	0.19	9	333.47	0.18	0.18	0.00
11.40	0.24	12	333.49	0.24	0.23	0.00
11.60	0.34	15	333.52	0.31	0.31	0.00
11.80	**1.60**	54	333.76	1.45	1.43	0.02
12.00	**4.26**	**136**	**334.12**	**4.99**	**4.91**	**0.08**
12.20	0.74	36	333.67	0.78	0.77	0.01
12.40	0.47	24	333.58	0.48	0.47	0.01
12.60	0.32	16	333.52	0.33	0.32	0.00
12.80	0.26	13	333.50	0.27	0.26	0.00
13.00	0.23	11	333.49	0.23	0.23	0.00
13.20	0.20	10	333.48	0.20	0.20	0.00
13.40	0.18	9	333.47	0.18	0.18	0.00
13.60	0.16	8	333.46	0.16	0.16	0.00
13.80	0.15	7	333.46	0.15	0.15	0.00
14.00	0.14	7	333.45	0.14	0.13	0.00
14.20	0.12	6	333.45	0.13	0.12	0.00
14.40	0.12	6	333.44	0.12	0.12	0.00
14.60	0.12	6	333.44	0.12	0.11	0.00
14.80	0.11	5	333.44	0.11	0.11	0.00
15.00	0.11	5	333.44	0.11	0.10	0.00
15.20	0.10	5	333.44	0.10	0.10	0.00
15.40	0.10	5	333.44	0.10	0.10	0.00
15.60	0.09	5	333.43	0.09	0.09	0.00
15.80	0.09	4	333.43	0.09	0.09	0.00
16.00	0.08	4	333.43	0.08	0.08	0.00
16.20	0.08	4	333.43	0.08	0.08	0.00
16.40	0.08	4	333.43	0.08	0.08	0.00
16.60	0.08	4	333.43	0.08	0.07	0.00
16.80	0.07	4	333.43	0.07	0.07	0.00
17.00	0.07	4	333.43	0.07	0.07	0.00
17.20	0.07	3	333.43	0.07	0.07	0.00
17.40	0.07	3	333.43	0.07	0.07	0.00
17.60	0.07	3	333.42	0.07	0.07	0.00
17.80	0.07	3	333.42	0.07	0.06	0.00
18.00	0.06	3	333.42	0.06	0.06	0.00
18.20	0.06	3	333.42	0.06	0.06	0.00
18.40	0.06	3	333.42	0.06	0.06	0.00
18.60	0.06	3	333.42	0.06	0.06	0.00
18.80	0.06	3	333.42	0.06	0.06	0.00
19.00	0.05	3	333.42	0.05	0.05	0.00
19.20	0.05	3	333.42	0.05	0.05	0.00
19.40	0.05	3	333.42	0.05	0.05	0.00
19.60	0.05	2	333.42	0.05	0.05	0.00
19.80	0.05	2	333.42	0.05	0.05	0.00
20.00	0.05	2	333.42	0.05	0.05	0.00
20.20	0.05	2	333.42	0.05	0.04	0.00
20.40	0.04	2	333.42	0.04	0.04	0.00
20.60	0.04	2	333.42	0.04	0.04	0.00
20.80	0.04	2	333.42	0.04	0.04	0.00
21.00	0.04	2	333.42	0.04	0.04	0.00

Hydrograph for Pond 115P: East Perimeter Channel Reach 5 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
21.20	0.04	2	333.42	0.04	0.04	0.00
21.40	0.04	2	333.42	0.04	0.04	0.00
21.60	0.04	2	333.42	0.04	0.04	0.00
21.80	0.04	2	333.42	0.04	0.04	0.00
22.00	0.04	2	333.42	0.04	0.04	0.00
22.20	0.04	2	333.42	0.04	0.04	0.00
22.40	0.04	2	333.42	0.04	0.04	0.00
22.60	0.04	2	333.42	0.04	0.04	0.00
22.80	0.04	2	333.42	0.04	0.04	0.00
23.00	0.04	2	333.42	0.04	0.04	0.00
23.20	0.04	2	333.41	0.04	0.04	0.00
23.40	0.04	2	333.41	0.04	0.04	0.00
23.60	0.04	2	333.41	0.04	0.04	0.00
23.80	0.04	2	333.41	0.04	0.04	0.00
24.00	0.04	2	333.41	0.04	0.04	0.00
24.20	0.00	0	333.40	0.00	0.00	0.00
24.40	0.00	0	333.40	0.00	0.00	0.00
24.60	0.00	0	333.40	0.00	0.00	0.00
24.80	0.00	0	333.40	0.00	0.00	0.00
25.00	0.00	0	333.40	0.00	0.00	0.00
25.20	0.00	0	333.40	0.00	0.00	0.00
25.40	0.00	0	333.40	0.00	0.00	0.00
25.60	0.00	0	333.40	0.00	0.00	0.00
25.80	0.00	0	333.40	0.00	0.00	0.00
26.00	0.00	0	333.40	0.00	0.00	0.00
26.20	0.00	0	333.40	0.00	0.00	0.00
26.40	0.00	0	333.40	0.00	0.00	0.00
26.60	0.00	0	333.40	0.00	0.00	0.00
26.80	0.00	0	333.40	0.00	0.00	0.00
27.00	0.00	0	333.40	0.00	0.00	0.00
27.20	0.00	0	333.40	0.00	0.00	0.00
27.40	0.00	0	333.40	0.00	0.00	0.00
27.60	0.00	0	333.40	0.00	0.00	0.00
27.80	0.00	0	333.40	0.00	0.00	0.00
28.00	0.00	0	333.40	0.00	0.00	0.00
28.20	0.00	0	333.40	0.00	0.00	0.00
28.40	0.00	0	333.40	0.00	0.00	0.00
28.60	0.00	0	333.40	0.00	0.00	0.00
28.80	0.00	0	333.40	0.00	0.00	0.00
29.00	0.00	0	333.40	0.00	0.00	0.00
29.20	0.00	0	333.40	0.00	0.00	0.00
29.40	0.00	0	333.40	0.00	0.00	0.00
29.60	0.00	0	333.40	0.00	0.00	0.00
29.80	0.00	0	333.40	0.00	0.00	0.00
30.00	0.00	0	333.40	0.00	0.00	0.00
30.20	0.00	0	333.40	0.00	0.00	0.00
30.40	0.00	0	333.40	0.00	0.00	0.00
30.60	0.00	0	333.40	0.00	0.00	0.00
30.80	0.00	0	333.40	0.00	0.00	0.00
31.00	0.00	0	333.40	0.00	0.00	0.00
31.20	0.00	0	333.40	0.00	0.00	0.00
31.40	0.00	0	333.40	0.00	0.00	0.00
31.60	0.00	0	333.40	0.00	0.00	0.00

Hydrograph for Pond 115P: East Perimeter Channel Reach 5 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
31.80	0.00	0	333.40	0.00	0.00	0.00
32.00	0.00	0	333.40	0.00	0.00	0.00
32.20	0.00	0	333.40	0.00	0.00	0.00
32.40	0.00	0	333.40	0.00	0.00	0.00
32.60	0.00	0	333.40	0.00	0.00	0.00
32.80	0.00	0	333.40	0.00	0.00	0.00
33.00	0.00	0	333.40	0.00	0.00	0.00
33.20	0.00	0	333.40	0.00	0.00	0.00
33.40	0.00	0	333.40	0.00	0.00	0.00
33.60	0.00	0	333.40	0.00	0.00	0.00
33.80	0.00	0	333.40	0.00	0.00	0.00
34.00	0.00	0	333.40	0.00	0.00	0.00
34.20	0.00	0	333.40	0.00	0.00	0.00
34.40	0.00	0	333.40	0.00	0.00	0.00
34.60	0.00	0	333.40	0.00	0.00	0.00
34.80	0.00	0	333.40	0.00	0.00	0.00
35.00	0.00	0	333.40	0.00	0.00	0.00
35.20	0.00	0	333.40	0.00	0.00	0.00
35.40	0.00	0	333.40	0.00	0.00	0.00
35.60	0.00	0	333.40	0.00	0.00	0.00
35.80	0.00	0	333.40	0.00	0.00	0.00
36.00	0.00	0	333.40	0.00	0.00	0.00
36.20	0.00	0	333.40	0.00	0.00	0.00
36.40	0.00	0	333.40	0.00	0.00	0.00
36.60	0.00	0	333.40	0.00	0.00	0.00
36.80	0.00	0	333.40	0.00	0.00	0.00
37.00	0.00	0	333.40	0.00	0.00	0.00
37.20	0.00	0	333.40	0.00	0.00	0.00
37.40	0.00	0	333.40	0.00	0.00	0.00
37.60	0.00	0	333.40	0.00	0.00	0.00
37.80	0.00	0	333.40	0.00	0.00	0.00
38.00	0.00	0	333.40	0.00	0.00	0.00
38.20	0.00	0	333.40	0.00	0.00	0.00
38.40	0.00	0	333.40	0.00	0.00	0.00
38.60	0.00	0	333.40	0.00	0.00	0.00
38.80	0.00	0	333.40	0.00	0.00	0.00
39.00	0.00	0	333.40	0.00	0.00	0.00
39.20	0.00	0	333.40	0.00	0.00	0.00
39.40	0.00	0	333.40	0.00	0.00	0.00
39.60	0.00	0	333.40	0.00	0.00	0.00
39.80	0.00	0	333.40	0.00	0.00	0.00
40.00	0.00	0	333.40	0.00	0.00	0.00
40.20	0.00	0	333.40	0.00	0.00	0.00
40.40	0.00	0	333.40	0.00	0.00	0.00
40.60	0.00	0	333.40	0.00	0.00	0.00
40.80	0.00	0	333.40	0.00	0.00	0.00
41.00	0.00	0	333.40	0.00	0.00	0.00
41.20	0.00	0	333.40	0.00	0.00	0.00
41.40	0.00	0	333.40	0.00	0.00	0.00
41.60	0.00	0	333.40	0.00	0.00	0.00
41.80	0.00	0	333.40	0.00	0.00	0.00
42.00	0.00	0	333.40	0.00	0.00	0.00
42.20	0.00	0	333.40	0.00	0.00	0.00

Hydrograph for Pond 115P: East Perimeter Channel Reach 5 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
42.40	0.00	0	333.40	0.00	0.00	0.00
42.60	0.00	0	333.40	0.00	0.00	0.00
42.80	0.00	0	333.40	0.00	0.00	0.00
43.00	0.00	0	333.40	0.00	0.00	0.00
43.20	0.00	0	333.40	0.00	0.00	0.00
43.40	0.00	0	333.40	0.00	0.00	0.00
43.60	0.00	0	333.40	0.00	0.00	0.00
43.80	0.00	0	333.40	0.00	0.00	0.00
44.00	0.00	0	333.40	0.00	0.00	0.00
44.20	0.00	0	333.40	0.00	0.00	0.00
44.40	0.00	0	333.40	0.00	0.00	0.00
44.60	0.00	0	333.40	0.00	0.00	0.00
44.80	0.00	0	333.40	0.00	0.00	0.00
45.00	0.00	0	333.40	0.00	0.00	0.00
45.20	0.00	0	333.40	0.00	0.00	0.00
45.40	0.00	0	333.40	0.00	0.00	0.00
45.60	0.00	0	333.40	0.00	0.00	0.00
45.80	0.00	0	333.40	0.00	0.00	0.00
46.00	0.00	0	333.40	0.00	0.00	0.00
46.20	0.00	0	333.40	0.00	0.00	0.00
46.40	0.00	0	333.40	0.00	0.00	0.00
46.60	0.00	0	333.40	0.00	0.00	0.00
46.80	0.00	0	333.40	0.00	0.00	0.00
47.00	0.00	0	333.40	0.00	0.00	0.00
47.20	0.00	0	333.40	0.00	0.00	0.00
47.40	0.00	0	333.40	0.00	0.00	0.00
47.60	0.00	0	333.40	0.00	0.00	0.00
47.80	0.00	0	333.40	0.00	0.00	0.00
48.00	0.00	0	333.40	0.00	0.00	0.00
48.20	0.00	0	333.40	0.00	0.00	0.00
48.40	0.00	0	333.40	0.00	0.00	0.00
48.60	0.00	0	333.40	0.00	0.00	0.00
48.80	0.00	0	333.40	0.00	0.00	0.00
49.00	0.00	0	333.40	0.00	0.00	0.00
49.20	0.00	0	333.40	0.00	0.00	0.00
49.40	0.00	0	333.40	0.00	0.00	0.00
49.60	0.00	0	333.40	0.00	0.00	0.00
49.80	0.00	0	333.40	0.00	0.00	0.00
50.00	0.00	0	333.40	0.00	0.00	0.00
50.20	0.00	0	333.40	0.00	0.00	0.00
50.40	0.00	0	333.40	0.00	0.00	0.00
50.60	0.00	0	333.40	0.00	0.00	0.00
50.80	0.00	0	333.40	0.00	0.00	0.00
51.00	0.00	0	333.40	0.00	0.00	0.00
51.20	0.00	0	333.40	0.00	0.00	0.00
51.40	0.00	0	333.40	0.00	0.00	0.00
51.60	0.00	0	333.40	0.00	0.00	0.00
51.80	0.00	0	333.40	0.00	0.00	0.00
52.00	0.00	0	333.40	0.00	0.00	0.00
52.20	0.00	0	333.40	0.00	0.00	0.00
52.40	0.00	0	333.40	0.00	0.00	0.00
52.60	0.00	0	333.40	0.00	0.00	0.00
52.80	0.00	0	333.40	0.00	0.00	0.00

Hydrograph for Pond 115P: East Perimeter Channel Reach 5 (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
53.00	0.00	0	333.40	0.00	0.00	0.00
53.20	0.00	0	333.40	0.00	0.00	0.00
53.40	0.00	0	333.40	0.00	0.00	0.00
53.60	0.00	0	333.40	0.00	0.00	0.00
53.80	0.00	0	333.40	0.00	0.00	0.00
54.00	0.00	0	333.40	0.00	0.00	0.00
54.20	0.00	0	333.40	0.00	0.00	0.00
54.40	0.00	0	333.40	0.00	0.00	0.00
54.60	0.00	0	333.40	0.00	0.00	0.00
54.80	0.00	0	333.40	0.00	0.00	0.00
55.00	0.00	0	333.40	0.00	0.00	0.00
55.20	0.00	0	333.40	0.00	0.00	0.00
55.40	0.00	0	333.40	0.00	0.00	0.00
55.60	0.00	0	333.40	0.00	0.00	0.00
55.80	0.00	0	333.40	0.00	0.00	0.00
56.00	0.00	0	333.40	0.00	0.00	0.00
56.20	0.00	0	333.40	0.00	0.00	0.00
56.40	0.00	0	333.40	0.00	0.00	0.00
56.60	0.00	0	333.40	0.00	0.00	0.00
56.80	0.00	0	333.40	0.00	0.00	0.00
57.00	0.00	0	333.40	0.00	0.00	0.00
57.20	0.00	0	333.40	0.00	0.00	0.00
57.40	0.00	0	333.40	0.00	0.00	0.00
57.60	0.00	0	333.40	0.00	0.00	0.00
57.80	0.00	0	333.40	0.00	0.00	0.00
58.00	0.00	0	333.40	0.00	0.00	0.00
58.20	0.00	0	333.40	0.00	0.00	0.00
58.40	0.00	0	333.40	0.00	0.00	0.00
58.60	0.00	0	333.40	0.00	0.00	0.00
58.80	0.00	0	333.40	0.00	0.00	0.00
59.00	0.00	0	333.40	0.00	0.00	0.00
59.20	0.00	0	333.40	0.00	0.00	0.00
59.40	0.00	0	333.40	0.00	0.00	0.00
59.60	0.00	0	333.40	0.00	0.00	0.00
59.80	0.00	0	333.40	0.00	0.00	0.00
60.00	0.00	0	333.40	0.00	0.00	0.00

Primary OutFlow Max=4.84 cfs @ 12.00 hrs HW=334.11' TW=325.98' (Dynamic Tailwater)
↑—**1=Reach 10 flow** (Custom Controls 4.84 cfs)

Secondary OutFlow Max=0.08 cfs @ 12.00 hrs HW=334.11' TW=310.77' (Dynamic Tailwater)
↑—**2=East Chan infilt** (Custom Controls 0.08 cfs)

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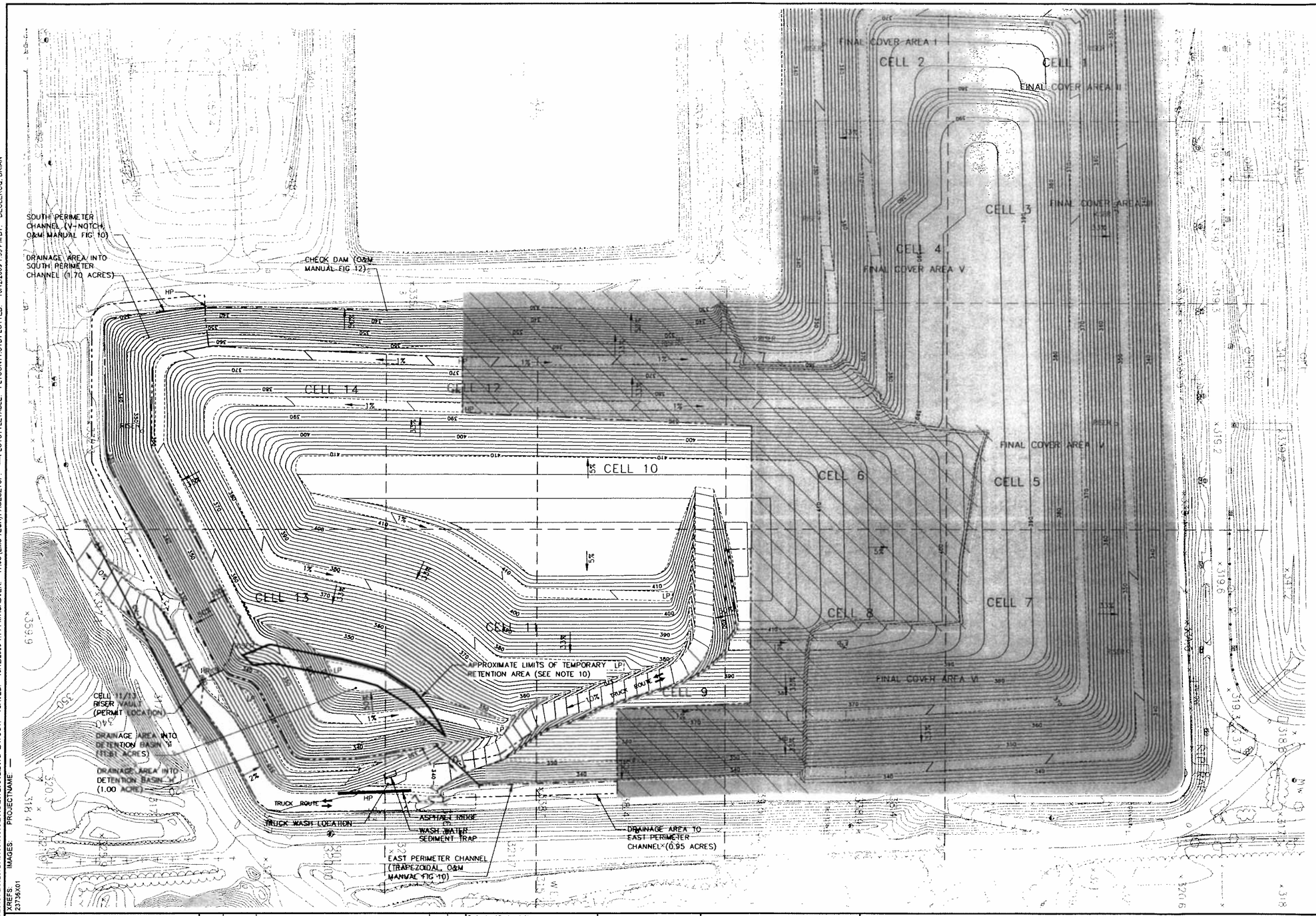
Watershed Map



LEGEND

- EXISTING FINAL COVER AREA (SEE NOTE 4)
- PROPOSED PHASE VII FINAL COVER AREA (SEE NOTE 5)
- 340 — INDEX ELEVATION CONTOUR
- INTERMEDIATE ELEVATION CONTOUR
- GRADE BREAK
- PERIMETER INFILTRATION CHANNEL
- LIMIT OF DRAINAGE AREA
- CELL DIVIDE
- COORDINATE GRID (SEE NOTE 2)
- CV-1 — EXISTING TEMPORARY CULVERT TO BE RETAINED (SEE CULVERT TABLE AND NOTES 7 AND 8)
- HP HIGH POINT
- LP LOW POINT

NOTES:

1. BASE MAP FEATURES OUTSIDE PERMITTED LIMIT OF WASTE COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY DATED 5/31/01 (AIR SURVEY CORP. PROJECT NO. 71010503)
2. COORDINATES REFER TO CWM PLANT SITE GRID.
3. CONTOUR INTERVAL EQUALS 2 FEET.
4. GRADES WITHIN EXISTING FINAL COVER AREA REPRESENT PERMITTED TOP OF WASTE. FINAL COVER LIMIT REPRESENTS APPROXIMATE EDGE OF FULL COVER THICKNESS BASED ON QUARTERLY WASTE SURVEYS.
5. GRADES WITHIN PROPOSED PHASE VII FINAL COVER AREA REPRESENT PERMITTED TOP OF WASTE, EXCEPT ALONG LANDFILL PERIMETER WHERE THE NEED FOR INFILTRATION CHANNELS DOES NOT ALLOW FOR CONSTRUCTION OF PERMITTED TOP OF WASTE GRADES UNTIL FINAL COVER. PHASE VII FINAL COVER AREA INCLUDES APPROXIMATELY 7.1 ACRES.
6. PROPOSED WASTE GRADES AND INTERIM DRAINAGE FEATURES TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE RMU-1 OPERATIONS & MAINTENANCE MANUAL WHERE APPLICABLE.
7. THE CULVERT TABLE INDICATES REQUIRED CONFIGURATIONS FOR EXISTING CULVERT LOCATIONS. THE CONFIGURATIONS INDICATED IN THE CULVERT TABLE ARE BASED ON THE ANTICIPATED PEAK FLOWRATES ASSOCIATED WITH THIS GRADING PLAN. ALTERNATIVE CULVERT CONFIGURATIONS MAY BE SUBSTITUTED FOR THOSE INDICATED IN THE TABLE ASSUMING THEY PROVIDE EQUAL OR GREATER HYDRAULIC CAPACITY. ALTERNATIVE CULVERT CONFIGURATIONS WILL BE SUBMITTED TO THE NYSDEC FOR APPROVAL PRIOR TO CONSTRUCTION.
8. CULVERTS MAY BE EITHER CORRUGATED METAL PIPE OR CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE).
9. DRAINAGE AREA LIMITS ARE BASED ON AN OCTOBER 2009 ANALYSIS BY ARCADIS TO EVALUATE STORMWATER CONTAINMENT DURING BASIN TRANSITION. LIMITS ARE BASED ON THE WORST CASE BASIN TRANSITION GRADING SCENARIO AND NOT THE GRADES SHOWN ON THIS DRAWING.
10. TEMPORARY RETENTION AREA SHALL BE CONSTRUCTED ON EXISTING STABILITY BENCH. APPROXIMATE DIMENSIONS ARE 30-FEET-WIDE BY 375-FEET-LONG. AN OVERFLOW WEIR SHALL BE CONSTRUCTED AT THE NORTH END OF THE TEMPORARY RETENTION AREA TO ALLOW CONTROLLED DISCHARGE AS NECESSARY. WEIR ELEVATION SHALL BE 337.0.

CULVERT TABLE		
CULVERT ID	NUMBER/SIZE (IN.)	MIN. SLOPE (%)
CV-1	2/18	0.25%
CV-2	3/18	1.5%

80' 0 80' 160'

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING. USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.

Professional Engineer's Name			
JOSEPH MOLINA III			
Professional Engineer's No.			
NY 072644			
State	Date Signed	Project Mgr	
NY		BMS	
Designed by	Drawn by	Checked by	
BMS	GMS	PHB	

ARCADIS U.S., INC.

CWM CHEMICAL SERVICES, LLC • MODEL CITY, NEW YORK
RESIDUALS MANAGEMENT UNIT 1

FILL PROGRESSION FINAL SEQUENCE PHASE 2 BASIN TRANSITION WATERSHEDS

GENERAL

ARCADIS Project No.
B0023726.0000.00003

Date
OCTOBER 2009

ARCADIS
6723 TOWPATH ROAD
SYRACUSE, NEW YORK
315-446-9120

1

CITY: SYRACUSE DIV/GROUP: 141 DB: JHR GMS LD: PIC: PM: TM: LYR:ON=*;OFF=*REF
G:\ENV\CAD\SYRACUSE\ACT\B0023726\0000\00003\DWG\23726G02.DWG LAYOUT: 1SAVED: 10/12/2009 1:14 PM ACADVER: 17.0S (LMS TECH) PAGESETUP: —PLOTSTYLETABLE: PLTCONT1.CTB PLOTTED: 10/12/2009 1:53 PM BY: DECLERCQ, BRIAN
XREFS: 23736X01 IMAGES: PROJECTNAME: —

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Attachment 7

Tank T-165 Calculations

ARCADIS

Infrastructure, environment, buildings

Mr. Stephen Rydzyk
Maintenance Manager/Engineer
CWM Chemical Services, LLC
1550 Balmer Road
Model City, New York 14107

ARCADIS
6723 Towpath Road
P.O. Box 66
Syracuse
New York 13214-0066
Tel 315.446.9120
Fax 315.449.0017
www.arcadis-us.com

Subject:
Tank Volume Assessment for RMU-1 Contact Runoff Containment
Model City, New York

Environment

Dear Steve:

Pursuant to your request, ARCADIS has performed an assessment to determine the minimum required volume for the proposed tank T-165. ARCADIS understands that this tank is being proposed to contain contact water runoff from uncapped portions of the landfill and will be located outside the limit of RMU-1. The assessment is based on the occurrence of the 25-year, 24-hour design storm and needing to manage contact water runoff that cannot be contained during the transition from Detention Basin G to Detention Basins H and I. The assessment is included as an attachment to this letter.

The assessment assumes a pumping rate of 1,032 gallons per minute from Detention Basin G (and subsequently Detention Basin I) to tank T-165 and a pump on/off level established at an initial elevation of 326.5 ft. The assessment also assumes that the Phase VII final cover has not been constructed and that a temporary retention area within the landfill and upgradient of Detention Basin I (as discussed in Attachment 6 to Appendix A of the December 2009 Leachate Level Compliance Plan) has not been constructed. Based on these assumptions, the minimum required volume for tank T-165 is 763,742 gallons. It is noted that this is a minimum operating volume and does not include any allowance for standing liquid at the bottom of the tank nor for freeboard with respect to the overflow pipe.

As always, if you have any questions please feel free to contact myself at 315.671.9445 or Phil Batten at 315.671.9234.

Sincerely,

ARCADIS

Brian M. Stone, P.E.
Senior Engineer

Copies:
Mr. Philip Batten, ARCADIS

Date:
January 4, 2010

Contact:
Brian M. Stone, P.E.

Phone:
315.671.9445

Email:
brian.stone@arcadis-us.com

Our ref:
B0023729.0000

ARCADIS of New York, Inc.

ARCADIS U.S., Inc.

Imagine the result

ARCADIS
Infrastructure, environment, buildings

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Operations Support **Project No.:** B0023729.0000

Subject: Tank T-165 Assessment for Contact Water Runoff Management

Prepared By: PTO **Date:** December 2009

Reviewed By: BMS **Date:** December 2009

Checked By: BMS **Date:** December 2009

TASK

Determine the storage volume necessary for the proposed tank T-165 to manage contact water runoff from RMU-1 in preparation for the transition from Detention Basin G to Detention Basins H and I.

REFERENCES

1. *Leachate Level Compliance Plan for Residuals Management Unit-1, Final Sequence Phase 2,* dated December 2009.
2. HydroCAD Software Solutions LLC. HydroCAD. Vers. 8.5. Computer Software. 2006. (Output attached).

OVERVIEW

As discussed in Reference 1, it will be necessary to transition the existing Detention Basin G into two separate detention basins (H and I) to allow for continued waste placement in RMU-1. This transition includes placement of gradable waste or clean fill within existing Detention Basin G to create a berm, which will subdivide the existing basin into Detention Basins H and I. A volume deficit is expected to occur within Detention Basin G due to the construction of the dividing berm. The worst-case period for this volume deficit is expected to occur when the top of the dividing berm reaches an elevation of 330.09, as discussed in Reference 1.

CWM has planned to construct approximately 7.1 acres of new (Phase VII) final cover on RMU-1 to reduce the watershed to Detention Basin G. Additionally, CWM has planned to construct a temporary retention area upgradient of Detention Basin I to mitigate the temporary loss of basin capacity associated with the construction of the dividing berm. Appendix A-6 of Reference 1 includes calculations that demonstrate compliance with permit requirements regarding contact water management during the worst-case basin transition period assuming the construction of the new final cover area and the temporary retention area.

As an alternative to this approach, CWM is considering installing a bolted steel tank (identified as tank T-165) south of RMU-1 and outside of the landfill to provide additional capacity to store contact water runoff during the transition period from Detention Basin G to Detention Basins H and I. Under this scenario, liquid would be allowed to accumulate and remain in Detention Basin G up to a certain elevation. Liquid that accumulates above this elevation would be transferred to the tank via a pump(s) installed in Detention Basin G. The volume of contact water transferred to the tank is the basis for determining the minimum required tank size.

Calculation Sheet

ASSUMPTIONS

1. Tributary watersheds to proposed Detention Basins H and I are depicted on a watershed area map included as an attachment to this calculation. The watersheds are based on the predicted interim grading for the dividing berm during the worst-case period of the basin transition. Phase VII final cover is assumed to be unconstructed for the watershed delineation. Hence, the waste surface that would be capped by the Phase VII final cover continues to produce contact water runoff for this assessment.

2. Consistent with Appendix A-6 of Reference 1, proposed Detention Basin H receives inflow from its tributary watershed, as well as through open channel flow from the south perimeter channel and through culvert flow (via culvert CV-2) from the east perimeter channel. The aforementioned perimeter channels are routed in a manner that is consistent with Reference 1 and infiltration to the landfill cells is considered. Consequently, stormwater runoff reaching proposed Detention Basin H is reduced by infiltration that occurs in the south and east perimeter channels. Primary outflow from proposed Detention Basin H occurs via two pumps. Pump 1 discharges to the RMU-1 primary leachate forcemain at approximately 33 gpm, as discussed in Reference 1, whenever the basin liquid elevation is greater than or equal to 323.31 feet (i.e., 1 foot above basin low point). Pump 2 discharges stormwater from Basin H to upgradient Basin I at a rate of 66.8 gpm (based on Reference 1) and is assumed to turn on once the liquid level in Basin H is greater than or equal to 328.00 feet.

3. Once the dividing berm is constructed, Detention Basin G receives inflow from its tributary watershed and from Pump 2 (in proposed Detention Basin H). Pumping from Detention Basin G to tank T-165 occurs at a rate of 1,032 GPM which is required so that the basin does not overflow its top elevation. A minimum 1 foot of freeboard (vertical distance between the estimated peak liquid elevations and the lowest lined perimeter crest elevations) must be provided for detention basins during the design storm. The pump(s) within Detention Basin G deliver flow to tank T-165 once the liquid elevation in proposed Detention Basin G is greater than or equal to 326.50 feet. The temporary retention area discussed in Appendix A-6 of Reference 1 is assumed to be unconstructed for this assessment. The storage volume provided by tank T-165 eliminates the need for the temporary retention area.

4. Freeboard requirements for Tank T-165 are not considered in this analysis. Hence, the volume determined herein is a minimum usable tank volume, excluding any specific freeboard allowances.

5. Basin floor lowpoint elevations are 319.00 feet and 322.31 feet for Basin G and Basin H, respectively. The basin floor lowpoint elevation for Basin G is based on anticipated grading conditions within the basin during the transition to Basin I. For conservatism, the detention basins are analyzed assuming 1 foot of liquid in the basins above the basin low points prior to the beginning of the design storm.

6. Detention Basins G and H are lined to an elevation of 330.09 during the worst-case period of the basin transition process (based on the lowest liner crest elevation in the south perimeter channel).

METHODOLOGY

The methodology used to determine the stormwater runoff (leachate) conditions into Detention Basins G and H in this evaluation is based on that presented in Reference 1. See Reference 1 for additional detail regarding the methodology.

Calculation Sheet

CALCULATIONS

1. Stormwater Runoff Hydrographs for Detention Basin Watersheds

Table 1 below summarizes the hydrologic parameters for the tributary watershed that drains directly to proposed Detention Basin H and the resulting stormwater runoff conditions into the basin from the tributary watershed.

Table 1

Watershed Area (acres)	Runoff Curve Number	Time of Concentration (hr)	Runoff (in)	Estimated Peak Discharge into Basin (cfs)	Total Stormwater Runoff Volume (cu. ft.)
1.00	90	0.1	2.92	4.95	10,585

Table 2 below summarizes the hydrologic parameters for the tributary watershed that drains directly to Detention Basin G after construction of the dividing berm to elevation 330.09 as well as the resulting stormwater runoff conditions into the basin from the tributary watershed.

Table 2

Watershed Area (acres)	Runoff Curve Number	Time of Concentration (hr)	Runoff (in)	Estimated Peak Discharge into Basin (cfs)	Total Stormwater Runoff Volume (cu. ft.)
15.73	90	0.1	2.92	77.84	166,704

The runoff hydrographs for the tributary areas to Detention Basins G and H are included as an attachment to this calculation.

2. Detention Basin H Routing and Peak Liquid Elevations

A rating curve is used to route the various inflows to proposed Detention Basin H. The results of the routing procedure, including peak liquid elevations, are presented in Table 3 below.

Table 3

Starting Liquid El. (ft)	Peak Inflow[1] (cfs)	Peak Outflow (cfs)	Peak Liquid El. (ft)	Lowest Lined Crest El. (ft)	Freeboard (ft)
323.31 (1 Foot Above Basin Floor)	19.02	0.37	328.12	330.09	1.97

Notes:
1. Peak inflow is a composite value including direct contribution from the tributary watershed and gravity drainage from the south and east perimeter channels respectively.

Calculation Sheet

3. Detention Basin G Routing and Peak Liquid Elevations

Inflow to Detention Basin G is based on the direct watershed contribution, and the contribution from Pump 2 in Detention Basin H. The results of the routing procedure, including peak liquid elevations, are presented in Table 4 below.

Table 4

Starting Liquid El. (ft)	Peak Inflow[1] (cfs)	Peak Outflow (cfs)	Peak Liquid El. (ft)	Lowest Lined Crest El. (ft)	Freeboard (ft)
320.00 (1 Foot Above Basin Floor)	77.84	2.30	328.99	330.09	1.10

Notes:
1. Peak inflow is a composite value including direct contribution from the tributary watershed and pumped flow from Detention Basin H.

4. Tank T-165 Storage Capacity

The results for the peak inflow and minimum required storage capacity of tank T-165 are presented in Table 5 below. As discussed in Assumption 4, the minimum required storage capacity for the tank is a usable volume and excludes any allowances for standing liquid in the bottom of the tank or freeboard between design high water level and the invert of the overflow pipe.

Table 5

Peak Inflow (cfs)	Required Storage Capacity (Gal)
2.30	763,742

SUMMARY

Based on the assumptions and calculations presented above, the proposed tank T-165 must provide a minimum usable capacity of 763,742 gallons to manage the contact stormwater runoff that results from the 25-year, 24-hour storm event during the worst-case basin transition period.

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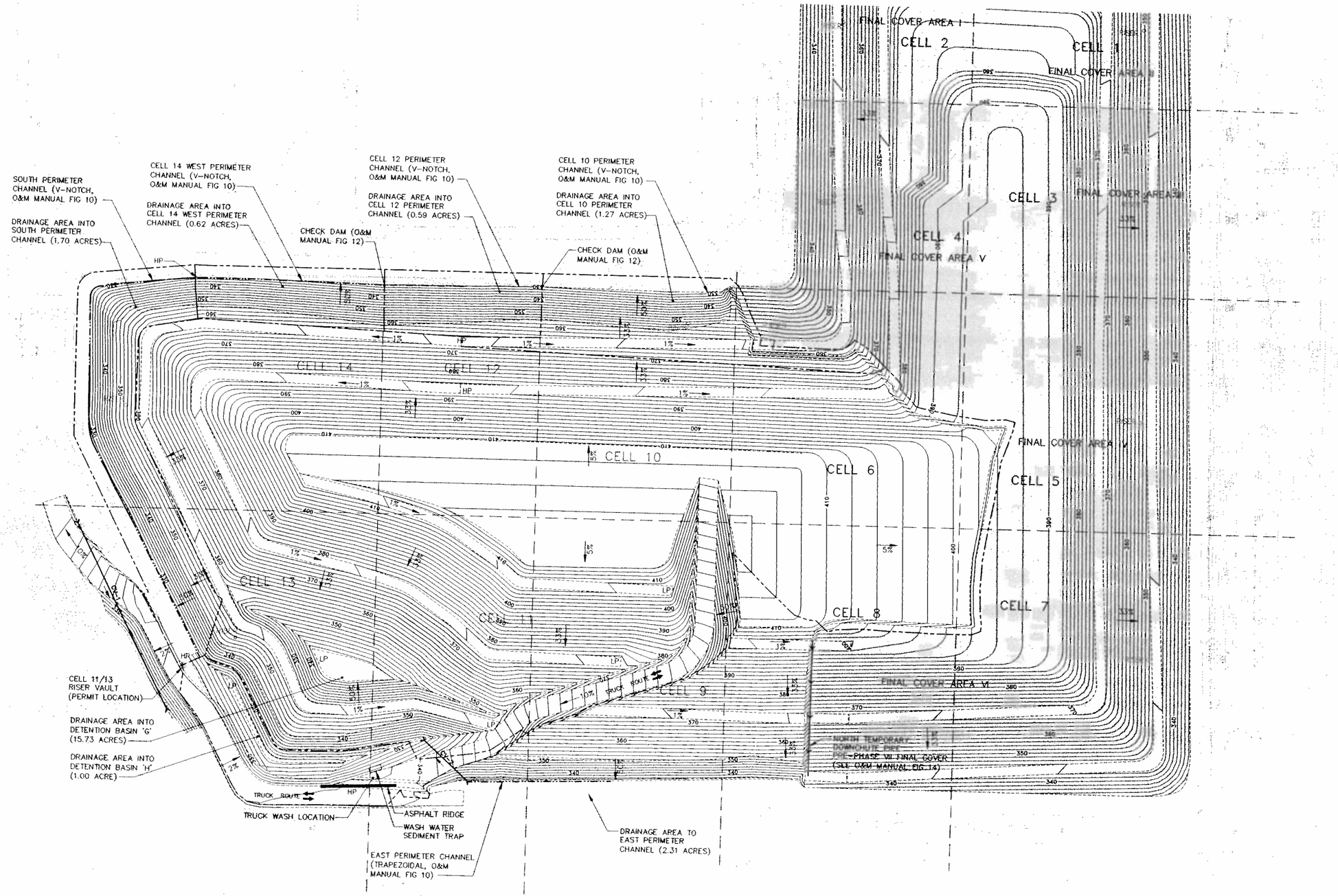
Watershed Map



LEGEND

- EXISTING FINAL COVER AREA (SEE NOTE 4)
- 340 — INDEX ELEVATION CONTOUR
- INTERMEDIATE ELEVATION CONTOUR
- GRADE BREAK
- PERIMETER INFILTRATION CHANNEL
- LIMIT OF DRAINAGE AREA
- CELL DIVIDE
- COORDINATE GRID (SEE NOTE 2)
- CV-1 — EXISTING TEMPORARY CULVERT TO BE RETAINED (SEE CULVERT TABLE AND NOTES 6 AND 7)
- HP HIGH POINT
- LP LOW POINT

NOTES:

1. BASE MAP FEATURES OUTSIDE PERMITTED LIMIT OF WASTE COMPILED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY DATED 5/31/01 (AIR SURVEY CORP. PROJECT NO. 71010503)
2. COORDINATES REFER TO CWM PLANT SITE GRID.
3. CONTOUR INTERVAL EQUALS 2 FEET.
4. GRADES WITHIN EXISTING FINAL COVER AREA REPRESENT PERMITTED TOP OF WASTE. FINAL COVER LIMIT REPRESENTS APPROXIMATE EDGE OF FULL COVER THICKNESS BASED ON QUARTERLY WASTE SURVEYS.
5. PROPOSED WASTE GRADES AND INTERIM DRAINAGE FEATURES TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE RMU-1 OPERATIONS & MAINTENANCE MANUAL WHERE APPLICABLE.
6. THE CULVERT TABLE INDICATES REQUIRED CONFIGURATIONS FOR EXISTING CULVERT LOCATIONS. THE CONFIGURATIONS INDICATED IN THE CULVERT TABLE ARE BASED ON THE ANTICIPATED PEAK FLOWRATES ASSOCIATED WITH THIS GRADING PLAN. ALTERNATIVE CULVERT CONFIGURATIONS MAY BE SUBSTITUTED FOR THOSE INDICATED IN THE TABLE ASSUMING THEY PROVIDE EQUAL OR GREATER HYDRAULIC CAPACITY. ALTERNATIVE CULVERT CONFIGURATIONS WILL BE SUBMITTED TO THE NYSDEC FOR APPROVAL PRIOR TO CONSTRUCTION.
7. CULVERTS MAY BE EITHER CORRUGATED METAL PIPE OR CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE).
8. DRAINAGE AREA LIMITS ARE BASED ON A DECEMBER 2009 ANALYSIS BY ARCADIS TO EVALUATE STORMWATER CONTAINMENT DURING BASIN TRANSITION. LIMITS ARE BASED ON THE WORST CASE BASIN TRANSITION GRADING SCENARIO AND NOT THE GRADES SHOWN ON THIS DRAWING.
9. DRAINAGE AREAS TO BASIN G AND BASIN H ARE BASED ON ANTICIPATED GRADING CONDITIONS FOR THE BASINS DURING THE TRANSITION FROM BASIN G TO BASIN I.

CULVERT TABLE

CULVERT ID	NUMBER/SIZE (IN.)	MIN. SLOPE (%)
CV-1	2/18	0.25%
CV-2	3/18	1.5%

80' 0 80' 160'

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING — USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

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Professional Engineer's Name: JOSEPH MOLINA III
Professional Engineer's No: NY 072644

State	Date Signed	Project Mgr
NY		BMS
Designed by: BMS	Drawn by: GMS	Checked by: PHB

ARCADIS U.S., INC.

CWM CHEMICAL SERVICES, LLC • MODEL CITY, NEW YORK
RESIDUALS MANAGEMENT UNIT 1

TANK T-165 ASSESSMENT FOR CONTACT WATER RUNOFF MANAGEMENT WATERSHED MAP

GENERAL

ARCADIS Project No: B0023726 0000.00003
Date: DECEMBER 2009
ARCADIS, 6723 TOWPATH ROAD, SYRACUSE, NEW YORK, 315-446-9120

1

CITY: SYRACUSE,NY DIV/GROUP: ENV/1141 DB: JHR GMS: K.SARTORI LD: PIC: PM:P.OTTIS TM: LYR:ON=*OFF=REF
G:\ENV\CAD\SYRACUSE\ACTIVE\B0023726\0000\00001\DWG\Contract\23726G01.DWG LAYOUT: 1SAVED: 1/6/2010 10:59 AM-ACADVER: 17.0S (LMS TECH)PAGESETUP: ---PLOTSTYLETABLE: PLTCONT1.CTB PLOTTED: 1/6/2010 10:59 AM BY: SARTORI, KATHERINE
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ARCADIS

HydroCAD Output

Summary for Subcatchment 30S: Direct flow to Basin H

Runoff = 4.95 cfs @ 11.97 hrs, Volume= 0.243 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	1.000	90	
	1.000		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 76S: Direct Contribution to Basin G

Runoff = 77.84 cfs @ 11.97 hrs, Volume= 3.827 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type II 24-hr Rainfall=4.00"

	Area (ac)	CN	Description
*	15.730	90	
	15.730		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Pond 118P: Basin H

[78] Warning: Submerged Pond 13P Primary device # 1 by 0.64'

Inflow	=	19.02 cfs @	12.00 hrs, Volume=	0.830 af
Outflow	=	0.37 cfs @	14.86 hrs, Volume=	0.491 af, Atten= 98%, Lag= 171.6 min
Discarded	=	0.07 cfs @	0.00 hrs, Volume=	0.328 af
Primary	=	0.15 cfs @	14.86 hrs, Volume=	0.052 af
Secondary	=	0.15 cfs @	12.95 hrs, Volume=	0.111 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Starting Elev= 323.31' Surf.Area= 0.028 ac Storage= 0.012 af
Peak Elev= 328.12' @ 14.86 hrs Surf.Area= 0.230 ac Storage= 0.601 af (0.589 af above start)

Plug-Flow detention time= 1,006.0 min calculated for 0.479 af (58% of inflow)
Center-of-Mass det. time= 878.4 min (1,668.6 - 790.2)

Volume	Invert	Avail.Storage	Storage Description
#1	322.31'	0.866 af	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
322.31	0.000	0.000	0.000
322.50	0.001	0.000	0.000
323.00	0.015	0.004	0.004
323.50	0.036	0.013	0.017
324.00	0.058	0.024	0.040
324.50	0.076	0.033	0.074
325.00	0.094	0.043	0.116
325.50	0.112	0.052	0.168
326.00	0.131	0.061	0.229
326.50	0.151	0.071	0.299
327.00	0.171	0.081	0.380
327.50	0.192	0.091	0.470
328.00	0.214	0.101	0.572
328.50	0.284	0.125	0.696
329.00	0.396	0.170	0.866

Device	Routing	Invert	Outlet Devices
#1	Primary	327.48'	**Outflow to South Channel** Elev. (feet) 327.48 328.00 328.25 328.50 328.75 329.00 329.25 329.50 329.75 330.00 Disch. (cfs) 0.000 0.000 0.310 1.770 4.890 10.030 17.520 27.640 40.640 56.750
#2	Discarded	322.31'	**Pump 1** Elev. (feet) 322.31 323.30 323.31 324.00 325.00 326.00 327.00 328.00 329.00 Disch. (cfs) 0.000 0.000 0.074 0.074 0.074 0.074 0.074 0.074 0.074
#3	Secondary	322.31'	**Pump 2** Elev. (feet) 322.31 327.99 328.00 329.00 330.00

Primary OutFlow Max=2.30 cfs @ 11.98 hrs HW=326.59' (Free Discharge)
└**1=Pump to aquastore** (Custom Controls 2.30 cfs)

Summary for Pond 75P: Basin G

[78] Warning: Submerged Pond 118P Secondary device # 3 by 6.68'
[80] Warning: Exceeded Pond 118P by 0.89' @ 13.93 hrs (0.15 cfs 0.097 af)

Inflow	=	77.84 cfs @	11.97 hrs, Volume=	3.938 af
Outflow	=	2.30 cfs @	11.98 hrs, Volume=	2.344 af, Atten= 97%, Lag= 0.6 min
Primary	=	2.30 cfs @	11.98 hrs, Volume=	2.344 af

Routing by Sim-Route method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Starting Elev= 320.00' Surf.Area= 0.161 ac Storage= 0.077 af
Peak Elev= 328.99' @ 14.18 hrs Surf.Area= 0.427 ac Storage= 2.629 af (2.552 af above start)

Plug-Flow detention time= 411.6 min calculated for 2.266 af (58% of inflow)
Center-of-Mass det. time= 285.6 min (1,088.4 - 802.8)

Volume	Invert	Avail.Storage	Storage Description
#1	319.00'	3.008 af	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
319.00	0.000	0.000	0.000
319.50	0.074	0.018	0.018
320.00	0.161	0.059	0.077
320.50	0.173	0.084	0.161
321.00	0.185	0.089	0.250
321.50	0.197	0.095	0.346
322.00	0.210	0.102	0.447
322.50	0.223	0.108	0.556
323.00	0.236	0.115	0.670
323.50	0.250	0.121	0.792
324.00	0.264	0.128	0.920
324.50	0.279	0.136	1.056
325.00	0.294	0.143	1.199
325.50	0.309	0.151	1.350
326.00	0.324	0.158	1.508
326.50	0.340	0.166	1.674
327.00	0.357	0.174	1.849
327.50	0.374	0.183	2.031
328.00	0.391	0.191	2.223
328.50	0.409	0.200	2.423
329.00	0.427	0.209	2.632
329.50	0.446	0.218	2.850
329.85	0.456	0.158	3.008

Device	Routing	Invert	Outlet Devices
#1	Primary	319.00'	**Pump to aquastore** Elev. (feet) 319.00 326.49 326.50 330.00 Disch. (cfs) 0.000 0.000 2.300 2.300

Primary OutFlow Max=2.30 cfs @ 11.98 hrs HW=326.59' (Free Discharge)
↑—**1=Pump to aquastore** (Custom Controls 2.30 cfs)

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Appendix B

RMU-1 Leachate Removal, Storage, and Transfer System Calculations

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Attachment 1

RMU-1 Landfill Cells 1 Through 14 Through Lift Station to OWS Building

ARCADIS
Infrastructure, environment, buildings

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B0023726

Subject: RMU-1 Landfill Cells 1 through 14 through Lift Station to Tank T-157 in OWS Building

Prepared By: BMS/PTO **Date:** October 2009

Reviewed By: BMS **Date:** October 2009

Checked By: PHB **Date:** October 2009

TASK

Determine the discharge rates from the RMU-1 lift station and from primary sumps for Cells 7/8, 9/10, 11/13 and 12/14 associated with leachate generation resulting from the 25-year, 24-hour design storm.

REFERENCES

1. *Leachate Level Compliance Plan For Residuals Management Unit One*, prepared by Golder Associates, dated February, 1997.
2. *Leachate Level Compliance Plan for Residuals Management Unit - One, Final Sequence Phase 1,* prepared by ARCADIS, dated December, 2007.
3. *Engineering Report for CWM Chemical Services, LLC Model City Facility, Residuals Management Unit 1,* Earth Tech.
4. WaterCAD for Windows, Version 5.0, pressure network analysis software, Haestad Methods, Inc.

ASSUMPTIONS

1. Landfill cell primary sumps are modeled as constant head reservoirs with constant head at approximately 1 foot above the low point of primary liner (i.e., allowable leachate elevation).
2. Head at landfill cell primary pumps is constant and sufficient for pump operation (NPSH).
3. Primary leachate pumps in Cells 7/8, 9/10, 11/13 and 12/14 run simultaneously in response to a storm event based on the stormwater routing evaluation presented in Appendix A.
4. Cells 1, 2, 3, 4, 5 and 6 are capped and do not respond to storm events (pumps in these cells have a rating of 40 gallons per minute [gpm] at 35 feet total dynamic head).
5. The RMU-1 lift station discharges into tank T-157 in the OWS building, which is modeled as a constant-head reservoir at the incoming pipe elevation.
6. The model flow rate out of the lift station is assumed to be limited to 525 gpm for consistency with flow measurements by CWM. This is based on one pump (GSP300HV) running. Additional flow capacity may be provided by a second pump (Jumbo 200HH), which is not considered in this analysis.

Calculation Sheet

METHODOLOGY

Information used in previous LLCP evaluations relating to the leachate removal, storage, transfer and treatment system was verified, modified as necessary and input into WaterCAD for evaluation. This information includes manufacturer pump data; pipe lengths, sizes and types; number and type of fittings; and other relevant components that could potentially affect the performance of the system. WaterCAD output includes flow rates, velocities and headloss through each pump or pipe section. The primary leachate forcemain from Cell 11/13 to the RMU-1 lift station transmits the flow from Pump 1 in Basin H and is therefore included in the primary leachate forcemain modeling.

