

## EXECUTIVE SUMMARY

This report summarizes the efforts enacted by Waste Management's Lancaster Landfill and Recycling Facility (LLRC) to comply with the conditions set forth by the Conditional Use Permit (CUP) 03-170-(5), effective August 1, 2012, and the Implementation and Monitoring Program (IMP) Section X. The period described by this report is November 1, 2022 to October 31, 2023.

Summaries will be supported by attachments containing detailed reports, spreadsheets, or other appropriately detailed documents.

### LANDFILL STATUS AND CAPACITY – IMP CONDITION I, IMP CONDITION X 1, IMP CONDITION X 2

For the period reflected in this report (November 1, 2022 to October 31, 2023), LLRC received a total of 115,417.9 tons of waste for disposal. As of October 31, 2023, Lancaster Landfill is at approximately 50% of the total available capacity. The remaining estimated available disposal capacity is 10,810,322 tons (12,869,150 cubic yards). Site maps detailing the current active/inactive statuses of the landfill and the projected fill sequence follow this report. The most recent landfill survey occurred on August 3, 2023, maps of which are maintained on-site and a copy of which is attached (**see Attachment A**).

### LANDFILL WEIGHT TO VOLUME RATIO – IMP CONDITION X 3

The ratio of weight to volume utilized in these calculations is 0.84 tons per cubic yard, determined by historic flyovers and airspace reports (attachment A). This density is considered within expected range given that the landfill receives between; on average, 300 and 550 tons of municipal waste per day, is less than 125 feet thick (from liner to base to final cover) and is located in an arid ecosystem. There is no regulation or set weight to volume ratio utilized for different landfills, however a weight to volume ratio of 0.6 tons per cubic yard is considered the industry benchmark for an efficiently running landfill. LLRC's ratio of 0.84 tons per cubic yard is considered well above par.

### DIVERTED AND REUSED MATERIALS – IMP CONDITION X 4, IMP CONDITION X 5, CUP CONDITION 35 G

For the period of time covered by this report, November 1, 2022 to October 31, 2023, the total tonnages of waste received and disposed including beneficial use materials, are tabulated and attached (**see Attachment B and Attachment G**). Beneficial reuse practices at the Lancaster Landfill and Recycling Center are centered around using as much of the incoming refuse for beneficial reuse, both for the economic relief and environmental protection aspects. Such practices include, but not limited to, removing electronic waste and recyclable materials, including scrap metal and appliances, pulled in LLRC's load check program to responsible third-party recyclers for processing and reuse/resale. As well, concrete/asphalt is crushed into a base material and either utilized on internal haul roads or sold if there is a local market for the material. Green/wood waste is similarly chipped on-site and either used for

interim cover for active/inactive cells or reloaded and transported to other facilities for further processing. Construction and demolition fines are utilized as alternative daily cover (ADC). Construction and demolition debris is transferred to specialized recyclers in the LA basin. Comingle recyclable material is picked up from the local community and taken to Palmdale Landfill for transportation. Practices such as these are enforced at all Waste Management facilities in the Southern California region.

Month	Total Received in tons	Total Disposed in tons
November 2022	11428.12	9091.04
December 2022	12826.77	10375.74
January 2023	12245.59	9193.85
February 2023	10400.59	8531.44
March 2023	13920.05	10579.79
April 2023	11868.55	9481.07
May 2023	12420.15	10159.25
June 2023	12126.97	9684.8
July 2023	11938.58	9165.03
August 2023	12393.32	9619.93
September 2023	12288.17	9647.27
October 2023	12293.22	9888.66
Total:	146150.1	115417.9

#### COMPLAINTS AND MANAGEMENT PRACTICES THEREOF – IMP CONDITION X 6, IMP CONDITION X 7, CUP CONDITION 109

During the period between November 1, 2022, to October 31, 2023, LLRC received zero fugitive odor complaints. LLRC received no residential complaints concerning litter, noise or vector control issues. The Regional Water Quality Control Board (RWQCB) conducted inspections on January 3 and March 10, 2023. During these visits, they observed windblown litter in areas off the landfill and vegetation on the cover that required pick up and removal, respectively. In addition, the RWQCB also requested an update to the site Stormwater Pollution Prevention Plan (SWPPP) because of changes in drainage and a proposed retention basin. Mitigation of windblown litter and removal of vegetation from the landfill cover were documented in a LLRC letter dated March 15, 2023. The RWQCB issued a Notice of Violation on March 10, 2023, and after LLRC corrective actions were performed, the RWQCB issued a letter dated June 20, 2023, that deemed the issues as corrected and historical. No other violations were received at LLRC during the reporting period. No penalties or fees were due, further details of the rescinded violations are provided in **Attachment C**. LLRC currently employs several types of proactive deterrents to negate the likelihood of a public nuisance (wind fences to control litter, falconer to deter birds, periodic spraying from a water truck to control fugitive dust, etc.).