CALCULATIONS

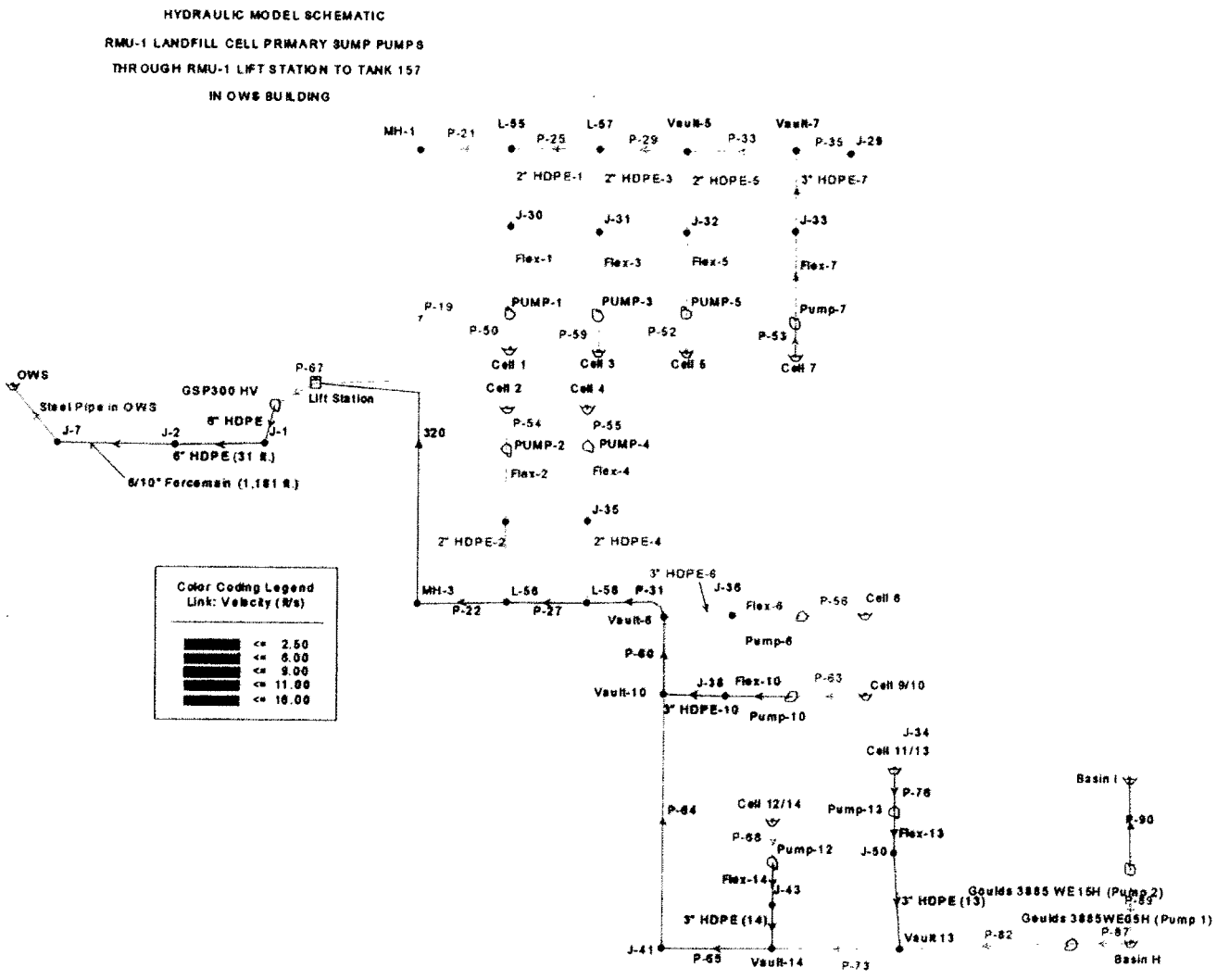
A summary of the calculation output is presented in the following table.

RMU-1 Cell	Pump Type	Nominal Flow Rate (gpm) [1,2,3]	Evaluation Flow Rate (gpm)	Head at Pump (feet)	Pump Condition (On/Off)	Total Evaluated Flow to Lift Station (gpm)
Cell 1	WE05HH	40	0	0	Off	513
Cell 2	WE05HH	40	0	0	Off	
Cell 3	WE05HH	40	0	0	Off	
Cell 4	WE05HH	40	0	0	Off	
Cell 5	WE05HH	40	0	0	Off	
Cell 6	WE05HH	40	0	0	Off	
Cell 7/8	WE05HH	40	60	8	On	
Cell 9/10	JUMBO 30HH	100	152	44	On	
Cell 11/13	JUMBO 30HH	100	133	57	On	
Cell 12/14	JUMBO 30HH	100	135	55	On	
Pump 1	WE05HH	40	33	34	On	
Lift Station	GSP300HV	600	513	51	On	

Notes:

1. Goulds WE05HH is rated at 40 gpm at 35 feet TDH.
2. ABS JUMBO 30 HH is rated at 100 gpm at 80 feet TDH.
3. Godwin GSP300HV is rated at 600 gpm at 120 feet TDH.

Scenario: Base



Analysis Results
Scenario: Base
Steady State Analysis

Title: CWM: RMU-1 Leachate System Evaluation
Project Engineer: ARCADIS
Project Date: 09/07/09
Comments: RMU-1 landfill cell primary pumps through RMU-1 lift station. Landfill cells modeled as constant-head reservoirs.

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Liquid Characteristics			
Liquid	Water at 20C(68F)	Specific Gravity	1.00
Kinematic Viscosity	1.0804e-5 ft²/s		

Network Inventory			
Pressure Pipes	53	Number of Tanks	1
Number of Reservoirs	13	- Constant Area:	1
Number of Pressure Junctions	27	- Variable Area:	0
Number of Pumps	13	Number of Valves	0
- Constant Power:	0	- FCV's:	0
- One Point (Design Point):	0	- PBV's:	0
- Standard (3 Point):	13	- PRV's:	0
- Standard Extended:	0	- PSV's:	0
- Custom Extended:	0	- TCV's:	0
- Multiple Point:	0	- GPV's:	0
Number of Spot Elevations	0		

Pressure Pipes Inventory			
1.93 in	20.00 ft	3.00 in	384.00 ft
1.94 in	271.00 ft	5.42 in	5,663.00 ft
2.00 in	451.00 ft	6.00 in	95.02 ft
2.86 in	116.00 ft	48.00 in	1.00 ft
2.88 in	70.00 ft		
Total Length	7,071.02 ft		

Analysis Results
Scenario: Base
Steady State Analysis

Pressure Pipes @ 0.00 hr

Label	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
2" HDPE-1	Open	0.00	0.00	318.76	318.76	0.00	0.00	0.00	0.00
2" HDPE-2	Open	0.00	0.00	331.63	331.63	0.00	0.00	0.00	0.00
2" HDPE-3	Open	0.00	0.00	318.90	318.90	0.00	0.00	0.00	0.00
2" HDPE-4	Open	0.00	0.00	337.41	337.41	0.00	0.00	0.00	0.00
2" HDPE-5	Open	0.00	0.00	319.06	319.06	0.00	0.00	0.00	0.00
3" HDPE-10	Open	152.01	7.59	353.43	343.33	1.44	8.66	10.10	420.92
3" HDPE-6	Open	0.00	0.00	340.87	340.87	0.00	0.00	0.00	0.00
3" HDPE-7	Open	59.63	2.98	320.70	319.24	0.21	1.25	1.46	72.92
3" HDPE (13)	Open	133.08	6.65	364.36	356.60	1.13	6.64	7.76	323.52
3" HDPE (14)	Open	135.03	6.74	363.17	355.18	1.16	6.83	7.99	332.97
6" HDPE	Open	513.35	7.14	369.68	369.12	0.20	0.36	0.56	70.06
6" HDPE (31 ft	Open	513.35	7.14	369.12	364.14	0.79	4.19	4.98	160.57
6/10" Forcema	Open	513.35	7.14	364.14	332.75	30.18	1.21	31.39	26.58
320	Open	452.74	6.30	326.59	318.50	6.48	1.61	8.09	25.27
Flex-1	Open	0.00	0.00	318.76	318.76	0.00	0.00	0.00	0.00
Flex-2	Open	0.00	0.00	331.63	331.63	0.00	0.00	0.00	0.00
Flex-3	Open	0.00	0.00	318.90	318.90	0.00	0.00	0.00	0.00
Flex-4	Open	0.00	0.00	337.41	337.41	0.00	0.00	0.00	0.00
Flex-5	Open	0.00	0.00	319.06	319.06	0.00	0.00	0.00	0.00
Flex-6	Open	0.00	0.00	340.87	340.87	0.00	0.00	0.00	0.00
Flex-7	Open	59.63	2.71	321.82	320.70	1.13	0.00	1.13	13.59
Flex-10	Open	152.01	6.90	359.12	353.43	5.69	0.00	5.69	76.87
Flex-13	Open	133.08	6.04	368.81	364.36	4.45	0.00	4.45	60.08
Flex-14	Open	135.03	6.13	367.74	363.17	4.57	0.00	4.57	61.73
P-19	Open	59.63	0.83	318.67	318.50	0.14	0.03	0.17	0.57
P-21	Open	59.63	0.83	318.76	318.67	0.09	0.00	0.09	0.47
P-22	Open	452.74	6.30	331.63	326.59	4.25	0.79	5.04	24.00
P-25	Open	59.63	0.83	318.90	318.76	0.13	0.00	0.13	0.49
P-27	Open	452.74	6.30	337.41	331.63	5.57	0.22	5.78	21.03
P-29	Open	59.63	0.83	319.06	318.90	0.16	0.00	0.16	0.49
P-31	Open	452.74	6.30	340.87	337.41	3.24	0.22	3.46	21.60
P-33	Open	59.63	0.83	319.24	319.06	0.18	0.00	0.18	0.48
P-35	Open	0.00	0.00	319.24	319.24	0.00	0.00	0.00	0.00
P-50	Open	0.00	0.00	310.00	310.00	0.00	0.00	0.00	0.00
P-52	Open	0.00	0.00	312.00	312.00	0.00	0.00	0.00	0.00
P-53	Open	59.63	2.71	314.00	313.99	0.01	0.00	0.01	8.45
P-54	Open	0.00	0.00	313.20	313.20	0.00	0.00	0.00	0.00
P-55	Open	0.00	0.00	314.00	314.00	0.00	0.00	0.00	0.00
P-56	Open	0.00	0.00	314.50	314.50	0.00	0.00	0.00	0.00
P-59	Open	0.00	0.00	313.00	313.00	0.00	0.00	0.00	0.00
P-60	Open	452.74	6.30	343.33	340.87	2.25	0.22	2.46	22.19
P-63	Open	152.01	1.72	315.50	315.50	0.00	0.00	0.00	1.74
P-64	Open	300.73	4.18	352.62	343.33	9.19	0.10	9.29	9.60
P-65	Open	300.73	4.18	355.18	352.62	2.21	0.35	2.56	10.98
P-67	Open	513.35	0.09	318.50	318.50	0.00	0.00	0.00	0.00
P-68	Open	135.03	1.53	312.41	312.41	0.00	0.00	0.00	1.40
P-73	Open	165.71	2.30	356.60	355.18	1.42	0.00	1.42	3.15

Analysis Results
Scenario: Base
Steady State Analysis

Pressure Pipes @ 0.00 hr

Label	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
P-76	Open	133.08	6.04	312.16	312.12	0.04	0.00	0.04	37.41
P-82	Open	32.63	1.61	356.83	356.60	0.24	0.00	0.24	3.38
P-87	Open	-32.63	0.37	323.31	323.31	0.00	0.00	0.00	0.00
P-89	Open	66.83	0.76	323.31	323.31	0.00	0.00	0.00	0.00
P-90	Open	66.83	7.25	384.15	360.00	16.67	7.48	24.15	126.46
Steel Pipe in C	Open	513.35	5.83	332.75	326.23	3.15	3.36	6.52	72.42

Reservoirs @ 0.00 hr

Label	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
Basin H	323.31	-99.46	99.46
Basin I	360.00	66.83	-66.83
Cell 1	310.00	0.00	0.00
Cell 2	313.20	0.00	0.00
Cell 3	313.00	0.00	0.00
Cell 4	314.00	0.00	0.00
Cell 5	312.00	0.00	0.00
Cell 6	314.50	0.00	0.00
Cell 7	314.00	-59.63	59.63
Cell 9/10	315.50	-152.01	152.01
Cell 11/13	312.16	-133.08	133.08
Cell 12/14	312.41	-135.03	135.03
OWS	326.23	513.35	-513.35

Pumps @ 0.00 hr

Label	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
Goulds 3885 V	On	323.31	384.15	66.83	60.84	1.00	1.03
Goulds 3885W	On	323.31	356.83	32.63	33.52	0.99	0.28
GSP300 HV	On	318.50	369.68	513.35	51.18	0.69	6.63
PUMP-1	Off	310.00	318.76	0.00	0.00	1.00	0.00
PUMP-2	Off	313.20	331.63	0.00	0.00	1.00	0.00
PUMP-3	Off	313.00	318.90	0.00	0.00	1.00	0.00
PUMP-4	Off	314.00	337.41	0.00	0.00	1.00	0.00
PUMP-5	Off	312.00	319.06	0.00	0.00	1.00	0.00
Pump-6	Off	314.50	340.87	0.00	0.00	1.00	0.00
Pump-7	On	313.99	321.82	59.63	7.83	0.84	0.12
Pump-10	On	315.50	359.12	152.01	43.62	1.00	1.67
Pump-12	On	312.41	367.74	135.03	55.33	1.00	1.89
Pump-13	On	312.12	368.81	133.08	56.68	1.00	1.90

Analysis Results
Scenario: Base
Steady State Analysis

Pressure Junctions @ 0.00 hr

Label	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
J-1	369.12	159.70	369.12	0.00
J-2	364.14	157.55	364.14	0.00
J-7	332.75	143.96	332.75	0.00
J-29	319.24	138.12	319.24	0.00
J-30	318.76	137.91	318.76	0.00
J-31	318.90	137.97	318.90	0.00
J-32	319.06	-6.90	-15.94	0.00
J-33	320.70	138.75	320.70	0.00
J-34	331.63	143.48	331.63	0.00
J-35	337.41	145.98	337.41	0.00
J-36	340.87	147.48	340.87	0.00
J-38	353.43	152.91	353.43	0.00
J-41	352.62	152.56	352.62	0.00
J-43	363.17	157.13	363.17	0.00
J-50	364.36	157.64	364.36	0.00
L-55	318.76	137.91	318.76	0.00
L-56	331.63	143.48	331.63	0.00
L-57	318.90	-3.94	-9.10	0.00
L-58	337.41	145.98	337.41	0.00
MH-1	318.67	137.87	318.67	0.00
MH-3	326.59	141.30	326.59	0.00
Vault-5	319.06	-3.87	-8.94	0.00
Vault-6	340.87	147.48	340.87	0.00
Vault-7	319.24	-3.79	-8.76	0.00
Vault-10	343.33	148.54	343.33	0.00
Vault-14	355.18	153.67	355.18	0.00
Vault 13	356.60	154.28	356.60	0.00

Tanks @ 0.00 hr

Label	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
Lift Station	318.50	1.50	0.65	0.0	0.00	-0.98	0.98	Empty

Detailed Report for Pressure Pipe: 2" HDPE-1

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	1.94 in	Minor Loss Coefficient	10.10
Check Valve?	false	Length	20.00 ft
From Node	L-55	To Node	J-30

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	318.76	318.76	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: 2" HDPE-2

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	1.94 in	Minor Loss Coefficient	10.10
Check Valve?	false	Length	20.00 ft
From Node	J-34	To Node	L-56

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	331.63	331.63	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: 2" HDPE-3

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	1.94 in	Minor Loss Coefficient	8.62
Check Valve?	false	Length	20.00 ft
From Node	J-31	To Node	L-57

Elevations			
From Elevation	0.00 ft	To Elevation	328.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	318.90	318.90	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: 2" HDPE-4

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	1.93 in	Minor Loss Coefficient	10.10
Check Valve?	false	Length	20.00 ft
From Node	J-35	To Node	L-58

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	337.41	337.41	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: 2" HDPE-5

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	1.94 in	Minor Loss Coefficient	9.04
Check Valve?	false	Length	20.00 ft
From Node	J-32	To Node	Vault-5

Elevations			
From Elevation	335.00 ft	To Elevation	328.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	319.06	319.06	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: 3" HDPE-10

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	2.86 in	Minor Loss Coefficient	9.67
Check Valve?	false	Length	24.00 ft
From Node	J-38	To Node	Vault-10

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	152.01	7.59	353.43	343.33	1.44	8.66	10.10	420.92

Detailed Report for Pressure Pipe: 3" HDPE-6

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	2.86 in	Minor Loss Coefficient	9.04
Check Valve?	false	Length	24.00 ft
From Node	J-36	To Node	Vault-6

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	340.87	340.87	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: 3" HDPE-7

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	2.86 in	Minor Loss Coefficient	9.04
Check Valve?	false	Length	20.00 ft
From Node	J-33	To Node	Vault-7

Elevations			
From Elevation	0.00 ft	To Elevation	328.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	59.63	2.98	320.70	319.24	0.21	1.25	1.46	72.92

Detailed Report for Pressure Pipe: 3" HDPE (13)

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	2.86 in	Minor Loss Coefficient	9.67
Check Valve?	false	Length	24.00 ft
From Node	J-50	To Node	Vault 13

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	133.08	6.65	364.36	356.60	1.13	6.64	7.76	323.52

Detailed Report for Pressure Pipe: 3" HDPE (14)

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	2.86 in	Minor Loss Coefficient	9.67
Check Valve?	false	Length	24.00 ft
From Node	J-43	To Node	Vault-14

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	135.03	6.74	363.17	355.18	1.16	6.83	7.99	332.97

Detailed Report for Pressure Pipe: 6" HDPE

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.45
Check Valve?	false	Length	8.00 ft
From Node	GSP300 HV	To Node	J-1

Elevations			
From Elevation	317.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	513.35	7.14	369.68	369.12	0.20	0.36	0.56	70.06

Detailed Report for Pressure Pipe: 6" HDPE (31 ft.)

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	5.29
Check Valve?	false	Length	31.00 ft
From Node	J-1	To Node	J-2

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	513.35	7.14	369.12	364.14	0.79	4.19	4.98	160.57

Detailed Report for Pressure Pipe: 6/10" Forcemain (1,181 ft.)

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	1.53
Check Valve?	false	Length	1,181.00 ft
From Node	J-2	To Node	J-7

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	513.35	7.14	364.14	332.75	30.18	1.21	31.39	26.58

Detailed Report for Pressure Pipe: 320

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	2.61
Check Valve?	false	Length	320.00 ft
From Node	MH-3	To Node	Lift Station

Elevations			
From Elevation	0.00 ft	To Elevation	317.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	452.74	6.30	326.59	318.50	6.48	1.61	8.09	25.27

Detailed Report for Reservoir: Basin H

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	15,031.41 ft	Elevation	323.31 ft
Y	7,450.82 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	323.31	-99.46	99.46

Detailed Report for Reservoir: Basin I

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	15,022.27 ft	Elevation	360.00 ft
Y	8,151.75 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	360.00	66.83	-66.83

Detailed Report for Reservoir: Cell 1

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	12,314.43 ft	Elevation	310.00 ft
Y	9,994.17 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	310.00	0.00	0.00

Detailed Report for Reservoir: Cell 2

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	12,306.54 ft	Elevation	313.20 ft
Y	9,740.62 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	313.20	0.00	0.00

Detailed Report for Reservoir: Cell 3

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	12,700.17 ft	Elevation	313.00 ft
Y	9,986.47 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	313.00	0.00	0.00

Detailed Report for Reservoir: Cell 4

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	12,653.82 ft	Elevation	314.00 ft
Y	9,743.45 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	314.00	0.00	0.00

Detailed Report for Reservoir: Cell 5

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	13,078.63 ft	Elevation	312.00 ft
Y	9,983.02 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	312.00	0.00	0.00

Detailed Report for Reservoir: Cell 6

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	13,864.25 ft	Elevation	314.50 ft
Y	8,858.68 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	314.50	0.00	0.00

Detailed Report for Reservoir: Cell 7

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	13,551.94 ft	Elevation	314.00 ft
Y	9,974.23 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	314.00	-59.63	59.63

Detailed Report for Reservoir: Cell 9/10

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	13,869.56 ft	Elevation	315.50 ft
Y	8,511.06 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	315.50	-152.01	152.01

Detailed Report for Reservoir: Cell 11/13

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	13,998.22 ft	Elevation	312.16 ft
Y	8,191.21 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	312.16	-133.08	133.08

Detailed Report for Reservoir: Cell 12/14

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	13,466.86 ft	Elevation	312.41 ft
Y	7,964.23 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	312.41	-135.03	135.03

Detailed Report for Pressure Pipe: Flex-1

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	flex hose	Hazen- Williams C	120.0
Diameter	2.00 in	Minor Loss Coefficient	0.08
Check Valve?	false	Length	91.00 ft
From Node	PUMP-1	To Node	J-30

Elevations			
From Elevation	308.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	318.76	318.76	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: Flex-2

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	flex hose	Hazen- Williams C	120.0
Diameter	2.00 in	Minor Loss Coefficient	0.08
Check Valve?	false	Length	91.00 ft
From Node	PUMP-2	To Node	J-34

Elevations			
From Elevation	311.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	331.63	331.63	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: Flex-3

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	flex hose	Hazen- Williams C	120.0
Diameter	2.00 in	Minor Loss Coefficient	0.08
Check Valve?	false	Length	91.00 ft
From Node	PUMP-3	To Node	J-31

Elevations			
From Elevation	311.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	318.90	318.90	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: Flex-4

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	flex hose	Hazen- Williams C	120.0
Diameter	2.00 in	Minor Loss Coefficient	0.08
Check Valve?	false	Length	82.00 ft
From Node	PUMP-4	To Node	J-35

Elevations			
From Elevation	312.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	337.41	337.41	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: Flex-5

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	flex hose	Hazen- Williams C	120.0
Diameter	2.00 in	Minor Loss Coefficient	0.08
Check Valve?	false	Length	96.00 ft
From Node	PUMP-5	To Node	J-32

Elevations			
From Elevation	311.00 ft	To Elevation	335.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	319.06	319.06	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: Flex-6

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	flex hose	Hazen- Williams C	120.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	74.00 ft
From Node	Pump-6	To Node	J-36

Elevations			
From Elevation	312.25 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	340.87	340.87	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: Flex-7

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	flex hose	Hazen- Williams C	120.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	83.00 ft
From Node	Pump-7	To Node	J-33

Elevations			
From Elevation	311.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	59.63	2.71	321.82	320.70	1.13	0.00	1.13	13.59

Detailed Report for Pressure Pipe: Flex-10

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	flex hose	Hazen- Williams C	120.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	74.00 ft
From Node	Pump-10	To Node	J-38

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	152.01	6.90	359.12	353.43	5.69	0.00	5.69	76.87

Detailed Report for Pressure Pipe: Flex-13

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	flex hose	Hazen- Williams C	120.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	74.00 ft
From Node	Pump-13	To Node	J-50

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	133.08	6.04	368.81	364.36	4.45	0.00	4.45	60.08

Detailed Report for Pressure Pipe: Flex-14

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	flex hose	Hazen- Williams C	120.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	74.00 ft
From Node	Pump-12	To Node	J-43

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	135.03	6.13	367.74	363.17	4.57	0.00	4.57	61.73

Detailed Report for Pump: Goulds 3885 WE15H (Pump 2)

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	7,768.41 ft	Upstream Pipe	P-89
Easting	15,027.54 ft	Downstream Pipe	P-90
Elevation	0.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	90.00 ft	Shutoff Discharge	0.00 gpm
Design Head	37.00 ft	Design Discharge	100.00 gpm
Maximum Operating Head	10.00 ft	Maximum Operating Discharge	132.00 gpm

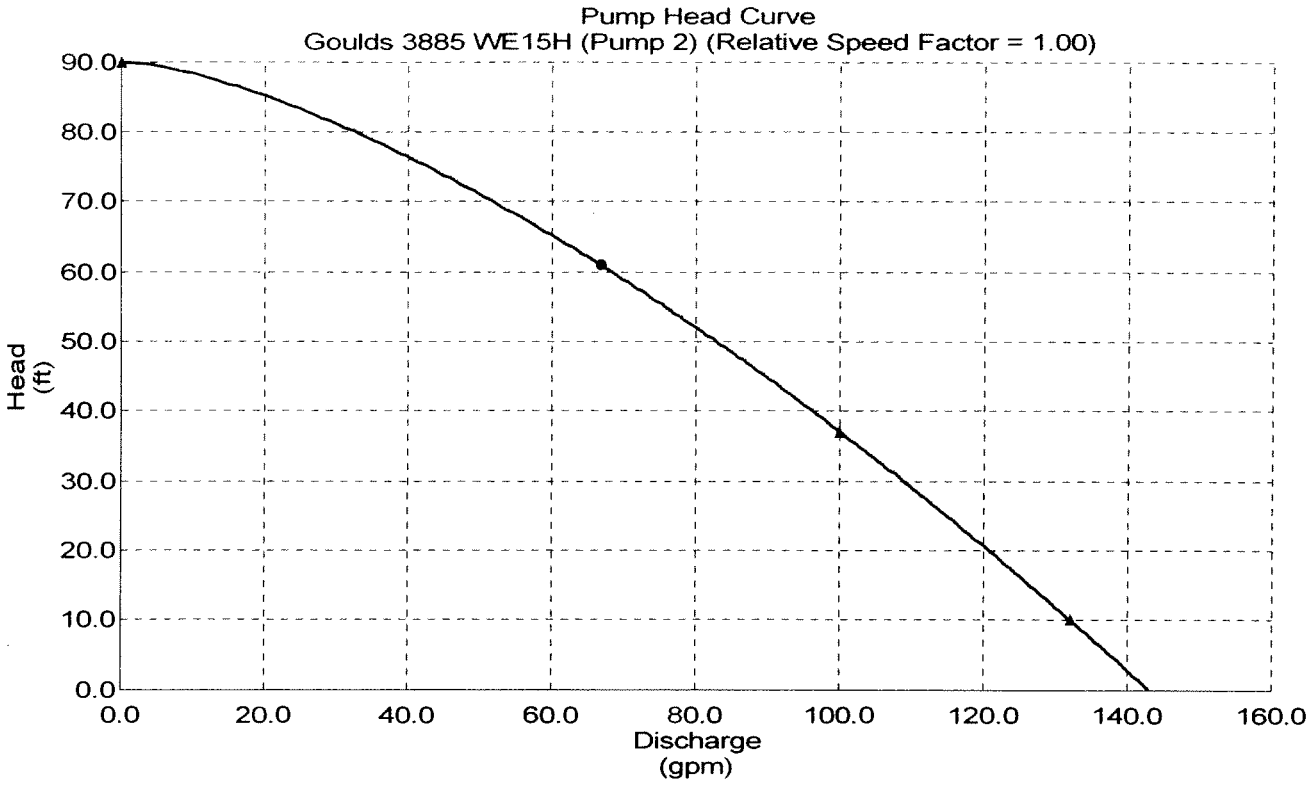
Initial Status			
Initial Pump Status	On	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	On	323.31	384.15	66.83	60.84	1.00	1.03

Detailed Report for Pump: Goulds 3885 WE15H (Pump 2)



Detailed Report for Pump: Goulds 3885WE05H (Pump 1)

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	7,447.96 ft	Upstream Pipe	P-87
Easting	14,774.20 ft	Downstream Pipe	P-82
Elevation	0.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	46.00 ft	Shutoff Discharge	0.00 gpm
Design Head	20.00 ft	Design Discharge	60.00 gpm
Maximum Operating Head	8.00 ft	Maximum Operating Discharge	80.00 gpm

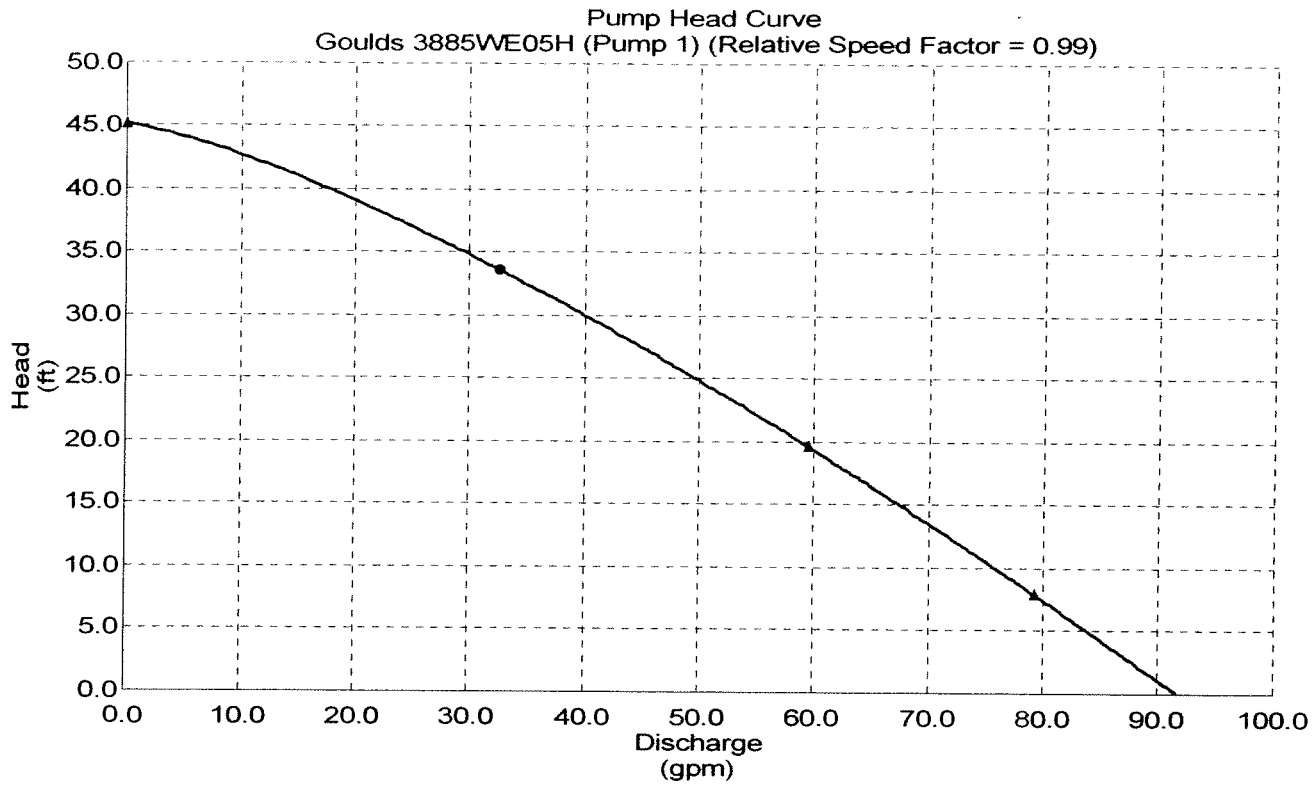
Initial Status			
Initial Pump Status	On	Initial Relative Speed Factor	0.99

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	On	323.31	356.83	32.63	33.52	0.99	0.28

Detailed Report for Pump: Goulds 3885WE05H (Pump 1)



Detailed Report for Pump: GSP300 HV

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,757.40 ft	Upstream Pipe	P-67
Easting	11,303.49 ft	Downstream Pipe	6" HDPE
Elevation	317.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	155.00 ft	Shutoff Discharge	0.00 gpm
Design Head	110.00 ft	Design Discharge	725.00 gpm
Maximum Operating Head	10.00 ft	Maximum Operating Discharge	1,650.00 gpm

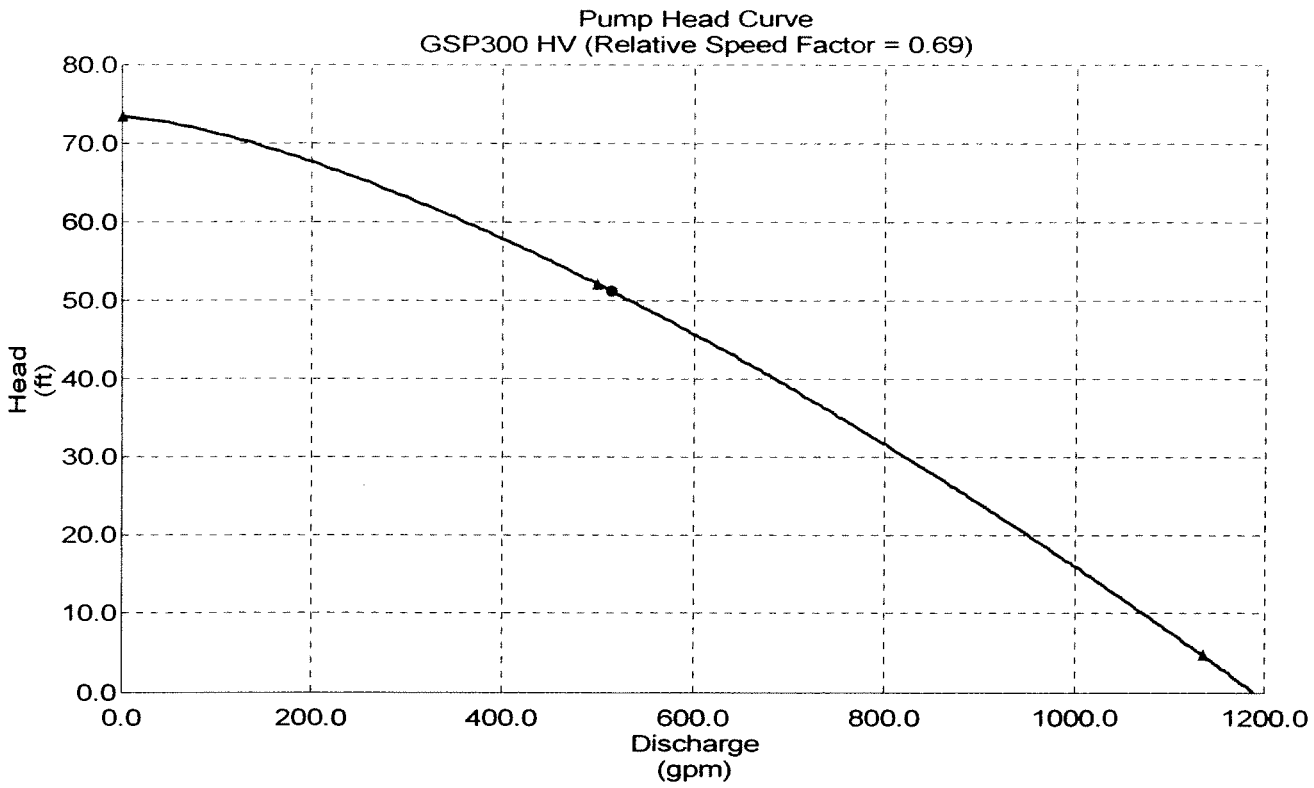
Initial Status			
Initial Pump Status	On	Initial Relative Speed Factor	0.69

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	On	318.50	369.68	513.35	51.18	0.69	6.63

Detailed Report for Pump: GSP300 HV



Detailed Report for Pressure Junction: J-1

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,585.03 ft	Elevation	0.00 ft
Easting	11,262.28 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	369.12	159.70	369.12	0.00

Detailed Report for Pressure Junction: J-2

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,580.61 ft	Elevation	0.00 ft
Easting	10,873.91 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	364.14	157.55	364.14	0.00

Detailed Report for Pressure Junction: J-7

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,585.30 ft	Elevation	0.00 ft
Easting	10,368.84 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	332.75	143.96	332.75	0.00

Detailed Report for Pressure Junction: J-29

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,851.39 ft	Elevation	0.00 ft
Easting	13,788.26 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	319.24	138.12	319.24	0.00

Detailed Report for Pressure Junction: J-30

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,529.51 ft	Elevation	0.00 ft
Easting	12,315.11 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	318.76	137.91	318.76	0.00

Detailed Report for Pressure Junction: J-31

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,510.55 ft	Elevation	0.00 ft
Easting	12,704.06 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	318.90	137.97	318.90	0.00

Detailed Report for Pressure Junction: J-32

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,504.00 ft	Elevation	335.00 ft
Easting	13,080.09 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	319.06	-6.90	-15.94	0.00

Detailed Report for Pressure Junction: J-33

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,517.32 ft	Elevation	0.00 ft
Easting	13,548.45 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	320.70	138.75	320.70	0.00

Detailed Report for Pressure Junction: J-34

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,253.56 ft	Elevation	0.00 ft
Easting	12,305.17 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	331.63	143.48	331.63	0.00

Detailed Report for Pressure Junction: J-35

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,263.66 ft	Elevation	0.00 ft
Easting	12,657.17 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	337.41	145.98	337.41	0.00

Detailed Report for Pressure Junction: J-36

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,855.33 ft	Elevation	0.00 ft
Easting	13,290.51 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	340.87	147.48	340.87	0.00

Detailed Report for Pressure Junction: J-38

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,511.25 ft	Elevation	0.00 ft
Easting	13,257.29 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	353.43	152.91	353.43	0.00

Detailed Report for Pressure Junction: J-41

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	7,420.81 ft	Elevation	0.00 ft
Easting	12,987.71 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	352.62	152.56	352.62	0.00

Detailed Report for Pressure Junction: J-43

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	7,607.79 ft	Elevation	0.00 ft
Easting	13,466.86 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	363.17	157.13	363.17	0.00

Detailed Report for Pressure Junction: J-50

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	7,833.41 ft	Elevation	0.00 ft
Easting	13,998.71 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	364.36	157.64	364.36	0.00

Detailed Report for Pressure Junction: L-55

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,859.13 ft	Elevation	0.00 ft
Easting	12,314.84 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	318.76	137.91	318.76	0.00

Detailed Report for Pressure Junction: L-56

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,907.62 ft	Elevation	0.00 ft
Easting	12,308.03 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	331.63	143.48	331.63	0.00

Detailed Report for Pressure Junction: L-57

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,862.23 ft	Elevation	328.00 ft
Easting	12,701.06 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	318.90	-3.94	-9.10	0.00

Detailed Report for Pressure Junction: L-58

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,910.36 ft	Elevation	0.00 ft
Easting	12,656.21 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	337.41	145.98	337.41	0.00

Detailed Report for Tank: Lift Station

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,851.90 ft	Elevation	317.00 ft
Easting	11,477.43 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

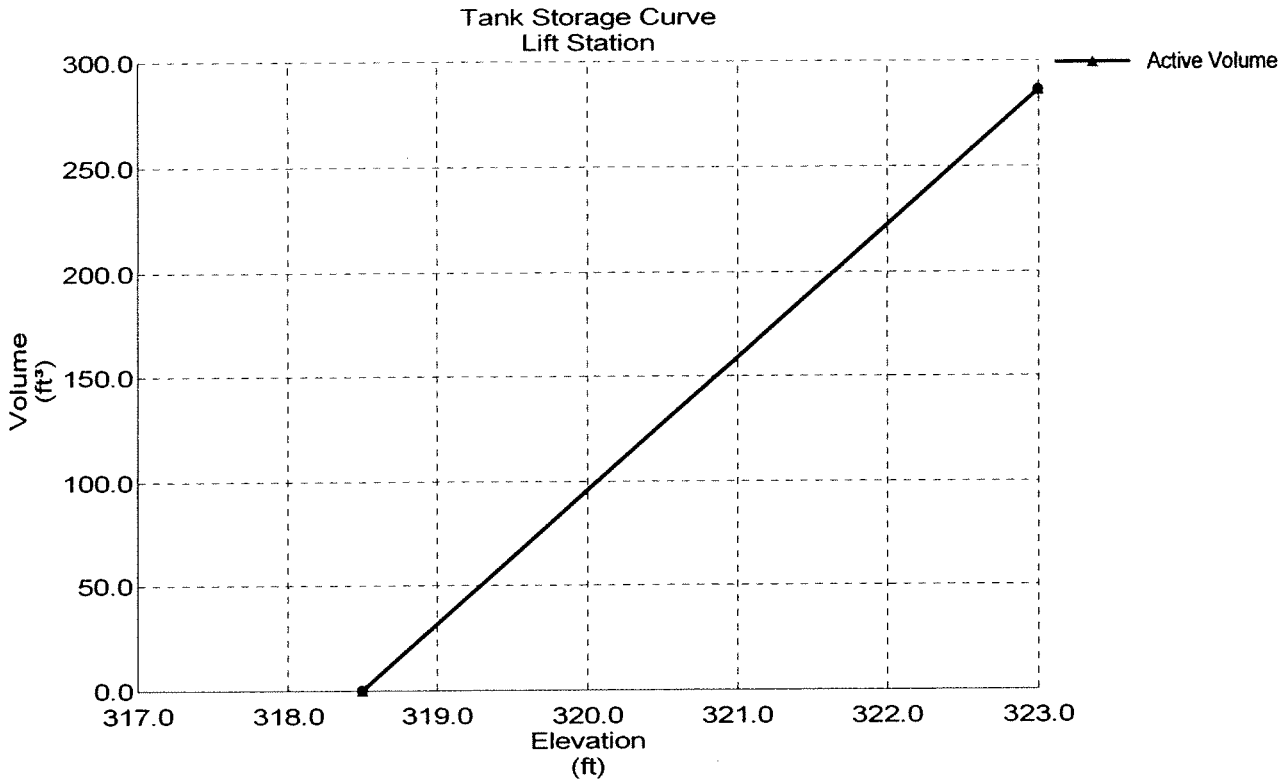
Operating Range Summary			
Maximum Elevation	323.00 ft	Maximum Level	6.00 ft
Initial HGL	318.50 ft	Initial Level	1.50 ft
Minimum Elevation	318.50 ft	Minimum Level	1.50 ft
Base Elevation	317.00 ft		

Storage			
Section Type	Constant Area	Circular Tank Shape?	true
Diameter	9.00 ft	Average Area	63.6 ft²
Inactive Volume	0.00 ft³	Total Active Volume	286.28 ft³

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Lining		Condition	
Metered	false	Clearwell Storage	false
Elevated Tank	false	Existing	false

Detailed Report for Tank: Lift Station

Calculated Results Summary								
Time (hr)	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
0.00	318.50	1.50	0.65	0.0	0.00	-0.98	0.98	Empty



Detailed Report for Pressure Junction: MH-1

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,857.23 ft	Elevation	0.00 ft
Easting	11,923.17 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	318.67	137.87	318.67	0.00

Detailed Report for Pressure Junction: MH-3

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,902.75 ft	Elevation	0.00 ft
Easting	11,927.81 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Inflow	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	326.59	141.30	326.59	0.00

Detailed Report for Reservoir: OWS

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,175.89 ft	Elevation	326.23 ft
Y	9,825.83 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	326.23	513.35	-513.35

Detailed Report for Pressure Pipe: P-19

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	2.61
Check Valve?	false	Length	300.00 ft
From Node	MH-1	To Node	Lift Station

Elevations			
From Elevation	0.00 ft	To Elevation	317.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	59.63	0.83	318.67	318.50	0.14	0.03	0.17	0.57

Detailed Report for Pressure Pipe: P-21

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	195.00 ft
From Node	L-55	To Node	MH-1

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	59.63	0.83	318.76	318.67	0.09	0.00	0.09	0.47

Detailed Report for Pressure Pipe: P-22

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	1.28
Check Valve?	false	Length	210.00 ft
From Node	L-56	To Node	MH-3

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	452.74	6.30	331.63	326.59	4.25	0.79	5.04	24.00

Detailed Report for Pressure Pipe: P-25

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.35
Check Valve?	false	Length	275.00 ft
From Node	L-57	To Node	L-55

Elevations			
From Elevation	328.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	59.63	0.83	318.90	318.76	0.13	0.00	0.13	0.49

Detailed Report for Pressure Pipe: P-27

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.35
Check Valve?	false	Length	275.00 ft
From Node	L-58	To Node	L-56

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	452.74	6.30	337.41	331.63	5.57	0.22	5.78	21.03

Detailed Report for Pressure Pipe: P-29

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.35
Check Valve?	false	Length	329.00 ft
From Node	Vault-5	To Node	L-57

Elevations			
From Elevation	328.00 ft	To Elevation	328.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	59.63	0.83	319.06	318.90	0.16	0.00	0.16	0.49

Detailed Report for Pressure Pipe: P-31

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.35
Check Valve?	false	Length	160.00 ft
From Node	Vault-6	To Node	L-58

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	452.74	6.30	340.87	337.41	3.24	0.22	3.46	21.60

Detailed Report for Pressure Pipe: P-33

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.35
Check Valve?	false	Length	375.00 ft
From Node	Vault-7	To Node	Vault-5

Elevations			
From Elevation	328.00 ft	To Elevation	328.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	59.63	0.83	319.24	319.06	0.18	0.00	0.18	0.48

Detailed Report for Pressure Pipe: P-35

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	242.00 ft
From Node	Vault-7	To Node	J-29

Elevations			
From Elevation	328.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	319.24	319.24	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-50

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	PUMP-1	To Node	Cell 1

Elevations			
From Elevation	308.00 ft	To Elevation	310.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	310.00	310.00	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-52

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	Cell 5	To Node	PUMP-5

Elevations			
From Elevation	312.00 ft	To Elevation	311.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	312.00	312.00	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-53

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	Cell 7	To Node	Pump-7

Elevations			
From Elevation	314.00 ft	To Elevation	311.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	59.63	2.71	314.00	313.99	0.01	0.00	0.01	8.45

Detailed Report for Pressure Pipe: P-54

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	150.0
Diameter	6.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	Cell 2	To Node	PUMP-2

Elevations			
From Elevation	313.20 ft	To Elevation	311.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	313.20	313.20	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-55

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	150.0
Diameter	6.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	Cell 4	To Node	PUMP-4

Elevations			
From Elevation	314.00 ft	To Elevation	312.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	314.00	314.00	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-56

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	150.0
Diameter	6.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	Cell 6	To Node	Pump-6

Elevations			
From Elevation	314.50 ft	To Elevation	312.25 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	314.50	314.50	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-59

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	150.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	PUMP-3	To Node	Cell 3

Elevations			
From Elevation	311.00 ft	To Elevation	313.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	313.00	313.00	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-60

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.35
Check Valve?	false	Length	111.00 ft
From Node	Vault-10	To Node	Vault-6

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	452.74	6.30	343.33	340.87	2.25	0.22	2.46	22.19

Detailed Report for Pressure Pipe: P-63

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	150.0
Diameter	6.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	Cell 9/10	To Node	Pump-10

Elevations			
From Elevation	315.50 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	152.01	1.72	315.50	315.50	0.00	0.00	0.00	1.74

Detailed Report for Pressure Pipe: P-64

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.37
Check Valve?	false	Length	968.00 ft
From Node	J-41	To Node	Vault-10

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	300.73	4.18	352.62	343.33	9.19	0.10	9.29	9.60

Detailed Report for Pressure Pipe: P-65

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	1.28
Check Valve?	false	Length	233.00 ft
From Node	Vault-14	To Node	J-41

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	300.73	4.18	355.18	352.62	2.21	0.35	2.56	10.98

Detailed Report for Pressure Pipe: P-67

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	150.0
Diameter	48.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	Lift Station	To Node	GSP300 HV

Elevations			
From Elevation	317.00 ft	To Elevation	317.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	513.35	0.09	318.50	318.50	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-68

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	150.0
Diameter	6.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	Cell 12/14	To Node	Pump-12

Elevations			
From Elevation	312.41 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	135.03	1.53	312.41	312.41	0.00	0.00	0.00	1.40

Detailed Report for Pressure Pipe: P-73

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	450.00 ft
From Node	Vault 13	To Node	Vault-14

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	165.71	2.30	356.60	355.18	1.42	0.00	1.42	3.15

Detailed Report for Pressure Pipe: P-76

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	Cell 11/13	To Node	Pump-13

Elevations			
From Elevation	312.16 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	133.08	6.04	312.16	312.12	0.04	0.00	0.04	37.41

Detailed Report for Pressure Pipe: P-82

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	2.88 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	70.00 ft
From Node	Goulds 3885WE05H (Pump 1)	To Node	Vault 13

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	32.63	1.61	356.83	356.60	0.24	0.00	0.24	3.38

Detailed Report for Pressure Pipe: P-87

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	6.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	0.01 ft
From Node	Goulds 3885WE05H (Pump 1)	To Node	Basin H

Elevations			
From Elevation	0.00 ft	To Elevation	323.31 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	-32.63	0.37	323.31	323.31	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-89

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	6.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	0.01 ft
From Node	Basin H	To Node	Goulds 3885 WE15H (Pump 2)

Elevations			
From Elevation	323.31 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	66.83	0.76	323.31	323.31	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-90

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	1.94 in	Minor Loss Coefficient	9.15
Check Valve?	false	Length	191.00 ft
From Node	Goulds 3885 WE15H (Pump 2)	To Node	Basin I

Elevations			
From Elevation	0.00 ft	To Elevation	360.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	66.83	7.25	384.15	360.00	16.67	7.48	24.15	126.46

Detailed Report for Pump: PUMP-1

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,150.71 ft	Upstream Pipe	P-50
Easting	12,315.02 ft	Downstream Pipe	Flex-1
Elevation	308.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	45.00 ft	Shutoff Discharge	0.00 gpm
Design Head	33.00 ft	Design Discharge	40.00 gpm
Maximum Operating Head	20.00 ft	Maximum Operating Discharge	60.00 gpm

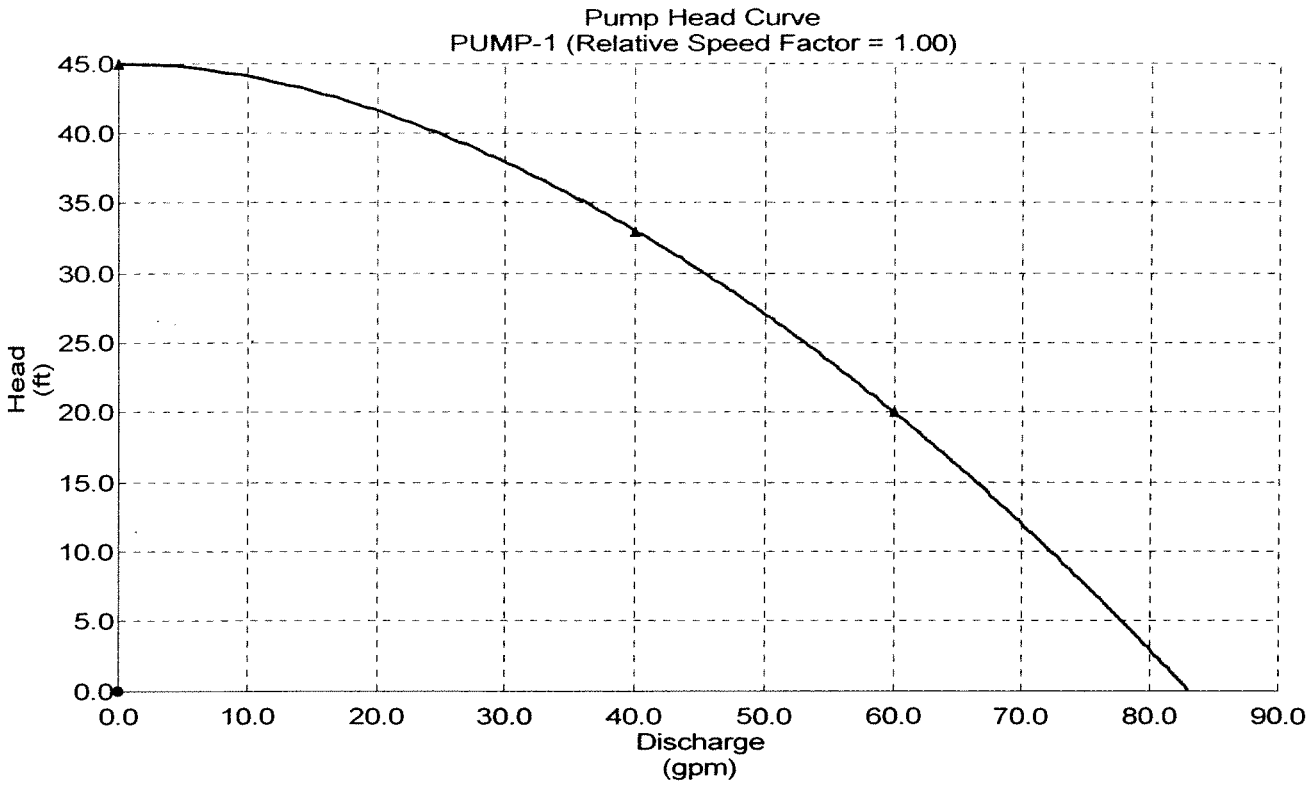
Initial Status			
Initial Pump Status	Off	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	Off	310.00	318.76	0.00	0.00	1.00	0.00

Detailed Report for Pump: PUMP-1



Detailed Report for Pump: PUMP-2

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,570.47 ft	Upstream Pipe	P-54
Easting	12,305.40 ft	Downstream Pipe	Flex-2
Elevation	311.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	45.00 ft	Shutoff Discharge	0.00 gpm
Design Head	33.00 ft	Design Discharge	40.00 gpm
Maximum Operating Head	20.00 ft	Maximum Operating Discharge	60.00 gpm

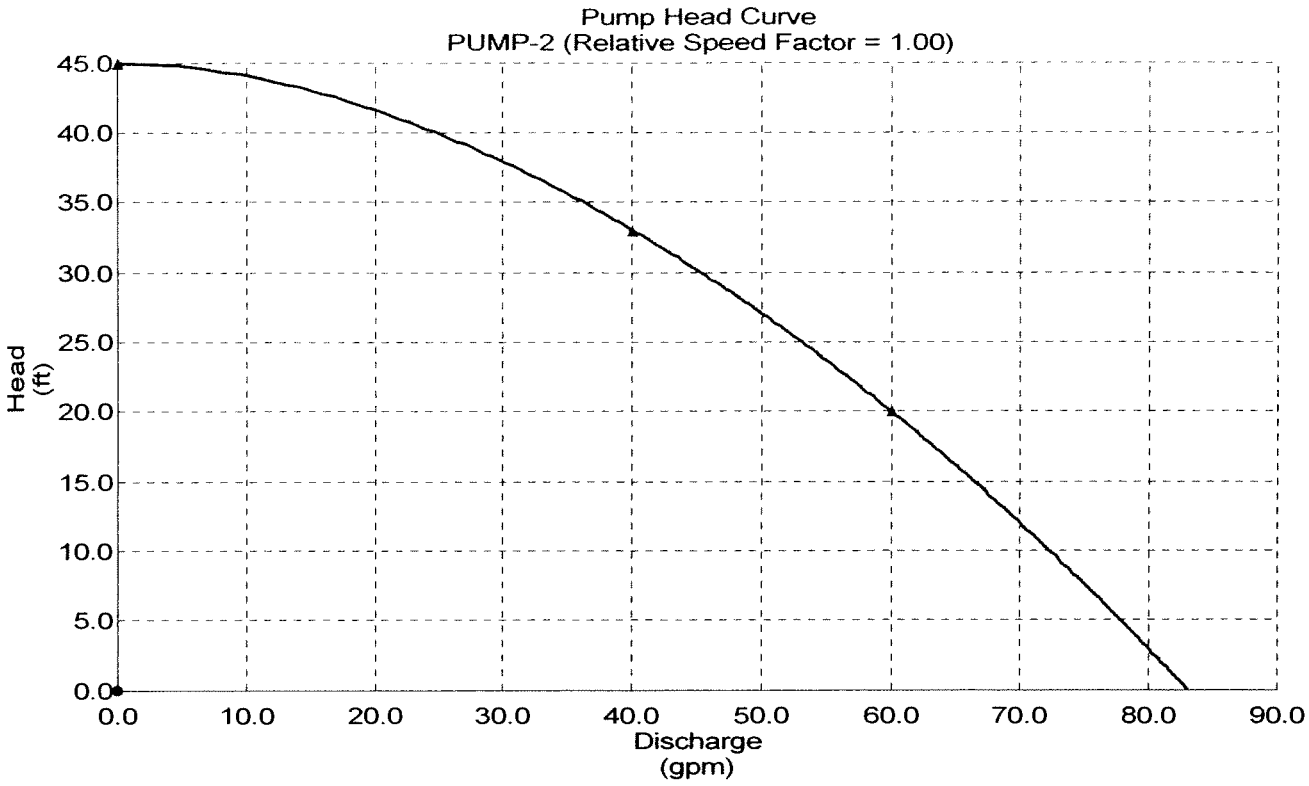
Initial Status			
Initial Pump Status	Off	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	Off	313.20	331.63	0.00	0.00	1.00	0.00

Detailed Report for Pump: PUMP-2



Detailed Report for Pump: PUMP-3

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,144.86 ft	Upstream Pipe	P-59
Easting	12,698.18 ft	Downstream Pipe	Flex-3
Elevation	311.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	45.00 ft	Shutoff Discharge	0.00 gpm
Design Head	33.00 ft	Design Discharge	40.00 gpm
Maximum Operating Head	20.00 ft	Maximum Operating Discharge	60.00 gpm

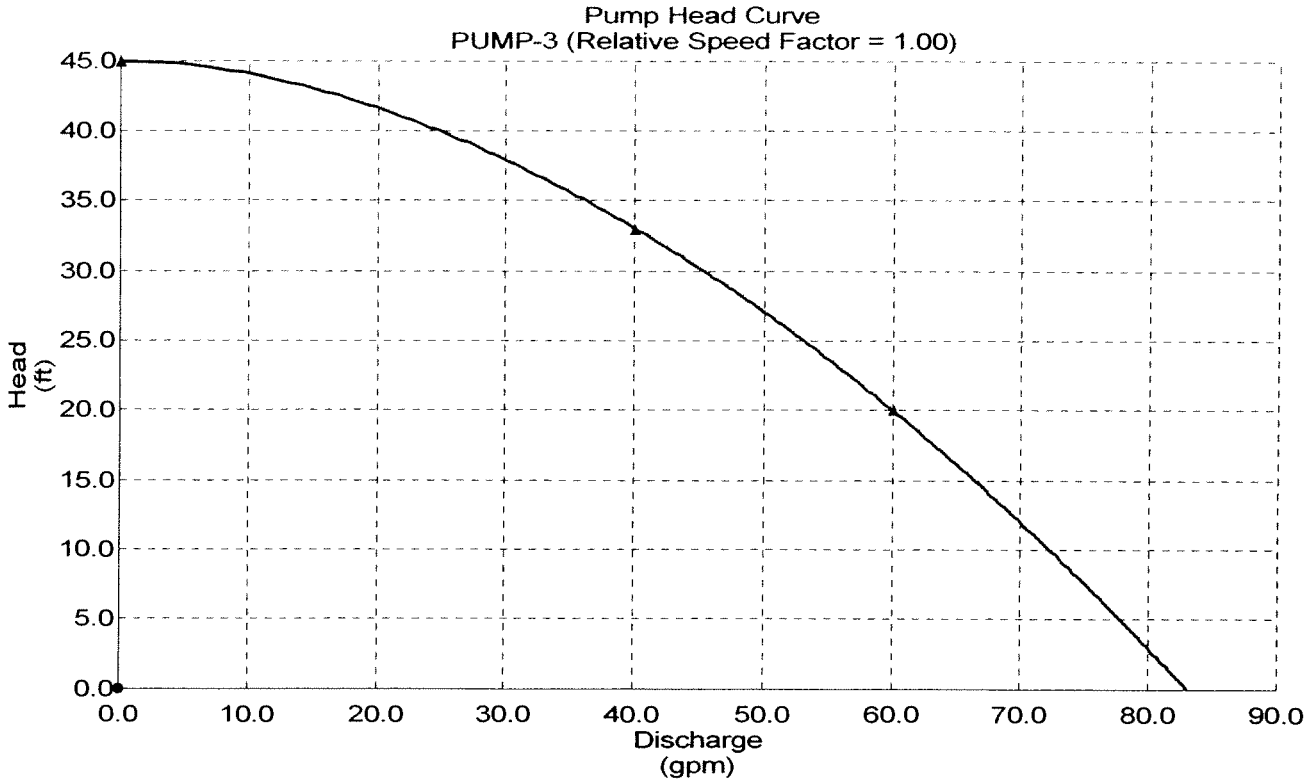
Initial Status			
Initial Pump Status	Off	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	Off	313.00	318.90	0.00	0.00	1.00	0.00

Detailed Report for Pump: PUMP-3



Detailed Report for Pump: PUMP-4

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,585.90 ft	Upstream Pipe	P-55
Easting	12,655.50 ft	Downstream Pipe	Flex-4
Elevation	312.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	45.00 ft	Shutoff Discharge	0.00 gpm
Design Head	33.00 ft	Design Discharge	40.00 gpm
Maximum Operating Head	20.00 ft	Maximum Operating Discharge	60.00 gpm

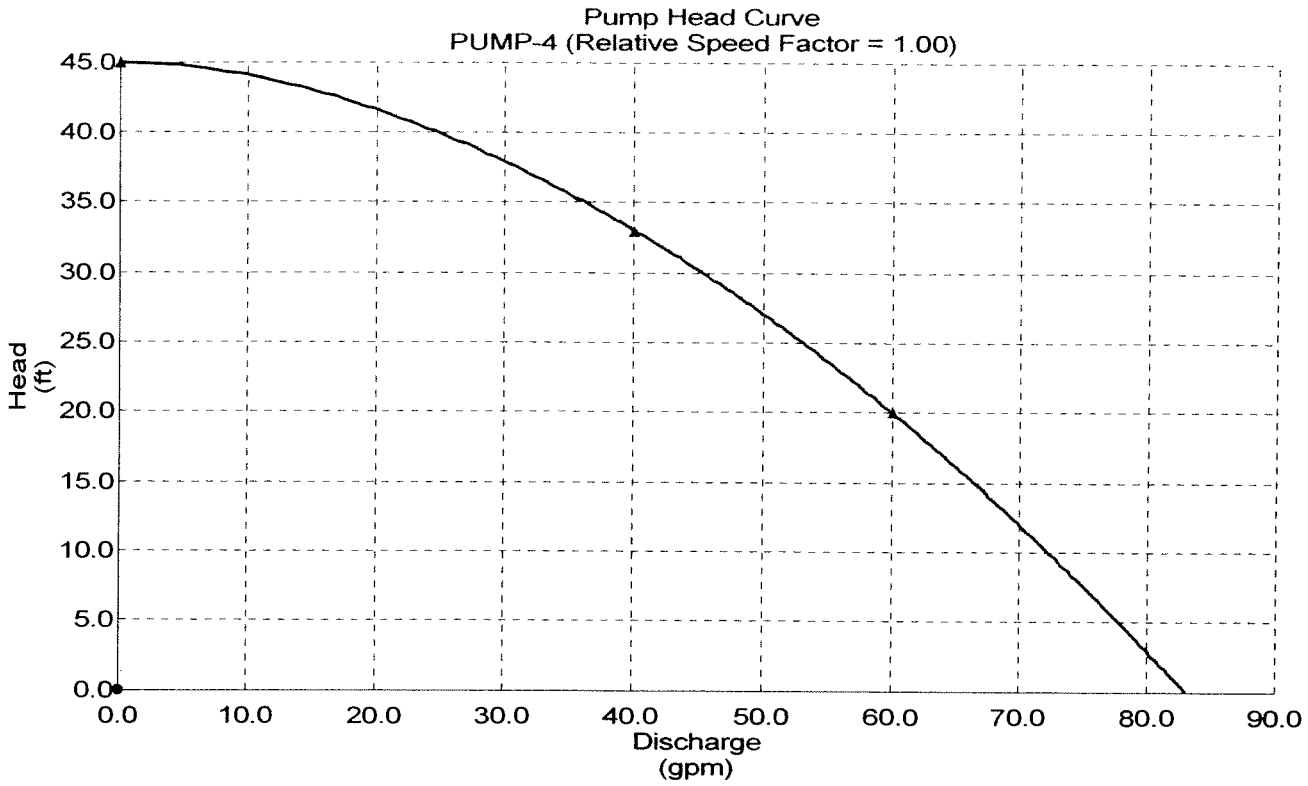
Initial Status			
Initial Pump Status	Off	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	Off	314.00	337.41	0.00	0.00	1.00	0.00

Detailed Report for Pump: PUMP-4



Detailed Report for Pump: PUMP-5

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,158.03 ft	Upstream Pipe	P-52
Easting	13,077.21 ft	Downstream Pipe	Flex-5
Elevation	311.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	45.00 ft	Shutoff Discharge	0.00 gpm
Design Head	33.00 ft	Design Discharge	40.00 gpm
Maximum Operating Head	20.00 ft	Maximum Operating Discharge	60.00 gpm

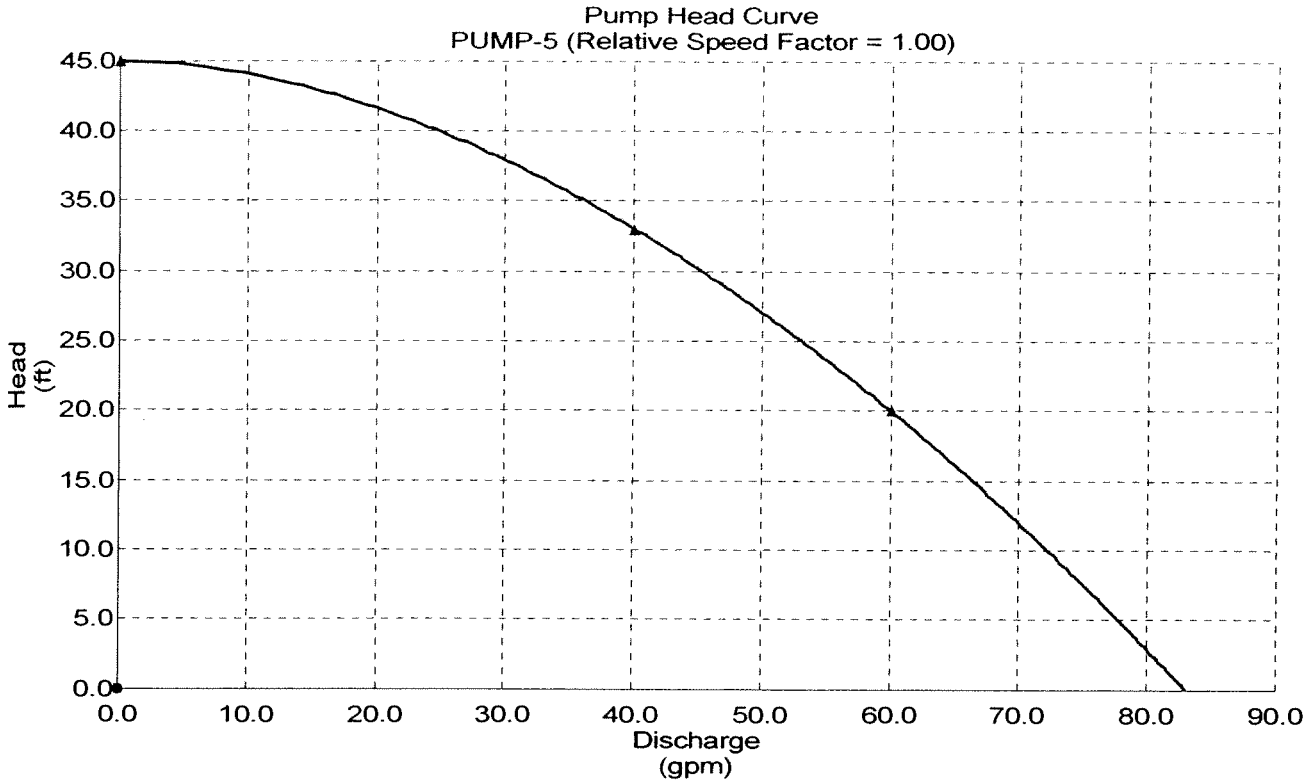
Initial Status			
Initial Pump Status	Off	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	Off	312.00	319.06	0.00	0.00	1.00	0.00

Detailed Report for Pump: PUMP-5



Detailed Report for Pump: Pump-6

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,853.41 ft	Upstream Pipe	P-56
Easting	13,590.66 ft	Downstream Pipe	Flex-6
Elevation	312.25 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	45.00 ft	Shutoff Discharge	0.00 gpm
Design Head	33.00 ft	Design Discharge	40.00 gpm
Maximum Operating Head	20.00 ft	Maximum Operating Discharge	60.00 gpm

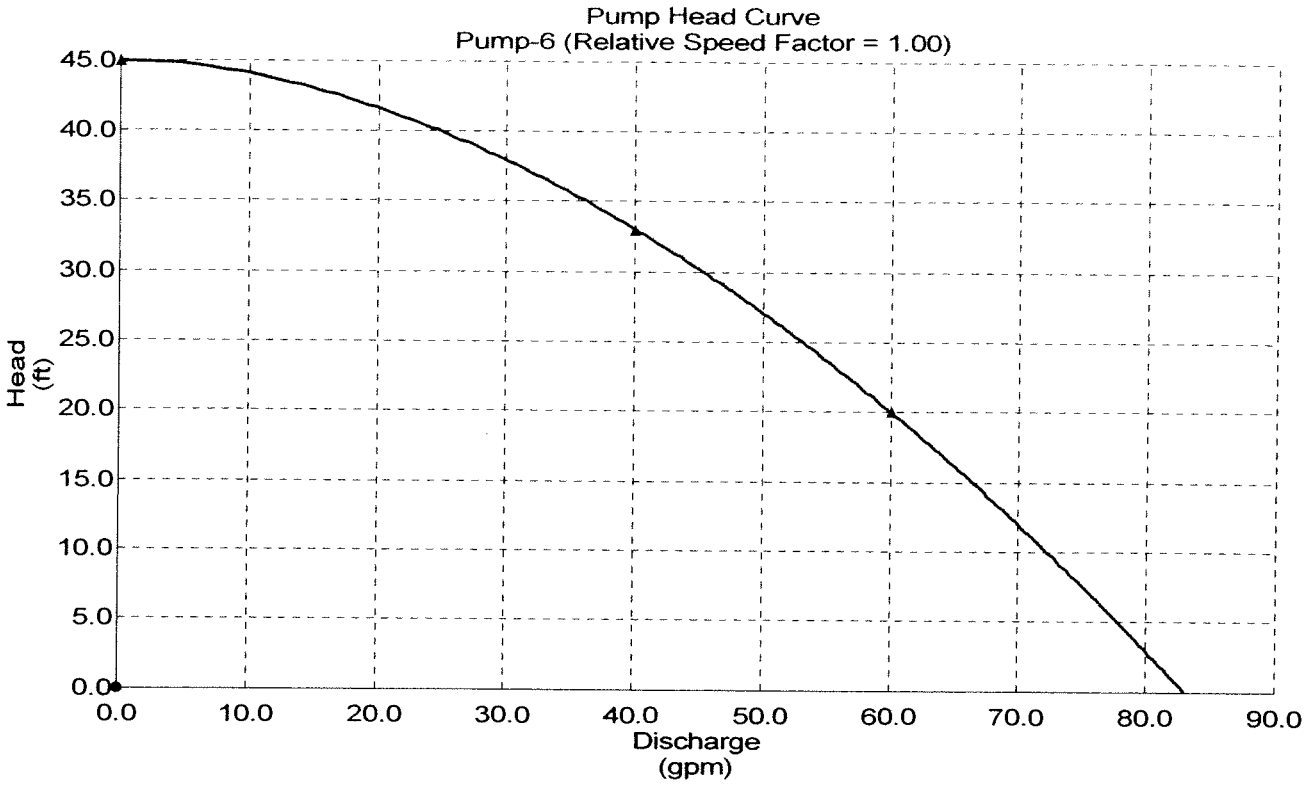
Initial Status			
Initial Pump Status	Off	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	Off	314.50	340.87	0.00	0.00	1.00	0.00

Detailed Report for Pump: Pump-6



Detailed Report for Pump: Pump-7

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,115.70 ft	Upstream Pipe	P-53
Easting	13,550.28 ft	Downstream Pipe	Flex-7
Elevation	311.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	45.00 ft	Shutoff Discharge	0.00 gpm
Design Head	33.00 ft	Design Discharge	40.00 gpm
Maximum Operating Head	20.00 ft	Maximum Operating Discharge	60.00 gpm

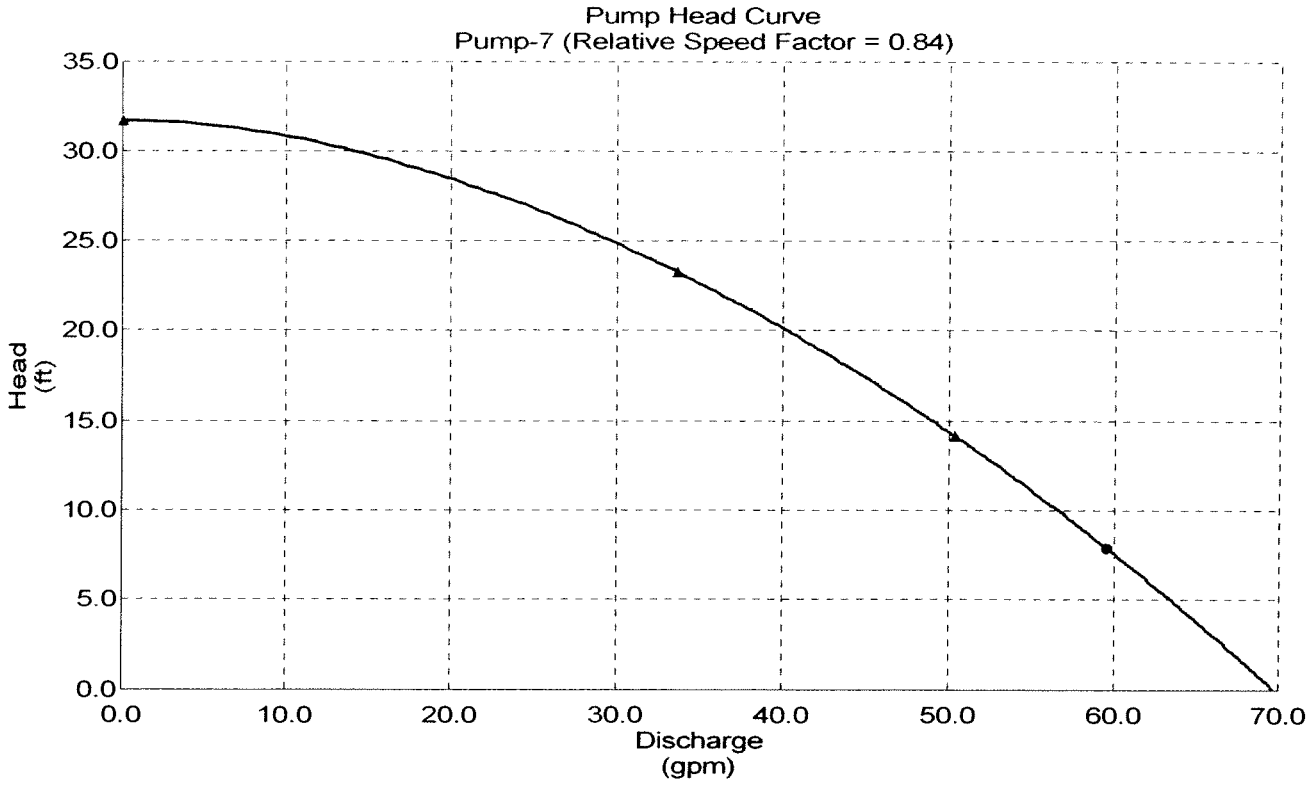
Initial Status			
Initial Pump Status	On	Initial Relative Speed Factor	0.84

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	On	313.99	321.82	59.63	7.83	0.84	0.12

Detailed Report for Pump: Pump-7



Detailed Report for Pump: Pump-10

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,511.00 ft	Upstream Pipe	P-63
Easting	13,551.09 ft	Downstream Pipe	Flex-10
Elevation	0.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	160.00 ft	Shutoff Discharge	0.00 gpm
Design Head	80.00 ft	Design Discharge	100.00 gpm
Maximum Operating Head	45.00 ft	Maximum Operating Discharge	150.00 gpm

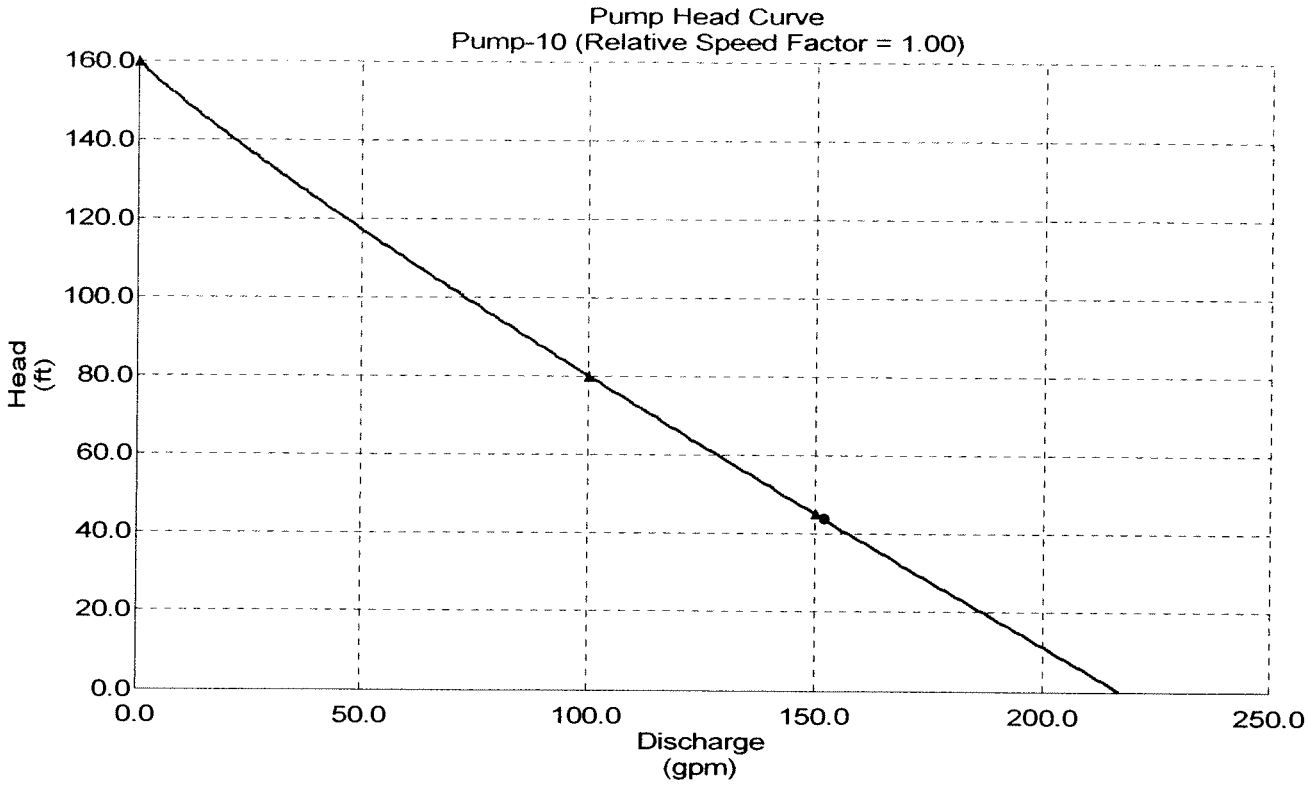
Initial Status			
Initial Pump Status	On	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	On	315.50	359.12	152.01	43.62	1.00	1.67

Detailed Report for Pump: Pump-10



Detailed Report for Pump: Pump-12

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	7,794.78 ft	Upstream Pipe	P-68
Easting	13,466.86 ft	Downstream Pipe	Flex-14
Elevation	0.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	160.00 ft	Shutoff Discharge	0.00 gpm
Design Head	80.00 ft	Design Discharge	100.00 gpm
Maximum Operating Head	45.00 ft	Maximum Operating Discharge	150.00 gpm

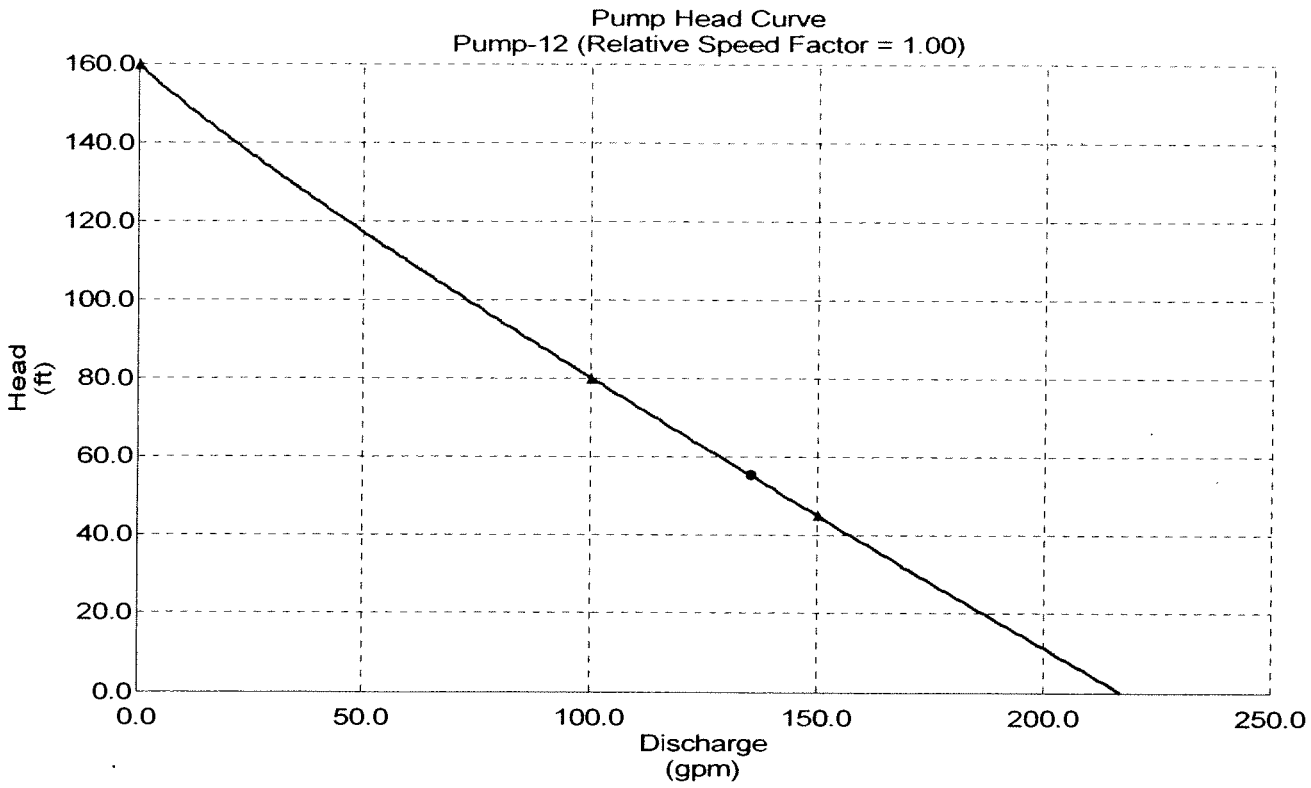
Initial Status			
Initial Pump Status	On	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	On	312.41	367.74	135.03	55.33	1.00	1.89

Detailed Report for Pump: Pump-12



Detailed Report for Pump: Pump-13

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,014.37 ft	Upstream Pipe	P-76
Easting	13,998.71 ft	Downstream Pipe	Flex-13
Elevation	0.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	160.00 ft	Shutoff Discharge	0.00 gpm
Design Head	80.00 ft	Design Discharge	100.00 gpm
Maximum Operating Head	45.00 ft	Maximum Operating Discharge	150.00 gpm

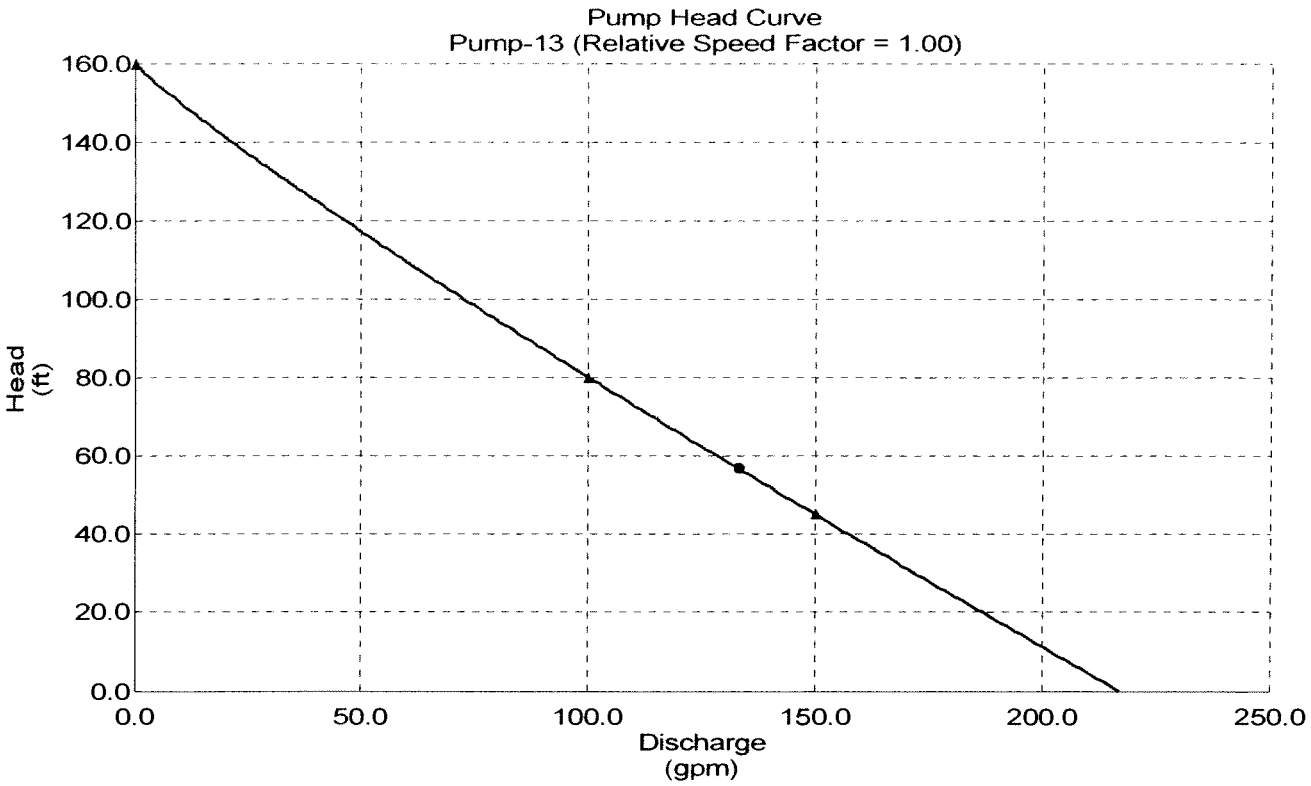
Initial Status			
Initial Pump Status	On	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	On	312.12	368.81	133.08	56.68	1.00	1.90

Detailed Report for Pump: Pump-13



Detailed Report for Pressure Pipe: Steel Pipe in OWS

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	6.00 in	Minor Loss Coefficient	6.38
Check Valve?	false	Length	90.00 ft
From Node	J-7	To Node	OWS

Elevations			
From Elevation	0.00 ft	To Elevation	326.23 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	513.35	5.83	332.75	326.23	3.15	3.36	6.52	72.42

Detailed Report for Pressure Junction: Vault-5

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,857.43 ft	Elevation	328.00 ft
Easting	13,077.03 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	319.06	-3.87	-8.94	0.00

Detailed Report for Pressure Junction: Vault-6

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,852.30 ft	Elevation	0.00 ft
Easting	12,991.87 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	340.87	147.48	340.87	0.00

Detailed Report for Pressure Junction: Vault-7

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	10,858.80 ft	Elevation	328.00 ft
Easting	13,546.32 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	319.24	-3.79	-8.76	0.00

Detailed Report for Pressure Junction: Vault-10

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,513.50 ft	Elevation	0.00 ft
Easting	12,990.63 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	343.33	148.54	343.33	0.00

Detailed Report for Pressure Junction: Vault-14

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	7,420.81 ft	Elevation	0.00 ft
Easting	13,472.70 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	355.18	153.67	355.18	0.00

Detailed Report for Pressure Junction: Vault 13

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	7,423.10 ft	Elevation	0.00 ft
Easting	14,023.95 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	356.60	154.28	356.60	0.00

ARCADIS

Attachment 2

Detention Basin Pumps Through RMU-1 Lift Station to OWS Building

ARCADIS
Infrastructure, environment, buildings

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B0023726

Subject: Detention Basins I and H through Lift Station to Tank T-157in OWS Building

Prepared By: BMS/PTO **Date:** March 2009

Reviewed By: BMS **Date:** March 2009

Checked By: PHB **Date:** March 2009

TASK

Verify that the required discharge rates of 33.0 gallons per minute (gpm) from Pump 1 in Basin H, 66.8 gpm from Pump 2 in Basin H and 160.0 gpm from Detention Basin I will be achieved so that runoff volume collected within the basins from the 25-year, 24-hour design storm will be effectively managed.

REFERENCES

1. *Leachate Level Compliance Plan For Residuals Management Unit One*, prepared by Golder Associates, dated February, 1997.
2. *Leachate Level Compliance Plan for Residuals Management Unit – One, Final Sequence Phase 1*, prepared by ARCADIS, dated December, 2007.
3. *Engineering Report for CWM Chemical Services, LLC Model City Facility, Residuals Management Unit 1*, Earth Tech.
4. WaterCAD for Windows, Version 5.0, pressure network analysis software, Haestad Methods, Inc.
5. Calculation sheet entitled, *RMU-1 Landfill Cells 1 through 14 through Lift Station to OWS Building*, prepared by ARCADIS, dated March, 2009.
6. Calculation sheet entitled, *Detention Basins H and I Storage Capacity*, prepared by ARCADIS, dated March, 2009.

ASSUMPTIONS

1. Detention Basin H and Detention Basin I are modeled as constant head reservoirs with constant head at approximately 1 foot above the low point of the basin liner.
2. Head at the detention basin pump is constant and sufficient for pump operation (NPSH).
3. Pumping from Basin H by Pump 1 to the RMU-1 lift station commences once the basin liquid elevation is greater than or equal to 323.31 through the secondary leachate forcemain as indicated in Reference 6. Pumping from Basin H by Pump 2 commences once Basin H liquid levels are greater than or equal to 328 feet as described in Reference 6. Pumping from Basin I does not commence until accumulated leachate in the affected RMU-1 cells is completely removed.

Calculation Sheet

4. The pumping rate of 160 gpm from Basin I is based on the need to dewater the basin within a 7-day timeframe. The basin pump is capable of higher flowrates and therefore will be run in a throttled condition to approximately achieve the 160 gpm rate.

5. The RMU-1 lift station discharges into Tank T-157 within the OWS building, which is modeled as a constant-head reservoir at the incoming pipe elevation. This is based on one pump (GSP300HV) running. Additional flow capacity may be provided by a second pump (Jumbo 200HH), which is not considered in this analysis.

METHODOLOGY

WaterCAD is used to evaluate the flow rate from Detention Basins H and I to the RMU-1 lift station (via Pump 1 and Godwin TS2) and from Detention Basin H to Detention Basin I (via Pump 2) using specific information associated with each scenario, such as manufacturer pump data; pipe lengths, sizes and types; and number and type of fittings. This methodology is consistent with that used in previous LLCP evaluations. WaterCAD output (attached) includes flow rates, velocities and headloss through each pump or pipe section.

SUMMARY

A summary of the calculations is presented in the following table.

Pump Type	Nominal Flow Rate (gpm)	Flow Rate (gpm)	Pump Condition On/Off	Head at Pump (feet)
Pump 1 (Basin H to RMU-1 Lift Station)	78 at 10 Feet TDH	33.0[1]	On	8.4[1]
Pump 2 (Basin H to Basin I)	128 at 15 feet TDH	66.8[2]	On	60.9[2]
Godwin TS2 (Basin I to RMU-1 Lift Station)	440 at 60 feet TDH	160.0	On	105.0

Notes:

1. Pump 1 is analyzed as part of Reference 5 to account for the combination of inflows to the RMU-1 Lift Station. The WaterCAD output for Pump 1 is included as an attachment to Reference 5.
2. Pump 2 output is included as an attachment to Reference 5.

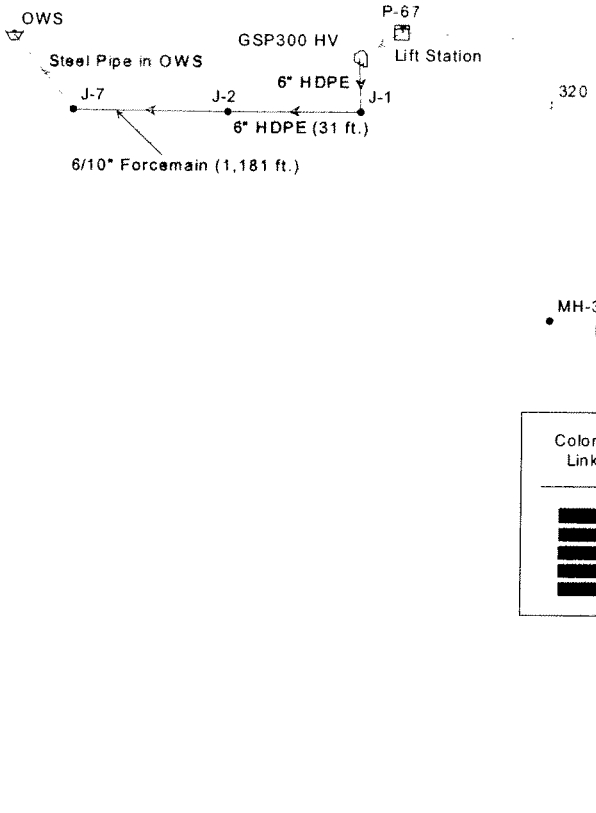
Scenario: Base

HYDRAULIC MODEL SCHEMATIC

DETENTION BASIN I PUMP

THROUGH RMU-1 LIFT STATION TO TANK 157

IN OWS BUILDING



Analysis Results
Scenario: Base
Steady State Analysis

Title: CWM: RMU-1 Leachate System Evaluation
Project Engineer: ARCADIS
Project Date: 03/11/09
Comments: RMU-1 landfill Detention Basin I through RMU-1 lift station to discharge into tank T-157 in OWS building. Detention Basin I is modeled as a constant head reservoir.

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Liquid Characteristics			
Liquid	Water at 20C(68F)	Specific Gravity	1.00
Kinematic Viscosity	1.0804e-5 ft²/s		

Network Inventory			
Pressure Pipes	16	Number of Tanks	1
Number of Reservoirs	2	- Constant Area:	1
Number of Pressure Junctions	11	- Variable Area:	0
Number of Pumps	2	Number of Valves	1
- Constant Power:	0	- FCV's:	1
- One Point (Design Point):	0	- PBV's:	0
- Standard (3 Point):	2	- PRV's:	0
- Standard Extended:	0	- PSV's:	0
- Custom Extended:	0	- TCV's:	0
- Multiple Point:	0	- GPV's:	0
Number of Spot Elevations	0		

Pressure Pipes Inventory			
3.00 in	850.00 ft	6.00 in	90.00 ft
5.42 in	3,947.00 ft	48.00 in	1.00 ft
Total Length	4,888.00 ft		

Analysis Results
Scenario: Base
Steady State Analysis

Pressure Pipes @ 0.00 hr

Label	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
6" HDPE	Open	524.80	7.30	371.52	370.94	0.21	0.37	0.59	73.14
6" HDPE (31 ft	Open	524.80	7.30	370.94	365.74	0.82	4.38	5.20	167.72
6/10" Forcema	Open	524.80	7.30	365.74	333.03	31.44	1.27	32.71	27.69
320	Open	160.00	2.22	319.64	318.50	0.94	0.20	1.14	3.58
P-10	Open	160.00	7.26	335.10	320.53	14.57	0.00	14.57	72.87
P-16	Open	160.00	7.26	425.52	398.05	27.47	0.00	27.47	84.52
P-17	Open	160.00	7.26	354.52	327.05	27.47	0.00	27.47	84.52
P-22	Open	160.00	2.22	320.36	319.64	0.62	0.10	0.72	3.42
P-27	Open	160.00	2.22	321.20	320.36	0.81	0.03	0.84	3.05
P-31	Open	160.00	2.22	321.70	321.20	0.47	0.03	0.50	3.12
P-60	Open	160.00	2.22	322.05	321.70	0.33	0.03	0.35	3.19
P-64	Open	160.00	2.22	324.94	322.05	2.86	0.03	2.88	2.98
P-65	Open	160.00	2.22	325.72	324.94	0.69	0.10	0.79	3.37
P-67	Open	524.80	0.09	318.50	318.50	0.00	0.00	0.00	0.00
P-73	Open	160.00	2.22	327.05	325.72	1.33	0.00	1.33	2.95
Steel Pipe in C	Open	524.80	5.95	333.03	326.23	3.28	3.52	6.80	75.56

Reservoirs @ 0.00 hr

Label	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
Basin I	335.10	-160.00	160.00
OWS	326.23	524.80	-524.80

FCVs @ 0.00 hr

Label	Control Status	From HGL (ft)	To HGL (ft)	Discharge (gpm)	Velocity (ft/s)	Headloss (ft)	Calculated Flow Setting (gpm)
FCV-2	Throttling	398.05	354.52	160.00	1.82	43.53	160.00

Pumps @ 0.00 hr

Label	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
Godwin Diesel	On	320.53	425.52	160.00	105.00	1.00	4.24
GSP300 HV	On	318.50	371.52	524.80	53.02	0.70	7.03

Pressure Junctions @ 0.00 hr

Label	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
J-1	370.94	160.49	370.94	0.00
J-2	365.74	158.24	365.74	0.00
J-7	333.03	144.09	333.03	0.00

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Analysis Results
Scenario: Base
Steady State Analysis

Pressure Junctions @ 0.00 hr

Label	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
J-41	324.94	140.59	324.94	0.00
L-56	320.36	138.61	320.36	0.00
L-58	321.20	138.97	321.20	0.00
MH-3	319.64	138.30	319.64	0.00
Vault-6	321.70	139.18	321.70	0.00
Vault-10	322.05	139.34	322.05	0.00
Vault-14	325.72	140.93	325.72	0.00
Vault 13	327.05	141.50	327.05	0.00

Tanks @ 0.00 hr

Label	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
Lift Station	318.50	1.50	0.65	0.0	0.00	-364.80	364.80	Empty

Detailed Report for Pressure Pipe: 6" HDPE

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.45
Check Valve?	false	Length	8.00 ft
From Node	GSP300 HV	To Node	J-1

Elevations			
From Elevation	317.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	524.80	7.30	371.52	370.94	0.21	0.37	0.59	73.14

Detailed Report for Pressure Pipe: 6" HDPE (31 ft.)

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	5.29
Check Valve?	false	Length	31.00 ft
From Node	J-1	To Node	J-2

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	524.80	7.30	370.94	365.74	0.82	4.38	5.20	167.72

Detailed Report for Pressure Pipe: 6/10" Forcemain (1,181 ft.)