#### SLOPE AND COVER REVEGETATION –IMP CONDITION X. B. 8, CUP CONDITION 51 D

LLRC currently utilizes ground green waste as interim cover for inactive faces of 180 days or more along the landfill cells. By covering with the ground remains of vegetation, it is LLRC's goal to promote vegetation (prior to the vegetation applied as part of the cell's final cover procedure), thereby stabilizing the landfill slope, and preventing erosion during storm events. As the environment is also rather arid, use of the ground, mulched green waste as cover also promotes any seed contained therein with nutrient-rich topsoil, adding to vegetative potential. As per conditions set forth within LLRC Landscape plan (developed in 2000); Waste Management has retained the services of Mariposa Biology to conduct all required biological reviews and assays of the LLRC, the final cover of the completed landfill cells, will be reclaimed and re-vegetated with a seed mix of native and near-native plant species. LLRC has contracted Mariposa Biology to revegetate the final slopes with locally appropriate species to return the completed area to a state that botanically resembles the original site. An annual monitoring report is conducted to show status and progress of the implemented Landscape Plan, last date of site inspection was conducted on August 23, 2023 (see **Attachment D**)

#### ARCHAEOLOGICAL AND PALEONTOLOGICAL INVESTIGATIONS – IMP CONDITION X 9, IMP CONDITION VII, CUP CONDITION 51 B

Waste Management LLRC has retained the services of Archaeo/Paleo Resource Management to perform all necessary and stipulated investigations as set forth by the CUP and additional permits. Cell excavation occurred during September and October 2022, and therefore, Archaeo/Paleo monitoring was conducted. The final report was completed in January 2023 which resulted in no significant archaeological or paleontological findings. See **Attachment L**.

#### ALTERNATIVE TECHNOLOGIES – IMP CONDITION X. B. 10, CUP CONDITION 101 (IMP INCORRECTLY CITES CUP CONDITION 95 AND CUP CONDITION 102)

Waste Management LLRC promotes several different non-landfill alternative/conversion technologies. Many of these are already active in the waste diversion programs enacted at the site (construction and demolition debris diversion, concrete and asphalt grinding and reuse, electronic waste diversion, co-mingled recyclable diversion, mattress recycling, etc.). Previously, Lancaster Landfill was working with Los Angeles County Public Works and Planning Department to construct an Anaerobic Digestion Facility. This project is currently on hold. Should the project proceed, it will divert up to 500 tons of food waste and green waste per day from landfilling by converting the organic feedstock into low carbon intensity renewable natural gas (RNG), to be used as transportation fuel, and into high-quality compost. See **Attachment E**.

#### TRANSPORTATION IMPROVEMENTS – IMP CONDITION X. B. 11, IMP CONDITION X. B. 12, CUP CONDITION 63, CUP CONDITION 64, and CUP CONDITION 65

Waste Management LLRC has formalized and submitted plans describing the efforts taken to minimize traffic congestion and surface street impact on the surrounding arterial streets (CUP 63, 64, and 65, not CUP 32, 58, 59 or 61 as stated by the IMP). The first of these two plans, submitted July 2012, describes the controls placed on inbound and outbound transfer trucks (CUP condition 65) The

second of these plans, presented October 2012, describes the actions taken to optimize truck trips and minimize queuing along Avenue F at the facility gates (CUP conditions 63 and 64).

WM has schedules for regular customers designed to minimize scalehouse wait times. As well, a system is in place to reserve landfill capacity until 3 p.m. Monday through Friday during normal operating conditions, for small commercial and private users. LLRC implements flat minimum fees for up to one ton to discourage small load deliveries. To prevent and alleviate queuing along Avenue F and the surrounding surface streets, WM utilizes traffic directors and multiple weight scales during heavy delivery days if necessary. In addition, WM LLRC utilizes, as a contingency plan, a plan design where queuing vehicles can be staged along the interior western fence line in (if necessary) multiple parallel lanes to avoid congestion along Avenue F and at the entrance gate.

With regards of the two plans designed above to minimize traffic in and out of Lancaster Landfill, traffic along Avenue F along with the queuing line has yet to become an issue. Proper engineering and scheduling have proven to be a success. Waste Management will continue to utilize the plans set forth until a change of traffic congestion occurs.