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	1.53
Check Valve?	false	Length	1,181.00 ft
From Node	J-2	To Node	J-7

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	524.80	7.30	365.74	333.03	31.44	1.27	32.71	27.69

Detailed Report for Pressure Pipe: 320

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	2.61
Check Valve?	false	Length	320.00 ft
From Node	MH-3	To Node	Lift Station

Elevations			
From Elevation	0.00 ft	To Elevation	317.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	160.00	2.22	319.64	318.50	0.94	0.20	1.14	3.58

Detailed Report for Reservoir: Basin I

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	14,204.09 ft	Elevation	335.10 ft
Y	8,022.33 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	335.10	-160.00	160.00

Detailed Report for FCV: FCV-2

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	7,766.70 ft	Upstream Pipe	P-16
Easting	14,001.13 ft	Downstream Pipe	P-17
Elevation	0.00 ft	Diameter	6.00 in
Minor Loss Coefficient	0.00		

Initial Status			
Initial Valve Status	Active	Initial Flow Setting	160.00 gpm

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Condition		Manufacturer	
Model		Serial Number	
Metered	false	Motorized	false
Clockwise to Close	false	Normally Closed	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	From HGL (ft)	To HGL (ft)	Discharge (gpm)	Velocity (ft/s)	Headloss (ft)	Calculated Flow Setting (gpm)
0.00	Throttling	398.05	354.52	160.00	1.82	43.53	160.00

Detailed Report for Pump: Godwin Diesel

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	7,928.94 ft	Upstream Pipe	P-10
Easting	13,995.53 ft	Downstream Pipe	P-16
Elevation	355.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	115.00 ft	Shutoff Discharge	0.00 gpm
Design Head	95.00 ft	Design Discharge	250.00 gpm
Maximum Operating Head	47.00 ft	Maximum Operating Discharge	550.00 gpm

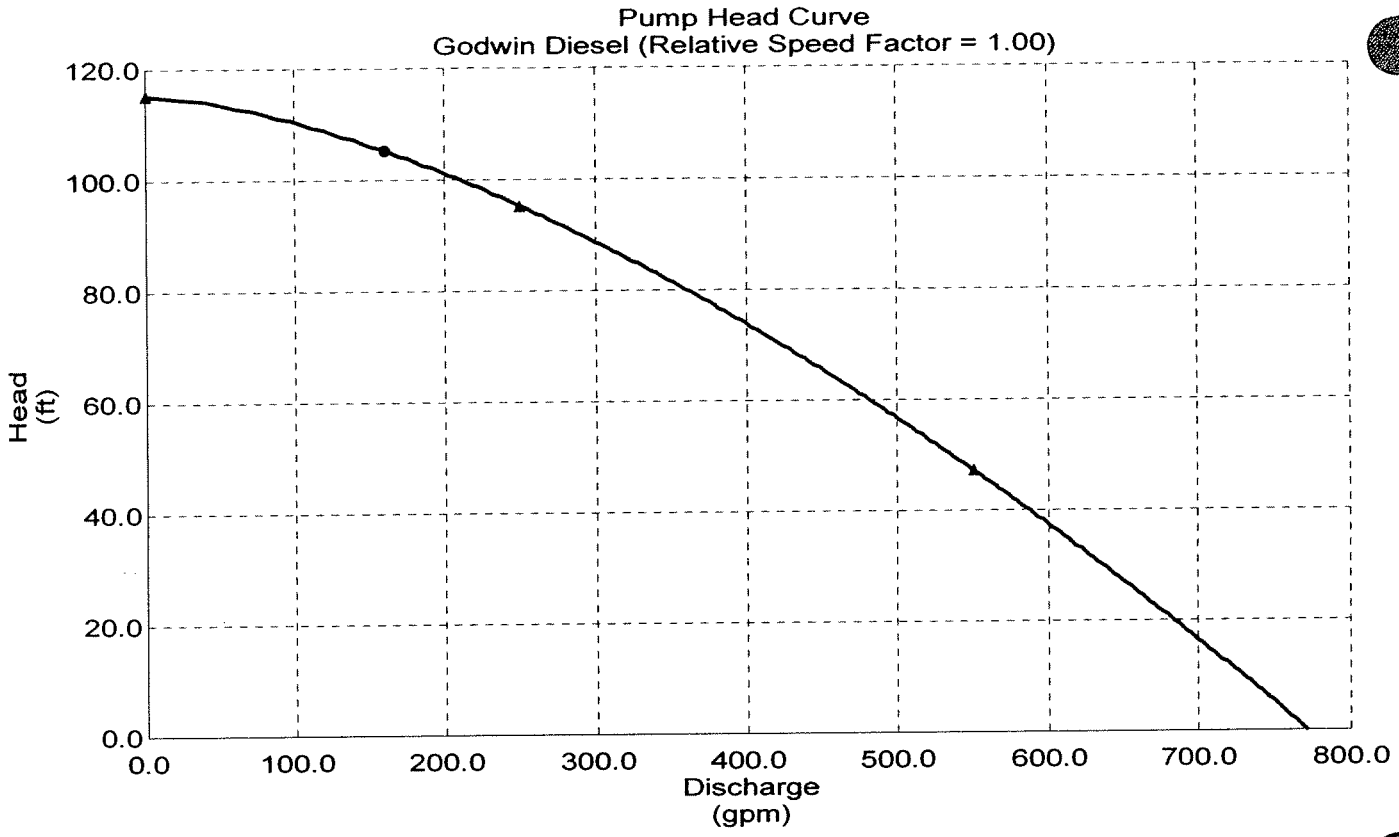
Initial Status			
Initial Pump Status	On	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	On	320.53	425.52	160.00	105.00	1.00	4.24

Detailed Report for Pump: Godwin Diesel



Detailed Report for Pump: GSP300 HV

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,757.40 ft	Upstream Pipe	P-67
Easting	11,303.49 ft	Downstream Pipe	6" HDPE
Elevation	317.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	155.00 ft	Shutoff Discharge	0.00 gpm
Design Head	110.00 ft	Design Discharge	725.00 gpm
Maximum Operating Head	10.00 ft	Maximum Operating Discharge	1,650.00 gpm

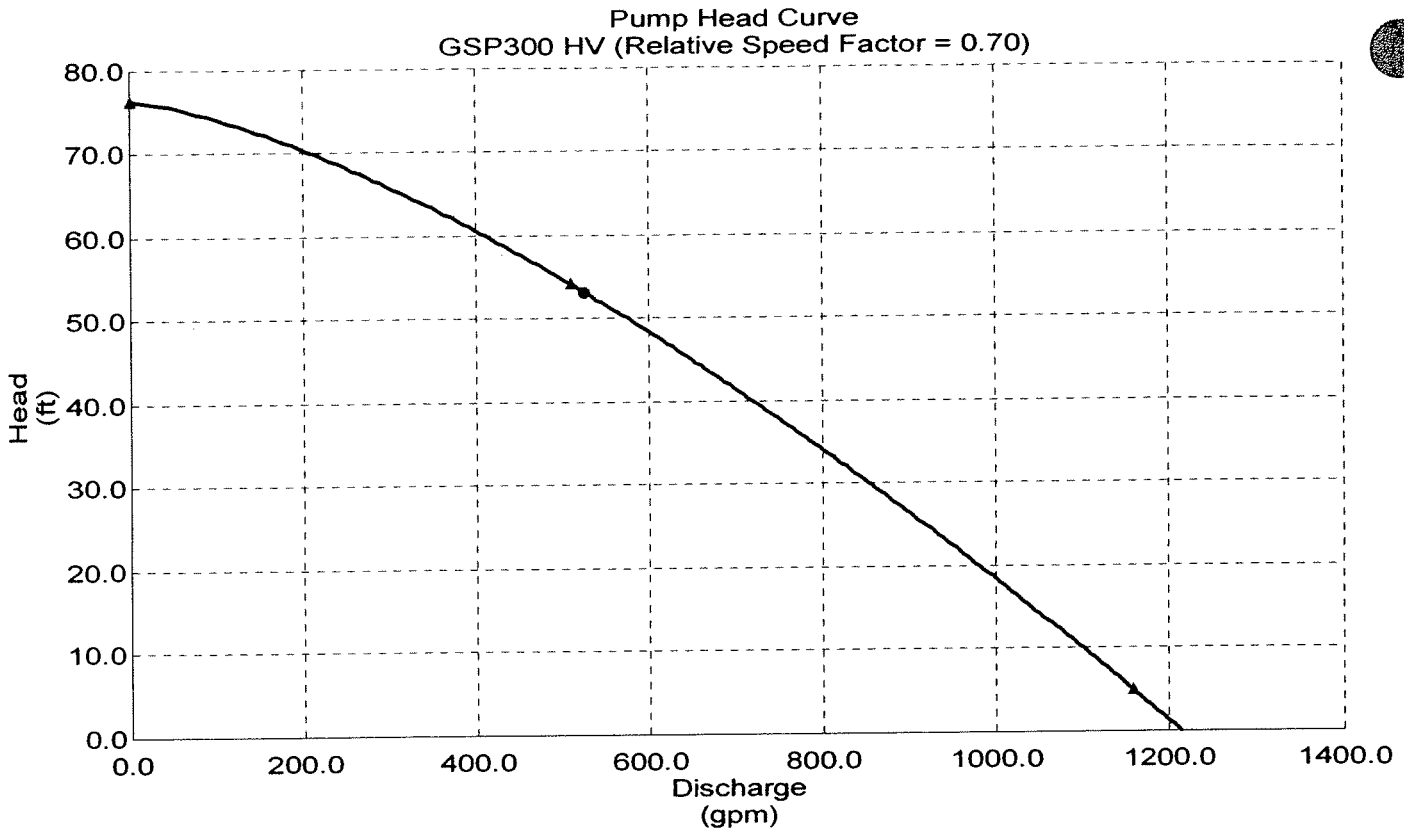
Initial Status			
Initial Pump Status	On	Initial Relative Speed Factor	0.70

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	On	318.50	371.52	524.80	53.02	0.70	7.03

Detailed Report for Pump: GSP300 HV



Detailed Report for Pressure Junction: J-1

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,580.61 ft	Elevation	0.00 ft
Easting	11,306.51 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	370.94	160.49	370.94	0.00

Detailed Report for Pressure Junction: J-2

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,580.61 ft	Elevation	0.00 ft
Easting	10,873.91 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	365.74	158.24	365.74	0.00

Detailed Report for Pressure Junction: J-7

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,585.30 ft	Elevation	0.00 ft
Easting	10,368.84 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	333.03	144.09	333.03	0.00

Detailed Report for Pressure Junction: J-41

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Altemative	Base-Active Topology
Demand Altemative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Altemative	Base-Operational Controls
Logical Control Set Altemative	<All Logical Controls>
Age Altemative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Altemative	Base-Energy Cost
User Data Altemative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	7,420.81 ft	Elevation	0.00 ft
Easting	12,987.71 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	324.94	140.59	324.94	0.00

Detailed Report for Pressure Junction: L-56

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,907.62 ft	Elevation	0.00 ft
Easting	12,308.03 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	320.36	138.61	320.36	0.00

Detailed Report for Pressure Junction: L-58

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,910.36 ft	Elevation	0.00 ft
Easting	12,656.21 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	321.20	138.97	321.20	0.00

Detailed Report for Tank: Lift Station

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	9,838.91 ft	Elevation	317.00 ft
Easting	11,438.46 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

Operating Range Summary			
Maximum Elevation	323.00 ft	Maximum Level	6.00 ft
Initial HGL	318.50 ft	Initial Level	1.50 ft
Minimum Elevation	318.50 ft	Minimum Level	1.50 ft
Base Elevation	317.00 ft		

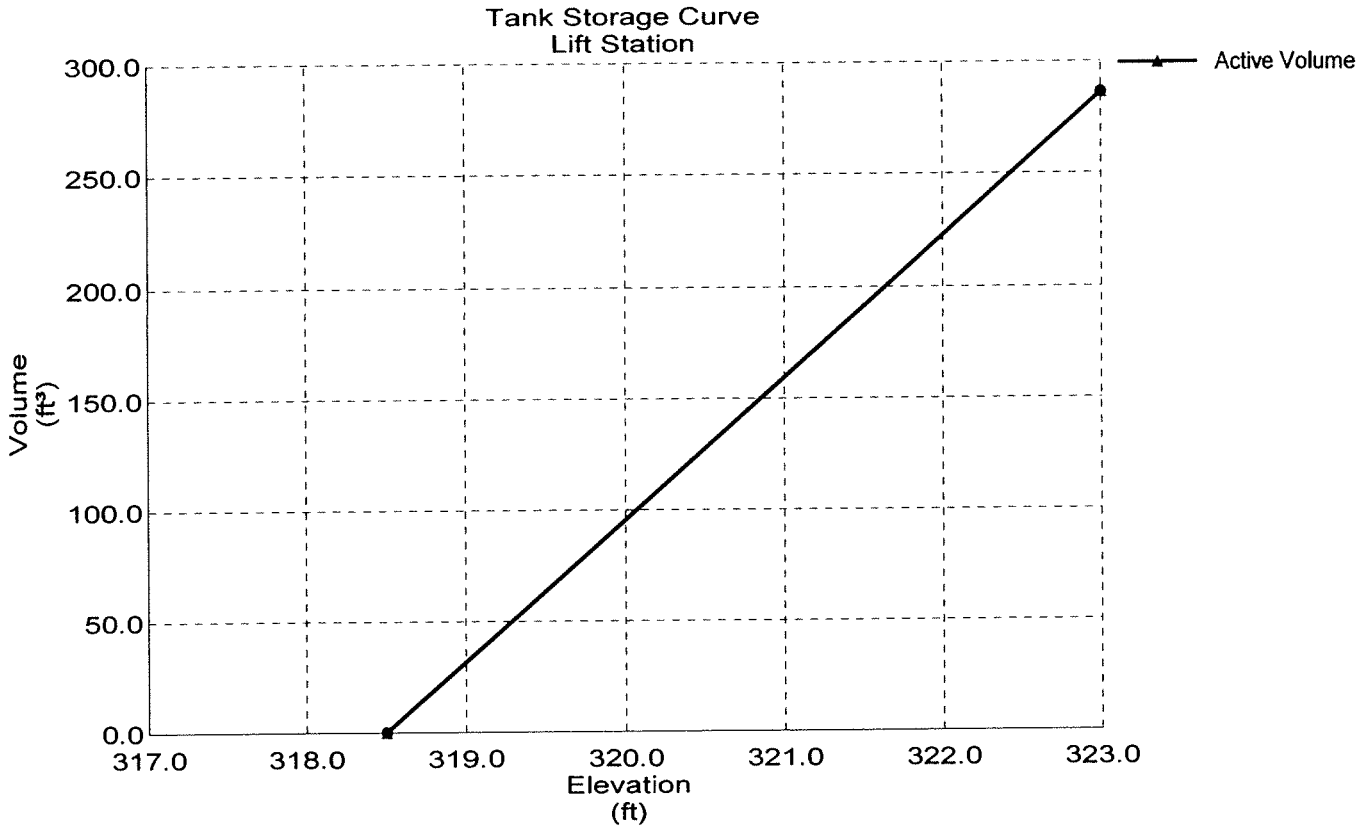
Storage			
Section Type	Constant Area	Circular Tank Shape?	true
Diameter	9.00 ft	Average Area	63.6 ft²
Inactive Volume	0.00 ft³	Total Active Volume	286.28 ft³

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Lining		Condition	
Metered	false	Clearwell Storage	false
Elevated Tank	false	Existing	false

Detailed Report for Tank: Lift Station

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
0.00	318.50	1.50	0.65	0.0	0.00	-364.80	364.80	Empty



Detailed Report for Pressure Junction: MH-3

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,902.75 ft	Elevation	0.00 ft
Easting	11,927.81 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	319.64	138.30	319.64	0.00

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Detailed Report for Reservoir: OWS

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,175.89 ft	Elevation	326.23 ft
Y	9,825.83 ft	Zone	Zone-1

User Data			
Date Installed		Date Retired	
Inspection Date		Condition	
Clearwell Storage	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Inflow (gpm)	Outflow (gpm)
0.00	326.23	524.80	-524.80

Detailed Report for Pressure Pipe: P-10

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Flex Hose	Hazen- Williams C	130.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	200.00 ft
From Node	Basin I	To Node	Godwin Diesel

Elevations			
From Elevation	335.10 ft	To Elevation	355.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	160.00	7.26	335.10	320.53	14.57	0.00	14.57	72.87

Detailed Report for Pressure Pipe: P-16

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	flex hose	Hazen- Williams C	120.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	325.00 ft
From Node	Godwin Diesel	To Node	FCV-2

Elevations			
From Elevation	355.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	160.00	7.26	425.52	398.05	27.47	0.00	27.47	84.52

Detailed Report for Pressure Pipe: P-17

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	flex hose	Hazen- Williams C	120.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	325.00 ft
From Node	FCV-2	To Node	Vault 13

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	160.00	7.26	354.52	327.05	27.47	0.00	27.47	84.52

Detailed Report for Pressure Pipe: P-22

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	1.28
Check Valve?	false	Length	210.00 ft
From Node	L-56	To Node	MH-3

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	160.00	2.22	320.36	319.64	0.62	0.10	0.72	3.42

Detailed Report for Pressure Pipe: P-27

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.35
Check Valve?	false	Length	275.00 ft
From Node	L-58	To Node	L-56

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	160.00	2.22	321.20	320.36	0.81	0.03	0.84	3.05

Detailed Report for Pressure Pipe: P-31

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.35
Check Valve?	false	Length	160.00 ft
From Node	Vault-6	To Node	L-58

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	160.00	2.22	321.70	321.20	0.47	0.03	0.50	3.12

Detailed Report for Pressure Pipe: P-60

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.35
Check Valve?	false	Length	111.00 ft
From Node	Vault-10	To Node	Vault-6

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	160.00	2.22	322.05	321.70	0.33	0.03	0.35	3.19

Detailed Report for Pressure Pipe: P-64

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.37
Check Valve?	false	Length	968.00 ft
From Node	J-41	To Node	Vault-10

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	160.00	2.22	324.94	322.05	2.86	0.03	2.88	2.98

Detailed Report for Pressure Pipe: P-65

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	1.28
Check Valve?	false	Length	233.00 ft
From Node	Vault-14	To Node	J-41

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	160.00	2.22	325.72	324.94	0.69	0.10	0.79	3.37

Detailed Report for Pressure Pipe: P-67

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	150.0
Diameter	48.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	Lift Station	To Node	GSP300 HV

Elevations			
From Elevation	317.00 ft	To Elevation	317.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	524.80	0.09	318.50	318.50	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-73

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	155.0
Diameter	5.42 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	450.00 ft
From Node	Vault 13	To Node	Vault-14

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	160.00	2.22	327.05	325.72	1.33	0.00	1.33	2.95

Detailed Report for Pressure Pipe: Steel Pipe in OWS

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	6.00 in	Minor Loss Coefficient	6.38
Check Valve?	false	Length	90.00 ft
From Node	J-7	To Node	OWS

Elevations			
From Elevation	0.00 ft	To Elevation	326.23 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	524.80	5.95	333.03	326.23	3.28	3.52	6.80	75.56

Detailed Report for Pressure Junction: Vault-6

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,852.30 ft	Elevation	0.00 ft
Easting	12,991.87 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	321.70	139.18	321.70	0.00

Detailed Report for Pressure Junction: Vault-10

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	8,513.50 ft	Elevation	0.00 ft
Easting	12,990.63 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	322.05	139.34	322.05	0.00

Detailed Report for Pressure Junction: Vault-14

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	7,420.81 ft	Elevation	0.00 ft
Easting	13,472.70 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	325.72	140.93	325.72	0.00

Detailed Report for Pressure Junction: Vault 13

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
Northing	7,648.27 ft	Elevation	0.00 ft
Easting	13,997.97 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	327.05	141.50	327.05	0.00

ARCADIS

Attachment 3

Tank T-157 Flow Capacity
Demonstration

WASTE MANAGEMENT, INC.
CWM Chemical Services, L.L.C.
1550 Balmer Rd.
P.O. Box 200
Model City N.Y. 14107
716/754-8231

August 12, 1999

Mr. Frank Shattuck, P.E.
New York State Department of
Environmental Conservation
Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999

Re: Tank T-157 Flow Capacity Demonstration
RMU-1 Cell 9/10 Operating Approval Condition #3

Dear Mr. Shattuck:

On July 23, 1999, NYSDEC issued the approval to initiate operations in Cell 9/10 of RMU-1. Condition #3 of that approval requires the demonstration and/or documentation that the leachate flow capacity between tank T-157 and the Leachate Tank Farm is adequate for the necessary flow as determined by the Leachate Level Compliance Plan (LLCP) Addendum #1, submitted on May 5, 1999. Attached please find a hydraulic model prepared by Wehran-New York, Inc. (Emcon) that calculates the achievable flow for this portion of the leachate system as 916 gpm. This flow exceeds the necessary flow of 626 gpm calculated in the LLCP Addendum #1 and closely approximates the design capacity of 900 gpm for this system, as previously stated by CWM.

Tank T-157 collects all the leachate from RMU-1 after it passes through the Oil/Water Separator system. Two pumps, P-157 and P-158, are used to transfer the leachate to the Leachate Tank Farm. Upon reaching high level in tank T-157, the first pump turns on. If this pump is unable to manage the incoming flow and the tank level continues to rise, the second pump also turns on. The attached calculations show that, with both pumps running, adequate capacity is obtained.

Please call Mr. John Hino at (716) 754-0278 or myself at (716) 754-0279 if you have any questions or comments.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

August 12, 1999
Mr. Frank Shattuck, P.E.
NYSDEC
Re: Tank T-157 Flow Capacity Demonstration
RMU-1 Cell 9/10 Operating Approval Condition #3

Sincerely,
CWM CHEMICAL SERVICES, LLC

Rebecca Park Zayatz
Environmental Engineering Manager
Model City Facility

JBH/RPZ/jbh
Attachment

cc:

B. Rostami	- NYSDEC/Region 9	- W/O Attachment
J. Sacco	- NYSDEC/On-site Monitor	- W/Attachment
P. Merges	- NYSDEC/Albany, NY	- W/O Attachment
M. Montefolio	- NYSDEC/Albany, NY	- W/Attachment
J. Reidy	- USEPA/Region II	- W/Attachment
J. Devald	- NCHD/Lockport, NY	- W/O Attachment
D. Maruca	- CWM/Model City, NY	- W/O Attachment
J. Hino	- CWM/Model City, NY	- W/Attachment
K. McAuley	- CWM/Model City, NY	- W/Attachment
S. Rydzyk	- CWM/Model City, NY	- W/Attachment
M. Marsack	- Emcon/Grand Island, NY	- W/O Attachment
EMD Subject File		
Q & A		

EMCON

Wehran-New York, Inc.
1775 Base Line Road, Suite 220
Grand Island, New York 14072-1801
Tel (716) 773-1601
Fax (716) 773-1626
(716) 773-2288

August 10, 1999
Project 796496 Task 2

Mr. John Hino
Project Engineer
CWM Chemical Services, LLC
1550 Balmer Road, PO Box 200
Model City, New York 14107

Re: Leachate Level Compliance Plan for RMU-1
Hydraulic Model from T-157 to T-101, 102, 103
Model City, New York Facility

Dear Mr. Hino:

At your request, Wehran-New York, Inc. (EMCON) has prepared a hydraulic model of the leachate transfer system from tank T-157 (in the SLF-12 oil/water separator building) to tanks T-101, 102 and 103 (at the leachate tank farm). The objective was to estimate the flow rate in this part of the system when both pumps P-157 and P-158 are operating simultaneously.

The model results indicate a flow rate of approximately 916 gallons per minute (gpm) could be achieved under the hydraulic conditions included in the analysis. Haestad Methods' WaterCAD 3.0 was used to model the system and perform the hydraulic calculations. This is the same software used to perform the hydraulic model calculations presented in the June 18, 1999 response to comments on the RMU-1 Cell 9/10 Leachate Level Compliance Plan (Appendix G, Attachment 2). Model input parameters were obtained from discussions with CWM personnel, field observations and measurements by EMCON, and information from existing site reports and drawings.

A detailed report presenting model input and output data is attached. Several key assumptions and considerations are listed below:

- Pumps P-157 and P-158 are identical and assumed to be running simultaneously. The pump curve used in the model was obtained from a Goulds manual based on the pump identification data located on the tags on the existing pumps.
- Elevations are based on a finished floor elevation of 314.67 in the SLF-12 OWS building Tank 157 area as shown on a record drawing for the facility prepared by Donahue Engineers and Architects. Other piping and tank elevations were obtained from measurements from the finished floor.

- The hydraulic properties of the liquid flowing through the system are assumed to be that of water.
- Tank T-157 is modeled as a constant-head reservoir whose liquid surface elevation is two feet below the level where both pumps are set to turn on.
- A Hazen-Williams roughness value of 93 was conservatively assumed for the steel pipe used throughout the modeled system.
- The system is running under steady-state conditions.
- Flow is directed to tank T-103 which is the furthest from the pumps.

Pump performance, initial and final head elevations, pipe roughness and minor loss coefficients are the key items affecting the calibration of this model to field conditions. Pipe roughness and valve loss coefficients were adjusted to calibrate the model to flow rates reported by CWM when one pump (P-158) is running.

If you have any questions or require additional information, please contact the undersigned.

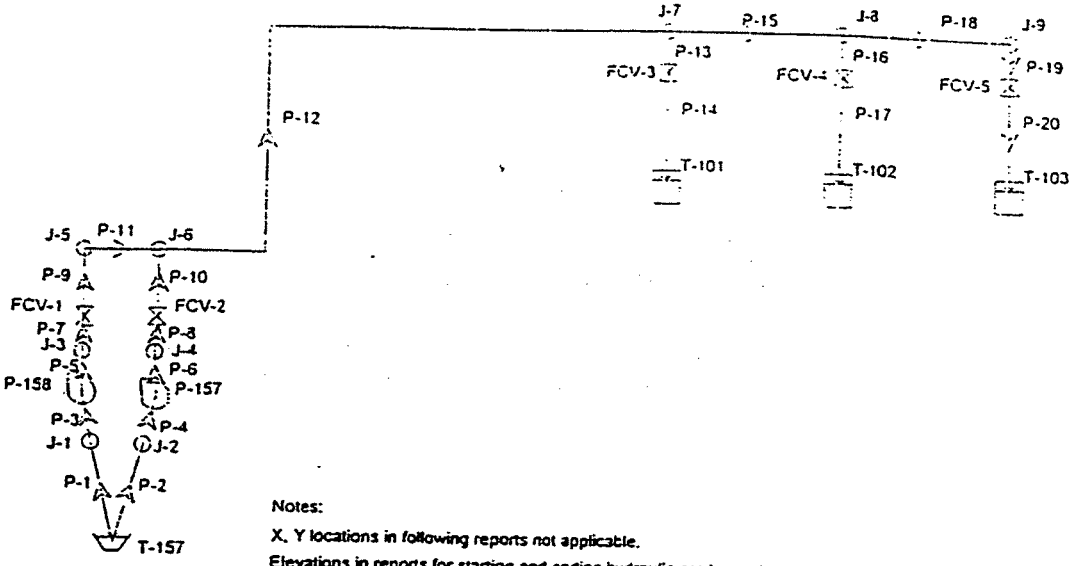
Sincerely,

WEHRAN-NEW YORK, INC.

Mark G. Marsack, P.E.
Client Project Manager

Attachments Hydraulic Model of T-157 to T-101, 102, 103

cc: J. Lynch - EMCON



Notes:

X, Y locations in following reports not applicable.

Elevations in reports for starting and ending hydraulic grade are the only applicable elevations.

HYDRAULIC STATUS:

Hydraulic status for steady-state conditions

Balanced	Trials = 5, Accuracy = 1.000134
Flow Supplied	915.99 gpm
Flow Demanded	0.00 gpm
Flow Stored	915.99 gpm
T-101	Tank: Closed Or Stagnant
T-102	Tank: Closed Or Stagnant
T-103	Tank: Filling
T-157	Reservoir: Emptying
P-157	Pump: On
P-158	Pump: On
FCV-1	FCV: Open,
FCV-2	FCV: Open,
FCV-3	FCV: Closed,
FCV-4	FCV: Closed,
FCV-5	FCV: Open,

Detailed Report for Valve: FCV-1

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	9,903.58 ft	From Pipe	P-7
Y	9,980.48 ft	To Pipe	P-9
Elevation	0.00 ft	Diameter	6 in
Minor Loss	2.00		

Initial Condition Summary			
Status	Inactive	Flow	0.00 gpm

Calculated Results Summary

Time	Status	Constituent (mg/l)	From Grade (ft)	To Grade (ft)	Flow (gpm)	Headloss (ft)	Setting (gpm)
0.00 hr	Inactive	N/A	380.06	379.22	457.77	0.84	N/A

Detailed Report for Valve: FCV-2

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	9,919.31 ft	From Pipe	P-8
Y	9,980.70 ft	To Pipe	P-10
Elevation	0.00 ft	Diameter	6 in
Minor Loss	2.00		

Initial Condition Summary			
Status	Inactive	Flow	0.00 gpm

Calculated Results Summary

Time	Status	Constituent (mg/l)	From Grade (ft)	To Grade (ft)	Flow (gpm)	Headloss (ft)	Setting (gpm)
0.00 hr	Inactive	N/A	380.02	379.18	458.23	0.84	N/A

Detailed Report for Valve: FCV-3

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Acd 0.0

Geometric Summary			
X	10,031.80 ft	From Pipe	P-13
Y	10,036.39 ft	To Pipe	P-14
Elevation	0.00 ft	Diameter	6 in
Minor Loss	2.00		

Initial Condition Summary			
Status	Closed	Flow	0.00 gpm

Calculated Results Summary

Time	Status	Constituent (mg/l)	From Grade (ft)	To Grade (ft)	Flow (gpm)	Headloss (ft)	Setting (gpm)
0.00 hr	Closed	N/A	372.47	354.00	0.00	0.00	N/A

Detailed Report for Valve: FCV-4

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	10,071.06 ft	From Pipe	P-16
Y	10,036.04 ft	To Pipe	P-17
Elevation	0.00 ft	Diameter	6 in
Minor Loss	2.00		

Initial Condition Summary			
Status	Closed	Flow	0.00 gpm

Calculated Results Summary

Time	Status	Constituent (mg/l)	From Grade (ft)	To Grade (ft)	Flow (gpm)	Headloss (ft)	Setting (gpm)
0.00 hr	Closed	N/A	370.55	354.00	0.00	0.00	N/A

Detailed Report for Valve: FCV-5

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	10,107.86 ft	From Pipe	P-19
Y	10,035.69 ft	To Pipe	P-20
Elevation	0.00 ft	Diameter	6 in
Minor Loss	2.00		

Initial Condition Summary			
Status	Inactive	Flow	0.00 gpm

Calculated Results Summary

Time	Status	Constituent (mg/l)	From Grade (ft)	To Grade (ft)	Flow (gpm)	Headloss (ft)	Setting (gpm)
0.00 hr	Inactive	N/A	365.02	361.66	915.99	3.35	N/A

Detailed Report for Junction: J-1

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Acc 0.0

Geometric Summary			
X	9,905.61 ft	Elevation	316.50 ft
Y	9,952.62 ft	Zone	Zone-1

Connecting Pipes
P-1
P-3

Calculated Results Summary

Time	Constituent (mg/l)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpm)	Pressure Head (ft)
0.00 hr	N/A	320.87	1.89	0.00	4.37

Detailed Report for Junction: J-2

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	9,916.33 ft	Elevation	316.50 ft
Y	9,952.27 ft	Zone	Zone-1

Connecting Pipes
P-2
P-4

Calculated Results Summary

Time	Constituent (mg/l)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpm)	Pressure Head (ft)
0.00 hr	N/A	320.86	1.89	0.00	4.36

Detailed Report for Junction: J-3

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	9,903.68 ft	Elevation	318.50 ft
Y	9,972.30 ft	Zone	Zone-1

Connecting Pipes
P-5
P-7

Calculated Results Summary

Time	Constituent (mg/l)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpm)	Pressure Head (ft)
0.00 hr	N/A	382.64	27.74	0.00	64.14

Detailed Report for Junction: J-4

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	9,919.20 ft	Elevation	318.50 ft
Y	9,972.50 ft	Zone	Zone-1

Connecting Pipes
P-6
P-8

Calculated Results Summary

Time	Constituent (mg/l)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpm)	Pressure Head (ft)
0.00 hr	N/A	382.61	27.72	0.00	64.11

Detailed Report for Junction: J-5

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	9,903.63 ft	Elevation	324.17 ft
Y	9,995.52 ft	Zone	Zone-1

Connecting Pipes
P-9
P-11

Calculated Results Summary

Time	Constituent (mg/l)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpm)	Pressure Head (ft)
0.00 hr	N/A	378.54	23.51	0.00	54.37

Detailed Report for Junction: J-6

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	9,919.61 ft	Elevation	324.17 ft
Y	9,995.52 ft	Zone	Zone-1

Connecting Pipes
P-11
P-10
P-12

Calculated Results Summary

Time	Constituent (mg/l)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpm)	Pressure Head (ft)
0.00 hr	N/A	378.50	23.49	0.00	54.33

Detailed Report for Junction: J-7

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	10,031.20 ft	Elevation	321.00 ft
Y	10,045.51 ft	Zone	Zone-1

Connecting Pipes
P-12
P-15
P-13

Calculated Results Summary

Time	Constituent (mg/l)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpm)	Pressure Head (ft)
0.00 hr	N/A	372.47	22.26	0.00	51.47

Detailed Report for Junction: J-8

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	10,070.71 ft	Elevation	0.00 ft
Y	10,045.51 ft	Zone	Zone-1

Connecting Pipes
P-15
P-18
P-16

Calculated Results Summary

Time	Constituent (mg/l)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpm)	Pressure Head (ft)
0.00 hr	N/A	370.55	160.24	0.00	370.55

Detailed Report for Junction: J-9

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	10,107.37 ft	Elevation	0.00 ft
Y	10,045.38 ft	Zone	Zone-1

Connecting Pipes
P-18
P-19

Calculated Results Summary

Time	Constituent (mg/l)	Hydraulic Grade (ft)	Pressure (psi)	Demand (gpm)	Pressure Head (ft)
0.00 hr	N/A	369.20	159.65	0.00	369.20

Detailed Report for Pipe: P-1

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	T-157	Diameter	3 in
To Node	J-1	Material	Steel
Check Valve	No	Roughness	93.0
Length	7.00 ft	Minor Loss	11.14

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	90 deg. Bend - Smooth	0.22	0.22
1	Tee - Line Flow	0.35	0.35
1	Globe Valve - Open	10.00	10.00
1	Contraction - Conical D	0.07	0.07
1	Pipe Entrance - Square	0.50	0.50

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	457.77	2.92	322.40	320.87	0.05	1.48	1.53	218.99

Detailed Report for Pipe: P-2

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add C 3

Geometric Summary			
From Node	T-157	Diameter	3 in
To Node	J-2	Material	Steel
Check Valve	No	Roughness	93.0
Length	7.00 ft	Minor Loss	11.14

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	90 deg. Bend - Smooth	0.22	0.22
1	Tee - Line Flow	0.35	0.35
1	Globe Valve - Open	10.00	10.00
1	Contraction - Conical D	0.07	0.07
1	Pipe Entrance - Square	0.50	0.50

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	458.23	2.92	322.40	320.86	0.06	1.48	1.54	219.43

Detailed Report for Pipe: P-3

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	J-1	Diameter	4 in
To Node	P-153-In	Material	Steel
Check Valve	No	Roughness	93.0
Length	3.00 ft	Minor Loss	0.30

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	Wye - Line Flow	0.30	0.30

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	457.77	11.69	320.87	319.52	0.71	0.64	1.34	447.41

Detailed Report for Pipe: P-4

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	J-2	Diameter	4 in
To Node	P-157-In	Material	Steel
Check Valve	No	Roughness	93.0
Length	3.00 ft	Minor Loss	0.30

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	Wye - Line Flow	0.30	0.30

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	458.23	11.70	320.86	319.52	0.71	0.64	1.34	448.26

Detailed Report for Pipe: P-5

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	P-153-Out	Diameter	3 in
To Node	J-3	Material	Steel
Check Valve	No	Roughness	93.0
Length	1.00 ft	Minor Loss	0.08

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	Expansion - Conical D2/	0.08	0.08

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	457.77	20.78	384.13	382.64	0.95	0.54	1.49	1.491.46

Detailed Report for Pipe: P-6

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	P-157-Out	Diameter	3 in
To Node	J-4	Material	Steel
Check Valve	No	Roughness	93.0
Length	1.00 ft	Minor Loss	0.08

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	Expansion - Conical D2/	0.08	0.08

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	458.23	20.80	384.10	382.61	0.96	0.54	1.49	1.494.32

Detailed Report for Pipe: P-7

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	J-3	Diameter	5 in
To Node	FCV-1-In	Material	Steel
Check Valve	No	Roughness	93.0
Length	2.00 ft	Minor Loss	6.00

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	Check Valve - Conventi	4.00	4.00

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	457.77	5.19	382.64	380.06	0.06	2.52	2.58	1,289.43

Detailed Report for Pipe: P-8

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	J-4	Diameter	6 in
To Node	FCV-2-In	Material	Steel
Check Valve	No	Roughness	93.0
Length	2.00 ft	Minor Loss	6.00

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	Check Valve - Conventi	4.00	4.00

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	458.23	5.20	382.51	380.02	0.06	2.52	2.58	1,291.99

Detailed Report for Pipe: P-9

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	FCV-1-Out	Diameter	6 in
To Node	J-5	Material	Steel
Check Valve	No	Roughness	93.0
Length	4.00 ft	Minor Loss	1.31

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	Expansion - Conical D2/	0.03	0.03
1	Tee - Branch Flow	1.28	1.28

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	457.77	5.19	379.22	378.54	0.13	0.55	0.68	169.86

Detailed Report for Pipe: P-10

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	FCV-2-Out	Diameter	6 in
To Node	J-6	Material	Steel
Check Valve	No	Roughness	93.0
Length	4.00 ft	Minor Loss	1.31

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	Expansion - Conical D2/	0.03	0.03
1	Tee - Branch Flow	1.28	1.28

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	458.23	5.20	379.18	378.50	0.13	0.55	0.68	170.20

Detailed Report for Pipe: P-11

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0 0

Geometric Summary			
From Node	J-5	Diameter	8 in
To Node	J-6	Material	Steel
Check Valve	No	Roughness	93.0
Length	5.00 ft	Minor Loss	0.00

Initial Condition Summary	
Status	Open

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	457.77	2.92	378.54	378.50	0.04	0.00	0.04	8.04

Detailed Report for Pipe: P-12

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	J-6	Diameter	8 in
To Node	J-7	Material	Steel
Check Valve	No	Roughness	93.0
Length	150.00 ft	Minor Loss	3.15

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
6	90 deg. Bend - Smooth	0.22	1.32
1	Tee - Line Flow	0.35	0.35
1	Tee - Branch Flow	1.28	1.28
1	45 deg. Bend - Mitered	0.20	0.20

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	916.00	5.85	378.50	372.47	4.35	1.67	6.03	40.18

Detailed Report for Pipe: P-13

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	J-7	Diameter	6 in
To Node	FCV-3-In	Material	Steel
Check Valve	No	Roughness	93.0
Length	6.00 ft	Minor Loss	2.07

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	Tee - Branch Flow	1.28	1.28
1	Contraction - Conical D	0.05	0.05
2	90 deg. Bend - Smooth	0.37	0.74

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	0.00	0.00	372.47	372.47	0.00	0.00	0.00	0.00

Detailed Report for Pipe: P-14

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	FCV-3-Out	Diameter	6 in
To Node	T-101	Material	Steel
Check Valve	No	Roughness	93.0
Length	35.00 ft	Minor Loss	2.11

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
3	90 deg. Bend - Smooth	0.37	1.11
1	Pipe Exit	1.00	1.00

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	0.00	0.00	354.00	354.00	0.00	0.00	0.00	0.00

Detailed Report for Pipe: P-15

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	J-7	Diameter	8 in
To Node	J-8	Material	Steel
Check Valve	No	Roughness	93.0
Length	60.00 ft	Minor Loss	0.35

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	Tee - Line Flow	0.35	0.35

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	915.99	5.85	372.47	370.55	1.74	0.19	1.93	32.13

Detailed Report for Pipe: P-16

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	J-3	Diameter	6 in
To Node	FCV-4-in	Material	Steel
Check Valve	No	Roughness	93.0
Length	6.00 ft	Minor Loss	2.07

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	Tee - Branch Flow	1.28	1.28
1	Contraction - Conical D	0.05	0.05
2	90 deg. Bend - Smooth	0.37	0.74

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	0.00	0.00	370.55	370.55	0.00	0.00	0.00	0.00

Detailed Report for Pipe: P-17

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	FCV-4-Out	Diameter	6 in
To Node	T-102	Material	Steel
Check Valve	No	Roughness	93.0
Length	35.00 ft	Minor Loss	2.11

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
3	90 deg. Bend - Smooth	0.37	1.11
1	Pipe Exit	1.00	1.00

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	0.00	0.00	354.00	354.00	0.00	0.00	0.00	0.00

Detailed Report for Pipe: P-18

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	J-8	Diameter	8 in
To Node	J-9	Material	Steel
Check Valve	No	Roughness	93.0
Length	40.00 ft	Minor Loss	0.35

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	Tee - Line Flow	0.35	0.35

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	915.99	5.85	370.55	369.20	1.16	0.19	1.35	33.68

Detailed Report for Pipe: P-19

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	J-3	Diameter	6 in
To Node	FCV-5-In	Material	Steel
Check Valve	No	Roughness	93.0
Length	6.00 ft	Minor Loss	2.07

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
1	Tee - Branch Flow	1.28	1.28
1	Contraction - Conical D	0.05	0.05
2	90 deg. Bend - Smooth	0.37	0.74

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	915.99	10.39	369.20	365.02	0.70	3.48	4.18	696.56

Detailed Report for Pipe: P-20

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
From Node	FCV-5-Out	Diameter	5 in
To Node	T-103	Material	Steel
Check Valve	No	Roughness	93.0
Length	35.00 ft	Minor Loss	2.11

Initial Condition Summary	
Status	Open

Minor Losses

Quantity	Minor Loss	K Each	K Total
3	90 deg. Bend - Smooth	0.37	1.11
1	Pipe Exit	1.00	1.00

Calculated Results Summary

Time	Status	Constituent (mg/l)	Flow (gpm)	Velocity (ft/s)	From Grade (ft)	To Grade (ft)	Friction Loss (ft)	Minor Loss (ft)	Total Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00 hr	Open	N/A	915.99	10.39	361.66	354.00	4.12	3.54	7.66	218.99

Detailed Report for Pump: P-157

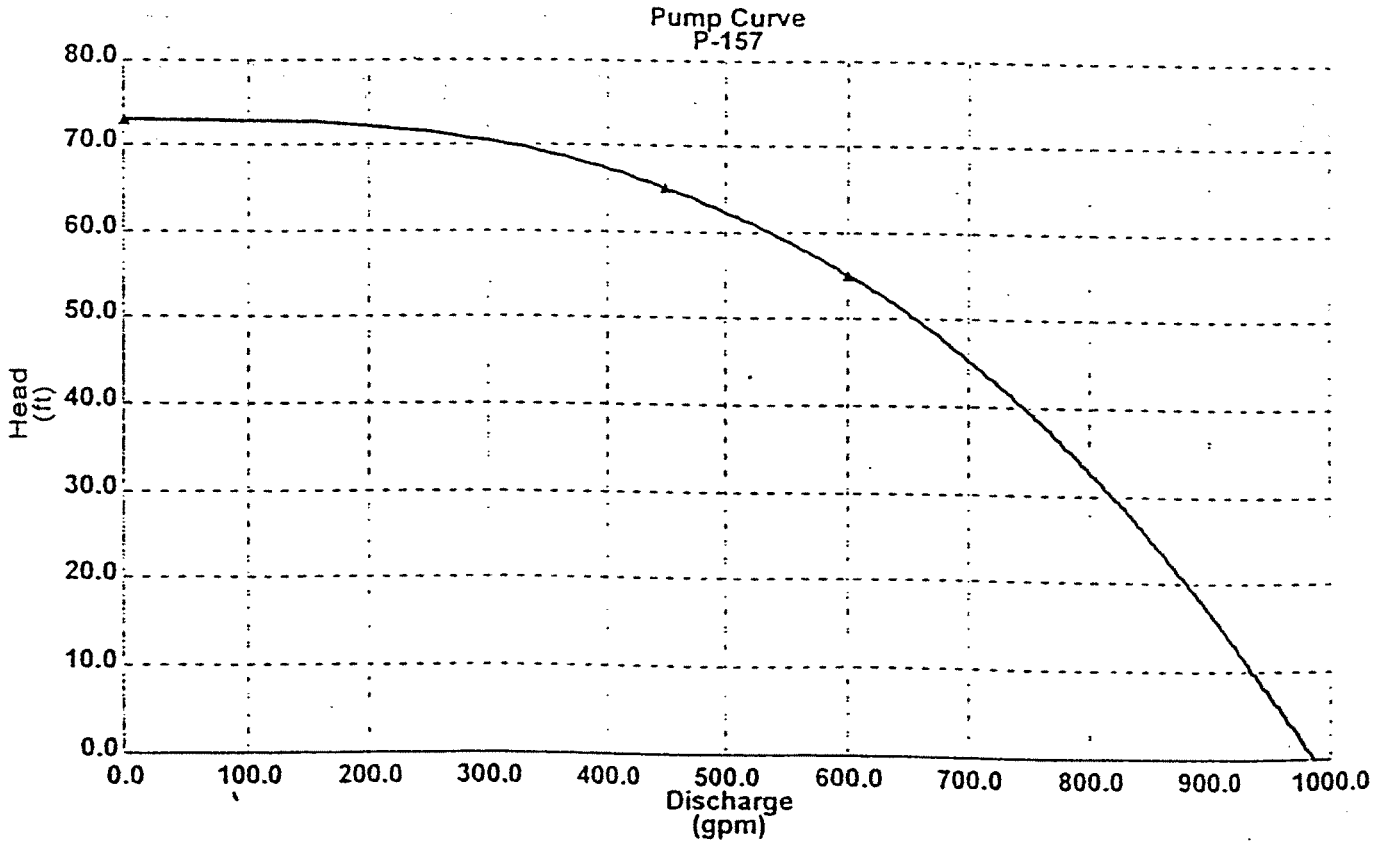
Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Acc 0.0

Geometric Summary			
X	9,919.26 ft	From Pipe	P-4
Y	9,962.71 ft	To Pipe	P-5
Elevation	316.50 ft		

Initial Condition Summary			
Status	On	Relative Speed Factor	1.00

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	73.00 ft	Shutoff Discharge	0.00 gpm
Design Head	65.00 ft	Design Discharge	450.00 gpm
Maximum Operating Head	55.00 ft	Maximum Operating Discharge	600.00 gpm



Detailed Report for Pump: P-157

Calculated Results Summary

Time	Status	Constituent (mg/l)	From Grade (ft)	To Grade (ft)	Flow (gpm)	Head (ft)	Relative Speed	Useful Power (Hp)
0.00 hr	On	N/A	319.52	384.10	458.23	64.58	1.00	7.47

Detailed Report for Pump: P-158

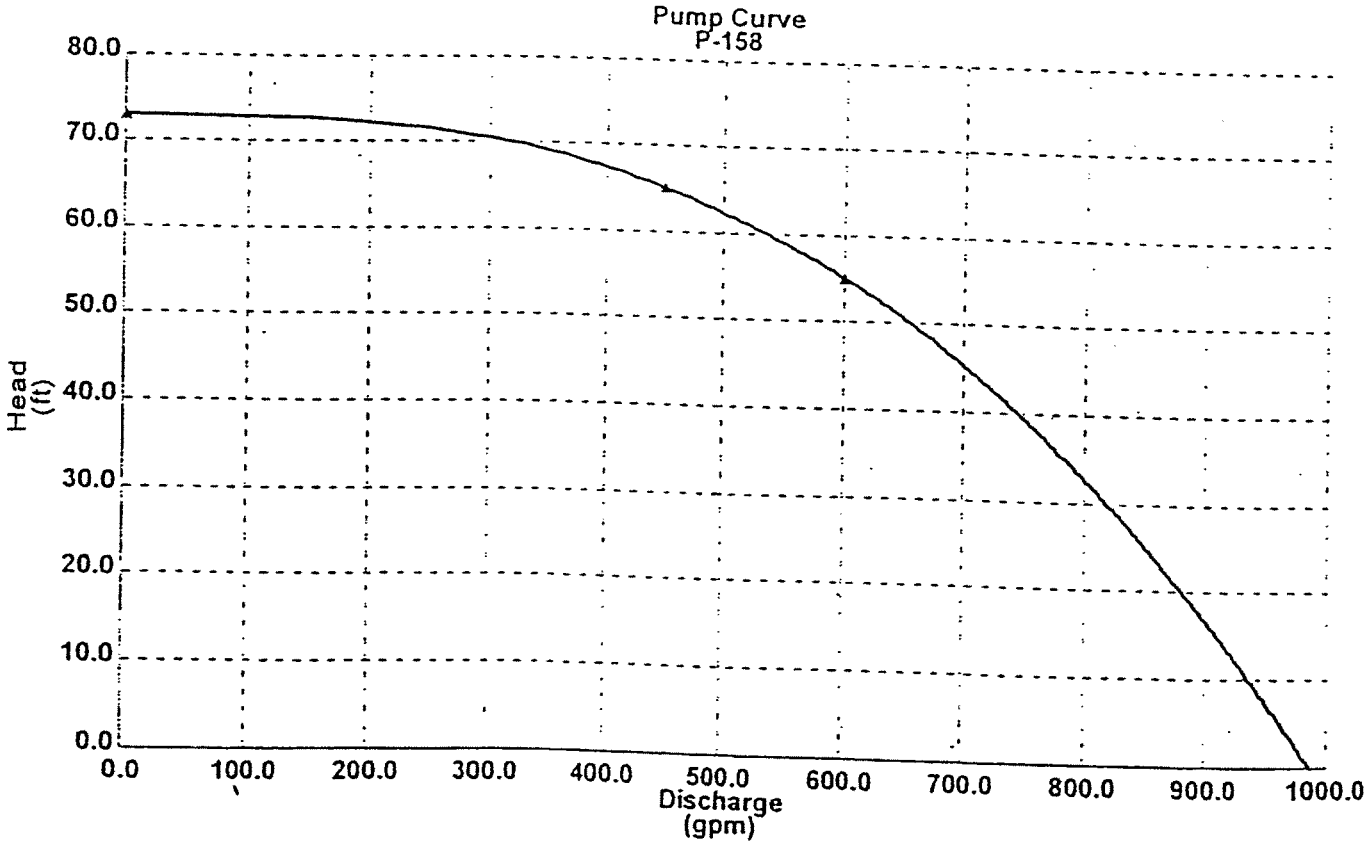
Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	9,903.58 ft	From Pipe	P-3
Y	9,963.52 ft	To Pipe	P-5
Elevation	316.50 ft		

Initial Condition Summary			
Status	On	Relative Speed Factor	1.00

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	73.00 ft	Shutoff Discharge	0.00 gpm
Design Head	65.00 ft	Design Discharge	450.00 gpm
Maximum Operating Head	55.00 ft	Maximum Operating Discharge	600.00 gpm



Detailed Report for Pump: P-158

Calculated Results Summary

Time	Status	Constituent (mg/l)	From Grade (ft)	To Grade (ft)	Flow (gpm)	Head (ft)	Relative Speed	Useful Power (Hp)
0.00 hr	On	N/A	319.52	384.13	457.77	64.60	1.00	7.47

Detailed Report for Tank: T-101

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	10,031.80 ft	Base Elevation	323.00 ft
Y	10,011.16 ft	Zone	Zone-1

Connecting Pipes
P-14

Operating Range Summary			
Maximum Elevation	356.00 ft	Maximum Level	33.00 ft
Initial Elevation	354.00 ft	Initial Level	31.00 ft
Minimum Elevation	325.00 ft	Minimum Level	2.00 ft

Storage Summary			
Type	Constant Area	Cross Section	Circular
Tank Diameter	43.00 ft	Average Area	1,452.2 ft²
Inactive Volume	0.00 ft³	Total Active Volume	47,922.64 ft³
Total Storage Capacity	45,018.24 ft³		

Calculated Results Summary

Time	Constituent (mg/l)	Hydraulic Grade (ft)	Tank Level (ft)	Pressure (psi)	Percent Full (%)	Current Storage Volume (ft³)	Tank Inflow (gpm)	Tank Outflow (gpm)	Status
0.00 hr	N/A	354.00	31.00	13.41	93.5	42,113.83	0.00	0.00	Steady

Detailed Report for Tank: T-102

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	10,070.71 ft	Base Elevation	323.00 ft
Y	10,011.16 ft	Zone	Zone-1

Connecting Pipes
P-17

Operating Range Summary			
Maximum Elevation	356.00 ft	Maximum Level	33.00 ft
Initial Elevation	354.00 ft	Initial Level	31.00 ft
Minimum Elevation	325.00 ft	Minimum Level	2.00 ft

Storage Summary			
Type	Constant Area	Cross Section	Circular
Tank Diameter	43.00 ft	Average Area	1,452.2 ft²
Inactive Volume	0.00 ft³	Total Active Volume	47,922.64 ft³
Total Storage Capacity	45,018.24 ft³		

Calculated Results Summary

Time	Constituent (mg/l)	Hydraulic Grade (ft)	Tank Level (ft)	Pressure (psi)	Percent Full (%)	Current Storage Volume (ft³)	Tank Inflow (gpm)	Tank Outflow (gpm)	Status
0.00 hr	N/A	354.00	31.00	13.41	93.5	42,113.83	0.00	0.00	Steady

Detailed Report for Tank: T-103

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	10,109.21 ft	Base Elevation	323.00 ft
Y	10,011.16 ft	Zone	Zone-1

Connecting Pipes
P-20

Operating Range Summary			
Maximum Elevation	356.00 ft	Maximum Level	33.00 ft
Initial Elevation	354.00 ft	Initial Level	31.00 ft
Minimum Elevation	325.00 ft	Minimum Level	2.00 ft

Storage Summary			
Type	Constant Area	Cross Section	Circular
Tank Diameter	43.00 ft	Average Area	1,452.2 ft²
Inactive Volume	0.00 ft³	Total Active Volume	47,922.64 ft³
Total Storage Capacity	45,018.24 ft³		

Calculated Results Summary

Time	Constituent (mg/l)	Hydraulic Grade (ft)	Tank Level (ft)	Pressure (psi)	Percent Full (%)	Current Storage Volume (ft³)	Tank Inflow (gpm)	Tank Outflow (gpm)	Status
0.00 hr	N/A	354.00	31.00	13.41	93.5	42,113.83	915.99	N/A	Filling

Detailed Report for Reservoir: T-157

Scenario Summary			
Label	Base		
Demand Alternative	Base-Average Daily	Physical Alternative	Base-Physical
Initial Settings Alternative	Base-Initial Settings	Operational Alternative	Base-Operational
Age Alternative	Base-Age Alternative	Constituent Alternative	Base-Constituent
Trace Alternative	Base-Trace Alternative	Fire Flow Alternative	Base-Fire Flow

Calibration Summary			
Demand	<none>	Roughness	Add 0.0

Geometric Summary			
X	9,910.75 ft	Hydraulic Grade Line	322.40 ft
Y	9,930.42 ft	Zone	Zone-1

Connecting Pipes
P-1
P-2

Calculated Results Summary

Time	Constituent (mg/l)	Hydraulic Grade (ft)	Reservoir Inflow (gpm)	Reservoir Outflow (gpm)
0.00 hr	N/A	322.40	N/A	915.99

ARCADIS

Attachment 4

Tank Farm to AWTS at Carbon Feed Tank (T-3003)

ARCADIS
Infrastructure, environment, buildings

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B0023726

Subject: Tank Farm to AWTS at Carbon Feed Tank (T-3003)

Prepared By: BMS/PTO **Date:** March 2009

Reviewed By: BMS **Date:** March 2009

Checked By: PHB **Date:** March 2009

TASK:

Verify that the required flow rate of 176 gallons per minute (gpm) from Leachate Tank Farm (LTF) pump P-105 to Aqueous Waste Treatment Facility (tank T-3003) can be achieved.