#### ENERGY FROM LANDFILL GAS – IMP CONDITION X.B. 13, CUP CONDITION 54 (IMP INCORRECTLY STATES CUP CONDITION 49)

In conformance with Condition 54 of the CUP (misidentified as Condition 49 under IMP X 13), LLRC is required to evaluate the plausibility (geochemically and economically) of utilizing available landfill gas (LFG) as an alternative fuel source. In a study commissioned in 2006, LLRC evaluated the usage and therefore determined it was not economically feasible for a variety of factors including but not limited to insufficient quantity and quality of landfill gas. Based on review of landfill gas production during the period of this report (November 2022 to October 2023), quantity of methane gas flow and quality of measurable methane remains economically insufficient to warrant attempting recovery for energy use. **See Attachment F**, 2023 Flare Source Test and Gas Production Tables for 2022-2023.

#### WASTE JURISDICTION OF ORIGIN – CUP CONDITION 94

Waste Management maintains a monthly submission to Los Angeles County through their Solid Waste Information Management System (SWIMS) for the jurisdictions of origin of waste received by the LLRC). **See Attachment G**.

#### PROHIBITED WASTE ACCEPTANCE – CUP CONDITION 41

Waste Management LLRC maintains, as a standard operating procedure, a management system to ensure prohibited wastes are not disposed of at the facility. Upon reaching the scalehouse, deliverers are required to state the nature of their waste (with specific guidelines for what is and is not acceptable at LLRC). Once cleared by the scalehouse, several trucks per day are chosen at random as well as suspicious loads for load checks by landfill personal. Finally, once dumped, the waste is checked as it is mixed and prepped for disposal. If waste is found to contain prohibited items at either the scalehouse or load check stages, then the items (or the entire load) are rejected and the deliverer will leave with the

items. If found post-dumping, then the items are isolated and sequestered to a secure area to await pickup from the generator or transported by a hazardous waste transport for proper disposal. Copies of the rejected load log, which identifies the description, quantity of the prohibited waste, and quantity of total waste are maintained on-site and presented in **Attachment H**.

Due to the fact LLRC does not allow the disposal of prohibited waste, a plan is set forth to prevent and capture the income of prohibited waste. Waste Management certifies that the description of the above-described plan and information in this document is true and correct to the best of our knowledge.

#### MONTHLY WATER USAGE - CUP CONDITION 49

Waste Management LLRC utilizes non-potable water on-site in a variety of manners, but the vast majority of the water usage is for dust control. The water is stored in an elevated tank for ease of dispersal to the water trucks. Per condition 49, LLRC is allowed 60 acre-feet per year (afy). Waste Management used 6,529,600 (20 afy) gallons during November 2022 to October 2023. A copy of the water usage log is attached. **See Attachment I**.

#### OFF-SITE LITTER RETRIEVAL – CUP CONDITION 70

Waste Management Lancaster sits on a relatively flat area in an arid, dry biome and therefore, strong winds are a constant possibility across the face of the property. LLRC utilizes several wind-blown litter deterrents across the site, including walled-off areas for mixing waste, portable litter fences around areas where loose litter is likely to be present, and a program requiring trucks entering the site to either be tarped or constructed to minimize waste's exposure to wind. In the event such waste is picked up by the wind currents in the area, LLRC utilizes a staff of temporary workers to retrieve fugitive litter from the boundary roads as detailed in condition 70. A plan detailing these efforts has been submitted (cover date 8/27/2012) to the Department for review and acceptance. In an effort to control litter escaping the site's physical boundaries, an off-site litter inspection log has also been created. **See Attachment J**.

#### ALTERNATIVE FUEL VEHICLES AND EQUIPMENT – CUP CONDITION 61 B, C, D, AND E

Waste Management LLRC utilizes several heavy-duty earthmovers and various other large-scale mobile equipment in the daily management of the landfill. WM submitted a comprehensive plan for alternative fuel conversion within the listed period as per CUP 61 b (plan submission date September 6, 2013). WM previously submitted a plan to put a hybrid-engine waste dozer into use on the site as a means of complying with the alternative fuel pilot plan as described in CUP condition 61. This plan received AVAQMD acceptance, and the dozer was utilized from January of 2013 through the end of 2015. The dozer was then moved to another site early 2016. LLRC utilizes an electric dozer as part of the fleet and all other heavy equipment runs on bio diesel. Therefore, the site is in compliance with Condition 61 as 100% of the fleet has been converted to alternative fuel.

## CARB COMPLIANCE REPORT – CUP CONDITION 60

Per CUP condition 60, WM must exhibit compliance with the California Air Resources Board (CARB) regulations concerning diesel particulate matter control measures (Title 13 CCR section 2020 Article 4). Per Article 4 thereof, Waste Management's LLRC fleet must show 100% compliance no later than December 31<sup>st</sup>, 2010. To date, sufficiently appropriate diesel emission control strategies have been employed for all LLRC vehicles to earn a comprehensive Statement of CARB Compliance for the site. Effective annually (renewed last on March 1, 2021), a Statement of Compliance is posted on-site that meets both the Article 4 requirements as well as the CARB Title 13 CCR Section 2021.2(f)(1)(H) stipulations (compliance statement shall be maintained on-site, with proper terminal number, owner's business name, address, phone number and signature of owner or agent listed). **See Attachment K.**

# **ATTACHMENT A**



**LEGEND:**

△ CONTROL POINT	▬ PAVED ROAD
⊕ LIGHT POLE	▬ DIRT ROAD
○ POWER POLE	▬ WATER LINE
⊙ SIGN	▬ FENCE
● MISC. POLE	▬ RAILROAD
⊙ POST	▬ BUILDING
⊙ TRAFFIC SIGNAL	▬ INDEX CONTOUR
⊙ UTILITY BOX	▬ INTERMEDIATE CONTOUR
▬ CULVERTS	▬ OBSCURED INDEX
⊙ FIRE HYDRANT	▬ DEPR. INTERMEDIATE
⊙ MANHOLE	⊙ SPOT ELEVATION
⊙ VALVE	⊙ x 10.5
⊙ WELL	▬ PROPERTY BOUNDARY
▬ TREELINE	
▬ SINGLE TREE	
▬ BRUSHLINE	

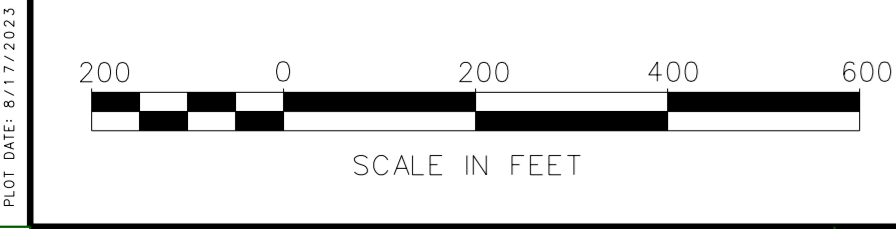
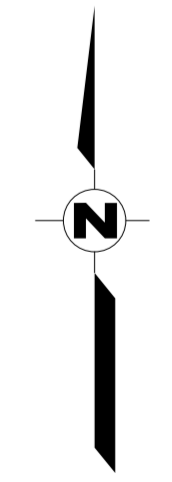
**SURVEYOR'S STATEMENT:**  
 The ground surveys for this mapping were performed under my supervision using Global Positioning System (GPS) methods and are adequate to control mapping that conforms to ASPRS Accuracy Standards for Digital Geospatial Data 2014 for the final map accuracies described in the Photogrammetrist Statement.



**PHOTOGRAMMETRIST'S STATEMENT:**  
 This mapping has been prepared by Miller Creek Associates using methods proven to meet "ASPRS Accuracy Standards for Digital Geospatial Data 2014" for the following accuracy classes:  
 Horizontal: 43cm RMSEr  
 (Approximately Equivalent to 1"=100')  
 Vertical: 20cm RMSEz  
 (Approximately Equivalent to 2' Contour)  
 The mapping data was prepared using industry standard software and techniques. Contours are dashed in areas where the ground is obscured due to vegetation or other obstructions.

**STATEMENT REGARDING PROPERTY LINES:**  
 If present, the property lines indicated on this map were provided by Waste Management. Miller Creek Associates takes no responsibility for the accuracy of the property lines represented hereon.

**BASIS FOR HORIZONTAL AND VERTICAL CONTROL:**  
 The horizontal coordinates are based on NAD27 California State Plane coordinate system, Zone 7. The vertical datum is based on NGVD29.



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Revisions			
No.	Description	Date	By

Approved By: \_\_\_\_\_  
 Checked By: \_\_\_\_\_  
 Drawn By: Miller Creek Associates

Project Location:  
**Lancaster Landfill**  
**Lancaster, California**

**August 3, 2023**  
**Topographic Map Update**

Drawing No. **CA25-1821-TOP-01.DGN**  
 Scale: As Shown  
 Date: 8-14-23  
 Sheet Number: **1**



# **ATTACHMENT B**



Lancaster Landfill & Recycling Facility

November 2022 Tonnage

REFUSE (TONS)