REFERENCES:

1. *Leachate Level Compliance Plan For Residuals Management Unit One*, prepared by Golder Associates, dated February, 1997.
2. *Leachate Level Compliance Plan for Residuals Management Unit – One, Final Sequence Phase 1,* prepared by ARCADIS, dated December, 2007.
3. *Engineering Report for CWM Chemical Services, LLC Model City Facility, Residuals Management Unit 1*, Earth Tech.
4. WaterCAD for Windows, Version 5.0, pressure network analysis software, Haestad Methods, Inc.
5. *Leachate Level Compliance Plan Pump Flow Rate Verification Report for Pumps P-105 and P-3002A*, CWM Chemical Services, LLC., October, 2001.

ASSUMPTIONS:

1. The analysis was performed assuming the use of an Ingersoll-Dresser HOC3+ variable speed pump. At 3,500 rpm, the pump is rated at 200 gpm at 334 feet of total dynamic head (TDH).

METHODOLOGY:

Information used in previous LLCP evaluations relating to the LTF and associated piping was field verified, modified where necessary, according to Reference 5, and input into the WaterCAD model for evaluation. This information includes manufacturer pump data; pipe lengths, sizes, and types; number and type of fittings; and other relevant components that could potentially affect the performance of the system. WaterCAD output includes flow rates, velocities and headloss through each pump or pipe section.

Calculation Sheet

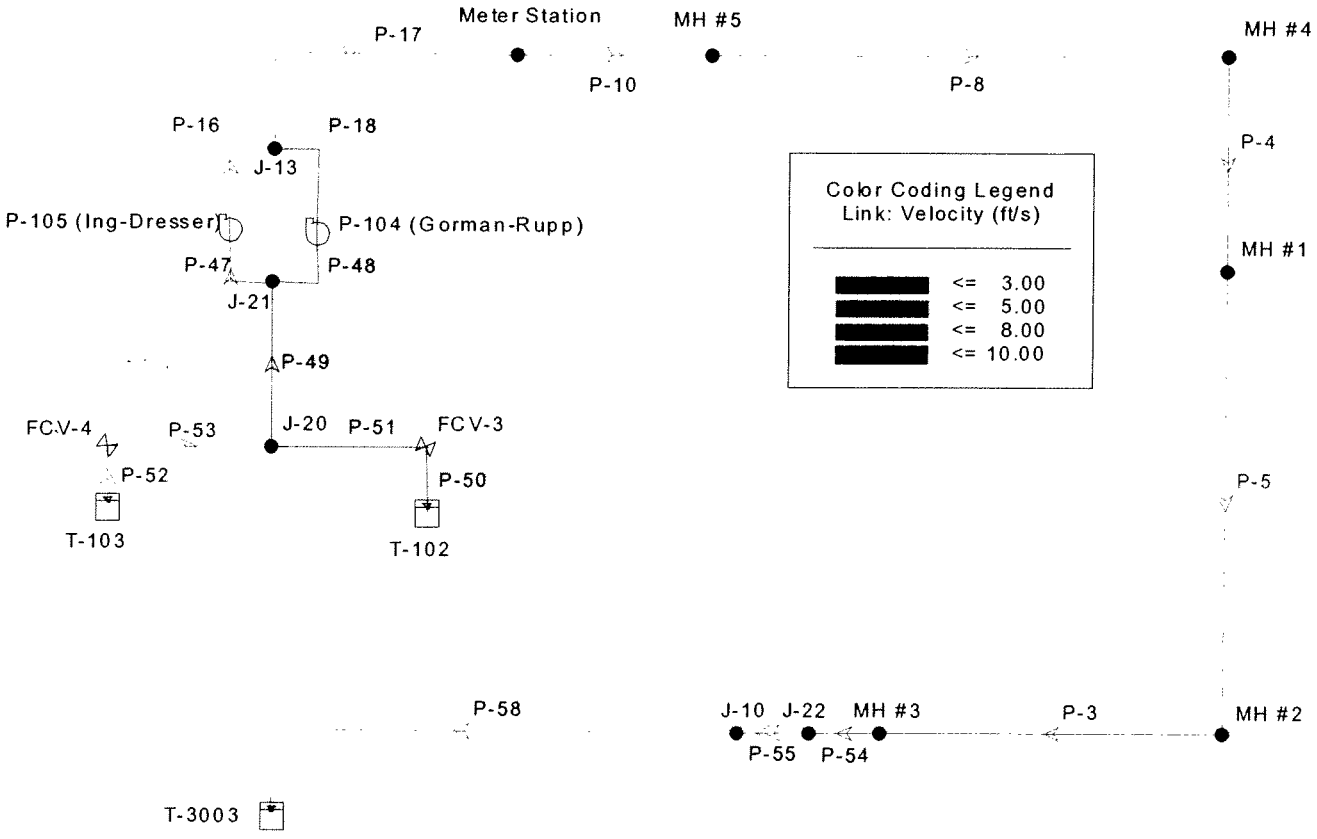
Calculation

A summary of the calculations is presented in the following table.

Pump Type	Nominal Flow Rate [gpm]	Evaluated Flow Rate (with Flow Control) [gpm]	Pump Condition (On/Off)	Head at Pump [ft.]	Total Evaluated Flow to Tank T-3003 [gpm]
Ingersoll-Dresser HOC3+	200 at 334 feet TDH	176	On	344	176

Scenario: Base

Tank Farm to Aqueous Waste Treatment Facility Analysis



Analysis Results
Scenario: Base
Steady State Analysis

Title: Leachate Transfer from Tank Farm to AWT Facility
Project Engineer: ARCADIS
Project Date: 03/11/09
Comments:

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Liquid Characteristics			
Liquid	Water at 20C(68F)	Specific Gravity	1.00
Kinematic Viscosity	1.0804e-5 ft²/s		

Network Inventory			
Pressure Pipes	18	Number of Tanks	3
Number of Reservoirs	0	- Constant Area:	3
Number of Pressure Junctions	11	- Variable Area:	0
Number of Pumps	2	Number of Valves	2
- Constant Power:	0	- FCV's:	2
- One Point (Design Point):	0	- PBV's:	0
- Standard (3 Point):	2	- PRV's:	0
- Standard Extended:	0	- PSV's:	0
- Custom Extended:	0	- TCV's:	0
- Multiple Point:	0	- GPV's:	0
Number of Spot Elevations	0		

Pressure Pipes Inventory			
2.85 in	15.00 ft	3.63 in	409.00 ft
2.86 in	619.00 ft	3.68 in	779.00 ft
3.00 in	58.00 ft	6.00 in	35.00 ft
Total Length	1,915.00 ft		

Analysis Results
Scenario: Base
Steady State Analysis

FCVs @ 0.00 hr

Label	Control Status	From HGL (ft)	To HGL (ft)	Discharge (gpm)	Velocity (ft/s)	Headloss (ft)	Calculated Flow Setting (gpm)
FCV-3	Closed	335.00	193.02	0.00	0.00	0.00	0.00
FCV-4	Throttling	319.88	197.56	176.00	7.99	122.32	176.00

Pressure Junctions @ 0.00 hr

Label	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
J-10	339.29	0.24	0.54	0.00
J-13	522.29	87.52	202.29	0.00
J-20	193.02	-54.94	-126.98	0.00
J-21	192.75	-55.06	-127.25	0.00
J-22	358.86	16.38	37.86	0.00
Meter Station	507.95	80.88	186.95	0.00
MH #1	428.51	46.51	107.51	0.00
MH #2	377.58	24.48	56.58	0.00
MH #3	365.37	19.19	44.37	0.00
MH #4	471.74	65.22	150.74	0.00
MH #5	491.02	73.56	170.02	0.00

Pressure Pipes @ 0.00 hr

Label	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
P-3	Open	176.00	8.79	377.58	365.37	11.77	0.44	12.22	185.11
P-4	Open	176.00	8.79	471.74	428.51	42.81	0.42	43.23	180.13
P-5	Open	176.00	8.79	428.51	377.58	50.48	0.44	50.93	179.95
P-8	Open	176.00	5.31	491.02	471.74	19.12	0.16	19.28	52.69
P-10	Open	176.00	5.31	507.95	491.02	16.77	0.15	16.92	52.72
P-16	Open	176.00	7.99	530.90	522.29	0.98	7.63	8.61	1,229.82
P-17	Open	176.00	5.46	522.29	507.95	9.94	4.40	14.34	80.57
P-18	Open	-0.00	0.00	522.29	522.29	-0.00	0.00	0.00	0.00
P-47	Open	176.00	8.79	192.75	186.74	2.67	3.34	6.01	400.70
P-48	Open	-0.00	0.00	192.75	192.75	-0.00	0.00	0.00	0.00
P-49	Open	-176.00	2.00	192.75	193.02	0.17	0.10	0.27	7.71
P-50	Open	0.00	0.00	335.00	335.00	-0.00	0.00	0.00	0.00
P-51	Open	0.00	0.00	193.02	193.02	-0.00	0.00	0.00	0.00
P-52	Open	176.00	7.99	323.00	319.88	0.70	2.42	3.12	624.84
P-53	Open	176.00	7.99	197.56	193.02	2.12	2.42	4.54	302.50
P-54	Open	176.00	8.85	365.37	358.86	2.72	3.79	6.50	433.66
P-55	Open	176.00	5.46	358.86	339.29	12.89	6.67	19.57	84.70
P-58	Open	176.00	5.31	339.29	329.00	4.80	5.49	10.29	111.89

Analysis Results
Scenario: Base
Steady State Analysis

Pumps @ 0.00 hr

Label	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
P-104 (Gorma	Off	192.75	522.29	0.00	0.00	1.00	0.00
P-105 (Ing-Dre	On	186.74	530.90	176.00	344.16	1.00	15.29

Tanks @ 0.00 hr

Label	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
T-102	335.00	16.00	6.92	44.8	19,766.90	-0.00	0.00	Draining
T-103	323.00	4.00	1.73	3.4	1,520.53	-176.00	176.00	Draining
T-3003	329.00	9.21	3.98	91.8	179.14	176.00	-176.00	Filling

Detailed Report for FCV: FCV-3

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,860.15 ft	Upstream Pipe	P-50
Y	9,932.96 ft	Downstream Pipe	P-51
Elevation	315.00 ft	Diameter	3.00 in
Minor Loss Coefficient	0.00		

Initial Status			
Initial Valve Status	Closed	Initial Flow Setting	176.00 gpm

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Condition		Manufacturer	
Model		Serial Number	
Metered	false	Motorized	false
Clockwise to Close	false	Normally Closed	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	From HGL (ft)	To HGL (ft)	Discharge (gpm)	Velocity (ft/s)	Headloss (ft)	Calculated Flow Setting (gpm)
0.00	Closed	335.00	193.02	0.00	0.00	0.00	0.00

Detailed Report for FCV: FCV-4

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,778.51 ft	Upstream Pipe	P-52
Y	9,932.96 ft	Downstream Pipe	P-53
Elevation	315.00 ft	Diameter	3.00 in
Minor Loss Coefficient	0.00		

Initial Status			
Initial Valve Status	Active	Initial Flow Setting	176.00 gpm

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Condition		Manufacturer	
Model		Serial Number	
Metered	false	Motorized	false
Clockwise to Close	false	Normally Closed	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	From HGL (ft)	To HGL (ft)	Discharge (gpm)	Velocity (ft/s)	Headloss (ft)	Calculated Flow Setting (gpm)
0.00	Throttling	319.88	197.56	176.00	7.99	122.32	176.00

Detailed Report for Pressure Junction: J-10

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,940.34 ft	Elevation	338.75 ft
Y	9,860.05 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	339.29	0.24	0.54	0.00

Detailed Report for Pressure Junction: J-13

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,821.06 ft	Elevation	320.00 ft
Y	10,009.13 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	522.29	87.52	202.29	0.00

Detailed Report for Pressure Junction: J-20

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,820.79 ft	Elevation	320.00 ft
Y	9,932.81 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	193.02	-54.94	-126.98	0.00

Detailed Report for Pressure Junction: J-21

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,820.57 ft	Elevation	320.00 ft
Y	9,974.90 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	192.75	-55.06	-127.25	0.00

Detailed Report for Pressure Junction: J-22

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,958.59 ft	Elevation	321.00 ft
Y	9,859.87 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	358.86	16.38	37.86	0.00

Detailed Report for Pressure Junction: Meter Station

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,882.83 ft	Elevation	321.00 ft
Y	10,033.21 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	507.95	80.88	186.95	0.00

Detailed Report for Pressure Junction: MH #1

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,065.16 ft	Elevation	321.00 ft
Y	9,978.35 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	428.51	46.51	107.51	0.00

Detailed Report for Pressure Junction: MH #2

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,064.83 ft	Elevation	321.00 ft
Y	9,859.73 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	377.58	24.48	56.58	0.00

Detailed Report for Pressure Junction: MH #3

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,977.01 ft	Elevation	321.00 ft
Y	9,859.84 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	365.37	19.19	44.37	0.00

Detailed Report for Pressure Junction: MH #4

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,065.18 ft	Elevation	321.00 ft
Y	10,033.18 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	471.74	65.22	150.74	0.00

Detailed Report for Pressure Junction: MH #5

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,932.95 ft	Elevation	321.00 ft
Y	10,033.21 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	491.02	73.56	170.02	0.00

Detailed Report for Pressure Pipe: P-3

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	2.86 in	Minor Loss Coefficient	0.37
Check Valve?	false	Length	66.00 ft
From Node	MH #2	To Node	MH #3

Elevations			
From Elevation	321.00 ft	To Elevation	321.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	176.00	8.79	377.58	365.37	11.77	0.44	12.22	185.11

Detailed Report for Pressure Pipe: P-4

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	2.86 in	Minor Loss Coefficient	0.35
Check Valve?	false	Length	240.00 ft
From Node	MH #4	To Node	MH #1

Elevations			
From Elevation	321.00 ft	To Elevation	321.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	176.00	8.79	471.74	428.51	42.81	0.42	43.23	180.13

Detailed Report for Pressure Pipe: P-5

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	2.86 in	Minor Loss Coefficient	0.37
Check Valve?	false	Length	283.00 ft
From Node	MH #1	To Node	MH #2

Elevations			
From Elevation	321.00 ft	To Elevation	321.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	176.00	8.79	428.51	377.58	50.48	0.44	50.93	179.95

Detailed Report for Pressure Pipe: P-8

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	3.68 in	Minor Loss Coefficient	0.37
Check Valve?	false	Length	366.00 ft
From Node	MH #5	To Node	MH #4

Elevations			
From Elevation	321.00 ft	To Elevation	321.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	176.00	5.31	491.02	471.74	19.12	0.16	19.28	52.69

Detailed Report for Pressure Pipe: P-10

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	3.68 in	Minor Loss Coefficient	0.35
Check Valve?	false	Length	321.00 ft
From Node	Meter Station	To Node	MH #5

Elevations			
From Elevation	321.00 ft	To Elevation	321.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	176.00	5.31	507.95	491.02	16.77	0.15	16.92	52.72

Detailed Report for Pressure Pipe: P-16

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	7.69
Check Valve?	false	Length	7.00 ft
From Node	P-105 (Ing-Dresser)	To Node	J-13

Elevations			
From Elevation	320.60 ft	To Elevation	320.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	176.00	7.99	530.90	522.29	0.98	7.63	8.61	1,229.82

Detailed Report for Pressure Pipe: P-17

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	3.63 in	Minor Loss Coefficient	9.52
Check Valve?	false	Length	178.00 ft
From Node	J-13	To Node	Meter Station

Elevations			
From Elevation	320.00 ft	To Elevation	321.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	176.00	5.46	522.29	507.95	9.94	4.40	14.34	80.57

Detailed Report for Pressure Pipe: P-18

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	6.78
Check Valve?	false	Length	11.00 ft
From Node	P-104 (Gorman-Rupp)	To Node	J-13

Elevations			
From Elevation	320.60 ft	To Elevation	320.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	-0.00	0.00	522.29	522.29	-0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-47

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	2.86 in	Minor Loss Coefficient	2.78
Check Valve?	false	Length	15.00 ft
From Node	J-21	To Node	P-105 (Ing-Dresser)

Elevations			
From Elevation	320.00 ft	To Elevation	320.60 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	176.00	8.79	192.75	186.74	2.67	3.34	6.01	400.70

Detailed Report for Pressure Pipe: P-48

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	2.86 in	Minor Loss Coefficient	2.78
Check Valve?	false	Length	15.00 ft
From Node	J-21	To Node	P-104 (Gorman-Rupp)

Elevations			
From Elevation	320.00 ft	To Elevation	320.60 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	-0.00	0.00	192.75	192.75	-0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-49

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	6.00 in	Minor Loss Coefficient	1.63
Check Valve?	false	Length	35.00 ft
From Node	J-21	To Node	J-20

Elevations			
From Elevation	320.00 ft	To Elevation	320.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	-176.00	2.00	192.75	193.02	0.17	0.10	0.27	7.71

Detailed Report for Pressure Pipe: P-50

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	2.44
Check Valve?	false	Length	6.00 ft
From Node	T-102	To Node	FCV-3

Elevations			
From Elevation	319.00 ft	To Elevation	315.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	335.00	335.00	-0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-51

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	2.44
Check Valve?	false	Length	14.00 ft
From Node	FCV-3	To Node	J-20

Elevations			
From Elevation	315.00 ft	To Elevation	320.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.00	193.02	193.02	-0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-52

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	2.44
Check Valve?	false	Length	5.00 ft
From Node	T-103	To Node	FCV-4

Elevations			
From Elevation	319.00 ft	To Elevation	315.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	176.00	7.99	323.00	319.88	0.70	2.42	3.12	624.84

Detailed Report for Pressure Pipe: P-53

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	2.44
Check Valve?	false	Length	15.00 ft
From Node	FCV-4	To Node	J-20

Elevations			
From Elevation	315.00 ft	To Elevation	320.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	176.00	7.99	197.56	193.02	2.12	2.42	4.54	302.50

Detailed Report for Pressure Pipe: P-54

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	2.85 in	Minor Loss Coefficient	3.11
Check Valve?	false	Length	15.00 ft
From Node	MH #3	To Node	J-22

Elevations			
From Elevation	321.00 ft	To Elevation	321.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	176.00	8.85	365.37	358.86	2.72	3.79	6.50	433.66

Detailed Report for Pressure Pipe: P-55

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	3.63 in	Minor Loss Coefficient	14.42
Check Valve?	true	Length	231.00 ft
From Node	J-22	To Node	J-10

Elevations			
From Elevation	321.00 ft	To Elevation	338.75 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	176.00	5.46	358.86	339.29	12.89	6.67	19.57	84.70

Detailed Report for Pressure Pipe: P-58

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	3.68 in	Minor Loss Coefficient	12.54
Check Valve?	false	Length	92.00 ft
From Node	J-10	To Node	T-3003

Elevations			
From Elevation	338.75 ft	To Elevation	319.79 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	176.00	5.31	339.29	329.00	4.80	5.49	10.29	111.89

Detailed Report for Pump: P-104 (Gorman-Rupp)

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,832.12 ft	Upstream Pipe	P-48
Y	9,987.36 ft	Downstream Pipe	P-18
Elevation	320.60 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	88.00 ft	Shutoff Discharge	0.00 gpm
Design Head	70.00 ft	Design Discharge	175.00 gpm
Maximum Operating Head	50.00 ft	Maximum Operating Discharge	425.00 gpm

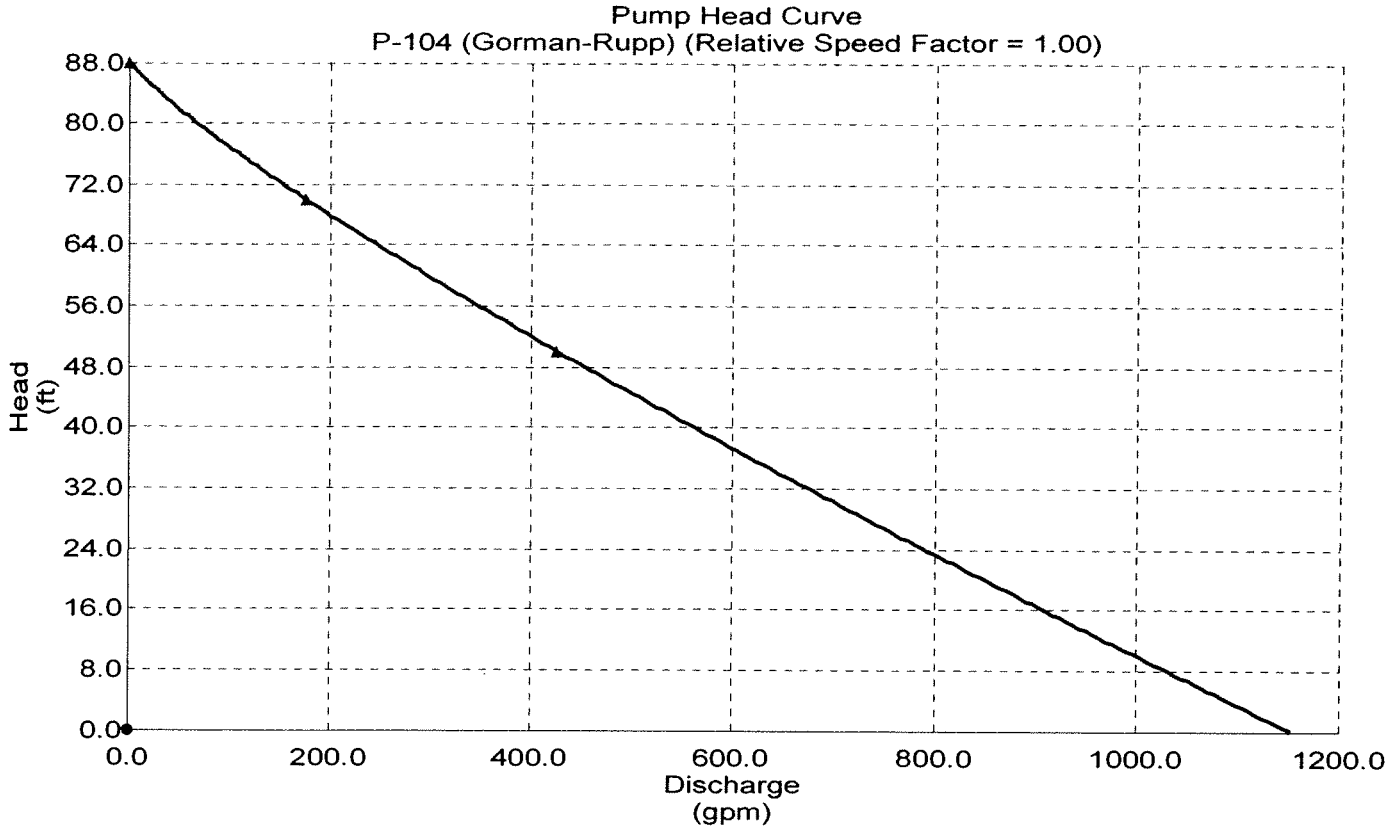
Initial Status			
Initial Pump Status	Off	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	Off	192.75	522.29	0.00	0.00	1.00	0.00

Detailed Report for Pump: P-104 (Gorman-Rupp)



Detailed Report for Pump: P-105 (Ing-Dresser)

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,809.86 ft	Upstream Pipe	P-47
Y	9,988.38 ft	Downstream Pipe	P-16
Elevation	320.60 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	370.00 ft	Shutoff Discharge	0.00 gpm
Design Head	350.00 ft	Design Discharge	160.00 gpm
Maximum Operating Head	280.00 ft	Maximum Operating Discharge	280.00 gpm

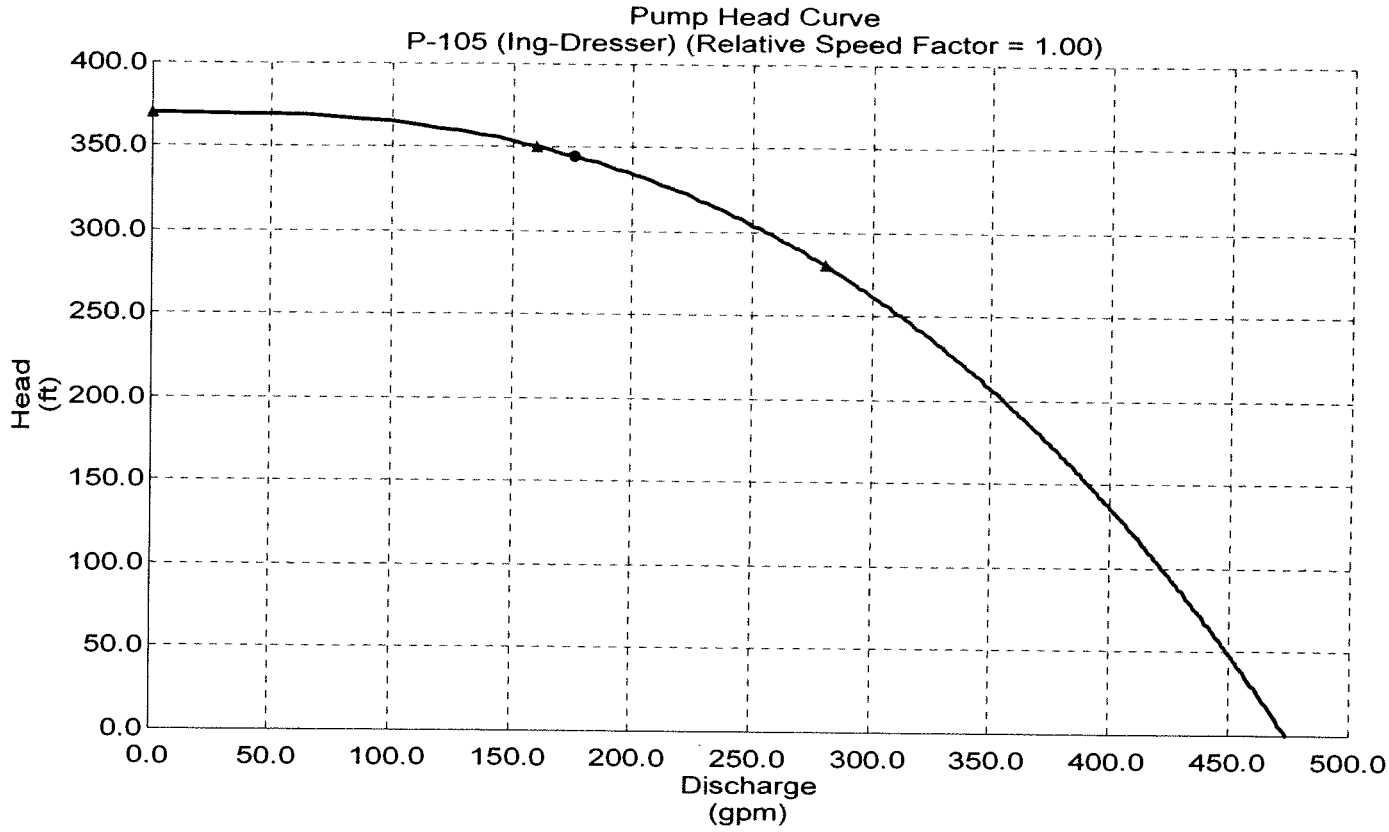
Initial Status			
Initial Pump Status	On	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	On	186.74	530.90	176.00	344.16	1.00	15.29

Detailed Report for Pump: P-105 (Ing-Dresser)



Detailed Report for Tank: T-102

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,860.53 ft	Elevation	319.00 ft
Y	9,915.91 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

Operating Range Summary			
Maximum Elevation	351.00 ft	Maximum Level	32.00 ft
Initial HGL	335.00 ft	Initial Level	16.00 ft
Minimum Elevation	322.00 ft	Minimum Level	3.00 ft
Base Elevation	319.00 ft		

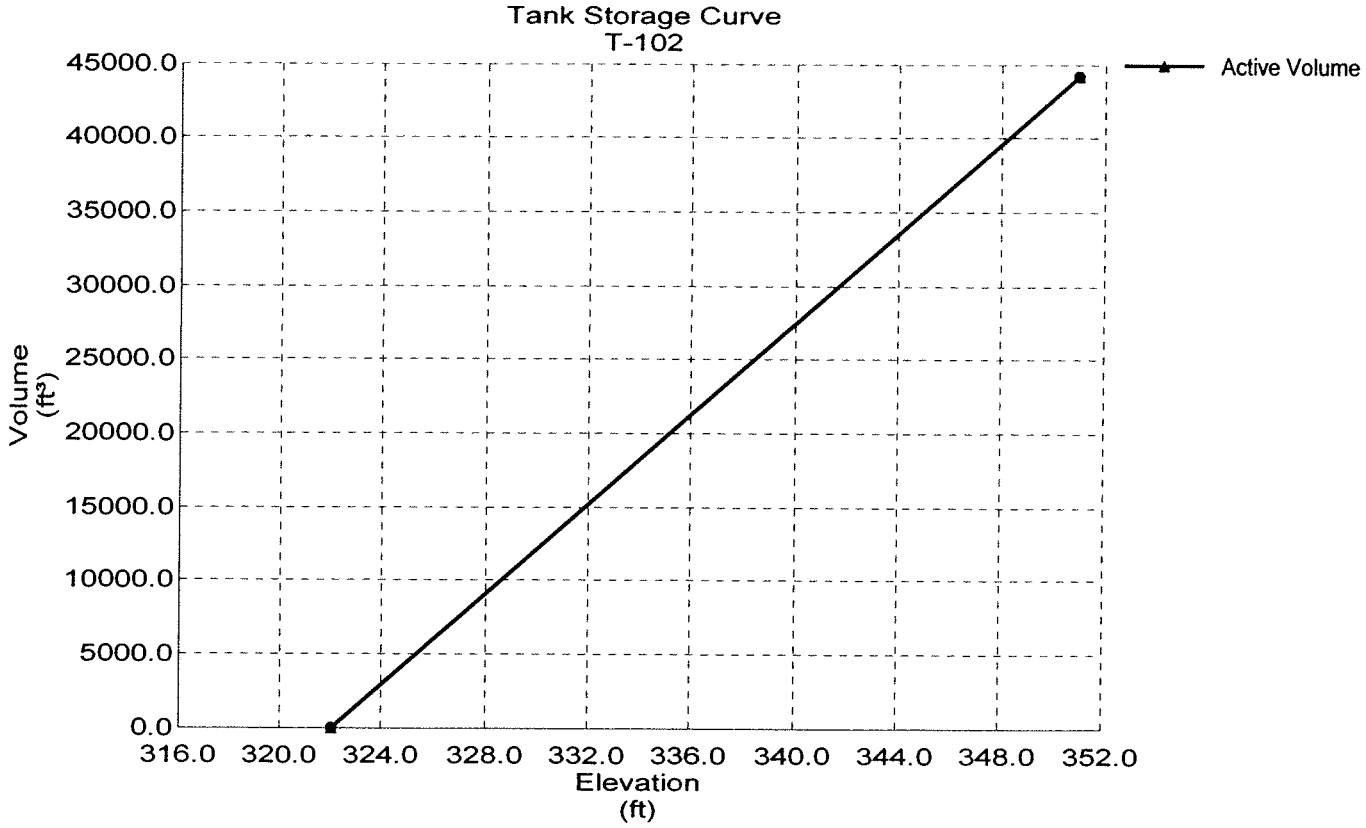
Storage			
Section Type	Constant Area	Circular Tank Shape?	true
Diameter	44.00 ft	Average Area	1,520.5 ft²
Inactive Volume	0.00 ft³	Total Active Volume	44,095.39 ft³

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Lining		Condition	
Metered	false	Clearwell Storage	false
Elevated Tank	false	Existing	false

Detailed Report for Tank: T-102

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
0.00	335.00	16.00	6.92	44.8	19,766.90	-0.00	0.00	Draining



Detailed Report for Tank: T-103

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,778.78 ft	Elevation	319.00 ft
Y	9,917.16 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

Operating Range Summary			
Maximum Elevation	351.00 ft	Maximum Level	32.00 ft
Initial HGL	323.00 ft	Initial Level	4.00 ft
Minimum Elevation	322.00 ft	Minimum Level	3.00 ft
Base Elevation	319.00 ft		

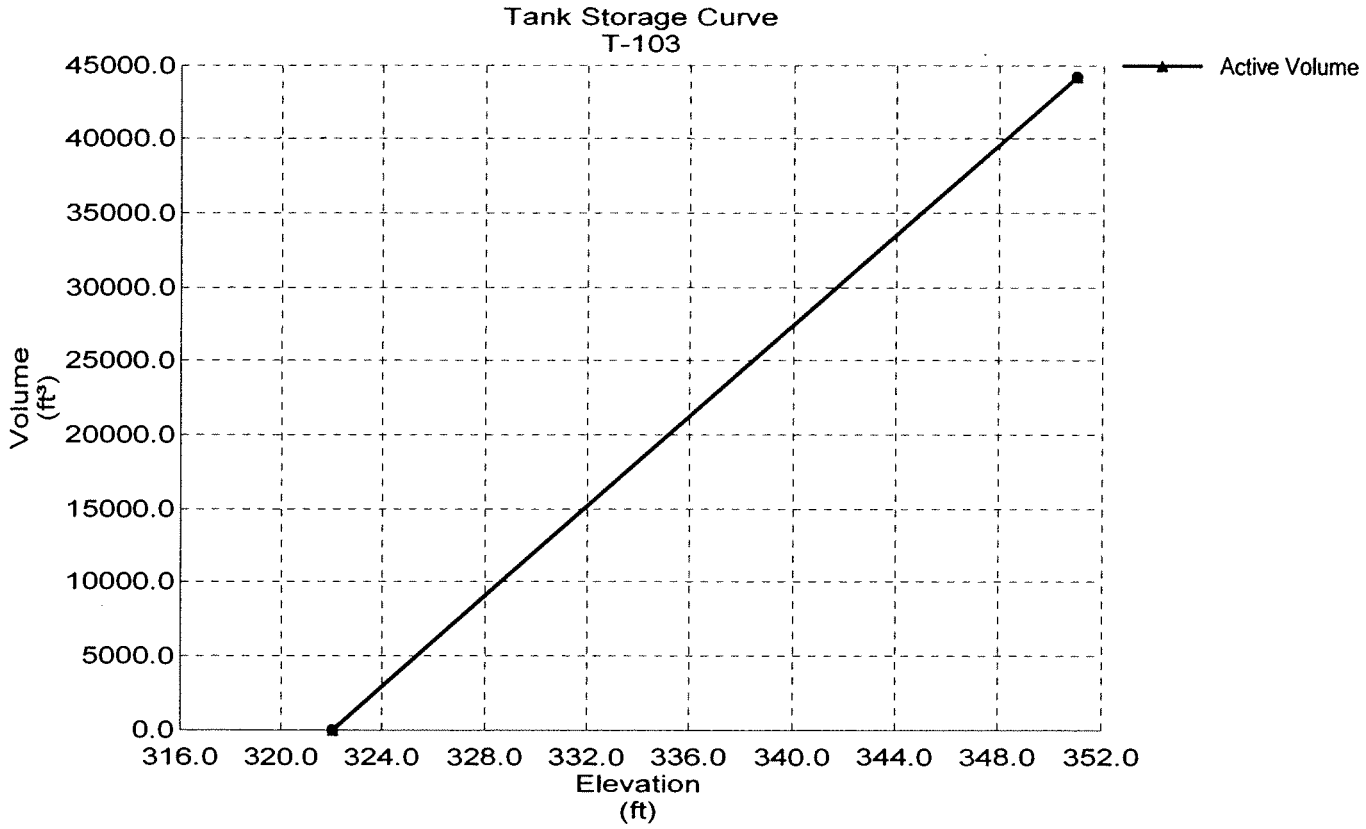
Storage			
Section Type	Constant Area	Circular Tank Shape?	true
Diameter	44.00 ft	Average Area	1,520.5 ft²
Inactive Volume	0.00 ft³	Total Active Volume	44,095.39 ft³

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Lining		Condition	
Metered	false	Clearwell Storage	false
Elevated Tank	false	Existing	false

Detailed Report for Tank: T-103

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
0.00	323.00	4.00	1.73	3.4	1,520.53	-176.00	176.00	Draining



Detailed Report for Tank: T-3003

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,821.47 ft	Elevation	319.79 ft
Y	9,838.27 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

Operating Range Summary			
Maximum Elevation	329.67 ft	Maximum Level	9.88 ft
Initial HGL	329.00 ft	Initial Level	9.21 ft
Minimum Elevation	321.46 ft	Minimum Level	1.67 ft
Base Elevation	319.79 ft		

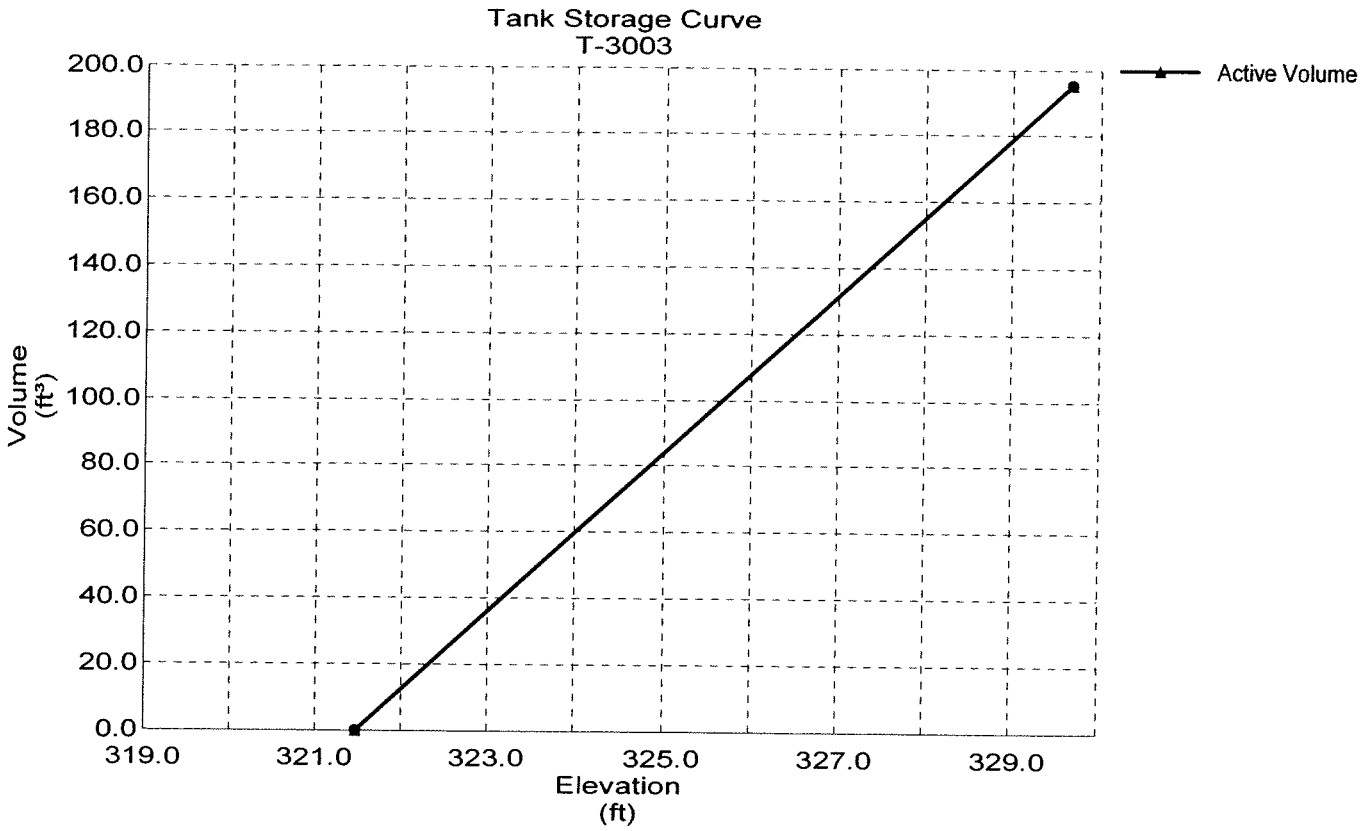
Storage			
Section Type	Constant Area	Circular Tank Shape?	true
Diameter	5.50 ft	Average Area	23.8 ft^2
Inactive Volume	0.00 ft^3	Total Active Volume	195.06 ft^3

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Lining		Condition	
Metered	false	Clearwell Storage	false
Elevated Tank	false	Existing	false

Detailed Report for Tank: T-3003

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
0.00	329.00	9.21	3.98	91.8	179.14	176.00	-176.00	Filling



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ARCADIS

Attachment 5

Carbon Feed Tank (T-3003) to
Leachate Tank T-58

ARCADIS
Infrastructure, environment, buildings

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B0023726

Subject: Carbon Feed Tank (T-3003) to Leachate Tank T-58

Prepared By: BMS/PTO **Date:** March 2009

Reviewed By: BMS **Date:** March 2009

Checked By: PHB **Date:** March 2009

TASK:

Verify that the required flow rate (227 gallons per minute [gpm]) from carbon feed tank T-3003 to leachate tank T-58 will be achieved.

REFERENCES

1. *Leachate Level Compliance Plan For Residuals Management Unit One*, prepared by Golder Associates, dated February, 1997.
2. *Leachate Level Compliance Plan for Residuals Management Unit – One, Final Sequence Phase 1,* prepared by ARCADIS, dated December, 2007.
3. *Engineering Report for CWM Chemical Services, LLC Model City Facility, Residuals Management Unit 1*, Earth Tech.
4. WaterCAD for Windows, Version 5.0, pressure network analysis software, Haestad Methods, Inc.
5. *Leachate Level Compliance Plan Pump Flow Rate Verification Report for Pumps P-105 and P-3002A*, CWM Chemical Services, LLC, October, 2001.

ASSUMPTIONS

1. The system runs in series from tank T-3003 through the carbon adsorption system (i.e., through tank T-3007 then through tank T-3008).
2. The analysis assumes the use of an Ingersoll-Dresser HOC3+ variable speed pump. At 3,500 rpm, the pump is rated at 250 gpm at 305 feet of total dynamic head.

METHODOLOGY

Information used in previous LLCP evaluations relating to the AWTS facility was verified, modified where necessary, and input into the WaterCAD model for evaluation. This information includes manufacturer pump data; pipe lengths, sizes and types; number and type of fittings; and other relevant components that could potentially affect the performance of the system. WaterCAD output includes flow rates, velocities and headloss through each pump or pipe section.

Calculation Sheet

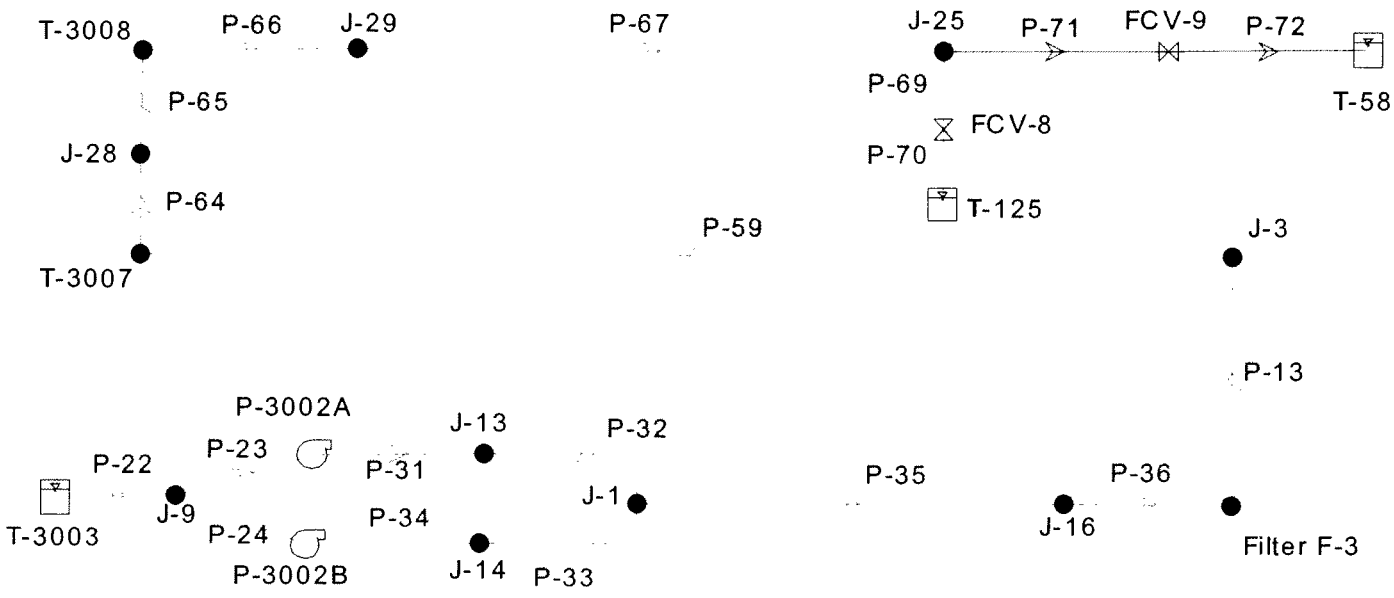
SUMMARY:

A summary of the calculations is presented in the following table.