RECYCLING TONS

Date	Gross Tons	Net Tons	REFUSE (TONS)				RECYCLING TONS																Total Vehicles				
			Residential MSW	Commercial MSW	Industrial MSW	Transfers MSIN-TRFR	Disaster Waste MSW	Curbside Greenwaste AV Haul MSW	Curbside Greenwaste - Transfer MSW	Fill Dirt RGC	Beneficial TPH Soil RGC	Coversoil RGC	Processed Inerts RGC	Mixed Organics OYW	Clean Greenwaste OYW	Wood OYW	Concrete / Asphalt C&D	Concrete / Asphalt RDW	Commingle Recycling RDW	C&D RDW	Tires (by Quantity) RDW	Appliances (by Quantity) RDW		CRT'S RDW	Vehicles (Excluding Trsf.)	Transfers (MSW)	Transfers (ADC)
11/01/22	404.69	345.00	98.58	152.72	73.29	20.41			1.23			48.56							9.90			4	110	1	2	113	
11/02/22	469.18	362.33	145.79	134.46	50.96	20.99		10.13				96.41		2.27		6.81			1.36	4	2		114	1	4	119	
11/03/22	439.65	402.60	156.44	131.42	95.39	19.35						24.50							12.55				121	1	1	123	
11/04/22	665.82	503.68	170.18	172.50	131.14	21.04		8.82				121.43			30.11				10.60	22	2	1	130	1	5	136	
11/05/22	184.20	75.36	52.61	22.75					10.58			98.26									3		79		4	83	
11/06/22	-	-																								0	
11/07/22	489.91	368.34	111.40	161.37	75.48	20.09			0.95			120.62									2		130	1	5	136	
11/08/22	435.69	329.84	131.41	123.72	68.44			6.27				98.40							7.45		1		82		4	86	
11/09/22	515.30	364.95	150.09	127.01	56.28	21.09		10.48				122.70				12.48			15.17				101	1	5	107	
11/10/22	540.79	413.73	167.06	112.61	116.15	17.91			5.95			121.11									1		107	1	5	113	
11/11/22	542.13	407.12	190.18	146.09	50.34	20.51						122.25			3.36	2.07			7.33			4	121	1	5	127	
11/12/22	67.58	67.58	47.30	9.97	10.31																6	1	71			71	
11/13/22	-	-																								0	
11/14/22	599.32	435.04	124.84	185.53	102.58	22.09			3.87			124.55				12.59			23.27		1		135	1	5	141	
11/15/22	616.41	493.55	122.26	201.16	149.39	20.74						96.13				21.49			5.24		1	1	141	1	4	146	
11/16/22	522.69	421.58	118.71	154.81	137.78			10.28	3.53			72.48		4.82		13.73			6.55				116		3	119	
11/17/22	554.20	491.10	161.44	143.40	186.26							48.31		1.53	6.26				7.00		2		126		2	128	
11/18/22	553.35	443.65	178.29	166.53	72.34	17.71		8.78				96.62			0.93				12.15		3		129	1	4	134	
11/19/22	76.57	63.06	44.46	4.22	14.38				3.68					1.34	4.57				3.92		1		86			86	
11/20/22	-	-																								0	
11/21/22	483.21	402.95	107.23	186.22	109.50				1.34			64.67				8.09			6.16	4	9	2	149		3	152	
11/22/22	508.60	365.61	112.15	181.49	66.58			5.39				120.88							22.11		2	1	133		5	138	
11/23/22	426.21	359.17	150.23	117.96	65.78	21.67		3.53				47.77				7.42			11.85	3			123	1	2	126	
11/24/22	-	-																								0	
11/25/22	332.14	327.72	134.27	108.47	74.48			10.50								3.08			1.34		1		83			83	
11/26/22	308.08	307.62	204.46	64.39	38.77				0.46												1		84			84	
11/27/22	-	-																								0	
11/28/22	412.55	387.41	139.50	159.99	54.93	21.28		11.71	3.64						1.08	4.33			16.09		1		131	1		132	
11/29/22	630.84	462.51	136.92	226.37	80.24	18.98						121.26				45.88			1.19		2		144	1	5	150	
11/30/22	649.01	489.54	194.11	213.86	59.86	18.65		3.06				146.49			3.40	5.77			3.81				126	1	6	133	
	-	-																								0	
	-	-																								0	
	-	-																								0	
	11,428.12	9,091.04	3,349.91	3,409.02	1,940.65	302.51	-	88.95	-	35.23	-	-	1,913.40	-	8.43	9.37	185.61	-	-	185.04	33	41	14	2,872	15	79	2966



Lancaster Landfill & Recycling Facility

December 2022 Tonnage

REFUSE (TONS)

RECYCLING TONS

Date	Gross Tons	Net Tons	REFUSE (TONS)				RECYCLING TONS																	Total Vehicles			
			Residential	Commercial	Industrial	Transfers	Disaster Waste	Curbside Greenwaste AV Haul	Curbside Greenwaste Transfer	Fill Dirt	Beneficial TPH Soil	Coversoil	Processed Inerts	Mixed Organics	Clean Greenwaste	Wood	Concrete / Asphalt	Concrete / Asphalt	Commingle Recycling	C&D	Tires (by Quantity)	Appliances (by Quantity)	CRT'S		Vehicles (Excluding Trsf.)	Transfers (MSW)	Transfers (ADC)
			MSW	MSW	MSW	MSIN-TRFR	MSW	MSW	MSW	RGC	RGC	RGC	OYW	OYW	OYW	C&D	RDW	RDW	RDW	RDW	RDW	RDW	RDW	RDW	RDW	RDW	RDW
12/01/22	633.18	490.13	172.00	213.24	83.70	21.19				3.04						2.35				17.91		2		108	1	5	114
12/02/22	468.45	452.58	195.32	188.39	48.05	20.82									1.59					14.28		2	2	127	1		128
12/03/22	165.46	69.51	46.19	15.81	7.51					1.23		94.72										2	4	64		4	68
12/04/22	-	-																									0
12/05/22	758.26	643.97	130.69	183.40	312.84	17.04				7.36		71.13				29.33				6.47				140	1	3	144
12/06/22	751.55	685.08	130.90	225.62	309.24	19.32						48.12				12.45				5.90		2		135	1	2	138
12/07/22	645.86	479.46	194.34	190.75	69.71	21.10						69.21								11.58			5	127	1	3	131
12/08/22	667.40	521.56	149.90	172.05	180.38	19.23			3.56			13.82			0.95					34.04		1		137	1	4	142
12/09/22	568.97	474.07	185.20	194.72	77.30	16.85						5.25				14.57				3.15	1	6		138	1	3	142
12/10/22	133.89	81.95	57.69	24.26						0.60		48.14				0.70				2.50				73		2	75
12/11/22	-	-																									0
12/12/22	541.79	413.63	96.57	225.28	71.36	20.42						97.81				18.56				11.79				98	1	4	103
12/13/22	612.05	479.01	117.92	157.29	183.04	20.76						2.90				2.68				7.43				116	1	5	122
12/14/22	550.57	416.95	146.48	129.74	120.12	17.39						9.95				44.90				25.35	3	3		116	1	2	119
12/15/22	383.51	319.23	144.03	95.95	61.63	17.62						48.65								15.63				95	1	2	98
12/16/22	691.42	575.29	177.51	143.01	236.43	18.34						2.00				1.12				21.25				124	1	4	129
12/17/22	107.98	55.86	22.97	6.37	26.52											20.25				7.18		3		55		1	56
12/18/22	-	-																									0
12/19/22	479.83	378.24	104.47	171.68	80.56	21.53						96.13				3.87				1.59		1	1	105	1	4	110
12/20/22	562.71	445.57	113.56	206.21	105.87	19.93						72.66								44.48		3		124	1	3	128
12/21/22	567.28	442.56	170.83	186.08	85.65							5.08				17.51				4.09		1		131		4	135
12/22/22	493.46	374.68	158.93	94.83	81.51	39.41						4.25				5.94	7.47			28.39			3	99	2	3	104
12/23/22	484.79	403.43	187.94	128.27	49.49	37.73						0.60								1.53	3	1	2	108	2	3	113
12/24/22	16.47	16.47	14.59	1.88																							27
12/25/22	-	-																									0
12/26/22	260.83	253.44	75.21	93.45	63.98	20.80						7.39												68	1		69
12/27/22	519.91	406.94	137.30	170.33	79.15	20.16						1.93				5.74	24.09			8.83		1	1	124	1	3	128
12/28/22	579.17	510.70	164.85	225.43	95.80	21.64									3.82		2.05			13.73		1		128	1	2	131
12/29/22	530.77	438.24	177.60	127.22	111.65	21.77										3.50	12.77			2.83		1		124	1	3	128
12/30/22	576.90	476.20	210.16	135.30	109.87	20.87										0.59	2.19					1	2	142	1	4	147
12/31/22	74.31	70.99	12.79	0.42	57.78							3.32												24			24
	-	-																									0
	12,826.77	10,375.74	3,495.94	3,706.98	2,709.14	453.92	-	9.76	-	154.33	-	-	1,755.38	-	15.21	36.83	199.35	-	-	289.93	7	32	28	2,857	23	73	2953



Lancaster Landfill & Recycling Facility

January 2023 Tonnage

REFUSE (TONS)