Pump Type	Nominal Flow Rate [gpm]	Evaluated Flow Rate (with Flow Control) [gpm]	Pump Condition (On/Off)	Head at Pump [ft]	Total Evaluated Flow to Tank T-58 [gpm]
Ingersoll-Dresser HOC3+	250 at 305 feet TDH	227	On	243	227

Scenario: Base

System Runs In Series Through Tank 3007 Then Through Tank 3008



Color Coding Legend
Link: Velocity (ft/s)

<=	4.000
<=	6.000
<=	8.000
<=	10.000
<=	12.000

Analysis Results
Scenario: Base
Steady State Analysis

Title: CWM: RMU-1 Leachate System Evaluation
Project Engineer: ARCADIS
Project Date: 03/11/09
Comments:

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Liquid Characteristics			
Liquid	Water at 20C(68F)	Specific Gravity	1.00
Kinematic Viscosity	1.0804e-5 ft²/s		

Network Inventory			
Pressure Pipes	19	Number of Tanks	3
Number of Reservoirs	0	- Constant Area:	3
Number of Pressure Junctions	12	- Variable Area:	0
Number of Pumps	2	Number of Valves	2
- Constant Power:	0	- FCV's:	2
- One Point (Design Point):	0	- PBV's:	0
- Standard (3 Point):	2	- PRV's:	0
- Standard Extended:	0	- PSV's:	0
- Custom Extended:	0	- TCV's:	0
- Multiple Point:	0	- GPV's:	0
Number of Spot Elevations	0		

Pressure Pipes Inventory			
2.00 in	2.00 ft	3.00 in	308.00 ft
2.86 in	20.00 ft	3.68 in	703.00 ft
Total Length	1,033.00 ft		

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Analysis Results
Scenario: Base
Steady State Analysis

FCVs @ 0.00 hr

Label	Control Status	From HGL (ft)	To HGL (ft)	Discharge (gpm)	Velocity (ft/s)	Headloss (ft)	Calculated Flow Setting (gpm)
FCV-8	Closed	394.83	320.00	0.00	0.000	0.00	0.00
FCV-9	Inactive	332.08	332.08	227.43	2.581	0.00	0.00

Pressure Junctions @ 0.00 hr

Label	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
Filter F-3	492.97	213.29	492.97	0.00
J-1	545.05	235.82	545.05	0.00
J-3	489.40	211.74	489.40	0.00
J-9	311.44	134.75	311.44	0.00
J-13	550.01	237.96	550.01	0.00
J-14	545.05	235.82	545.05	0.00
J-16	502.31	217.33	502.31	0.00
J-25	394.83	170.82	394.83	0.00
J-28	457.13	197.78	457.13	0.00
J-29	419.42	181.46	419.42	0.00
T-3007	473.90	205.03	473.90	0.00
T-3008	436.19	188.72	436.19	0.00

Pressure Pipes @ 0.00 hr

Label	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
P-13	Open	-227.43	10.323	489.40	492.97	0.22	3.34	3.57	3,569.09
P-22	Open	227.43	10.323	322.00	311.44	5.90	4.65	10.56	406.01
P-23	Open	227.43	10.323	311.44	307.72	0.91	2.82	3.72	930.33
P-24	Open	-0.00	0.000	311.44	311.44	-0.00	0.00	0.00	0.00
P-31	Open	227.43	10.323	550.68	550.01	0.45	0.22	0.67	334.75
P-32	Open	227.43	11.358	550.01	545.05	2.29	2.67	4.96	619.75
P-33	Open	0.00	0.000	545.05	545.05	-0.00	0.00	0.00	0.00
P-34	Open	0.00	0.000	545.05	545.05	-0.00	0.00	0.00	0.00
P-35	Open	227.43	10.323	545.05	502.31	6.56	36.18	42.74	1,473.70
P-36	Open	227.43	10.323	502.31	492.97	0.45	8.89	9.34	4,669.22
P-59	Open	227.43	10.323	489.40	473.90	7.49	8.01	15.51	469.85
P-64	Open	227.43	10.323	473.90	457.13	0.21	16.56	16.77	16,771.06
P-65	Open	227.43	10.323	457.13	436.19	7.03	13.91	20.94	675.50
P-66	Open	227.43	10.323	436.19	419.42	0.21	16.56	16.77	16,771.03
P-67	Open	227.43	10.323	419.42	394.83	13.62	10.96	24.58	409.74
P-69	Open	0.00	0.000	394.83	394.83	0.00	0.00	0.00	0.00
P-70	Open	0.00	0.000	320.00	320.00	0.00	0.00	0.00	0.00
P-71	Open	227.43	6.860	394.83	332.08	58.96	3.79	62.75	89.38
P-72	Open	227.43	6.860	332.08	332.00	0.08	0.00	0.08	83.98

Analysis Results
Scenario: Base
Steady State Analysis

Pumps @ 0.00 hr

Label	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
P-3002A	On	307.72	550.68	227.43	242.95	0.90	13.95
P-3002B	Off	311.44	545.05	0.00	0.00	1.00	0.00

Tanks @ 0.00 hr

Label	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
T-58	332.00	12.50	5.41	98.2	55,292.03	227.43	-227.43	Filling
T-125	320.00	0.00	0.00	0.0	0.00	0.00	0.00	Empty
T-3003	322.00	2.21	0.96	6.6	12.83	-227.43	227.43	Draining

Detailed Report for FCV: FCV-8

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,068.19 ft	Upstream Pipe	P-69
Y	10,110.58 ft	Downstream Pipe	P-70
Elevation	0.00 ft	Diameter	6.00 in
Minor Loss Coefficient	0.00		

Initial Status			
Initial Valve Status	Closed	Initial Flow Setting	0.00 gpm

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Condition		Manufacturer	
Model		Serial Number	
Metered	false	Motorized	false
Clockwise to Close	false	Normally Closed	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	From HGL (ft)	To HGL (ft)	Discharge (gpm)	Velocity (ft/s)	Headloss (ft)	Calculated Flow Setting (gpm)
0.00	Closed	394.83	320.00	0.00	0.000	0.00	0.00

Detailed Report for FCV: FCV-9

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,114.42 ft	Upstream Pipe	P-71
Y	10,126.46 ft	Downstream Pipe	P-72
Elevation	0.00 ft	Diameter	6.00 in
Minor Loss Coefficient	0.00		

Initial Status			
Initial Valve Status	Inactive	Initial Flow Setting	0.00 gpm

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Condition		Manufacturer	
Model		Serial Number	
Metered	false	Motorized	false
Clockwise to Close	false	Normally Closed	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	From HGL (ft)	To HGL (ft)	Discharge (gpm)	Velocity (ft/s)	Headloss (ft)	Calculated Flow Setting (gpm)
0.00	Inactive	332.08	332.08	227.43	2.581	0.00	0.00

Detailed Report for Pressure Junction: Filter F-3

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,127.60 ft	Elevation	0.00 ft
Y	10,033.21 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	492.97	213.29	492.97	0.00

Detailed Report for Pressure Junction: J-1

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,005.59 ft	Elevation	0.00 ft
Y	10,033.66 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	545.05	235.82	545.05	0.00

Detailed Report for Pressure Junction: J-3

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,127.80 ft	Elevation	0.00 ft
Y	10,084.32 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	489.40	211.74	489.40	0.00

Detailed Report for Pressure Junction: J-9

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,910.75 ft	Elevation	0.00 ft
Y	10,035.08 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	311.44	134.75	311.44	0.00

Detailed Report for Pressure Junction: J-13

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,973.94 ft	Elevation	0.00 ft
Y	10,043.76 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	550.01	237.96	550.01	0.00

Detailed Report for Pressure Junction: J-14

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,973.37 ft	Elevation	0.00 ft
Y	10,025.17 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	545.05	235.82	545.05	0.00

Detailed Report for Pressure Junction: J-16

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,093.35 ft	Elevation	0.00 ft
Y	10,033.62 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	502.31	217.33	502.31	0.00

Detailed Report for Pressure Junction: J-25

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,068.12 ft	Elevation	0.00 ft
Y	10,126.35 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	394.83	170.82	394.83	0.00

Detailed Report for Pressure Junction: J-28

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,903.16 ft	Elevation	0.00 ft
Y	10,105.06 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	457.13	197.78	457.13	0.00

Detailed Report for Pressure Junction: J-29

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,947.81 ft	Elevation	0.00 ft
Y	10,126.75 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	419.42	181.46	419.42	0.00

Detailed Report for Pressure Pipe: P-13

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	2.02
Check Valve?	false	Length	1.00 ft
From Node	J-3	To Node	Filter F-3

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	-227.43	10.323	489.40	492.97	0.22	3.34	3.57	3,569.09

Detailed Report for Pressure Pipe: P-22

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	2.81
Check Valve?	false	Length	26.00 ft
From Node	T-3003	To Node	J-9

Elevations			
From Elevation	319.79 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.43	10.323	322.00	311.44	5.90	4.65	10.56	406.01

Detailed Report for Pressure Pipe: P-23

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	1.70
Check Valve?	false	Length	4.00 ft
From Node	J-9	To Node	P-3002A

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.43	10.323	311.44	307.72	0.91	2.82	3.72	930.33

Detailed Report for Pressure Pipe: P-24

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	2.41
Check Valve?	false	Length	4.00 ft
From Node	J-9	To Node	P-3002B

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	-0.00	0.000	311.44	311.44	-0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-31

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	0.13
Check Valve?	false	Length	2.00 ft
From Node	P-3002A	To Node	J-13

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.43	10.323	550.68	550.01	0.45	0.22	0.67	334.75

Detailed Report for Pressure Pipe: P-32

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	2.86 in	Minor Loss Coefficient	1.33
Check Valve?	false	Length	8.00 ft
From Node	J-13	To Node	J-1

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.43	11.358	550.01	545.05	2.29	2.67	4.96	619.75

Detailed Report for Pressure Pipe: P-33

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	2.86 in	Minor Loss Coefficient	1.33
Check Valve?	false	Length	12.00 ft
From Node	J-1	To Node	J-14

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.000	545.05	545.05	-0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-34

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	2.00 in	Minor Loss Coefficient	0.13
Check Valve?	false	Length	2.00 ft
From Node	J-14	To Node	P-3002B

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.000	545.05	545.05	-0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-35

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	21.85
Check Valve?	false	Length	29.00 ft
From Node	J-1	To Node	J-16

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.43	10.323	545.05	502.31	6.56	36.18	42.74	1,473.70

Detailed Report for Pressure Pipe: P-36

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	5.37
Check Valve?	false	Length	2.00 ft
From Node	J-16	To Node	Filter F-3

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.43	10.323	502.31	492.97	0.45	8.89	9.34	4,669.22

Detailed Report for Pressure Pipe: P-59

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	4.84
Check Valve?	false	Length	33.00 ft
From Node	J-3	To Node	T-3007

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.43	10.323	489.40	473.90	7.49	8.01	15.51	469.85

Detailed Report for Pressure Pipe: P-64

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	10.00
Check Valve?	false	Length	1.00 ft
From Node	T-3007	To Node	J-28

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.43	10.323	473.90	457.13	0.21	16.56	16.77	16,771.06

Detailed Report for Pressure Pipe: P-65

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	8.40
Check Valve?	false	Length	31.00 ft
From Node	J-28	To Node	T-3008

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.43	10.323	457.13	436.19	7.03	13.91	20.94	675.50

Detailed Report for Pressure Pipe: P-66

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	10.00
Check Valve?	false	Length	1.00 ft
From Node	T-3008	To Node	J-29

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.43	10.323	436.19	419.42	0.21	16.56	16.77	16,771.03

Detailed Report for Pressure Pipe: P-67

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	6.62
Check Valve?	false	Length	60.00 ft
From Node	J-29	To Node	J-25

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.43	10.323	419.42	394.83	13.62	10.96	24.58	409.74

Detailed Report for Pressure Pipe: P-69

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	3.33
Check Valve?	false	Length	113.00 ft
From Node	J-25	To Node	FCV-8

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.000	394.83	394.83	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-70

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	FCV-8	To Node	T-125

Elevations			
From Elevation	0.00 ft	To Elevation	320.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.000	320.00	320.00	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-71

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	3.68 in	Minor Loss Coefficient	5.18
Check Valve?	false	Length	702.00 ft
From Node	J-25	To Node	FCV-9

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.43	6.860	394.83	332.08	58.96	3.79	62.75	89.38

Detailed Report for Pressure Pipe: P-72

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	3.68 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	FCV-9	To Node	T-58

Elevations			
From Elevation	0.00 ft	To Elevation	319.50 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.43	6.860	332.08	332.00	0.08	0.00	0.08	83.98

Detailed Report for Pump: P-3002A

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,938.56 ft	Upstream Pipe	P-23
Y	10,043.52 ft	Downstream Pipe	P-31
Elevation	0.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	370.00 ft	Shutoff Discharge	0.00 gpm
Design Head	350.00 ft	Design Discharge	160.00 gpm
Maximum Operating Head	280.00 ft	Maximum Operating Discharge	280.00 gpm

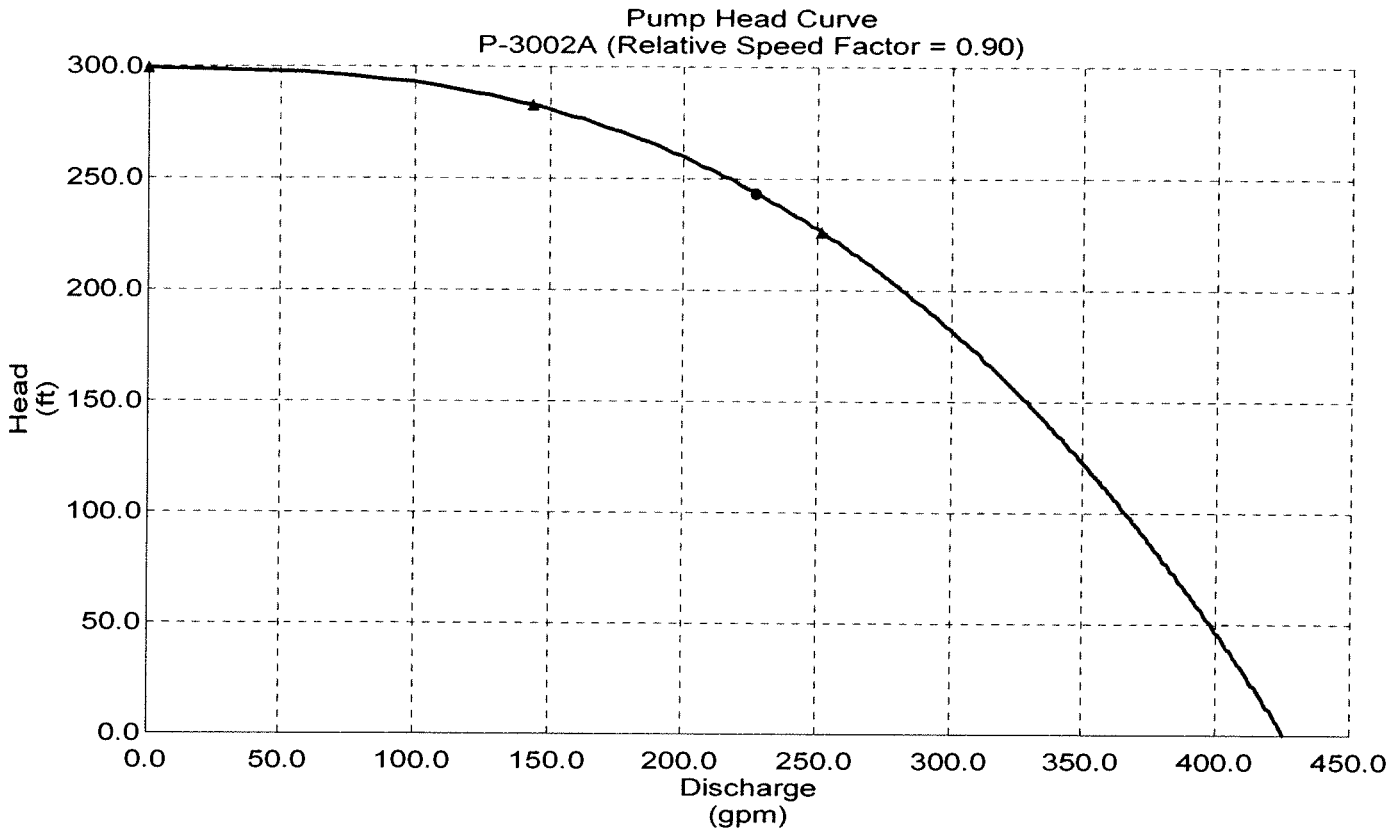
Initial Status			
Initial Pump Status	On	Initial Relative Speed Factor	0.90

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	On	307.72	550.68	227.43	242.95	0.90	13.95

Detailed Report for Pump: P-3002A



Detailed Report for Pump: P-3002B

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,937.28 ft	Upstream Pipe	P-24
Y	10,024.96 ft	Downstream Pipe	P-34
Elevation	0.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	200.00 ft	Shutoff Discharge	0.00 gpm
Design Head	122.00 ft	Design Discharge	200.00 gpm
Maximum Operating Head	100.00 ft	Maximum Operating Discharge	250.00 gpm

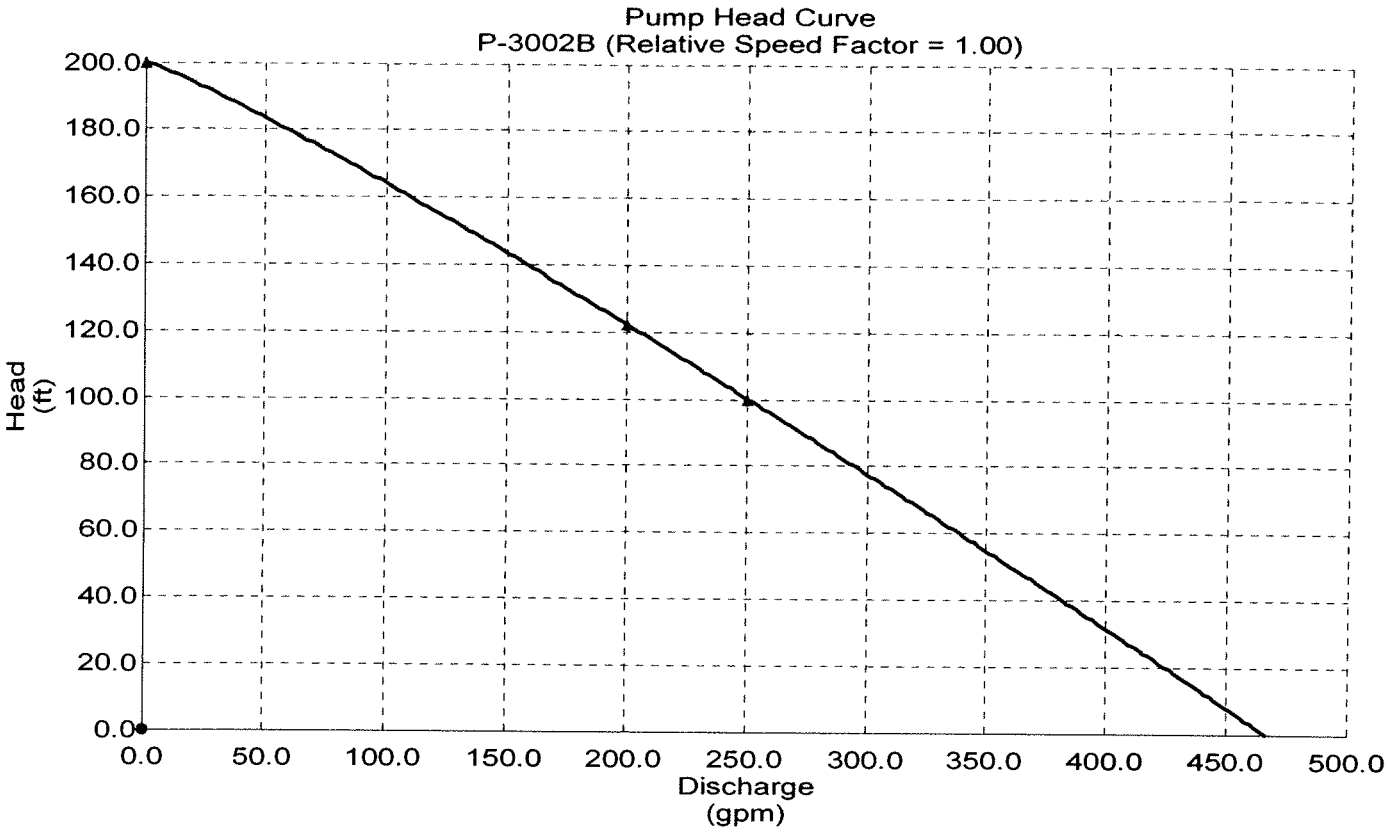
Initial Status			
Initial Pump Status	Off	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	Off	311.44	545.05	0.00	0.00	1.00	0.00

Detailed Report for Pump: P-3002B



Detailed Report for Tank: T-58

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,155.44 ft	Elevation	319.50 ft
Y	10,126.81 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

Operating Range Summary			
Maximum Elevation	332.20 ft	Maximum Level	12.70 ft
Initial HGL	332.00 ft	Initial Level	12.50 ft
Minimum Elevation	321.00 ft	Minimum Level	1.50 ft
Base Elevation	319.50 ft		

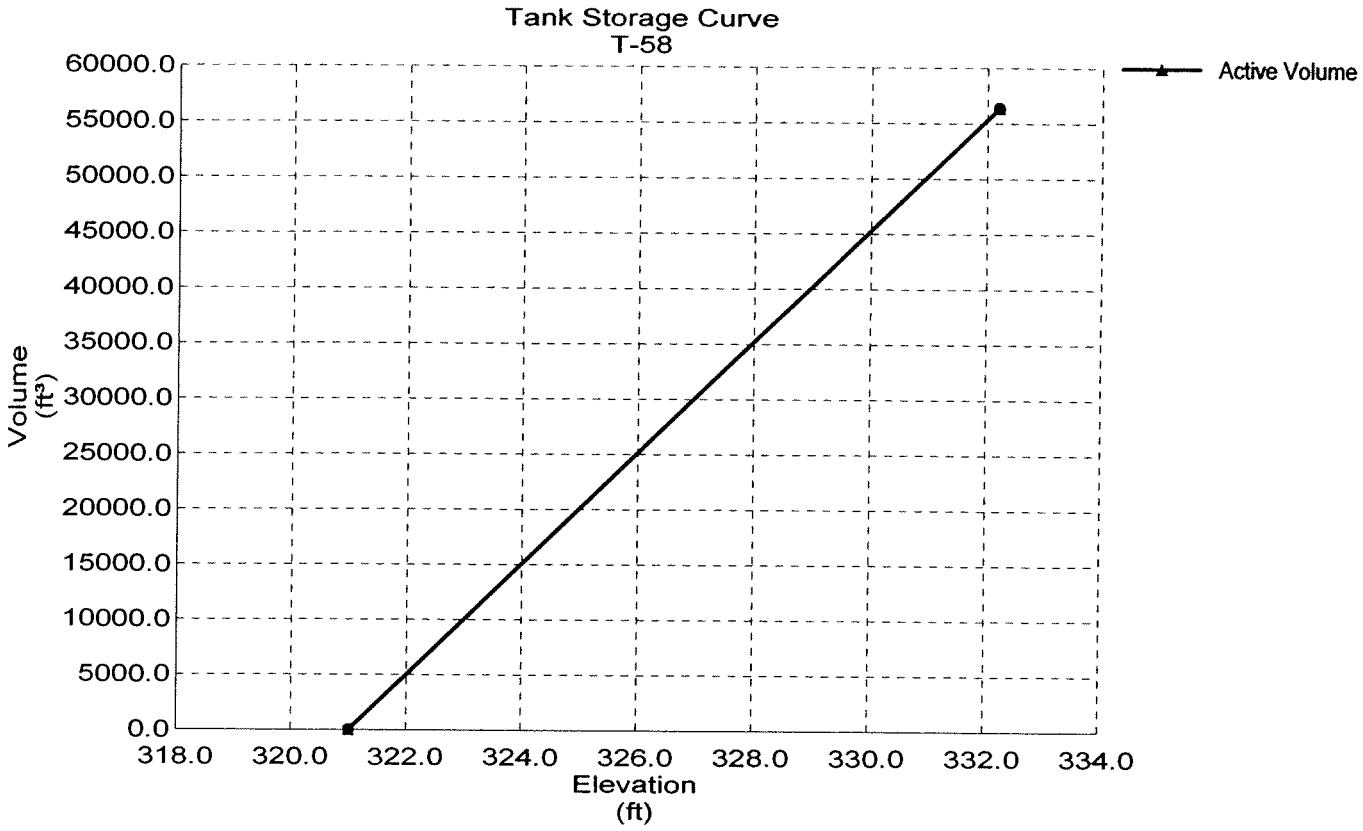
Storage			
Section Type	Constant Area	Circular Tank Shape?	true
Diameter	80.00 ft	Average Area	5,026.5 ft²
Inactive Volume	0.00 ft³	Total Active Volume	56,297.34 ft³

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Lining		Condition	
Metered	false	Clearwell Storage	false
Elevated Tank	false	Existing	false

Detailed Report for Tank: T-58

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
0.00	332.00	12.50	5.41	98.2	55,292.03	227.43	-227.43	Filling



Detailed Report for Tank: T-125

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,068.14 ft	Elevation	320.00 ft
Y	10,095.15 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

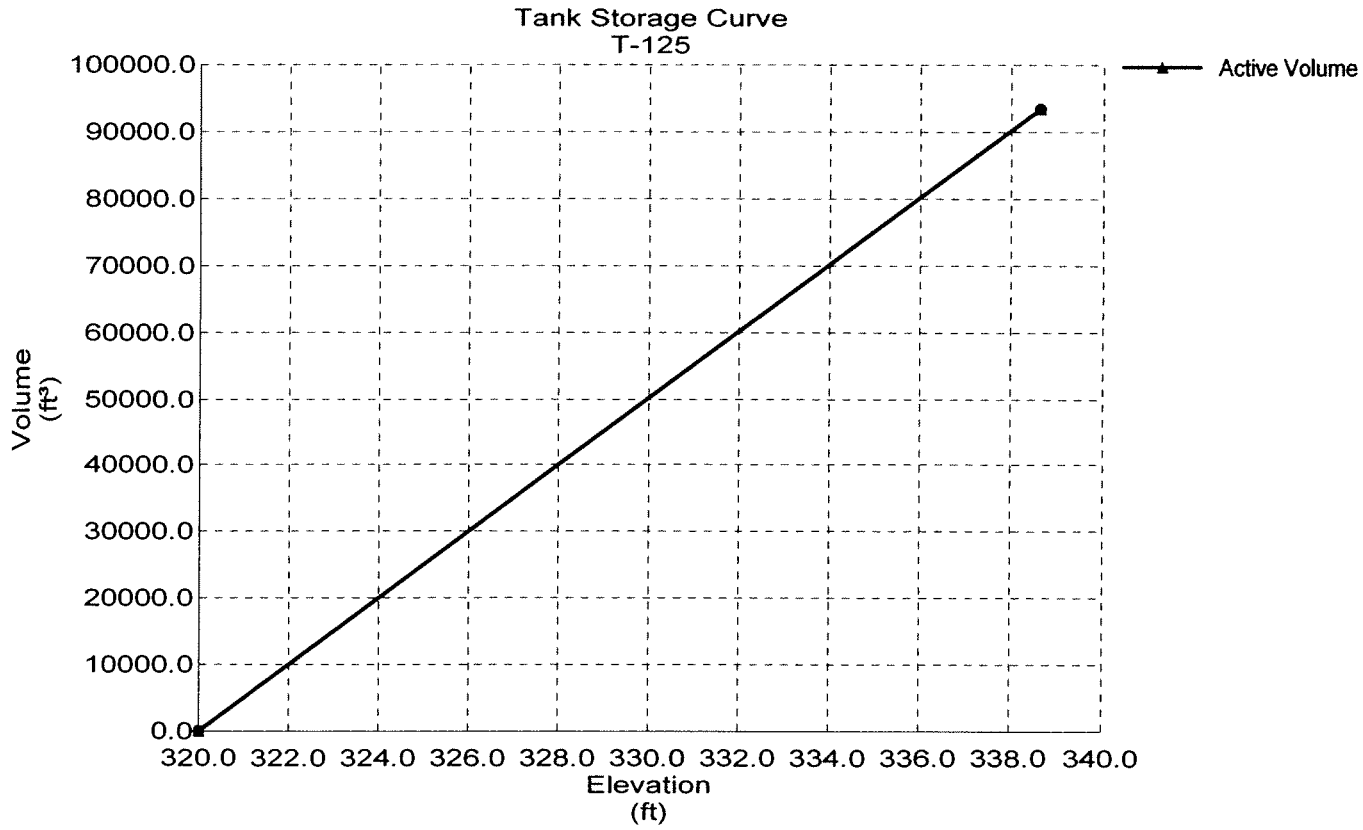
Operating Range Summary			
Maximum Elevation	338.60 ft	Maximum Level	18.60 ft
Initial HGL	320.00 ft	Initial Level	0.00 ft
Minimum Elevation	320.00 ft	Minimum Level	0.00 ft
Base Elevation	320.00 ft		

Storage			
Section Type	Constant Area	Circular Tank Shape?	true
Diameter	80.00 ft	Average Area	5,026.5 ft²
Inactive Volume	0.00 ft³	Total Active Volume	93,493.80 ft³

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Lining		Condition	
Metered	false	Clearwell Storage	false
Elevated Tank	false	Existing	false

Detailed Report for Tank: T-125

Calculated Results Summary								
Time (hr)	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
0.00	320.00	0.00	0.00	0.0	0.00	0.00	0.00	Empty



Detailed Report for Tank: T-3003

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,885.58 ft	Elevation	319.79 ft
Y	10,034.82 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

Operating Range Summary			
Maximum Elevation	329.67 ft	Maximum Level	9.88 ft
Initial HGL	322.00 ft	Initial Level	2.21 ft
Minimum Elevation	321.46 ft	Minimum Level	1.67 ft
Base Elevation	319.79 ft		

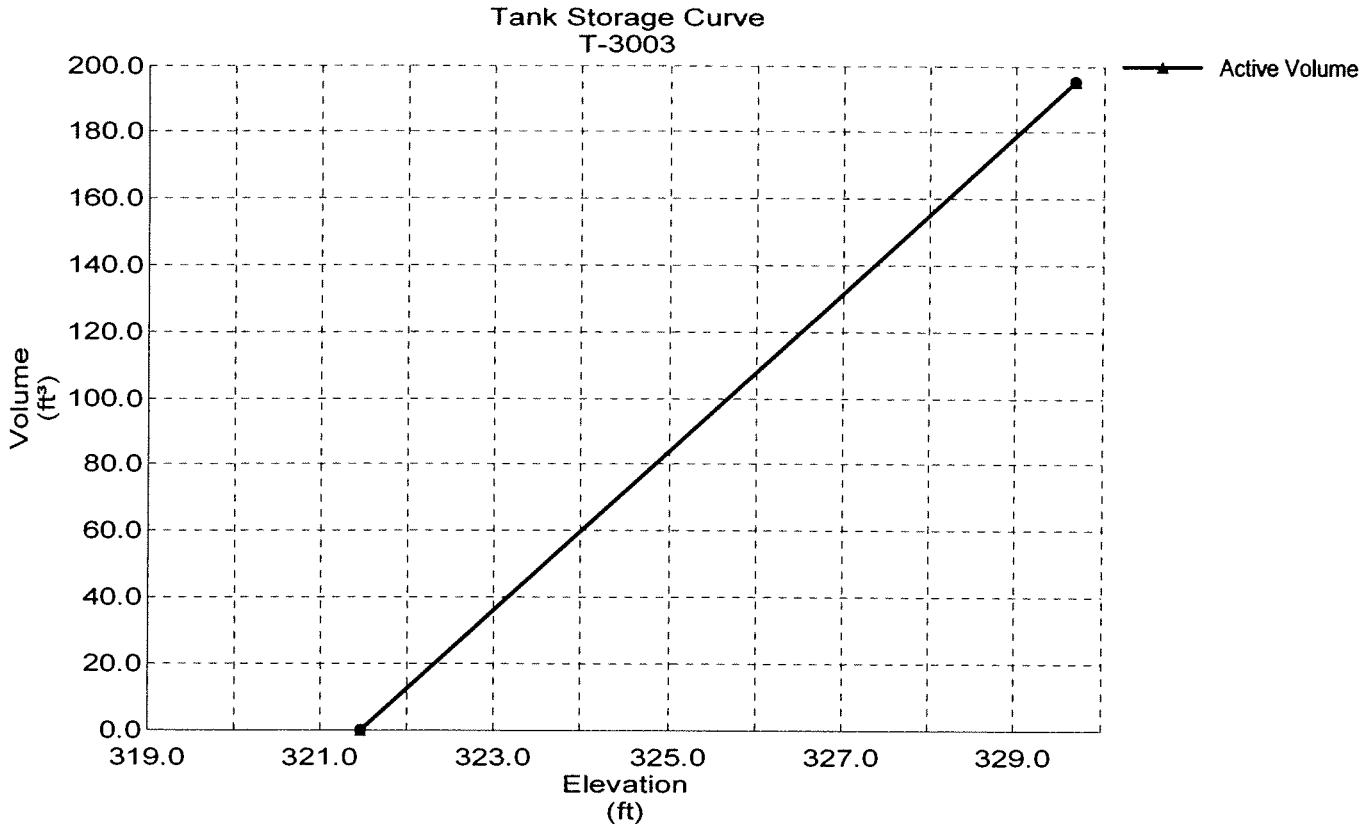
Storage			
Section Type	Constant Area	Circular Tank Shape?	true
Diameter	5.50 ft	Average Area	23.8 ft²
Inactive Volume	0.00 ft³	Total Active Volume	195.06 ft³

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Lining		Condition	
Metered	false	Clearwell Storage	false
Elevated Tank	false	Existing	false

Detailed Report for Tank: T-3003

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
0.00	322.00	2.21	0.96	6.6	12.83	-227.43	227.43	Draining



Detailed Report for Pressure Junction: T-3007

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,903.16 ft	Elevation	0.00 ft
Y	10,084.68 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	473.90	205.03	473.90	0.00

Detailed Report for Pressure Junction: T-3008

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,903.32 ft	Elevation	0.00 ft
Y	10,126.33 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	436.19	188.72	436.19	0.00

ARCADIS

Attachment 6

Carbon Feed Tank (T-3003) to
Leachate Tank T-125

ARCADIS
Infrastructure, environment, buildings

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B0023726

Subject: Carbon Feed Tank (T-3003) to Leachate Tank T-125

Prepared By: BMS/PTO **Date:** March 2009

Reviewed By: BMS **Date:** March 2009

Checked By: PHB **Date:** March 2009

TASK:

Verify that the required flow rate (227 gallons per minute [gpm]) from carbon feed tank T-3003 to leachate tank T-125 will be achieved.

REFERENCES:

1. *Leachate Level Compliance Plan For Residuals Management Unit One,* prepared by Golder Associates, dated February, 1997.
2. *Leachate Level Compliance Plan for Residuals Management Unit – One, Final Sequence Phase 1,* prepared by ARCADIS, dated December, 2007.
3. *Engineering Report for CWM Chemical Services, LLC Model City Facility, Residuals Management Unit 1,* Earth Tech.
4. WaterCAD for Windows, Version 5.0, pressure network analysis software, Haestad Methods, Inc.
5. *Leachate Level Compliance Plan Pump Flow Rate Verification Report for Pumps P-105 and P-3002A,* CWM Chemical Services, LLC., October, 2001.

ASSUMPTIONS:

1. The system runs in series from tank T-3003 through the carbon adsorption system, (i.e., through tank T-3007 then through tank T-3008.)
2. The analysis assumes the use of an Ingersoll-Dresser HOC3+ variable speed pump. At 3,500 rpm, the pump is rated at 250 gpm at 305 feet of total dynamic head.

METHODOLOGY:

Information used in previous LLCP evaluations relating to the AWTS facility was verified, modified where necessary and input into the WaterCAD model for evaluation. This information includes manufacturer pump data; pipe lengths, sizes and types; number and type of fittings; and other relevant components that could potentially affect the performance of the system. WaterCAD output includes flow rates, velocities and headloss through each pump or pipe section.

Calculation Sheet

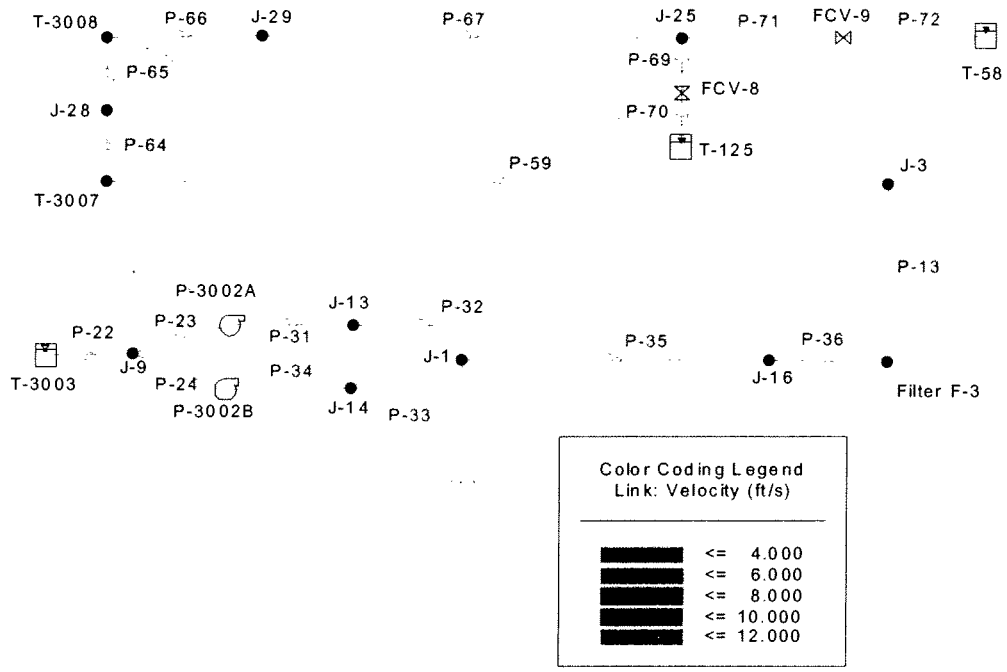
SUMMARY:

A summary of the calculations is presented in the following table.

Pump Type	Nominal Flow Rate (gpm)	Evaluated Flow Rate (with flow control) (gpm)	Pump Condition (On/Off)	Head at Pump (ft.)	Total Evaluated Flow to Tank T-125 (gpm)
Ingersoll-Dresser HOC3+	250 at 305 feet TDH	227	On	199	227

Scenario: Base

System Runs In Series Through Tank 3007 Then Through Tank 3008



Analysis Results
Scenario: Base
Steady State Analysis

Title: CWM: RMU-1 Leachate System Evaluation
Project Engineer: ARCADIS
Project Date: 03/11/09
Comments:

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Liquid Characteristics			
Liquid	Water at 20C(68F)	Specific Gravity	1.00
Kinematic Viscosity	1.0804e-5 ft²/s		

Network Inventory			
Pressure Pipes	19	Number of Tanks	3
Number of Reservoirs	0	- Constant Area:	3
Number of Pressure Junctions	12	- Variable Area:	0
Number of Pumps	2	Number of Valves	2
- Constant Power:	0	- FCV's:	2
- One Point (Design Point):	0	- PBV's:	0
- Standard (3 Point):	2	- PRV's:	0
- Standard Extended:	0	- PSV's:	0
- Custom Extended:	0	- TCV's:	0
- Multiple Point:	0	- GPV's:	0
Number of Spot Elevations	0		

Pressure Pipes Inventory			
2.00 in	2.00 ft	3.00 in	308.00 ft
2.86 in	20.00 ft	3.68 in	703.00 ft
Total Length	1,033.00 ft		

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Analysis Results
Scenario: Base
Steady State Analysis

FCVs @ 0.00 hr

Label	Control Status	From HGL (ft)	To HGL (ft)	Discharge (gpm)	Velocity (ft/s)	Headloss (ft)	Calculated Flow Setting (gpm)
FCV-8	Inactive	320.23	320.23	227.23	2.578	0.00	0.00
FCV-9	Closed	351.36	332.00	0.00	0.000	0.00	0.00

Pressure Junctions @ 0.00 hr

Label	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
Filter F-3	449.33	194.40	449.33	0.00
J-1	501.32	216.90	501.32	0.00
J-3	445.77	192.86	445.77	0.00
J-9	311.46	134.75	311.46	0.00
J-13	506.27	219.04	506.27	0.00
J-14	501.32	216.90	501.32	0.00
J-16	458.65	198.44	458.65	0.00
J-25	351.36	152.02	351.36	0.00
J-28	413.55	178.92	413.55	0.00
J-29	375.90	162.64	375.90	0.00
T-3007	430.29	186.17	430.29	0.00
T-3008	392.64	169.88	392.64	0.00

Pressure Pipes @ 0.00 hr

Label	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
P-13	Open	-227.23	10.313	445.77	449.33	0.22	3.34	3.56	3,562.81
P-22	Open	227.23	10.313	322.00	311.46	5.89	4.64	10.54	405.33
P-23	Open	227.23	10.313	311.46	307.75	0.90	2.81	3.71	928.72
P-24	Open	-0.00	0.000	311.46	311.46	-0.00	0.00	0.00	0.00
P-31	Open	227.23	10.313	506.93	506.27	0.45	0.21	0.67	334.20
P-32	Open	227.23	11.348	506.27	501.32	2.29	2.66	4.95	618.70
P-33	Open	0.00	0.000	501.32	501.32	-0.00	0.00	0.00	0.00
P-34	Open	0.00	0.000	501.32	501.32	-0.00	0.00	0.00	0.00
P-35	Open	227.23	10.313	501.32	458.65	6.54	36.12	42.66	1,471.14
P-36	Open	227.23	10.313	458.65	449.33	0.45	8.88	9.32	4,661.04
P-59	Open	227.23	10.313	445.77	430.29	7.48	8.00	15.48	469.06
P-64	Open	227.23	10.313	430.29	413.55	0.21	16.53	16.74	16,741.55
P-65	Open	227.23	10.313	413.55	392.64	7.02	13.89	20.90	674.34
P-66	Open	227.23	10.313	392.64	375.90	0.21	16.53	16.74	16,741.55
P-67	Open	227.23	10.313	375.90	351.36	13.60	10.94	24.54	409.05
P-69	Open	227.23	10.313	351.36	320.23	25.63	5.50	31.13	275.51
P-70	Open	227.23	10.313	320.23	320.00	0.23	0.00	0.23	226.84
P-71	Open	0.00	0.000	351.36	351.36	0.00	0.00	0.00	0.00
P-72	Open	0.00	0.000	332.00	332.00	0.00	0.00	0.00	0.00

Analysis Results
Scenario: Base
Steady State Analysis

Pumps @ 0.00 hr

Label	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
P-3002A	On	307.75	506.93	227.23	199.19	0.83	11.43
P-3002B	Off	311.46	501.32	0.00	0.00	1.00	0.00

Tanks @ 0.00 hr

Label	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
T-58	332.00	12.50	5.41	98.2	55,292.03	0.00	0.00	Steady
T-125	320.00	0.00	0.00	0.0	0.00	227.23	-227.23	Filling
T-3003	322.00	2.21	0.96	6.6	12.83	-227.23	227.23	Draining

Detailed Report for FCV: FCV-8

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,068.19 ft	Upstream Pipe	P-69
Y	10,110.58 ft	Downstream Pipe	P-70
Elevation	0.00 ft	Diameter	6.00 in
Minor Loss Coefficient	0.00		

Initial Status			
Initial Valve Status	Inactive	Initial Flow Setting	0.00 gpm

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Condition		Manufacturer	
Model		Serial Number	
Metered	false	Motorized	false
Clockwise to Close	false	Normally Closed	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	From HGL (ft)	To HGL (ft)	Discharge (gpm)	Velocity (ft/s)	Headloss (ft)	Calculated Flow Setting (gpm)
0.00	Inactive	320.23	320.23	227.23	2.578	0.00	0.00

Detailed Report for FCV: FCV-9

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,114.42 ft	Upstream Pipe	P-71
Y	10,126.46 ft	Downstream Pipe	P-72
Elevation	0.00 ft	Diameter	6.00 in
Minor Loss Coefficient	0.00		

Initial Status			
Initial Valve Status	Closed	Initial Flow Setting	0.00 gpm

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Condition		Manufacturer	
Model		Serial Number	
Metered	false	Motorized	false
Clockwise to Close	false	Normally Closed	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	From HGL (ft)	To HGL (ft)	Discharge (gpm)	Velocity (ft/s)	Headloss (ft)	Calculated Flow Setting (gpm)
0.00	Closed	351.36	332.00	0.00	0.000	0.00	0.00

Detailed Report for Pressure Junction: Filter F-3

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,127.60 ft	Elevation	0.00 ft
Y	10,033.21 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	449.33	194.40	449.33	0.00

Detailed Report for Pressure Junction: J-1

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,005.59 ft	Elevation	0.00 ft
Y	10,033.66 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	501.32	216.90	501.32	0.00

Detailed Report for Pressure Junction: J-3

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,127.80 ft	Elevation	0.00 ft
Y	10,084.32 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	445.77	192.86	445.77	0.00

Detailed Report for Pressure Junction: J-9

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,910.75 ft	Elevation	0.00 ft
Y	10,035.08 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	311.46	134.75	311.46	0.00

Detailed Report for Pressure Junction: J-13

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,973.94 ft	Elevation	0.00 ft
Y	10,043.76 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	506.27	219.04	506.27	0.00

Detailed Report for Pressure Junction: J-14

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,973.37 ft	Elevation	0.00 ft
Y	10,025.17 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	501.32	216.90	501.32	0.00

Detailed Report for Pressure Junction: J-16

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,093.35 ft	Elevation	0.00 ft
Y	10,033.62 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	458.65	198.44	458.65	0.00

Detailed Report for Pressure Junction: J-25

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,068.12 ft	Elevation	0.00 ft
Y	10,126.35 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	351.36	152.02	351.36	0.00

Detailed Report for Pressure Junction: J-28

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,903.16 ft	Elevation	0.00 ft
Y	10,105.06 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	413.55	178.92	413.55	0.00

Detailed Report for Pressure Junction: J-29

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,947.81 ft	Elevation	0.00 ft
Y	10,126.75 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	375.90	162.64	375.90	0.00

Detailed Report for Pressure Pipe: P-13

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	2.02
Check Valve?	false	Length	1.00 ft
From Node	J-3	To Node	Filter F-3

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	-227.23	10.313	445.77	449.33	0.22	3.34	3.56	3,562.81

Detailed Report for Pressure Pipe: P-22

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	2.81
Check Valve?	false	Length	26.00 ft
From Node	T-3003	To Node	J-9

Elevations			
From Elevation	319.79 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.23	10.313	322.00	311.46	5.89	4.64	10.54	405.33

Detailed Report for Pressure Pipe: P-23

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	1.70
Check Valve?	false	Length	4.00 ft
From Node	J-9	To Node	P-3002A

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.23	10.313	311.46	307.75	0.90	2.81	3.71	928.72

Detailed Report for Pressure Pipe: P-24

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	2.41
Check Valve?	false	Length	4.00 ft
From Node	J-9	To Node	P-3002B

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	-0.00	0.000	311.46	311.46	-0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-31

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	0.13
Check Valve?	false	Length	2.00 ft
From Node	P-3002A	To Node	J-13

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.23	10.313	506.93	506.27	0.45	0.21	0.67	334.20

Detailed Report for Pressure Pipe: P-32

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	2.86 in	Minor Loss Coefficient	1.33
Check Valve?	false	Length	8.00 ft
From Node	J-13	To Node	J-1

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.23	11.348	506.27	501.32	2.29	2.66	4.95	618.70

Detailed Report for Pressure Pipe: P-33

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	2.86 in	Minor Loss Coefficient	1.33
Check Valve?	false	Length	12.00 ft
From Node	J-1	To Node	J-14

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.000	501.32	501.32	-0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-34

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	2.00 in	Minor Loss Coefficient	0.13
Check Valve?	false	Length	2.00 ft
From Node	J-14	To Node	P-3002B

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.000	501.32	501.32	-0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-35

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	21.85
Check Valve?	false	Length	29.00 ft
From Node	J-1	To Node	J-16

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.23	10.313	501.32	458.65	6.54	36.12	42.66	1,471.14

Detailed Report for Pressure Pipe: P-36

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	5.37
Check Valve?	false	Length	2.00 ft
From Node	J-16	To Node	Filter F-3

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.23	10.313	458.65	449.33	0.45	8.88	9.32	4,661.04

Detailed Report for Pressure Pipe: P-59

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	4.84
Check Valve?	false	Length	33.00 ft
From Node	J-3	To Node	T-3007

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.23	10.313	445.77	430.29	7.48	8.00	15.48	469.06

Detailed Report for Pressure Pipe: P-64

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	10.00
Check Valve?	false	Length	1.00 ft
From Node	T-3007	To Node	J-28

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Caiculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.23	10.313	430.29	413.55	0.21	16.53	16.74	16,741.55

Detailed Report for Pressure Pipe: P-65

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	8.40
Check Valve?	false	Length	31.00 ft
From Node	J-28	To Node	T-3008

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.23	10.313	413.55	392.64	7.02	13.89	20.90	674.34

Detailed Report for Pressure Pipe: P-66

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	10.00
Check Valve?	false	Length	1.00 ft
From Node	T-3008	To Node	J-29

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.23	10.313	392.64	375.90	0.21	16.53	16.74	16,741.55

Detailed Report for Pressure Pipe: P-67

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	Steel	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	6.62
Check Valve?	false	Length	60.00 ft
From Node	J-29	To Node	J-25

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.23	10.313	375.90	351.36	13.60	10.94	24.54	409.05

Detailed Report for Pressure Pipe: P-69

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	3.33
Check Valve?	false	Length	113.00 ft
From Node	J-25	To Node	FCV-8

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.23	10.313	351.36	320.23	25.63	5.50	31.13	275.51

Detailed Report for Pressure Pipe: P-70

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	PVC	Hazen- Williams C	100.0
Diameter	3.00 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	FCV-8	To Node	T-125

Elevations			
From Elevation	0.00 ft	To Elevation	320.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	227.23	10.313	320.23	320.00	0.23	0.00	0.23	226.84

Detailed Report for Pressure Pipe: P-71

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	3.68 in	Minor Loss Coefficient	5.18
Check Valve?	false	Length	702.00 ft
From Node	J-25	To Node	FCV-9

Elevations			
From Elevation	0.00 ft	To Elevation	0.00 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.000	351.36	351.36	0.00	0.00	0.00	0.00

Detailed Report for Pressure Pipe: P-72

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Pipe Characteristics			
Material	HDPE	Hazen- Williams C	100.0
Diameter	3.68 in	Minor Loss Coefficient	0.00
Check Valve?	false	Length	1.00 ft
From Node	FCV-9	To Node	T-58

Elevations			
From Elevation	0.00 ft	To Elevation	319.50 ft

Initial Status	
Initial Status	Open

User Data			
Date Installed		Date Retired	
Inspection Date		Lining	
Pipe Class		Exterior Coating	
Nominal Diameter	0.00 in	Condition	
Skeletonized	false	Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Discharge (gpm)	Velocity (ft/s)	Upstream Structure Hydraulic Grade (ft)	Downstream Structure Hydraulic Grade (ft)	Calculated Friction Headloss (ft)	Calculated Minor Headloss (ft)	Pressure Pipe Headloss (ft)	Headloss Gradient (ft/1000ft)
0.00	Open	0.00	0.000	332.00	332.00	0.00	0.00	0.00	0.00

Detailed Report for Pump: P-3002A

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,938.56 ft	Upstream Pipe	P-23
Y	10,043.52 ft	Downstream Pipe	P-31
Elevation	0.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	370.00 ft	Shutoff Discharge	0.00 gpm
Design Head	350.00 ft	Design Discharge	160.00 gpm
Maximum Operating Head	280.00 ft	Maximum Operating Discharge	280.00 gpm

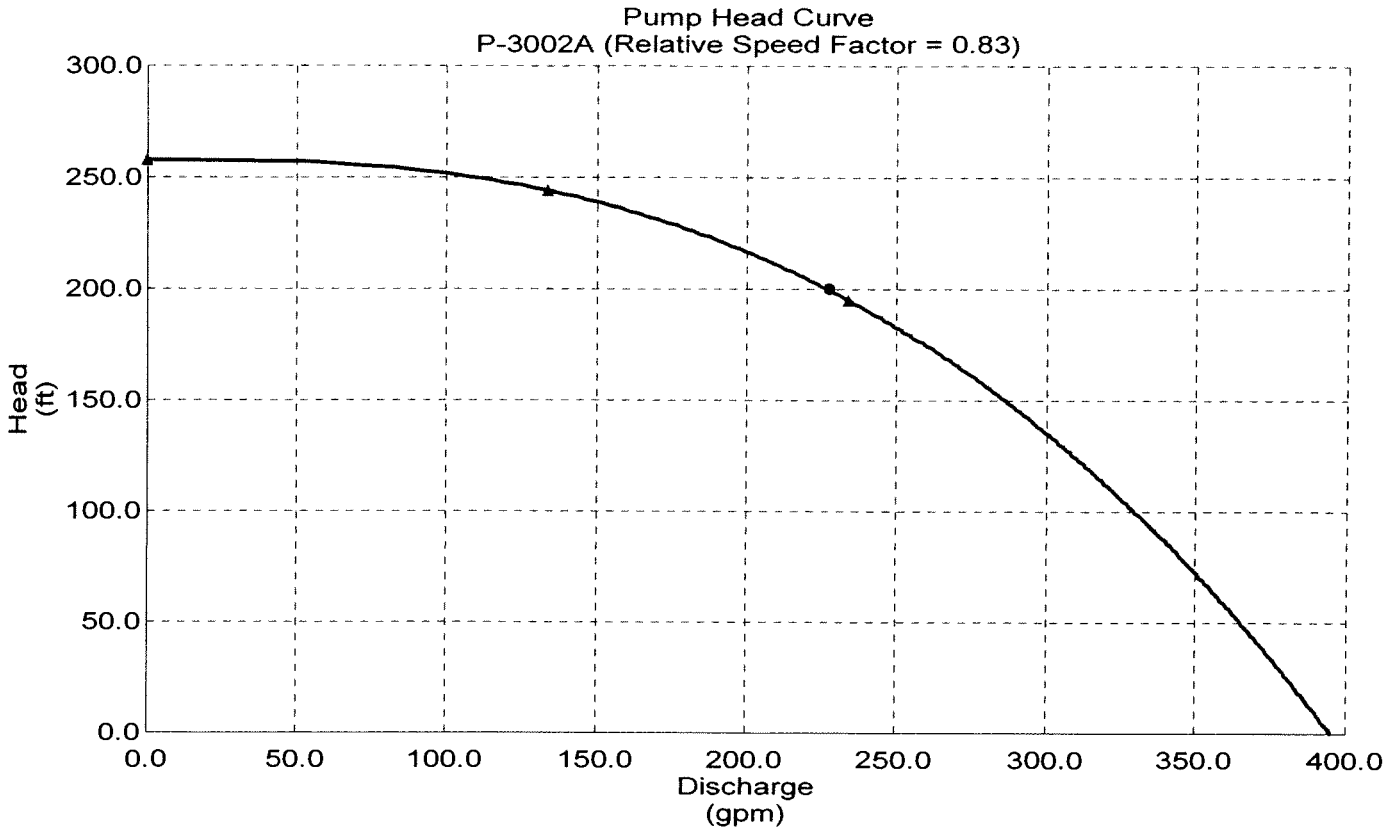
Initial Status			
Initial Pump Status	On	Initial Relative Speed Factor	0.83

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	On	307.75	506.93	227.23	199.19	0.83	11.43

Detailed Report for Pump: P-3002A



Detailed Report for Pump: P-3002B

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,937.28 ft	Upstream Pipe	P-24
Y	10,024.96 ft	Downstream Pipe	P-34
Elevation	0.00 ft		

Pump Definition Summary			
Pump Type	Standard (3 Point)		
Shutoff Head	200.00 ft	Shutoff Discharge	0.00 gpm
Design Head	122.00 ft	Design Discharge	200.00 gpm
Maximum Operating Head	100.00 ft	Maximum Operating Discharge	250.00 gpm

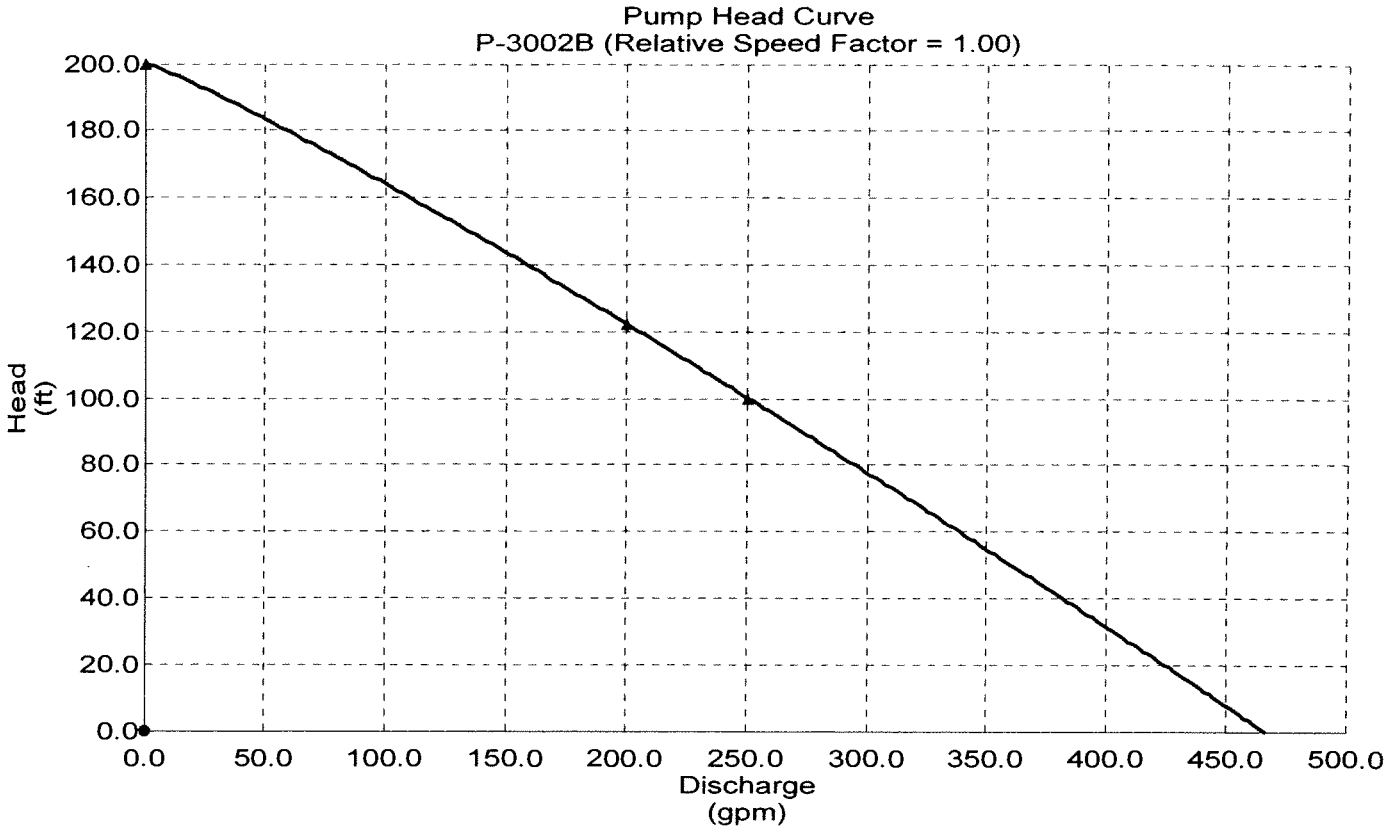
Initial Status			
Initial Pump Status	Off	Initial Relative Speed Factor	1.00