RECYCLING TONS

Date	Gross Tons	Net Tons	REFUSE (TONS)				RECYCLING TONS																Total Vehicles				
			Residential MSW	Commercial MSW	Industrial MSW	Transfers MSIN-TRFR	Curbside Greenwaste AV Haul MSW	Curbside Greenwaste - Transfer MSW	Fill Dirt RGC	Beneficial TPH Soil RGC	Coversoil RGC	Processed Inerts RGC	Mixed Organics OYW	Clean Greenwaste OYW	Wood OYW	Concrete / Asphalt C&D	C&D RDW	Tires (by Quantity) RDW	Appliances (by Quantity) RDW	CRT'S RDW	Vehicles (Excluding Trsf.)	Transfers (MSW)		Transfers (ADC)			
01/01/23	-	-																						0			
01/02/23	427.38	417.97	135.01	219.83	43.78	19.35								0.82		2.27	6.32		1	1	96	1		97			
01/03/23	634.41	408.02	137.89	150.18	100.89	19.06								2.22		191.34	9.24	6.60	16.99	1		5	105	1	8	114	
01/04/23	569.11	441.19	214.45	117.05	86.96	22.73										119.91	2.71		5.30		2	3	109	1	5	115	
01/05/23	521.51	388.23	166.54	95.94	105.31	20.44										120.06		9.24	3.98		1		74	1	5	80	
01/06/23	597.56	368.66	165.91	126.87	54.40	21.48										219.53			9.37	2			92	1	9	102	
01/07/23	49.52	49.52	31.64	16.39	1.49																1			54			54
01/08/23	-	-																									0
01/09/23	628.07	412.38	161.76	165.36	63.94	21.32										201.58			14.11	1		2	88	1	8	97	
01/10/23	403.73	358.98	130.86	135.06	93.06												3.69	18.98	22.08				84			84	
01/11/23	593.45	372.90	163.13	135.14	71.47											198.09	0.34		22.12		4		96		8	104	
01/12/23	502.31	386.89	182.61	125.34	78.94											98.22			17.20		1		107		4	111	
01/13/23	578.84	461.47	153.75	150.80	156.92											98.60	0.70		14.61			1	111		4	115	
01/14/23	40.23	40.23	26.09	14.14																		1		42			42
01/15/23	-	-																									0
01/16/23	334.29	325.01	116.33	129.46	53.43	21.08										5.76			3.52		3	1	93	1		94	
01/17/23	628.41	387.27	157.69	134.50	74.03	21.05										222.65		8.41	10.08			1	124	1	9	134	
01/18/23	602.46	401.39	171.60	143.62	62.21	21.70										195.91		1.80	3.36			1	103	1	8	112	
01/19/23	712.79	512.77	167.05	222.54	102.97	20.21										195.90			4.12		2	3	115	1	8	124	
01/20/23	523.46	415.95	189.50	144.60	60.51	21.34										97.51		1.28	8.72				114	1	4	119	
01/21/23	61.21	60.34	46.98	13.36												0.87					1	3	68			68	
01/22/23	-	-																									0
01/23/23	561.70	467.73	133.52	186.35	127.78	20.08										48.79	7.59	17.83	9.43	10.33			129	1	2	132	
01/24/23	605.00	487.48	128.18	169.64	169.28	20.38										98.28		2.16	17.08	4	1		129	1	4	134	
01/25/23	494.63	420.33	161.28	163.40	71.08	21.20										49.00			15.87		1	1	113	1	2	116	
01/26/23	525.74	401.93	157.89	141.83	81.20	21.01										96.79		4.81	22.21				117	1	4	122	
01/27/23	471.32	363.45	189.91	109.99	41.58	21.97										97.35			9.10			1	110	1	4	115	
01/28/23	94.75	67.54	50.84	16.70												3.32			23.89		1	1	2	77		1	78
01/29/23	-	-																									0
01/30/23	548.23	388.76	105.53	161.40	101.22	20.61										3.28		5.69	1.31	27.69		4	1	114	1	5	120
01/31/23	535.48	387.46	129.21	188.17	47.85	22.23										121.50		2.02	23.87			1	112	1	5	118	
	-	-																									0
	-	-																									0
	12,245.59	9,193.85	3,575.15	3,377.66	1,850.30	377.24		13.50	-	21.78	2.22	-	2,617.03	-	22.92	40.08	74.29	273.42	9	23	28	2,576	18	107	2701		



Lancaster Landfill & Recycling Facility

February 2023 Tonnage

REFUSE (TONS)