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Rated Power	0 Hp	Condition	
Manufacturer		Model	
Serial Number		Metered	false
Existing	false		

Calculated Results Summary

Time (hr)	Control Status	Intake Pump Grade (ft)	Discharge Pump Grade (ft)	Discharge (gpm)	Pump Head (ft)	Relative Speed	Calculated Water Power (Hp)
0.00	Off	311.46	501.32	0.00	0.00	1.00	0.00

Detailed Report for Pump: P-3002B



Detailed Report for Tank: T-58

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,155.44 ft	Elevation	319.50 ft
Y	10,126.81 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

Operating Range Summary			
Maximum Elevation	332.20 ft	Maximum Level	12.70 ft
Initial HGL	332.00 ft	Initial Level	12.50 ft
Minimum Elevation	321.00 ft	Minimum Level	1.50 ft
Base Elevation	319.50 ft		

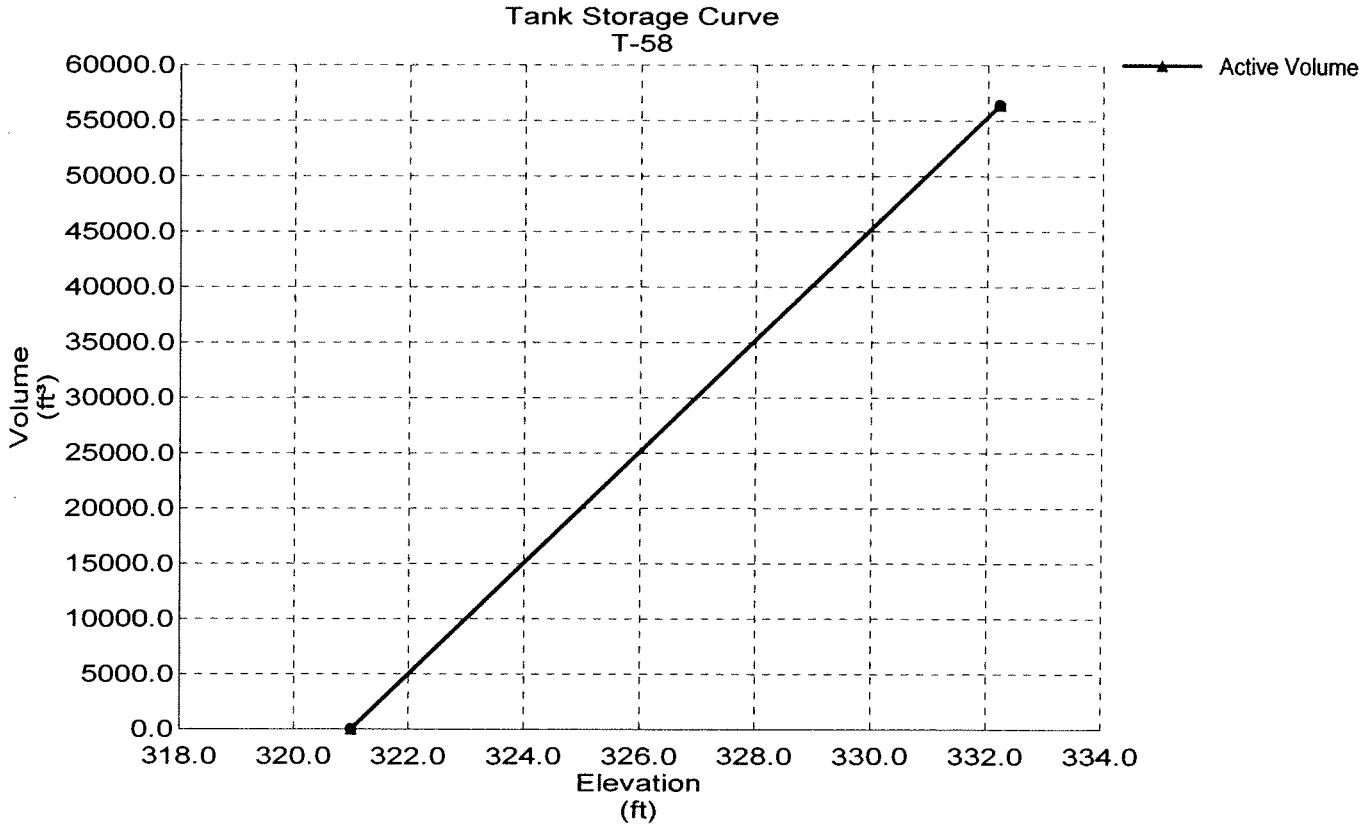
Storage			
Section Type	Constant Area	Circular Tank Shape?	true
Diameter	80.00 ft	Average Area	5,026.5 ft²
Inactive Volume	0.00 ft³	Total Active Volume	56,297.34 ft³

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Lining		Condition	
Metered	false	Clearwell Storage	false
Elevated Tank	false	Existing	false

Detailed Report for Tank: T-58

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
0.00	332.00	12.50	5.41	98.2	55,292.03	0.00	0.00	Steady



Detailed Report for Tank: T-125

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	10,068.14 ft	Elevation	320.00 ft
Y	10,095.15 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

Operating Range Summary			
Maximum Elevation	338.60 ft	Maximum Level	18.60 ft
Initial HGL	320.00 ft	Initial Level	0.00 ft
Minimum Elevation	320.00 ft	Minimum Level	0.00 ft
Base Elevation	320.00 ft		

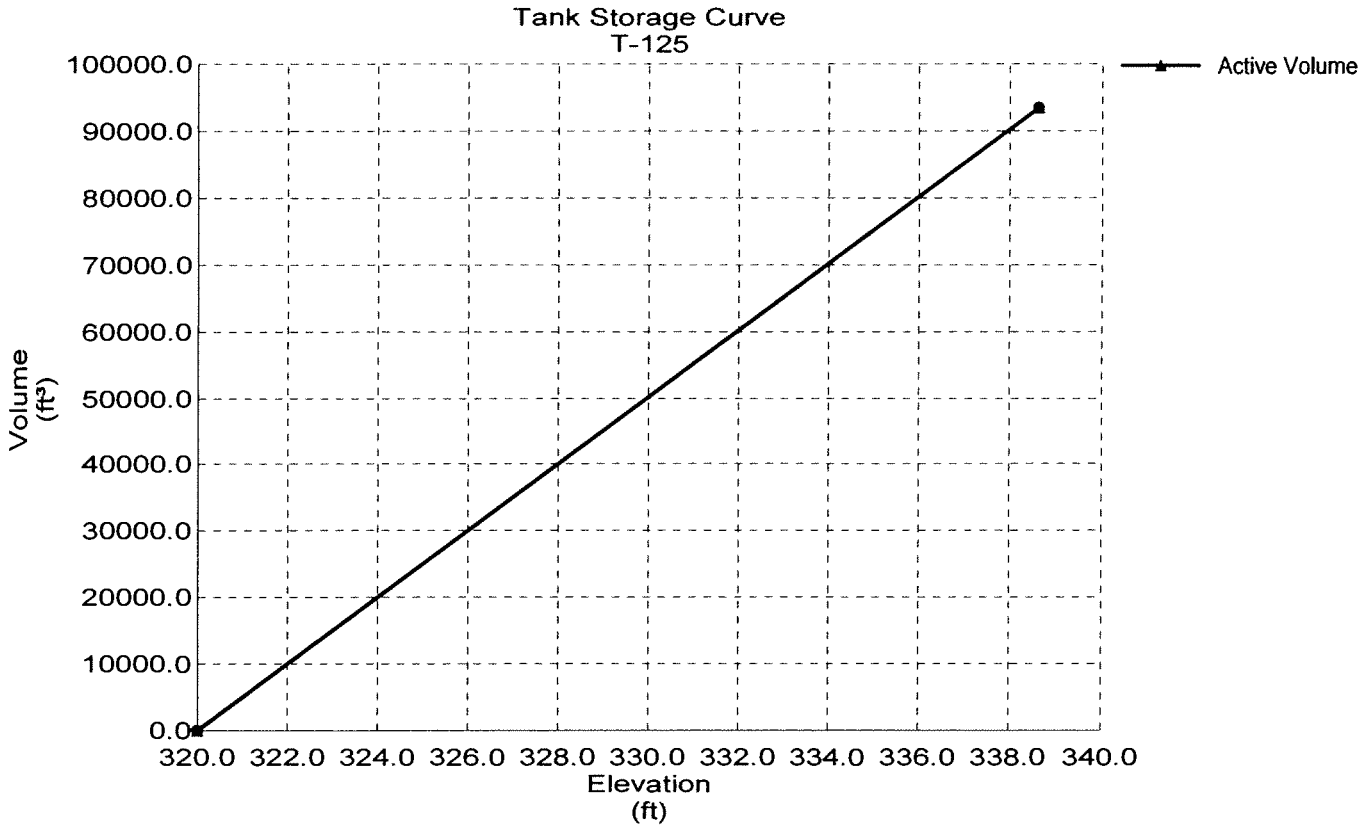
Storage			
Section Type	Constant Area	Circular Tank Shape?	true
Diameter	80.00 ft	Average Area	5,026.5 ft²
Inactive Volume	0.00 ft³	Total Active Volume	93,493.80 ft³

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Lining		Condition	
Metered	false	Clearwell Storage	false
Elevated Tank	false	Existing	false

Detailed Report for Tank: T-125

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
0.00	320.00	0.00	0.00	0.0	0.00	227.23	-227.23	Filling



Detailed Report for Tank: T-3003

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,885.58 ft	Elevation	319.79 ft
Y	10,034.82 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

Operating Range Summary			
Maximum Elevation	329.67 ft	Maximum Level	9.88 ft
Initial HGL	322.00 ft	Initial Level	2.21 ft
Minimum Elevation	321.46 ft	Minimum Level	1.67 ft
Base Elevation	319.79 ft		

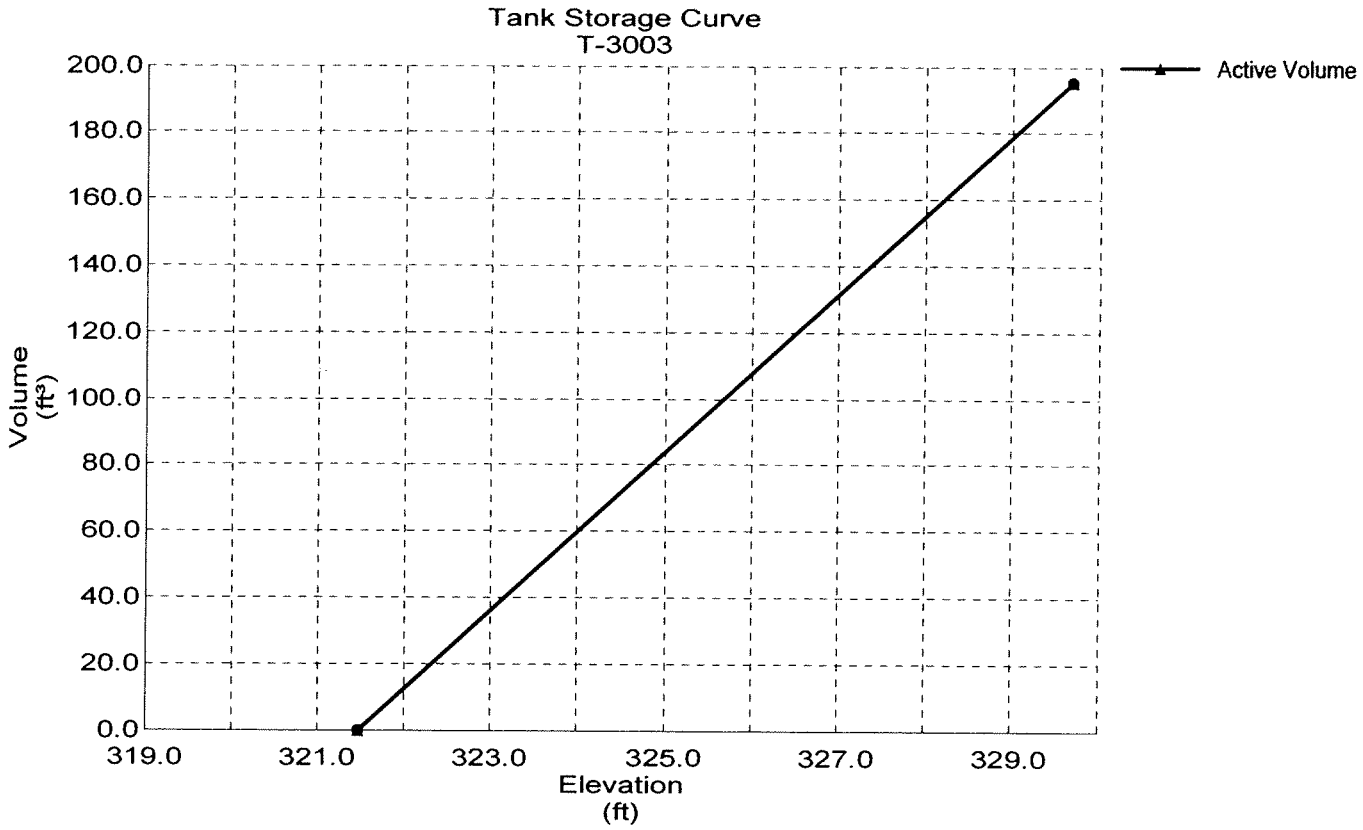
Storage			
Section Type	Constant Area	Circular Tank Shape?	true
Diameter	5.50 ft	Average Area	23.8 ft^2
Inactive Volume	0.00 ft^3	Total Active Volume	195.06 ft^3

User Data			
Date Installed		Date Retired	
Inspection Date		SCADA ID	
Lining		Condition	
Metered	false	Clearwell Storage	false
Elevated Tank	false	Existing	false

Detailed Report for Tank: T-3003

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Calculated Level (ft)	Pressure (psi)	Calculated Percent Full (%)	Calculated Volume (ft^3)	Inflow (gpm)	Outflow (gpm)	Current Status
0.00	322.00	2.21	0.96	6.6	12.83	-227.23	227.23	Draining



Detailed Report for Pressure Junction: T-3007

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,903.16 ft	Elevation	0.00 ft
Y	10,084.68 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	430.29	186.17	430.29	0.00

Detailed Report for Pressure Junction: T-3008

Scenario Summary	
Scenario	Base
Physical Alternative	Base-Physical
Active Topology Alternative	Base-Active Topology
Demand Alternative	Default-Average Daily
Initial Settings Alternative	Base-Initial Settings
Operational Alternative	Base-Operational Controls
Logical Control Set Alternative	<All Logical Controls>
Age Alternative	Default-Age Scenario
Constituent Alternative	Default-Constituent
Trace Alternative	Default-Trace Scenario
Fire Flow Alternative	Base-Fire Flow
Capital Cost Alternative	Base-Capital Cost
Energy Cost Alternative	Base-Energy Cost
User Data Alternative	Base-User Data

Global Adjustments Summary			
Demand	<None>	Roughness	<None>

Geometric Summary			
X	9,903.32 ft	Elevation	0.00 ft
Y	10,126.33 ft	Zone	Zone-1

Demand Summary

Type	Base Flow (gpm)	Pattern
Demand	0.00	Fixed

User Data			
SCADA ID		Sampling Point	false
Hydrant Location	false	Existing	false

Calculated Results Summary

Time (hr)	Calculated Hydraulic Grade (ft)	Pressure (psi)	Pressure Head (ft)	Demand (Calculated) (gpm)
0.00	392.64	169.88	392.64	0.00

ARCADIS

Attachment 7

Tank Farm Storage Capacity Analysis

ARCADIS
Infrastructure, environment, buildings

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B0023726

Subject: Storm Flow Routing Through Leachate Tank Farm Evaluation

Prepared By: BMS/PTO **Date:** October 2009

Reviewed By: BMS **Date:** October 2009

Checked By: PHB **Date:** October 2009

OBJECTIVE

Verify that the leachate tank farm (LTF) capacity is adequate to collect and route leachate and secondary waters from various sources during a 25-year, 24-hour storm event.

REFERENCES

1. *Leachate Level Compliance Plan for Residuals Management Unit One*, prepared by Golder Associates, dated February, 1997.
2. *Leachate Level Compliance Plan for Residuals Management Unit – One, Final Sequence Phase 1,* prepared by ARCADIS, dated December, 2007.
3. *Engineering Report for CWM Chemical Services, LLC Model City Facility, Residuals Management Unit 1*, Earth Tech.
4. WaterCAD for Windows, Version 5.0, pressure network analysis software, Haestad Methods, Inc.
5. *Leachate Level Compliance Plan Pump Flow Rate Verification Report for Pumps P-105 and P-3002A*, CWM Chemical Services, LLC, October, 2001.

ASSUMPTIONS

1. In accordance with the site-specific CWM permit condition, liquid elevations in the tank are such that only 625,000 gallons of storage capacity is available at the beginning of the analysis.
2. Each tank has approximately the same liquid level at the start of the analysis.
3. Flows from SLF 1 through 11 and the groundwater extraction systems may be directed to tank T-101 (worst-case flow option).
4. Flows from SLF 12, RMU-1 landfill cells, and Detention Basins H and I are directed to tanks T-102 and T-103.
5. Pump run times for each pump in RMU-1 (Cells 7/8, 9/10, 11/13, 12/14, and Detention Basins H and I) are determined by dividing the total stormwater runoff volume into each cell or basin (provided in Appendix A) by the calculated pumping rate (provided in Appendix B).

Calculation Sheet

6. RMU-1 cells begin pumping 11 hours after the beginning of the storm event to maintain consistency with previous LLCP analyses.

7. Non-stormwater flow rates from RMU-1 landfill cells during storm periods (i.e., base flow) are considered negligible in comparison with storm-related flows and have, therefore, not been included in this evaluation. Non-stormwater flow rates are addressed following management of the 25-year, 24-hour storm event volume.

8. Flow from secondary containment areas, other than the LTF, is directed to tank T-100 for 24 hours.

9. Flow from Detention Basin I commences after the RMU-1 cells are completely pumped down.

10. Flow from Basin H commences concurrent with the RMU-1 cells (i.e. hour 11.0) and ends once the liquid level has been pumped down to the initial liquid level of 1 foot above the basin floor.

11. Based on information presented in Attachment 4 of Appendix B, the maximum outflow from the LTF via pump P-105 is 176 gallons per minute (gpm).

12. The AWTS capacity is 208 gpm (227 gpm with an average downtime of 2 hours per day)

13. In accordance with a site-specific permit condition, CWM must pump or ship off site for treatment no less than 200,000 gallons per day (equivalent of 139 gpm) when the available capacity of the LTF is less than 625,000 gallons. This capacity will be provided by LTF pump P-105 (176 gpm).

CALCULATIONS

Inflow

The volume of leachate produced and collected in the primary leachate collection system sumps for RMU-1 Cells 7/8, 9/10, 11/13 and 12/14 is determined and, based on the pump rates provided in Attachment 1 to Appendix B of the LLCP, the pump run times for those cells is ascertained. Similar volumes and pump run times are calculated for Detention Basins H (Pump 1) and I based on the pump rates provided on Attachment 2 to Appendix B of the LLCP. Volumes and pump run times are presented in Table 4 of this evaluation.

The contribution from the RMU-1 cells begins 11 hours after the start of the design storm event. Initially, Cells 7/8, 9/10, 11/13, and 12/14 are contributing to the total inflow to the LTF. As the accumulated leachate in the sump of each cell is completely discharged, the contribution to the LTF is eliminated. As depicted in Table 2 of this evaluation, the contribution from Cell 7/8 continues until hour 12.2, Cell 9/10 contributes until hour 23.4, Cell 11/13 contributes until hour 21.2 and Cell 12/14 contributes until hour 34.7.

Pump 1 in Detention Basin H begins pumping concurrent with RMU-1 cells (hour 11) and contributes until hour 103.2. Detention Basin I begins pumping once the accumulated leachate in the affected cell sumps is completely removed (hour 34.8) and contributes until hour 162.3. Flow into tank T-101 is constant and is from the average daily flow rate from the groundwater extraction systems (8 gpm) and a 4,000 gpd (2.8 gpm) contribution from SLF 1 through 11. LTF inflows are summarized in Tables 2 and 3 of this evaluation

Calculation Sheet

Outflow

During the 24-hour period from hours 11 to 35, tanker trucks collect accumulated waters from secondary containment areas around the site and discharge the collected water through tank T-100 and ultimately into the AWTS at an average rate of 77 gpm. Since the maximum capacity of the AWTS is assumed to be 208 gpm (227 gpm with a 2 hour downtime), 131 gpm can be discharged from the LTF (pump P-105) during this 24-hour period. After hour 35, leachate will be pumped to the AWTS via pump P-105 at a rate of 176 gpm. LTF outflows are summarized in Table 1 of this evaluation.

Liquid Levels in Tanks

The maximum liquid levels in the leachate tanks are determined based on the diameters of the leachate tanks, the starting liquid levels, the inflow rates, and the outflow rates. Table 1 of this evaluation depicts this tabulation and provides notes explaining the development of the table. As shown in the table, the combined maximum liquid level used in the tanks is 75.0 feet.

SUMMARY

This transient mass balance verifies that the volume available in tanks T-102 and T-103 is sufficient to temporarily store estimated peak flows from the RMU-1 cells, Detention Basins H and I, and other sources during the 25-year, 24-hour storm event.

CWM Chemical Services, LLC
Model City, NY Facility
RMU-1 Leachate Level Compliance Plan - Tank Farm Storage Analysis

Table 1-Storm Flow Routing Through Leachate Tank Farm

Input values In bold font, other values are calculated in the spreadsheet

43.839 Tank Diameter (ft)
1509.424 Tank Plan Area (sqft)
1050000 Total Tank Volume (gal)
31 Maximum Liquid Level to Overflow (ft)

A	B			C	D				E			F		
Time after start of design storm event	Volume in Tanks (gal)			Total Combined Tank Volume Available	Liquid Level (ft)				Inflow to Tank (gpm)			Outflow from Tank (gpm)		
(hrs)	T-102	T-103	T-101	(gal)	T-102	T-103	T-101	Total	T-102	T-103	T-101	T-102	T-103	T-101
11.0	141809	141583	141609	625000	**12.6**	**12.5**	**12.5**	37.7	**514**	**0**	**10.8**	**131**	**0**	**0**
12.2	169385	141583	142386	596646	15.0	12.5	12.6	40.2	**514**	**0**	**10.8**	**131**	**0**	**0**
12.3	171683	141583	142451	594283	15.2	12.5	12.6	40.4	**454**	**0**	**10.8**	**131**	**0**	**0**
21.1	342227	141583	148154	418037	30.3	12.5	13.1	56.0	**454**	**0**	**10.8**	**131**	**0**	**0**
21.2	344165	141583	148218	416034	30.5	12.5	13.1	56.2	**0**	**454**	**10.8**	**0**	**131**	**0**
21.3	344165	143521	148283	414031	30.5	12.7	13.1	56.3	**0**	**321**	**10.8**	**0**	**131**	**0**
21.4	344165	144661	148348	412826	30.5	12.8	13.1	56.4	**0**	**321**	**10.8**	**0**	**131**	**0**
23.4	344165	167461	149644	388730	30.5	14.8	13.3	58.6	**0**	**321**	**10.8**	**0**	**131**	**0**
23.5	344165	168601	149709	387526	30.5	14.9	13.3	58.7	**0**	**169**	**10.8**	**0**	**131**	**0**
24.0	344165	169741	150033	386062	30.5	15.0	13.3	58.8	**0**	**169**	**10.8**	**0**	**131**	**0**
24.1	344165	169969	150098	385769	30.5	15.1	13.3	58.8	**0**	**191**	**10.8**	**0**	**131**	**0**
34.7	344165	208129	156966	340740	30.5	18.4	13.9	62.8	**0**	**191**	**10.8**	**0**	**131**	**0**
34.8	344165	208489	157031	340315	30.5	18.5	13.9	62.9	**0**	**216**	**10.8**	**0**	**131**	**0**
35.0	344165	209509	157161	339166	30.5	18.6	13.9	63.0	**0**	**216**	**10.8**	**0**	**131**	**0**
35.1	344165	210019	157226	338591	30.5	18.6	13.9	63.0	**0**	**216**	**10.8**	**0**	**176**	**0**
48.0	344165	240979	165585	299272	30.5	21.3	14.7	66.5	**0**	**216**	**10.8**	**0**	**176**	**0**
48.1	344165	241219	165650	298967	30.5	21.4	14.7	66.5	**0**	**194**	**10.8**	**0**	**176**	**0**
103.2	344165	300727	201354	203754	30.5	26.6	17.8	75.0	**0**	**194**	**10.8**	**0**	**176**	**0**
103.3	344165	300835	201419	203581	30.5	26.6	17.8	75.0	**0**	**161**	**10.8**	**0**	**176**	**0**
162.3	344165	247735	239651	218449	30.5	21.9	21.2	73.7	**0**	**161**	**10.8**	**0**	**176**	**0**
162.4	344165	247645	239716	218474	30.5	21.9	21.2	73.6	**0**	**29**	**10.8**	**0**	**176**	**0**
188.0	344165	21853	256305	427678	30.5	1.9	22.7	55.1	**0**	**29**	**10.8**	**176**	**0**	**0**
188.1	343109	22027	256370	428495	30.4	2.0	22.7	55.0	**29**	**0**	**10.8**	**176**	**0**	**0**
212.1	131022	22027	271951	625000	11.6	2.0	24.1	37.6	**29**	**0**	**10.8**	**176**	**0**	**0**

Column A represents the time in hours after the start of the design storm event. To maintain consistency with previous LLCPs, the starting time is 11.0 hours.

Column B calculates the volume in each of the tanks. The value in the first row is based on the starting liquid level in each tank. The value on subsequent rows is based on the previous row's volume plus inflow minus outflow during the time elapsed between the previous row and the current row.

Column C calculates the liquid storage volume available in all three tanks by subtracting the total volume stored (Column B) from the total storage volume available in all three tanks (assumed to be 1,050,000 gallons).

Column D represents the liquid height In each tank. The value in the first row represents the assumed liquid height in each tank at the time when design storm flows from RMU-1 cells begin. The value in subsequent rows is calculated from the volume in each tank at that time divided by each tank's area.

Column E represents the flow rate into each tank at the time indicated. The flow into Tank T-102 occurs during and after the design storm event. Flow into tank T-103 occurs after the storm event. RMU-1 base flow is pumped into tank T-103 and assumed to be 2 gpm per cell after stormwater input ends. Reference Tables 2 and 3 of this spreadsheet file for development of flows into Tanks T-102 and T-103. Flow into Tank T-101 is from the average daily flow rate from the groundwater extraction systems (8 gpm) and a 4000 gpd (2.8 gpm) contribution from SLF 1-11 (worst-case flow option).

Column F represents the flow rate out of each tank at the time indicated. This flow rate is based on the capacity of the AWTS bypass (i.e., water treatment building) of 227 gpm as presented in Attachments 5 and 6 of Appendix B. Assuming a downtime of 2 hours per day, the resulting equivalent flowrate is 208 gpm. Based on a pump test performed by CWM, Tank T-100 can discharge to AWTS bypass at 77 gpm. Assuming the AWTS bypass will process 77 gpm from Tank T-100 for 24 hours (i.e., secondary containment areas), the tank farm will be able to pump to the AWTS bypass at 131 gpm (208 gpm AWTS bypass capacity - 77 gpm tank T-100 flowrate). After the liquid from secondary containment areas is discharged from Tank T-100, the full capacity of the AWTS bypass is available to the LTF. Based on information presented in Attachment 4 of Appendix B, the LTF pump P-105 operates at 176 gpm. As a result, after flows from tank T-100 cease, outflow from the LTF is 176 gpm, as limited by pump P-105.

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RMU-1 Leachate Level Compliance Plan - Tank Farm Storage Analysis

Table 2 - Leachate Tank Farm Inflow Calculation

Calculate design event flow from RMU-1 Landfill Cells and other sources used as input for Table 1

		Storm event flow through landfill cells [2]					
Time after start of design storm event	Flow from other sources [1]	Cell 7/8	Cell 9/10	Cell 11/13	Cell 12/14	Flow rate from all cells	Flow rate from all cells plus other sources
(hr)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)
11.0	34	60	152	133	135	480	514
12.2	34	60	152	133	135	480	514
12.3	34	0	152	133	135	420	454
21.2	34	0	152	133	135	420	454
21.3	34	0	152	0	135	287	321
23.4	34	0	152	0	135	287	321
23.5	34	0	0	0	135	135	169
24.0	34	0	0	0	135	135	169
24.1	56	0	0	0	135	135	191
34.7	56	0	0	0	135	135	191
34.8	216	0	0	0	0	0	216
48.0	216	0	0	0	0	0	216
48.1	194	0	0	0	0	0	194
103.2	194	0	0	0	0	0	194
103.3	161	0	0	0	0	0	161
162.3	161	0	0	0	0	0	161
162.4	29	0	0	0	0	0	29

[1] Flow from SLF 12, secondary containment areas, detention basins, and base flow from RMU-1 landfill cells (see Table 3).

[2] Flowrate through each cell is based on the pumping rate for the primary leachate collection pump as determined from a WaterCAD model of the leachate transfer piping system. The duration of flow through each cell is based on the cell pumping rate and the stormwater runoff volume as determined in the calculation sheet entitled "Infiltration Channel Routing Calculations (Cells 7/8, 9/10, 11/13, and 12/14)," dated March 2009, prepared by ARCADIS.

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Model City, NY Facility
RMU-1 Leachate Level Compliance Plan - Tank Farm Storage Analysis

Table 3- Leachate Tank Farm Inflow from Other Sources

Tabulate flows from secondary containment structures and detention basins
(aka "other sources")
used as input for Table 2

Time after start of design storm event	Flow from secondary containment areas [1]	Flow from SLF-12	Flow from Detention Basin H (Pump 1)	Flow From Detention Basin I	Base Flow from RMU-1 Landfill Cells 1-14 [2]	Total flow rate
(hr)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)
11	0	1.1	33	0	0	34
24.0	0	1.1	33	0	0	34
24.1	22	1.1	33	0	0	56
34.7	22	1.1	33	0	0	56
34.8	22	1.1	33	160	0	216
48.0	22	1.1	33	160	0	216
48.1	0	1.1	33	160	0	194
103.2	0	1.1	33	160	0	194
103.3	0	1.1	0	160	0	161
162.3	0	1.1	0	160	0	161
162.4	0	1.1	0	0	28	29

[1] Flow from the Leachate Tank Farm secondary containment that is pumped to tanks T-101, T-102, or T-103(42,765 gallons). All other facility secondary containment liquids are not placed in these tanks and are instead directed to Tank T-100.

[2] Base flows from RMU-1 Cells 1-14 are assumed to be 2 gpm per cell and considered negligible while managing stormwater.

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Model City, NY Facility
RMU-1 Leachate Level Compliance Plan - Tank Farm Storage Analysis

Table 4- RMU-1 Cell and Basin Pump Run Times

Calculate pump run time

Watershed	Drainage Area [ac][1,2]	25-yr, 24-hr Runoff [in]	Additional Contribution from South & East Perimeter Channels [cu. ft.][1]	Total Storm Volume [cu. ft.]	Total Storm Volume [gal]	Pump Rate [gpm] [3]	Pump Run Time[3] [hr]
7/8	-	-	566	566	4234	60	1.2
9/10	1.27	2.92	1699	15160	113400	152	12.4
11/13	-	-	10846	10846	81131	133	10.2
12/14	1.21	2.92	12807	25632	191728	135	23.7
Basin H (Pump 1)	-[4]	-	-[4]	24394 [2]	182467	33	92.2
Basin I	-[5]	-	-[5]	163611 [2]	1223810	160	127.5

[1] Stormwater runoff parameters and volumes are obtained from the calculation sheet entitled "Infiltration Channel Routing Calculations (Cells 7/8, 9/10, 11/13 and 12/14)," dated March 2009 prepared by ARCADIS.

[2] Stormwater volumes are obtained from the calculation sheet entitled "Detention Basins H and I Storage Capacity," dated March 2009 prepared by ARCADIS.

[3] Pumping rate is determined from a WaterCAD model of the leachate transfer piping system. The pump run time is based on the pumping rate and the total storm volume. Pumping rate for Basin H is based on Pump 1.

[4] Due to the flow exchange with the south perimeter channel, (and subsequent infiltration through the channel surfaces), Basin H volume is based on stormwater stored between post-infiltration peak liquid elevation (328.00) and elevation 323.31 (1 foot above basin floor).

[5] Basin I volume is based on stormwater stored between post-infiltration peak liquid elevation (349.25) and elevation 332.28 (1 foot above basin floor).

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Model City, NY Facility
RMU-1 Leachate Level Compliance Plan - Tank Farm Storage Analysis

Table 5- Leachate Tank Farm Summary

		Outflow from Leachate Tank Farm			Inflow to AWTS		
Time after start of design storm event	Total Combined Tank Volume Available	Discharge through P-105	Tanker to tank T-100[1]	Total Outflow	Inflow from P-105	Inflow from T-100	Total Inflow to AWTS
(hrs)	(gal)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)
11.0	625000	131	0	131	131	77	208
12.2	596646	131	0	131	131	77	208
12.3	594283	131	0	131	131	77	208
21.1	418037	131	0	131	131	77	208
21.2	416034	131	0	131	131	77	208
21.3	414031	131	0	131	131	77	208
21.4	412826	131	0	131	131	77	208
23.4	388730	131	0	131	131	77	208
23.5	387526	131	0	131	131	77	208
24.0	386062	131	0	131	131	77	208
24.1	385769	131	0	131	131	77	208
34.7	340740	131	0	131	131	77	208
34.8	340315	131	0	131	131	77	208
35.0	339166	131	0	131	131	77	208
35.1	338591	176	0	176	176	0	176
48.0	299272	176	0	176	176	0	176
48.1	298967	176	0	176	176	0	176
103.2	203754	176	0	176	176	0	176
103.3	203581	176	0	176	176	0	176
162.3	218449	176	0	176	176	0	176
162.4	218474	176	0	176	176	0	176
188.0	427678	176	0	176	176	0	176
188.1	428495	176	0	176	176	0	176
212.1	625000	176	0	176	176	0	176

Note
1. Tanker transfer from leachate tank farm to tank T-100 is not required.

ARCADIS

Attachment 8

Secondary Containment Area
Tanker Transfer Analysis

ARCADIS
Infrastructure, environment, buildings

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B0023726

Subject: Secondary Containment Area Tanker Transfer Analysis

Prepared By: BMS/PTO **Date:** March 2009

Reviewed By: BMS **Date:** March 2009

Checked By: PHB **Date:** March 2009

TASK

Estimate the required storage capacity to compensate for the difference between inflow and outflow at tank T-100. Calculate the time required to discharge water collected from site secondary containment areas to tank T-100.

REFERENCES

1. RMU-1 Leachate Level Compliance Plan (LLCP) – Summary of Secondary Containment Stormwater Volumes table (included with this calculation sheet.)

ASSUMPTIONS

1. The secondary containment areas collect 234,799 gallons during the 25-year, 24-hour design storm. Of this total, 100,206 gallons are required to be collected and transferred to tank T-100 within a 24-hour period. Tanker trucks will be used to collect and transfer 64,836 gallons to tank T-100. The balance (35,370 gallons) is pumped directly to tank T-100 through existing piping systems.

2. Three tanker trucks (having capacities of 5,000 gallons, 4,000 gallons and 1,400 gallons) are used to collect and transport site secondary containment waters to tank T-100 (based on discussions with CWM).

3. Each tanker can discharge to tank T-100 at approximately 83 gallons per minute (gpm) (based on discussions with CWM).

4. Tank T-100 outflow begins 1 hour prior to offloading of first full tanker truck at tank T-100.

5. A full tanker truck arrives at tank T-100 at or before the preceding tanker is finished offloading into tank T-100 (i.e., there is no delay between departure of empty tanker trucks and arrival of full tanker trucks at tank T-100).

6. The time to disconnect one tanker truck from tank T-100 and connect the next full truck is 10 minutes.

Calculation Sheet

7. At the end of the 24-hour period all three tanker trucks are empty.

8. Based on discussions with CWM, downtime associated with tanker truck refueling, shift changes and personnel breaks can be accommodated within the tanker truck cycle time.

CALCULATIONS

1. Required Storage Capacity to Compensate for Difference Between Tank T-100 Inflow and Outflow Rates

Since 100,206 gallons of water from the secondary containment areas must be collected and transferred to tank T-100 within a 24-hour period, an average inflow of 70 gpm (100,206 gallons ÷ 24 hours ÷ 60 minutes) is required at tank T-100. According to recent monitoring of run times at the tank T-100 pump and corresponding levels in tank T-100, the average tank outflow rate is 77 gpm. Since the tank outflow rate exceeds the inflow rate, zero storage capacity within tank T-100 is required to compensate for difference between tank T-100 inflow and outflow rates.

2. Individual and Fleet-Average Tanker Efficiencies

Based on Assumptions 2, 5 and 6, once the first tanker truck arrives at tank T-100, discharge into the tank continues uninterrupted except for the 10-minute period when one truck is disconnected from the tank and the next full truck is connected. The efficiency of each truck is therefore calculated as follows:

$$\text{Efficiency} = \frac{\text{Time to Discharge into Tank T}-100}{\text{Total Time at Tank T}-100}$$

$$= \frac{\text{Tanker Capacity} \,/\, \text{Required Tanker Discharge Rate}}{\text{Tanker Capacity} \,/\, \text{Required Tanker Discharge Rate} + 10 \text{ minutes}}$$

The tanker efficiency can be interpreted as the percentage of the total time at tank T-100 that represents actual discharge into the tank. Tanker efficiencies for the 5,000 gallon, 4,000 gallon and 1,400 gallon trucks are 85.8 percent, 82.8 percent and 62.8 percent, respectively. Supporting calculations are included as an attachment to this calculation sheet.

Because the capacity of the tanker trucks is not equal, the number of round trips made between the site secondary containment areas and tank T-100 is not expected to be the same. In general, the smaller capacity tankers (e.g., the 1,400 and 4,000 gallon tankers) would be expected to make more round trips than the 5,000 gallon tanker because they can fill up and discharge more quickly. A "return frequency" is, therefore, calculated for each truck as follows:

Calculation Sheet

$$\text{Return Frequency} = \frac{I}{I_1 + I_2 + I_3},$$

where,

$$I = \left[\frac{\text{Total Time at Tank T-100}}{\text{Sum of Total Times at Tank T-100 for all Tankers}} \right]^{-1}$$

I_1 = I for Tanker No. 1
I_2 = I for Tanker No. 2
I_3 = I for Tanker No. 3

The return frequency for each tanker can be interpreted as the percentage of the total collection and transfer time that is spent at tank T-100. Return frequencies for the 5,000 gallon, 4,000 gallon and 1,400 gallon trucks are 20.7 percent, 25.0 percent and 54.2 percent, respectively. Supporting calculations are included as an attachment to this calculation sheet.

A weighted efficiency of 72.6 percent for the three tankers is calculated based on the efficiency and return frequency for each individual tanker.

3. Required Time to Discharge

The required time to discharge is determined by calculating the total volume of water that is discharged into tank T-100 from the tanker trucks and dividing it by the available discharge time and the fleet-average tanker efficiency determined above. The required time to discharge is calculated as follows:

$$\text{Required Time to Discharge} = \frac{\text{Total Volume to be Discharged}}{(\text{Discharge Rate})(\text{Weighted Tanker Efficiency})}$$

$$\text{Required Time to Discharge} = \frac{64{,}836 \text{ gal}}{(83 \text{ gpm})(60 \text{ min/hr})(0.726)} = 17.9 \text{ hr}$$

Supporting calculations are included as an attachment to this calculation sheet.

SUMMARY

Because the tank outflow rate exceeds the inflow rate, zero storage capacity within tank T-100 is required to compensate for difference between tank T-100 inflow and outflow rates. The required time to discharge collected water from site secondary containment areas into tank T-100 is 17.9 hours.

Calculations

Individual Tanker Efficiency and Average Efficiency of Tanker Fleet

Tanker No.	Capacity [gal]	Tanker Discharge Rate [gpm]	Time to Discharge at Tank T-100 [min]	Connect & Disconnect Time at Tank T-100 [min]	Total Time at Tank T-100 [min]	Tanker Efficiency [%]
1	5000	83.0	60.2	10	70.2	85.8
2	4000	83.0	48.2	10	58.2	82.8
3	1400	83.0	16.9	10	26.9	62.8

Tanker No.	Capacity [gal]	Inverse of (Total Time at Tank T-100/Sum of Total Times at Tank T-100 for all Tankers)	Return Frequency at Tank T-100 [%]	Product of Tanker Efficiency and Return Frequency at Tank T-100
1	5000	2.21	20.7	17.8
2	4000	2.67	25.0	20.7
3	1400	5.78	54.2	34.0
		Weighted Efficiency of Tanker Fleet [%]:		**72.6**

Required Tanker Discharge Rate	
Net Volume Requiring Discharge to Tank T-100 via Tanker Trucks:	64,836
Time Available to Discharge to Tank T-100 [hr]:	24
Weighted Tanker Efficiency [%]:	72.6
Tanker Discharge Rate [gpm]:	83.0
Required Time to Discharge [hr]:	**17.9**

References

CWM Chemical Services, LLC
Model City, NY Facility
RMU-1 Leachate Level Compliance Plan - Summary of Secondary Containment Stormwater Volumes

Area ID #	Secondary Containment Location	Area	Volume of Stormwater from 4-inch rain event (4 in. = 0.333 ft)							
				Process Methods						
		(ft^2)	Total Accumulated Storage (gallons)	Volume Excluded from AWTS Processing (gallons)	Volume Transferred Directly to LTF (gallons)	Volume Transferred Directly to AWTS prior to tank T-100 (gallons)	Volume Transferred to tank T-100 Following LLCP Evaluation Period (gallons)	Volume Processed Through Tank T-100		Comments
								Pumped Inflow	Tankered Inflow	
1	Tank T-52	324	808			808				Drains to W/T Building & pumped into T-3009/T-210 (Bypasses W/T)
2	Tank T-58	24952	62214	62214						Pumped back to T-58
3	SLF 1-6 Lift Station Truck Ramp	715	1781				1781			
4	SLF 7/11 Leachate Collection Bldg Truck Ramp	733	1809	1809						Drains to building during 24 hr/25yr storm only
5	SLF 10 Leachate Collection Bldg Truck Ramp	715	1781	1781						Drains to building during 24 hr/25yr storm only
6	SLF 1-11 OWS Bldg Truck Ramp	715	1781	1781						Drains to building during 24 hr/25yr storm only
7	AT East Tank Farm	2612	6446			6446				Pumped back to T-210 or T-230 (Bypasses W/T)
8	AT Front Unloading Ramp and Sump	1050	5231					5231		
9	Solid Separation Bldg Sump	171	426						426	
10	Tanks TA-1 and TA-2	1920	4739	4739						Pumped back to TA-1, TA-2, T-6001 or T-6002 (Stabilization process water)
11	Stabilization Trailer Unloading Pad	442	1101				1101			
12	Stabilization Baghouses 1, 2, & 3	1911	4764				4764			
13	Full Trailer Parking Area	14702	36622						36622	
14	Stabilization Parking Areas (N, W, S)	10500	26156						26156	
15	Drum Warehouse West Ramp	1848	4604				4604			
16	Leachate Tank Farm (T-101, T-102, T-103)	17325	42765		42765					Pumped back to T-101, 102, or 103 (Deducted for gutters on tanks)
17	Tanks T-100 and T-125 Area	12210	30139					30139		Gutters on tanks T-100, 125 (Deducted tank area
18	Tank T-130	424	1057						1057	
19	Tanks T-3001 and T-3002	119	294						294	
20	Tank T-3003	114	281						281	
	Sum		234799	72324	42765	7254	12250	35370	64836	

Calculations:

Total Volume Directed to AWTS = Total Accumulated Storage - Volume Excluded from AWTS Processing - Volume Transferred Directly to LTF - Volume Transferred to Tank T-100 Following LLCP Evaluation 107460 gallons

Notes
1. AWTS = Aqueous Wastewater Treatment System
2. LTF = Leachate Tank Farm
3. AT = Aqueous Treatment
4. N/A = Not Applicable
5. Data presented on this table is based on permit and operations information provided by CWM.
6. Secondary containment stormwwater may be discharged directly to site surface drainage features following acceptable sampling results.

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Appendix C

Slope Stability Analysis

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Infrastructure, environment, buildings

Imagine the result

Calculation Sheet

Client: CWM Chemical Services, LLC

Project Location: Model City, New York

Project: RMU-1 Leachate Level Compliance Plan **Project No.:** B0023726.0000

Subject: Fill Progression Slope Stability Analysis

Prepared By: JPT **Date:** October 2009

Reviewed By: APC **Date:** October 2009

Checked By: BMS **Date:** October 2009

OBJECTIVE

Evaluate the slope stability for the design grades depicted on the figure entitled *RMU-1 Fill Progression and Truck Routes (Cells 1 Through 14) – Final Sequence Phase 2* for sliding block and circular failure for static and seismic conditions. Maximum landfill height evaluated is 417.5 feet above mean sea level.

REFERENCES

1. *Engineering Report for CWM Chemical Services, LLC Model City Facility, Residuals Management Unit-1*, EarthTech.
2. SLOPE/W 2007, Geo-Slope International Ltd. Calgary, Alberta, Canada.
3. Proposed grading design for waste fill progression and capping for Cells 1 through 14 presented on Figure 1, entitled *Residuals Management Unit-1 Fill Progression and Truck Routes, Cells 1 Through 14 – Final Sequence Phase 2*, ARCADIS, October 2009.
4. Figure entitled *Glaciolacustrine Silt/Sand Unit Potentiometric Contour Map*, dated May 15, 2001, prepared by Golder Associates, Inc., January 2002.
5. *RCRA Subtitle D (258) Seismic Design Guidance for Municipal Solid Waste Landfill Facilities*, United States Environmental Protection Agency (USEPA), EPA/600/R-95/051, April 1995.
6. Site-Wide Permit, Module VI, Condition E.2, Table 2.0.
7. *Shear Strength Evaluation for Slope Stability Analyses Residuals Management Unit One (RMU-1) Model City Treatment, Storage and Disposal Facility, Model City, New York*, Drs. Robert M. Koerner, Robert B. Gilbert, and Timothy D. Stark and Francis T. Adams, March 2001.
8. Peak Acceleration with 2% Probability of Exceedance in 50 Years, United States Geological Survey (USGS) National Seismic Hazard Map, 2008.
9. Seismic Analysis and Design Considerations for Municipal Solid Waste Landfills, New York Association for Solid Waste Management, in cooperation with the New York State Department of Environmental Conservation and the USEPA, March 1994.

Calculation Sheet

ASSUMPTIONS

1. The slope stability analyses provided herein have been performed using similar methods and assumptions as past RMU-1 slope stability analyses and are based on the parameters presented in the table below.

Material	Unit Weight (pcf)	Material Cohesion (psf)	Friction Angle (degrees)
Waste	111	0	30
Granular Operations Layer	135	0	24
Granular Primary Leachate Collection Layer	135	0	24
Textured Primary Liner	58.7	0	15
Granular Secondary Leachate Collection Layer	135	0	24
Textured Secondary Liner	58.7	0	15
Compacted Clay Layer	130	1,000	10
Structural Fill	130	2,000	0
Upper Till	130	800	10
Glaciolacustrine Clay	125	320	10
Glaciolacustrine Silt/Sand	130	0	30
Bedrock	140	2,000	40

pcf – pounds per cubic foot

The material properties in the above table were obtained from Reference 6. However, the internal friction angle of the waste layer was obtained from the Peer Review Panel (Reference 7). The angle was increased from 24 degrees, as used in previous analyses to 30 degrees for use in this analysis. As described in Reference 7, Dr. Koerner and Dr. Stark visited the Model City site in June 1999 during filling activities in Cells 7 and 8. It was observed that the wastes appeared to be soil-like in nature, and placed with a significant amount of compaction. The Peer Review Panel believed that the strength parameters formally assessed for the waste were conservative because the former strength assessment assumed that a layer of weak material was placed over the entire area of the landfill. This was thought to be unrealistic based on past and current practices at the site and current restrictions in the RMU-1 permit and Operation and Maintenance (O&M) Manual.

The Peer Review Panel performed a review of literature and other existing sites, and found the strength parameters for the waste at the Kettleman Hills Facility in California to be the most applicable example. At the Kettleman Hills Facility, a waste friction angle of 40 degrees has been used in previous designs, and has been accepted by the State of California and the USEPA. As a result of their research, the Peer Review Panel recommended using a conservative friction angle of 30 degrees in stability analyses, and felt that it is conservative even accounting for the placement of minimum strength wastes placed in the landfill, as those wastes make up only a small percentage of the total volume placed. ARCADIS recognizes the expertise of the Peer Review Panel and used the 30-degree friction angle for the stability analyses described herein.

Calculation Sheet

Primary Baseliner System

A cross-section of the primary baseliner system consists of the following (from top to bottom):

- Operations Layer (included as a separate layer in the analyses provided herein)
- Non-woven Geotextile (included as a separate layer in the analyses provided herein)
- Granular Layer (included as a separate layer in the analyses provided herein)
- Geotextile/Geonet or Geocomposite
- 80-mil Textured High-Density Polyethylene (HDPE) Liner
- Compacted Clay Layer (CCL; included as a separate layer in the analyses provided herein)

Secondary Baseliner System

The secondary baseliner system consists of the following components (from top to bottom):

- Non-woven Geotextile (included as a separate layer [i.e., interface between CCL/NWGT] in the analyses provided herein)
- Granular Layer (included as a separate layer in the analyses provided herein)
- Geotextile/Geonet or Geocomposite
- 80-mil Textured HDPE Membrane
- CCL (included as a separate layer in the analyses provided herein)

Sideslope Liner System

The sideslope liner system consists of the following (from top to bottom):

- Operations Layer (included as a separate layer in the analyses provided herein)
- Geocomposite
- 80-mil Textured HDPE Membrane
- Geocomposite
- 80-mil Textured HDPE Membrane
- CCL (included as a separate layer in the analyses provided herein)

2. Minimum acceptable factor of safety is 1.50 for static analyses and 1.00 for seismic analyses.

3. Cross-section A-A' is taken along a northwest-southeast orientation and is anticipated to represent a critical condition in terms of fill progression stability.

4. The piezometric elevation in the table below has been applied to all layers below the secondary leachate collection layer. For the purposes of this analysis, the following was assumed for cross-section A-A' based on Reference 4:

Calculation Sheet

Cross-Section	Elevation of Piezometric Surface (fmsl)	Ground Surface Elevation (fmsl)
A-A'	315.5	320.0

fmsl - feet above mean sea level

5. Peak bedrock acceleration of 0.12g is used for pseudo-static analyses, and is given by Reference 8.

CALCULATIONS

1. Static Evaluation

The slope stability calculations were performed using the SLOPE/W computer program by Geo-Slope International, Ltd. (Reference 2). Static analyses for the sliding block and circular mode of failure were performed using the Spencer method, which satisfies both moment and force equilibrium. The following is a summary of the factors of safety for the static analyses:

Cross-Section	Static Stability Analysis, (Factor of Safety)	
	Circular Mode (through Glaciolacustrine Clay)	Sliding Block
A-A'	1.549	1.896

Because the calculated factors of safety are greater than 1.50, the static stability for the fill progression design is acceptable. Detailed output from the analyses, including figures showing the critical slip surface, is provided in Attachments A and B.

Note that to evaluate a sliding block failure of the liner system, the critical failure surface was assumed to occur along the weakest interface, which was presumed to be the compacted clay layer and non-woven geotextile (CCL/NWGT) interface. Thus, the compacted clay layer is modeled as bedrock in order to limit the failure surface at the CCL/NWGT interface.

Static stability analyses were also performed assuming a circular failure through the Glaciolacustrine Silt/Sand. Because these analyses yielded factors of safety greater than the circular mode failure through the Glaciolacustrine Clay, the results and figures depicting the slip surfaces are not included herein.

2. Seismic Evaluation

Pseudo-static stability analyses were also performed to determine the stability of the fill progression design under the anticipated maximum seismic event that may occur. Based on Step 1 of the USEPA seismic design guidance document for municipal solid waste landfills (Reference 5), the RMU-1 site, not considering the waste in place, is classified as a medium stiff soil site (average shear wave velocity greater than 650 feet per second). Using the recommendations listed in Step 2 (page 45 of Reference 5), the peak free field acceleration should be computed as the average for a rock site and a soft soil site (Figures 4.4a and b). This computes to approximately 1.5 times the peak bedrock acceleration as a

Calculation Sheet

prediction for the free field peak acceleration. The USEPA guidance document then recommends computing the average peak acceleration with the landfill mass in place by using Figure 4.7. Given the depth of waste at the mid-section of the failure mass is approximately 50% of the total soil column, the average acceleration at the base of the failure mass is less than 60% of the free field acceleration or approximately 0.9 times the peak bedrock acceleration. Therefore, use of the peak bedrock acceleration for the pseudo-static acceleration analysis is justified.

It should be noted that for the global analysis, the Glaciolacustrine Clay strength was reduced by 20% for the circular mode calculation, as recommended in Reference 5 for saturated, normally consolidated clays. For the global analysis, the critical slip surface was first determined assuming no seismic acceleration. This slip surface was then used with the horizontal seismic coefficient equal to 0.12 (Reference 8), and a factor of safety was determined for this slip surface. The pseudo-static sliding block analysis was performed similar to the static sliding block analysis, but with the horizontal acceleration equal to 0.12g.

The factors of safety for the pseudo-static analyses are summarized in the following table:

Cross-Section	Pseudo-Static Stability Analysis, (Factor of Safety)	
	Circular Mode (through Glaciolacustrine Clay)	Sliding Block
A-A'	1.161	1.342

Becuase the calculated factors of safety are greater than 1.00, the pseudo-static stability for the fill progression design is acceptable. Detailed output from the analyses, including figures showing the critical slip surface, is provided in Attachments C and D.

SUMMARY

The slope stability evaluation provided herein indicates that acceptable factors of safety (i.e., greater than 1.50 for static and greater than 1.00 for seismic) can be achieved for the revised fill progression design with a maximum landfill elevation of 417.5 feet for both circular and sliding block failure modes.

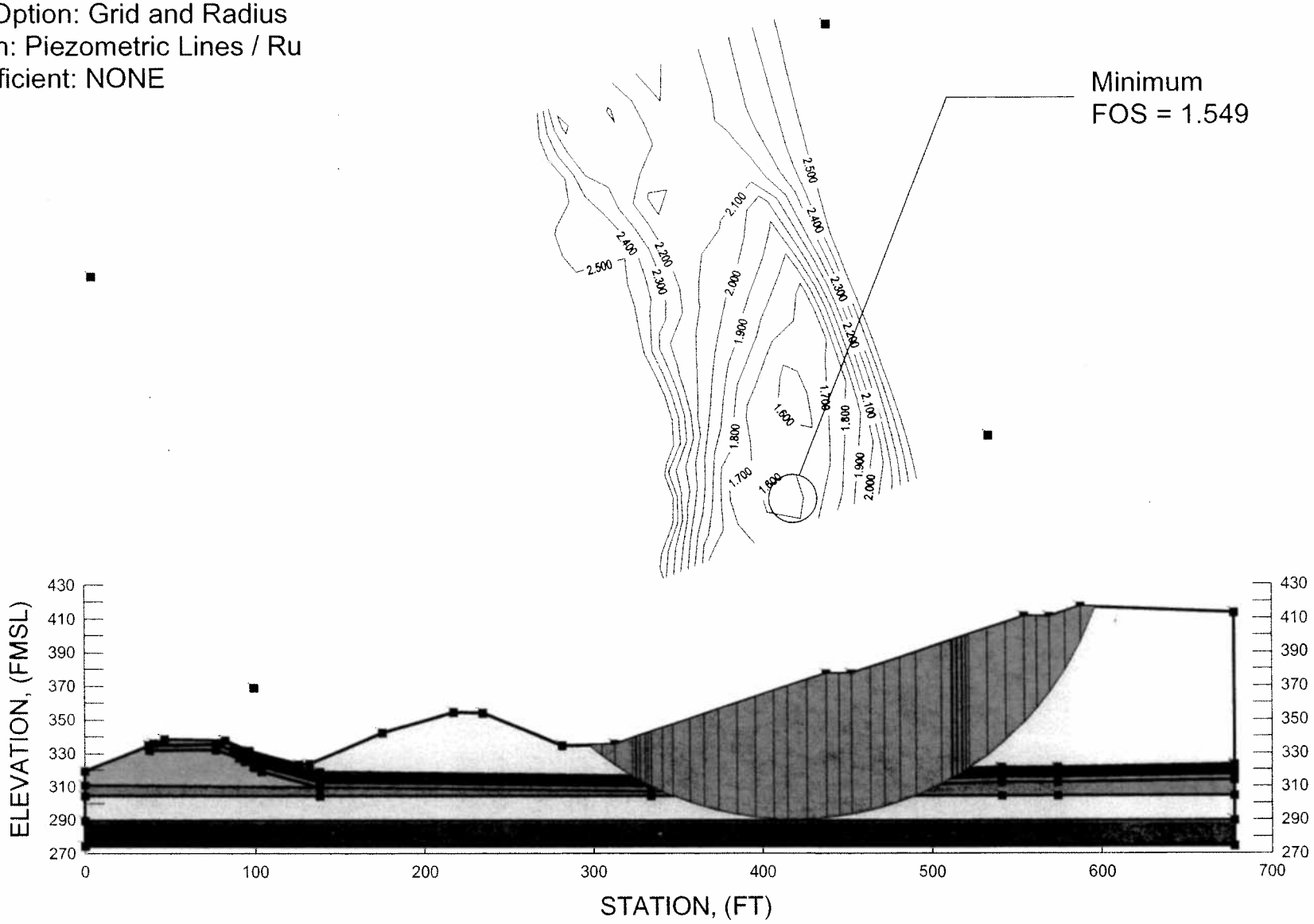
ARCADIS

Attachment A

Static – Circular

STATIC STABILITY ANALYSIS:
CIRCULAR MODE

Model City Final Sequence Phase 1:
File Name: STATIC-GLOBAL_9-15-09.gsz
Analysis Method: Spencer
Direction of Slip Movement: Right to Left
Slip Surface Option: Grid and Radius
P.W.P. Option: Piezometric Lines / Ru
Seismic Coefficient: NONE



SLOPE/W

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Last Solved Date: 9/30/2009
Last Solved Time: 10:07:48 PM

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Time(t) Units: Seconds
Force(F) Units: lbf
Pressure(p) Units: psf
Strength Units: psf
Unit Weight of Water: 62.4 pcf
View: 2D

Analysis Settings

SLOPE/W

Kind: SLOPE/W
Method: Spencer
Settings
- Apply Phreatic Correction: No
- PWP Conditions Source: Piezometric Line with Ru

SlipSurface
- Direction of movement: Right to Left
- Use Passive Mode: No
- Slip Surface Option: Grid and Radius
- Critical slip surfaces saved: 1
- Optimize Critical Slip Surface Location: No

FOS Distribution
- FOS Calculation Option: Constant

Advanced
- Number of Slices: 30
- Optimization Tolerance: 0.01
- Minimum Slip Surface Depth: 0.1 ft
- Optimization Maximum Iterations: 2000
- Optimization Convergence Tolerance: 1e-007
- Starting Optimization Points: 8
- Ending Optimization Points: 16
- Complete Passes per Insertion: 1
- Driving Side Maximum Convex Angle: 5 °
- Resisting Side Maximum Convex Angle: 1 °

Materials

Waste
- Model: Mohr-Coulomb
- Unit Weight: 111 pcf
- Cohesion: 0 psf
- Phi: 30 °
- Phi-B: 0 °
- Pore Water Pressure
  - Ru: 0
  - Include in PWP: No

operations Layer
- Model: Mohr-Coulomb
- Unit Weight: 135 pcf
- Cohesion: 0 psf
- Phi: 24 °
- Phi-B: 0 °
- Pore Water Pressure
  - Ru: 0
  - Include in PWP: No

Geotextile (2)
- Model: Mohr-Coulomb
- Unit Weight: 58.7 pcf
- Cohesion: 0 psf
- Phi: 15 °
- Phi-B: 0 °
- Pore Water Pressure
  - Ru: 0
  - Include in PWP: No

Primary Leachate Collection

Model: Mohr-Coulomb
Unit Weight: 135 pcf
Cohesion: 0 psf
Phi: 24 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Sideslope Liner (textured 1000-2000psf)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Primary Liner (textured 1000-2000psf)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Primary Liner (textured 2000-5000psf)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Compacted Clay

Model: Mohr-Coulomb
Unit Weight: 130 pcf

Cohesion: 1000 psf
Phi: 10 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Geotextile

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Secondary Leachate Collection

Model: Mohr-Coulomb
Unit Weight: 135 pcf
Cohesion: 0 psf
Phi: 24 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Srecondary Liner (textured)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Secondary Compacted Clay

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 1000 psf
Phi: 10 °
Phi-B: 0 °

Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Structural Fill

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 2000 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Upper Till

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 800 psf
Phi: 10 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Glaciolacustrine Clay

Model: Mohr-Coulomb
Unit Weight: 125 pcf
Cohesion: 320 psf
Phi: 10 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Glaciolacustrine Silt and Sand

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 0 psf
Phi: 30 °
Phi-B: 0 °
Pore Water Pressure

Piezometric Line: 1
Ru: 0
Include in PWP: No

Slip Surface Grid

Upper Left: (-48.87088, 584.22692) ft
Lower Left: (70.12912, 326.97692) ft
Lower Right: (615.62912, 539.97692) ft
Grid Horizontal Increment: 20
Grid Vertical Increment: 20
Left Projection Angle: 0 °
Right Projection Angle: 0 °

Slip Surface Radius

Upper Left Coordinate: (193, 276.72) ft
Upper Right Coordinate: (618.5, 384.22) ft
Lower Left Coordinate: (188.25, 244.97) ft
Lower Right Coordinate: (684.45, 313.97) ft
Number of Increments: 5
Left Projection: No
Left Projection Angle: 0 °
Right Projection: No
Right Projection Angle: 0 °
UsePoints: 0

Slip Surface Limits

Left Coordinate: (0, 319.47) ft
Right Coordinate: (677.83, 412.98) ft

Piezometric Lines

Piezometric Line 1

Coordinates

X (ft)	Y (ft)
0	315.5
677.83	315

Seismic Loads

Horz Seismic Load: 0

Vert Seismic Load: 0

Critical Slip Surfaces

	Slip Surface	FOS	Center (ft)	Radius (ft)	Entry (ft)	Exit (ft)
1	209	1.549	(418.754, 478.289)	188.08	(596.38, 416.461)	(296.88, 335.039)

Slices of Slip Surface: 209

	Slip Surface	X (ft)	Y (ft)	PWP (psf)	Base Normal Stress (psf)	Frictional Strength (psf)	Cohesive Strength (psf)
1	209	300.78985	331.88885	0	728.76941	420.75521	0
2	209	308.60995	325.91195	0	1934.4689	1116.8661	0
3	209	317.80405	319.7216	0	3303.2355	1907.1239	0
4	209	323.96205	315.8476	0	3833.4108	1706.7445	0
5	209	324.90315	315.29895	0	3523.5338	944.12804	0
6	209	325.12515	315.1714	0	3541.2782	948.88263	0
7	209	326.18605	314.57215	0	4122.4335	1835.4256	0
8	209	327.3223	313.92985	0	3811.7912	1021.3664	0
9	209	328.97005	313.03165	0	4363.6086	769.42194	1000
10	209	330.6285	312.13375	0	4198.0397	1124.8613	0
11	209	331.4634	311.69475	0	4775.3217	2126.1102	0
12	209	332.9464	310.9277	0	4962.4466	2209.4236	0
13	209	333.9177	310.4303	300.97981	4533.8096	1134.1833	0
14	209	334.1712	310.3025	308.94675	4550.3462	1136.4796	0
15	209	337.5481	308.68145	409.93892	5195.1388	843.75985	1000
16	209	343.8349	305.8083	588.94197	5687.1369	898.94932	800
17	209	351.958	302.55355	791.65473	6162.4541	947.01683	320
18	209	361.25	299.2719	996.00538	6874.6225	1036.5588	320
19	209	369.69535	296.77285	1151.5499	7446.1295	1109.9042	320
20	209	379.3394	294.47065	1294.7417	8011.4275	1184.3329	320

21	209	390.2368	292.46615	1419.3249	8556.4936	1258.4754	320
22	209	401.13415	291.11705	1503.0752	9003.0113	1322.4411	320
23	209	410.66935	290.42825	1545.6081	9321.2001	1371.0467	320
24	209	420.4769	290.3048	1552.8021	9566.0579	1412.9532	320
25	209	431.91895	290.75885	1523.9464	9767.9033	1453.632	320
26	209	441.3975	291.6163	1469.9969	9728.4257	1456.1838	320
27	209	448.9125	292.6826	1403.1549	9480.3257	1424.2231	320
28	209	458.23205	294.48775	1290.0572	9321.6697	1416.19	320
29	209	467.8806	296.7885	1146.0559	9244.5772	1427.9878	320
30	209	476.6234	299.4009	982.64848	9107.9323	1432.7068	320
31	209	485.936	302.6886	777.06468	8899.0353	1432.1226	320
32	209	498.03985	307.93625	449.0572	8411.7957	1404.0456	800
33	209	508.4139	312.98985	133.23281	7927.0774	1374.2651	1000
34	209	511.5729	314.70915	25.80294	7837.7577	2093.207	0
35	209	512.0514	314.9816	0	7527.7893	3351.5877	0
36	209	513.4136	315.77225	0	7450.4532	3317.1555	0
37	209	514.75155	316.554	0	7681.9566	2058.3741	0
38	209	516.2741	317.47445	0	7534.6297	1328.5585	1000
39	209	517.7865	318.3946	0	7535.5924	2019.1559	0
40	209	518.83375	319.05085	0	7167.7814	3191.3019	0
41	209	519.8751	319.70695	0	7426.0587	1989.8064	0
42	209	520.8913	320.3623	0	7054.5687	3140.8963	0
43	209	527.15815	324.7386	0	6465.3027	3732.7442	0
44	209	538.0709	333.0739	0	5792.7887	3344.4681	0
45	209	548.98365	342.80175	0	5027.2092	2902.4606	0
46	209	558.19	352.1931	0	4220.7319	2436.8407	0
47	209	565.69	361.0392	0	3400.3077	1963.1686	0
48	209	574.015	372.4499	0	2538.5635	1465.6403	0
49	209	583.165	387.44065	0	1604.1707	926.16836	0
50	209	592.06025	406.0904	0	520.6859	300.61815	0

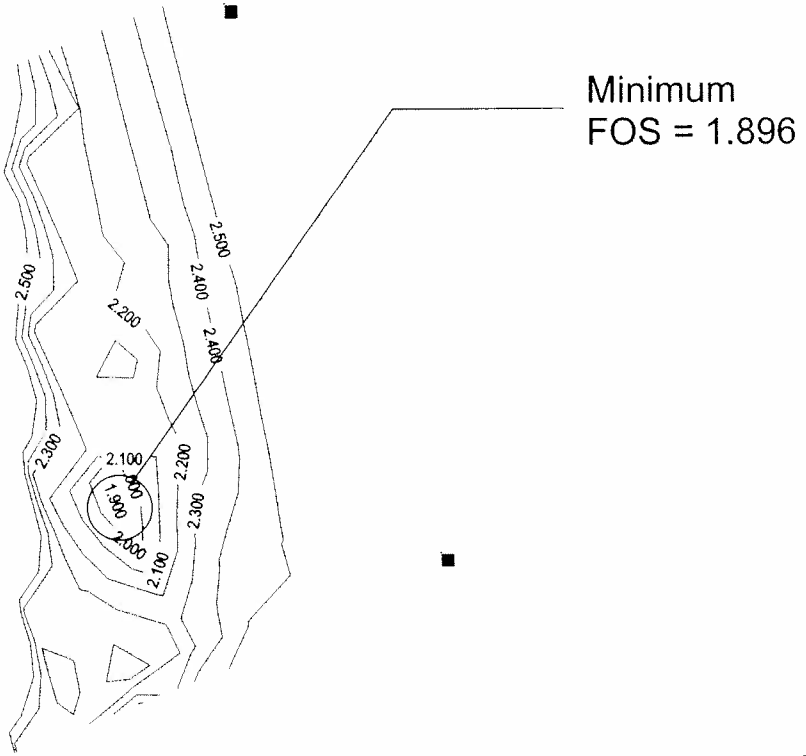
ARCADIS

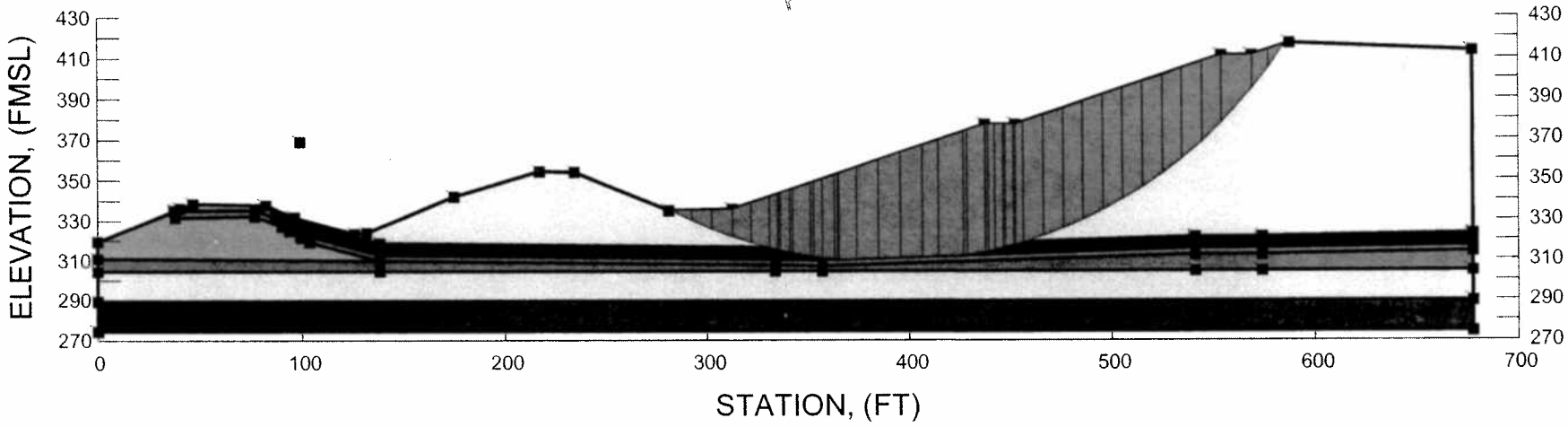
Attachment B

Static – Sliding Block

STATIC STABILITY ANALYSIS:
SLIDING BLOCK

Model City Final Sequence Phase 1:
File Name: STATIC-SB_9-15-09.gsz
Analysis Method: Spencer
Direction of Slip Movement: Right to Left
Slip Surface Option: Grid and Radius
P.W.P. Option: Piezometric Lines / Ru
Seismic Coefficient: NONE





SLOPE/W

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File Information

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Time: 10:18:51 PM
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Last Solved Date: 9/30/2009
Last Solved Time: 10:18:58 PM

Project Settings

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Time(t) Units: Seconds
Force(F) Units: lbf
Pressure(p) Units: psf
Strength Units: psf
Unit Weight of Water: 62.4 pcf
View: 2D

Analysis Settings

SLOPE/W

Kind: SLOPE/W
Method: Spencer
Settings
    Apply Phreatic Correction: No
    PWP Conditions Source: Piezometric Line with Ru
SlipSurface
    Direction of movement: Right to Left
    Use Passive Mode: No
    Slip Surface Option: Grid and Radius
    Critical slip surfaces saved: 1
    Optimize Critical Slip Surface Location: No
FOS Distribution
    FOS Calculation Option: Constant

Advanced
- Number of Slices: 30
- Optimization Tolerance: 0.01
- Minimum Slip Surface Depth: 0.1 ft
- Optimization Maximum Iterations: 2000
- Optimization Convergence Tolerance: 1e-007
- Starting Optimization Points: 8
- Ending Optimization Points: 16
- Complete Passes per Insertion: 1
- Driving Side Maximum Convex Angle: 5 °
- Resisting Side Maximum Convex Angle: 1 °

Materials

Waste
- Model: Mohr-Coulomb
- Unit Weight: 111 pcf
- Cohesion: 0 psf
- Phi: 30 °
- Phi-B: 0 °
- Pore Water Pressure
  - Ru: 0
  - Include in PWP: No

operations Layer
- Model: Mohr-Coulomb
- Unit Weight: 135 pcf
- Cohesion: 0 psf
- Phi: 24 °
- Phi-B: 0 °
- Pore Water Pressure
  - Ru: 0
  - Include in PWP: No

Geotextile (2)
- Model: Mohr-Coulomb
- Unit Weight: 58.7 pcf
- Cohesion: 0 psf
- Phi: 15 °
- Phi-B: 0 °
- Pore Water Pressure
  - Ru: 0
  - Include in PWP: No

Primary Leachate Collection

Model: Mohr-Coulomb
Unit Weight: 135 pcf
Cohesion: 0 psf
Phi: 24 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Sideslope Liner (textured 1000-2000psf)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Primary Liner (textured 1000-2000psf)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Primary Liner (textured 2000-5000psf)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Compacted Clay

Model: Mohr-Coulomb
Unit Weight: 130 pcf

Cohesion: 1000 psf
Phi: 10 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Geotextile

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Secondary Leachate Collection

Model: Mohr-Coulomb
Unit Weight: 135 pcf
Cohesion: 0 psf
Phi: 24 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Srecondary Liner (textured)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Secondary Compacted Clay

Model: Bedrock (Impenetrable)
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Structural Fill

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 2000 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Upper Till

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 800 psf
Phi: 10 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Glaciolacustrine Clay

Model: Mohr-Coulomb
Unit Weight: 125 pcf
Cohesion: 320 psf
Phi: 10 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Glaciolacustrine Silt and Sand

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 0 psf
Phi: 30 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Slip Surface Grid

Upper Left: (-48.87088, 584.22692) ft
Lower Left: (70.12912, 326.97692) ft
Lower Right: (615.62912, 539.97692) ft
Grid Horizontal Increment: 20
Grid Vertical Increment: 20
Left Projection Angle: 0 °
Right Projection Angle: 0 °

Slip Surface Radius

Upper Left Coordinate: (193, 276.72) ft
Upper Right Coordinate: (618.5, 384.22) ft
Lower Left Coordinate: (188.25, 244.97) ft
Lower Right Coordinate: (684.45, 313.97) ft
Number of Increments: 5
Left Projection: No
Left Projection Angle: 0 °
Right Projection: No
Right Projection Angle: 0 °
UsePoints: 0

Slip Surface Limits

Left Coordinate: (0, 319.47) ft
Right Coordinate: (677.83, 412.98) ft

Piezometric Lines

Piezometric Line 1

Coordinates

X (ft)	Y (ft)
0	315.5
677.83	315

Seismic Loads

Horz Seismic Load: 0

Vert Seismic Load: 0

Critical Slip Surfaces

	Slip Surface	FOS	Center (ft)	Radius (ft)	Entry (ft)	Exit (ft)
1	837	1.896	(389.004, 542.602)	233.651	(585.419, 416.055)	(282.279, 334.749)

Slices of Slip Surface: 837

	Slip Surface	X (ft)	Y (ft)	PWP (psf)	Base Normal Stress (psf)	Frictional Strength (psf)	Cohesive Strength (psf)
1	837	287.3195	332.3123	0	424.04004	244.81963	0
2	837	297.3997	327.72655	0	1169.2838	675.08631	0
3	837	307.4799	323.70085	0	1769.5215	1021.6337	0
4	837	317.13795	320.33065	0	2447.0817	1412.8233	0
5	837	326.37385	317.55235	0	3208.3414	1852.3368	0
6	837	333.048	315.76	0	3563.7776	1586.696	0
7	837	335.1765	315.2357	0	3722.84	1657.5152	0
8	837	335.8109	315.08715	0	3567.6887	955.95931	0
9	837	338.77355	314.4283	0	3951.5046	1759.3232	0
10	837	341.8166	313.7663	0	3953.1427	1059.2414	0
11	837	346.8178	312.83355	0	4394.8555	774.9316	1000
12	837	352.01275	311.8992	0	4540.1414	1216.5272	0
13	837	354.9245	311.4591	0	4882.2318	2173.7096	0
14	837	360.0117	310.77645	0	5142.3579	2289.5253	0
15	837	363.9306	310.3019	307.61011	5118.8532	1289.1687	0
16	837	365.0439	310.21015	313.28812	4895.5209	1227.8056	0
17	837	365.375	310.22	312.65268	4907.0134	1231.0553	0
18	837	369.69535	310.34895	304.40369	5056.0817	1273.2083	0
19	837	379.3394	310.63685	285.99653	5389.3561	1367.4411	0
20	837	390.2368	310.96215	265.20262	5765.7929	1473.8787	0
21	837	401.13415	311.28745	244.39954	6142.2296	1580.3188	0
22	837	410.66935	311.5721	226.20442	6471.5792	1673.4431	0
23	837	420.8727	311.87665	206.72289	6824.0368	1773.1039	0

24	837	427.88925	312.2111	185.52939	6699.9463	1745.5328	0
25	837	433.2145	313.2159	0	6743.1516	3002.2445	0
26	837	437.79875	314.1027	0	6724.6184	2993.993	0
27	837	438.62425	314.2815	0	6685.5436	1791.386	0
28	837	440.9298	314.79995	0	6605.4501	1164.7191	1000
29	837	444.548	315.658	0	6455.3186	1138.2468	1000
30	837	447.07435	316.2838	0	6364.1389	1705.2659	0
31	837	449.7154	316.9876	0	6236.1356	2776.5065	0
32	837	452.23975	317.6711	0	6145.2325	1646.6101	0
33	837	454.6365	318.36765	0	6083.7231	2708.648	0
34	837	461.49485	320.54015	0	5962.3137	3442.3434	0
35	837	471.27855	323.978	0	5801.9413	3349.7524	0
36	837	481.06225	327.91655	0	5594.3261	3229.8857	0
37	837	490.84595	332.3841	0	5339.5343	3082.7816	0
38	837	500.62965	337.4153	0	5037.3593	2908.3208	0
39	837	510.41335	343.05285	0	4687.3758	2706.2577	0
40	837	520.19705	349.35005	0	4288.8106	2476.1459	0
41	837	529.98075	356.3742	0	3840.628	2217.3876	0
42	837	539.76445	364.21155	0	3341.5511	1929.2454	0
43	837	549.54815	372.97565	0	2790.2326	1610.9415	0
44	837	561.94	385.8816	0	1809.4139	1044.6656	0
45	837	573.43465	399.29875	0	869.34418	501.91609	0
46	837	581.424	410.24745	0	288.74582	166.70748	0

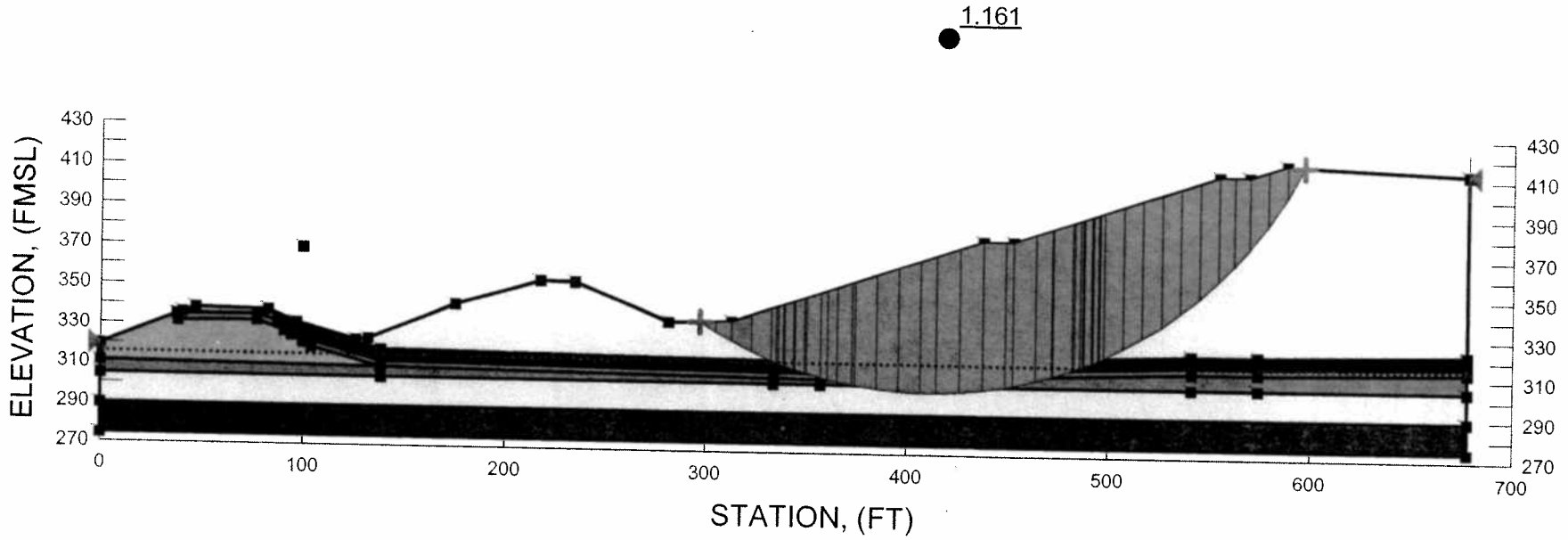
ARCADIS

Attachment C

Psuedo-Static – Circular

PSEUDOSTATIC STABILITY ANALYSIS:
CIRCULAR MODE

Model City Final Sequence Phase 1:
File Name: SEISMIC-GLOBAL_9-15-09.gsz
Analysis Method: Spencer
Direction of Slip Movement: Right to Left
Slip Surface Option: Grid and Radius
P.W.P. Option: Piezometric Lines / Ru
Seismic Coefficient: 0.12



SLOPE/W

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File Information

Revision Number: 87
Last Edited By: Thorpe, Jason
Date: 10/2/2009
Time: 4:27:53 PM
File Name: SEISMIC-GLOBAL_9-15-09.gsz
Directory: C:\Documents and Settings\jthorpe\Desktop\RMU-1 Stability\
Last Solved Date: 10/2/2009
Last Solved Time: 4:27:56 PM

Project Settings

Length(L) Units: feet
Time(t) Units: Seconds
Force(F) Units: lbf
Pressure(p) Units: psf
Strength Units: psf
Unit Weight of Water: 62.4 pcf
View: 2D

Analysis Settings

SLOPE/W

Kind: SLOPE/W
Method: Spencer
Settings
    Apply Phreatic Correction: No
    PWP Conditions Source: Piezometric Line with Ru
SlipSurface
    Direction of movement: Right to Left
    Use Passive Mode: No
    Slip Surface Option: Entry and Exit
    Critical slip surfaces saved: 1
    Optimize Critical Slip Surface Location: No
FOS Distribution
    FOS Calculation Option: Constant
Advanced
    Number of Slices: 30
    Optimization Tolerance: 0.01
    Minimum Slip Surface Depth: 0.1 ft
    Optimization Maximum Iterations: 2000
    Optimization Convergence Tolerance: 1e-007
    Starting Optimization Points: 8

Ending Optimization Points: 16
Complete Passes per Insertion: 1
Driving Side Maximum Convex Angle: 5 °
Resisting Side Maximum Convex Angle: 1 °

Materials

Waste

Model: Mohr-Coulomb
Unit Weight: 111 pcf
Cohesion: 0 psf
Phi: 30 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

operations Layer

Model: Mohr-Coulomb
Unit Weight: 135 pcf
Cohesion: 0 psf
Phi: 24 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Geotextile (2)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Primary Leachate Collection

Model: Mohr-Coulomb
Unit Weight: 135 pcf
Cohesion: 0 psf
Phi: 24 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Sideslope Liner (textured 1000-2000psf)

Model: Mohr-Coulomb

Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Primary Liner (textured 1000-2000psf)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Primary Liner (textured 2000-5000psf)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Compacted Clay

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 1000 psf
Phi: 10 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Geotextile

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Secondary Leachate Collection

Model: Mohr-Coulomb

Unit Weight: 135 pcf
Cohesion: 0 psf
Phi: 24 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Srecondary Liner (textured)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Secondary Compacted Clay

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 1000 psf
Phi: 10 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Structural Fill

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 2000 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Upper Till

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 800 psf
Phi: 10 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Glaciolacustrine Clay

Model: Mohr-Coulomb
Unit Weight: 125 pcf
Cohesion: 256 psf
Phi: 8 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Glaciolacustrine Silt and Sand

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 0 psf
Phi: 30 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Slip Surface Entry and Exit

Left Projection: Point
Left Coordinate: (296.85965, 335.039) ft
Left-Zone Increment: 4
Right Projection: Point
Right Coordinate: (596.3746, 416.461) ft
Right-Zone Increment: 4
Radius Increments: 5

Slip Surface Limits

Left Coordinate: (0, 319.47) ft
Right Coordinate: (677.83, 412.98) ft

Piezometric Lines

Piezometric Line 1

Coordinates

	X (ft)	Y (ft)
	0	315.5
	677.83	315

Seismic Loads

Horz Seismic Load: 0.12
Vert Seismic Load: 0
Ignore seismic load in strength: Yes

Critical Slip Surfaces

	Slip Surface	FOS	Center (ft)	Radius (ft)	Entry (ft)	Exit (ft)
1	4	1.161	(410.666, 507.998)	207.043	(596.375, 416.461)	(296.86, 335.039)

Slices of Slip Surface: 4

	Slip Surface	X (ft)	Y (ft)	PWP (psf)	Base Normal Stress (psf)	Frictional Strength (psf)	Cohesive Strength (psf)
1	4	300.7747	332.5863	0	617.06623	0	276.82
2	4	308.6049	327.91475	0	1662.8384	0	762.21
3	4	317.5323	323.1702	0	2900.3995	0	1359.1
4	4	327.5569	318.44685	0	4253.8574	0	2038.4
5	4	333.81545	315.751	0	4508.1544	0	1746.6
6	4	335.1039	315.2363	0	4652.0345	0	1806.5
7	4	335.47645	315.091	0	4118.4712	0	1010
8	4	337.1676	314.44665	0	4839.9045	0	1886.7
9	4	338.878	313.7995	0	4428.1414	0	1091.2
10	4	341.41775	312.89295	0	5068.2014	0	1797.5
11	4	343.9875	311.98645	0	4861.2489	0	1206.2
12	4	346.7581	311.0813	0	5689.6206	0	2252.8
13	4	349.5686	310.17575	316.14316	5246.4277	0	1232.1
14	4	353.49405	309.03875	386.91549	5852.2544	0	1880.3
15	4	358.83995	307.55555	479.20456	6178.5659	0	1927.2
16	4	362.96495	306.53875	542.46837	6301.2949	0	1751.2
17	4	365.375	305.9697	577.85712	6434.2956	0	1771.1
18	4	369.0891	305.20585	625.36941	6620.9403	0	1799.9
19	4	373.28445	304.3587	678.03347	6469.4903	0	1051.8
20	4	379.3394	303.4131	736.76639	6739.4205	0	1086.4
21	4	390.2368	302.03835	822.04503	7167.7476	0	1143.9
22	4	401.13415	301.2467	870.94542	7505.3053	0	1194.3
23	4	410.66935	300.99555	886.18254	7734.2147	0	1233.2
24	4	420.4769	301.2671	868.77801	7895.6328	0	1267.5
25	4	431.91895	302.1292	814.45761	8008.5231	0	1301.5
26	4	443.14695	303.5949	722.48211	7841.7447	0	1300
27	4	450.66195	304.86535	642.84793	7639.5146	0	2080.6
28	4	458.23205	306.5742	535.87692	7473.1957	0	2078.3
29	4	467.8806	309.063	380.13527	7312.2656	0	2088.1
30	4	472.2574	310.32875	300.95011	7222.4738	0	2090.9

31	4	477.3767	312.06335	192.47357	7083.5016	0	2288.4
32	4	482.5728	313.84345	81.156308	6961.2544	0	1967.8
33	4	484.46295	314.56045	0	6844.7752	0	3228.7
34	4	486.5747	315.3735	0	6765.4664	0	3200.1
35	4	487.5014	315.7406	0	6817.1192	0	1957.7
36	4	489.7938	316.684	0	6722.8158	0	2271.1
37	4	492.0612	317.6267	0	6683.4402	0	1927.8
38	4	493.6029	318.2977	0	6519.1572	0	3111.9
39	4	495.1314	318.96835	0	6577.7191	0	1903.9
40	4	496.6038	319.6373	0	6402.6695	0	3068.7
41	4	502.4984	322.51005	0	6056.2955	0	3785.9
42	4	511.94235	327.49725	0	5636.9426	0	3579.8
43	4	521.38625	333.1366	0	5177.4437	0	3343.9
44	4	530.83015	339.49385	0	4678.472	0	3077.2
45	4	540.2741	346.65435	0	4140.7008	0	2778.6
46	4	549.71805	354.73155	0	3565.2388	0	2446.4
47	4	558.19	362.82635	0	2943.2642	0	2065.7
48	4	565.69	370.8767	0	2293.1553	0	1646.5
49	4	574.015	381.0009	0	1653.3244	0	1222.5
50	4	583.165	393.7959	0	1017.8447	0	782.46
51	4	592.0573	408.58365	0	332.07687	0	267.07

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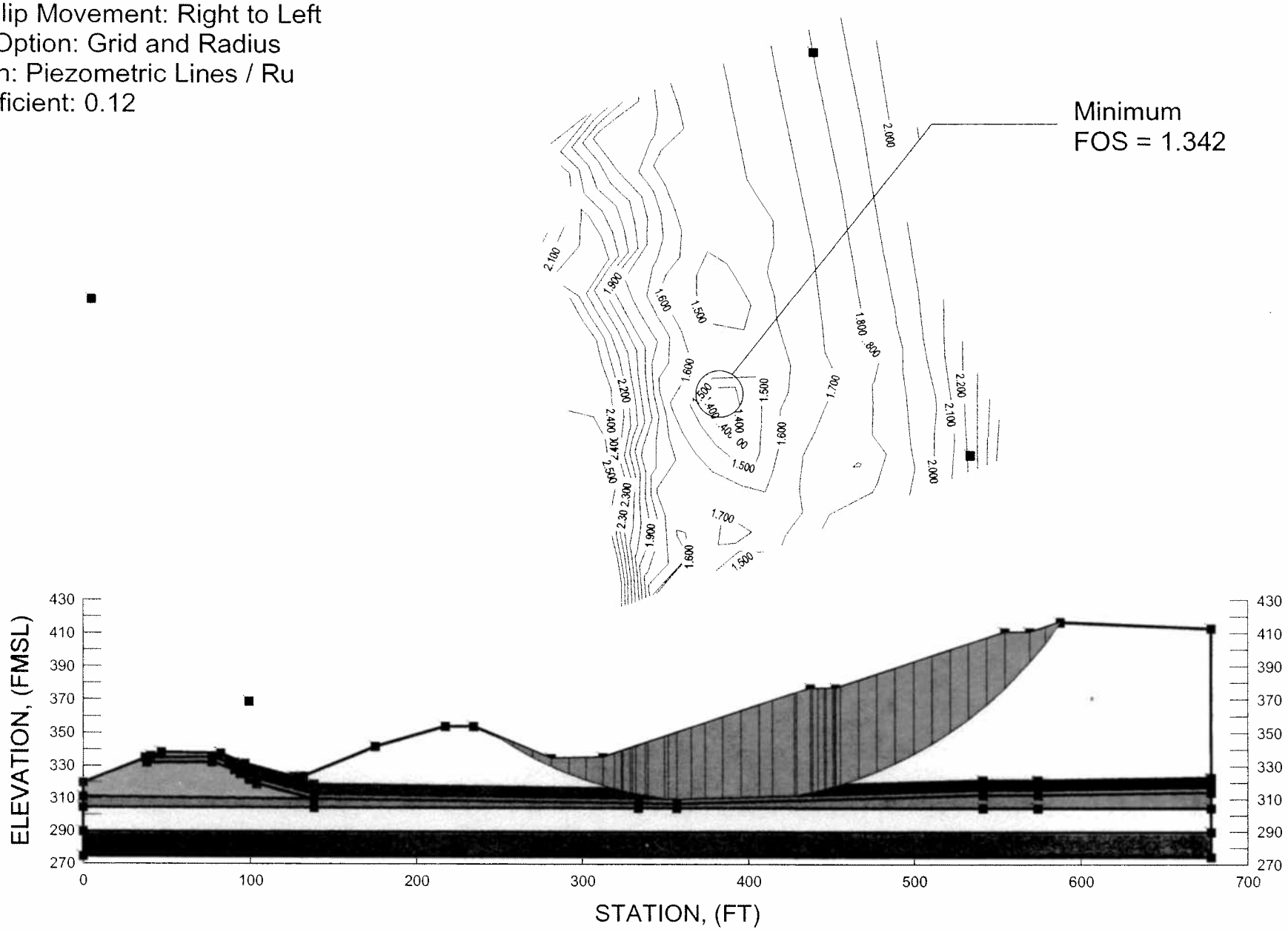
Attachment D

Pseudo-Static – Sliding Block

PSEUDO-STATIC STABILITY ANALYSIS:
SLIDING BLOCK

Model City Final Sequence Phase 1:
File Name: SEISMIC-SB_9-15-09.gsz
Analysis Method: Spencer
Direction of Slip Movement: Right to Left
Slip Surface Option: Grid and Radius
P.W.P. Option: Piezometric Lines / Ru
Seismic Coefficient: 0.12



SLOPE/W

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File Information

Revision Number: 98
Last Edited By: Thorpe, Jason
Date: 9/30/2009
Time: 10:34:44 PM
File Name: SEISMIC-SB_9-15-09.gsz
Directory: C:\Documents and Settings\jthorpe\Desktop\RMU-1 Stability\
Last Solved Date: 9/30/2009
Last Solved Time: 10:34:53 PM

Project Settings

Length(L) Units: feet
Time(t) Units: Seconds
Force(F) Units: lbf
Pressure(p) Units: psf
Strength Units: psf
Unit Weight of Water: 62.4 pcf
View: 2D

Analysis Settings

SLOPE/W

Kind: SLOPE/W
Method: Spencer
Settings
    Apply Phreatic Correction: No
    PWP Conditions Source: Piezometric Line with Ru
SlipSurface
    Direction of movement: Right to Left
    Use Passive Mode: No
    Slip Surface Option: Grid and Radius
    Critical slip surfaces saved: 1
    Optimize Critical Slip Surface Location: No
FOS Distribution
    FOS Calculation Option: Constant

Advanced
- Number of Slices: 30
- Optimization Tolerance: 0.01
- Minimum Slip Surface Depth: 0.1 ft
- Optimization Maximum Iterations: 2000
- Optimization Convergence Tolerance: 1e-007
- Starting Optimization Points: 8
- Ending Optimization Points: 16
- Complete Passes per Insertion: 1
- Driving Side Maximum Convex Angle: 5 °
- Resisting Side Maximum Convex Angle: 1 °

Materials

Waste

- Model: Mohr-Coulomb
- Unit Weight: 111 pcf
- Cohesion: 0 psf
- Phi: 30 °
- Phi-B: 0 °
- Pore Water Pressure
  - Ru: 0
  - Include in PWP: No

operations Layer

- Model: Mohr-Coulomb
- Unit Weight: 135 pcf
- Cohesion: 0 psf
- Phi: 24 °
- Phi-B: 0 °
- Pore Water Pressure
  - Ru: 0
  - Include in PWP: No

Geotextile (2)

- Model: Mohr-Coulomb
- Unit Weight: 58.7 pcf
- Cohesion: 0 psf
- Phi: 15 °
- Phi-B: 0 °
- Pore Water Pressure
  - Ru: 0

Include in PWP: No

Primary Leachate Collection

Model: Mohr-Coulomb
Unit Weight: 135 pcf
Cohesion: 0 psf
Phi: 24 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Sideslope Liner (textured 1000-2000psf)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Primary Liner (textured 1000-2000psf)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Primary Liner (textured 2000-5000psf)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Compacted Clay

Model: Mohr-Coulomb

Unit Weight: 130 pcf
Cohesion: 1000 psf
Phi: 10 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Geotextile

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Secondary Leachate Collection

Model: Mohr-Coulomb
Unit Weight: 135 pcf
Cohesion: 0 psf
Phi: 24 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Srecondary Liner (textured)

Model: Mohr-Coulomb
Unit Weight: 58.7 pcf
Cohesion: 0 psf
Phi: 15 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Secondary Compacted Clay

Model: Bedrock (Impenetrable)
Pore Water Pressure
Piezometric Line: 1
Ru: 0

Include in PWP: No

Structural Fill

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 2000 psf
Phi: 0 °
Phi-B: 0 °
Pore Water Pressure
Ru: 0
Include in PWP: No

Upper Till

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 800 psf
Phi: 10 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Glaciolacustrine Clay

Model: Mohr-Coulomb
Unit Weight: 125 pcf
Cohesion: 256 psf
Phi: 8 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Glaciolacustrine Silt and Sand

Model: Mohr-Coulomb
Unit Weight: 130 pcf
Cohesion: 0 psf
Phi: 30 °
Phi-B: 0 °
Pore Water Pressure
Piezometric Line: 1
Ru: 0
Include in PWP: No

Slip Surface Grid

Upper Left: (-48.87088, 584.22692) ft
Lower Left: (70.12912, 326.97692) ft
Lower Right: (615.62912, 539.97692) ft
Grid Horizontal Increment: 20
Grid Vertical Increment: 20
Left Projection Angle: 0 °
Right Projection Angle: 0 °

Slip Surface Radius

Upper Left Coordinate: (193, 276.72) ft
Upper Right Coordinate: (618.5, 384.22) ft
Lower Left Coordinate: (188.25, 244.97) ft
Lower Right Coordinate: (684.45, 313.97) ft
Number of Increments: 5
Left Projection: No
Left Projection Angle: 0 °
Right Projection: No
Right Projection Angle: 0 °
UsePoints: 0

Slip Surface Limits

Left Coordinate: (0, 319.47) ft
Right Coordinate: (677.83, 412.98) ft

Piezometric Lines

Piezometric Line 1

Coordinates

X (ft)	Y (ft)
0	315.5
677.83	315

Seismic Loads

Horz Seismic Load: 0.12
Vert Seismic Load: 0
Ignore seismic load in strength: Yes

Critical Slip Surfaces

	Slip Surface	FOS	Center (ft)	Radius (ft)	Entry (ft)	Exit (ft)
1	963	1.342	(383.054, 555.464)	247.44	(588.003, 416.819)	(246.967, 348.808)

Slices of Slip Surface: 963

	Slip Surface	X (ft)	Y (ft)	PWP (psf)	Base Normal Stress (psf)	Frictional Strength (psf)	Cohesive Strength (psf)
1	963	252.68925	345.2592	0	275.2235	0	126.34
2	963	264.13355	338.573	0	672.32009	0	316.45
3	963	275.57785	332.67515	0	860.03971	0	413.88
4	963	286.50335	327.7089	0	1307.4232	0	641.29
5	963	296.91	323.57015	0	1993.5108	0	994.25
6	963	307.31665	319.9638	0	2526.4371	0	1279.7
7	963	315.8666	317.3461	0	3041.317	0	1559.1
8	963	321.241	315.87865	0	3268.7689	0	1336.5
9	963	323.4587	315.3084	0	3158.1377	0	807.75
10	963	323.99015	315.17735	0	3186.3844	0	815.4
11	963	326.58205	314.56765	0	3659.9493	0	1506.1
12	963	329.4277	313.90615	0	3556.0924	0	914.61
13	963	331.0402	313.55525	0	3965.4739	0	1649
14	963	334.98335	312.757	0	4193.0204	0	1691.4
15	963	338.63775	312.0446	0	4115.6857	0	1067.3
16	963	344.46675	311.10625	0	4754.412	0	1994.7
17	963	350.59655	310.1646	316.78937	4709.9657	0	1153
18	963	354.3129	309.9992	326.94812	4552.3786	0	1136.9
19	963	361.25	310.09685	320.52782	4701.9057	0	1188.1
20	963	369.69535	310.34895	304.40369	4990.2048	0	1270.2

21	963	379.3394	310.63685	285.99653	5320.4711	0	1364.2
22	963	390.2368	310.96215	265.20262	5693.3306	0	1470.4
23	963	401.13415	311.28745	244.39954	6066.2819	0	1576.6
24	963	410.66935	311.5721	226.20442	6392.574	0	1669.5
25	963	421.21165	311.8868	206.08118	6753.3002	0	1772.2
26	963	428.46435	312.2283	184.43314	6434.7469	0	1740.6
27	963	433.45065	313.24875	0	6528.5488	0	2981.6
28	963	438.2848	314.26805	0	6382.3579	0	1787
29	963	440.5174	314.7948	0	6321.8327	0	2161.3
30	963	443.9712	315.6479	0	6168.5912	0	2136
31	963	446.36525	316.26265	0	6054.6201	0	1704.9
32	963	448.927	316.9641	0	5982.5813	0	2771.4
33	963	451.4457	317.6643	0	5827.8102	0	1647.8
34	963	452.30035	317.91155	0	5825.9417	0	2707.8
35	963	454.1626	318.4671	0	5778.3289	0	2690.4
36	963	461.14325	320.7407	0	5660.0479	0	3415.7
37	963	472.11935	324.6845	0	5427.2197	0	3315.9
38	963	483.0954	329.22935	0	5144.2546	0	3183.3
39	963	494.07145	334.4124	0	4812.9178	0	3018.1
40	963	505.04755	340.2799	0	4434.4775	0	2820
41	963	516.02365	346.88995	0	4010.5678	0	2588.4
42	963	526.99975	354.31605	0	3542.4726	0	2322.9
43	963	537.97585	362.65295	0	3031.773	0	2022.5
44	963	548.95195	372.0258	0	2480.5038	0	1686.2
45	963	561.94	384.8528	0	1608.9307	0	1121.6
46	963	574.015	398.2744	0	797.36951	0	570.5
47	963	583.165	410.1317	0	273.85771	0	200.25
48	963	587.8714	416.62495	0	8.5153003	0	7.4781