RECYCLING TONS

Date	Gross Tons	Net Tons	REFUSE (TONS)				RECYCLING TONS																Total Vehicles				
			Residential	Commercial	Industrial	Transfers	Disaster Waste	Curbside Greenwaste AV Haul	Curbside Greenwaste Transfer	Fill Dirt	Beneficial TPH Soil	Coversoil	Processed Inerts	Mixed Organics	Clean Greenwaste	Wood	Concrete / Asphalt	Concrete / Asphalt	Commingle Recycling	C&D	Tires (by Quantity)	Appliances (by Quantity)		CRT'S	Vehicles (Excluding Trsf.)	Transfers (MSW)	Transfers (ADC)
			MSW	MSW	MSW	MSIN-TRFR	MSW	MSW	MSW	RGC	RGC	RGC	OYW	OYW	OYW	C&D	RDW	RDW	RDW	RDW	RDW	RDW	RDW				
02/01/23	518.24	433.87	165.74	190.72	53.53	20.93		2.95				73.63								10.74	3	1	1	132	1	3	136
02/02/23	544.30	407.25	180.88	152.02	56.44	17.91				6.33			96.72		1.23					32.77				115	1	4	120
02/03/23	589.19	449.99	218.57	176.09	36.01	19.32				9.56			122.32			2.99				4.33			4	140	1	5	146
02/04/23	71.91	67.49	38.94	28.55						4.42												1	1	72		2	74
02/05/23	-	-																									0
02/06/23	505.33	416.05	145.77	230.73	18.76	20.79				4.43			49.13		6.23	15.57				13.92			10	151	1	4	156
02/07/23	506.57	383.51	129.62	169.27	63.11	21.51				6.69			98.68		6.85					10.84		1	6	136	1	5	142
02/08/23	575.22	418.11	149.30	165.87	99.84			3.10		1.70			122.56		2.76	4.21	20.61			5.27		1	125		4	129	
02/09/23	534.33	413.42	146.13	180.30	46.07	40.92							97.34			11.72				11.85			5	98	2	4	104
02/10/23	621.02	515.25	199.72	240.70	33.00	41.83							98.52							7.25			1	127	2		129
02/11/23	62.63	59.95	37.76	22.19						2.17						0.51							1	65			65
02/12/23	-	-																									0
02/13/23	499.72	485.68	119.02	247.18	77.74	41.74				1.71					2.35					9.98			3	129	2		131
02/14/23	337.92	320.19	103.62	144.63	31.62	40.32										6.62				11.11	5	1		90	2		92
02/15/23	442.55	433.67	144.44	141.78	103.09	41.59		2.77							1.22	2.40				5.26	6	2		116	2		118
02/16/23	611.31	460.00	150.24	176.36	89.22	44.18				2.94			124.41			7.82				16.14				123	2	5	130
02/17/23	442.42	373.96	188.16	129.45	56.35					2.15			59.55							6.76			4	114		3	117
02/18/23	62.10	58.25	47.62	3.76	6.87					3.85													2	65			65
02/19/23	-	-																									0
02/20/23	395.88	257.43	77.45	139.51	18.07	22.40				2.41			122.69							13.35				98	1	5	104
02/21/23	520.57	454.28	139.51	227.22	65.70	21.85				1.78			23.45			30.29				10.77			2	134	1	1	136
02/22/23	550.29	507.03	130.87	236.21	115.64	21.05		3.26		7.02			24.65							11.59		1		109	1	1	111
02/23/23	608.38	444.44	182.41	128.64	111.98	21.41							120.69							22.45				115	1	5	121
02/24/23	392.87	384.08	168.05	119.84	75.59	20.60										2.71				6.08		1		81	1		82
02/25/23	7.75	7.75	1.74	6.01																				4			4
02/26/23	-	-																									0
02/27/23	461.04	369.66	97.96	170.05	79.49	22.16							72.21			19.17						1	5	108	1	3	112
02/28/23	539.05	410.13	150.60	128.77	110.76	20.00							99.29			25.47				4.16			3	104	1	4	109
	-	-																									0
	-	-																									0
	-	-																									0
	-	-																									0
	10,400.59	8,531.44	3,114.12	3,555.85	1,348.88	500.51	-	12.08	-	57.16	-	-	1,405.84	-	2.76	22.09	168.33	-	-	212.97	16	14	44	2,551	24	58	2633



Lancaster Landfill & Recycling Facility

March 2023 Tonnage

REFUSE (TONS)

RECYCLING TONS

Date	Gross Tons	Net Tons	REFUSE (TONS)			RECYCLING TONS																	Total Vehicles					
			Residential	Commercial	Industrial	Transfers	Disaster Waste	Curbside Greenwaste AV Haul	Curbside Greenwaste Transfer	Fill Dirt	Beneficial TPH Soil	Coversoil	Processed Inerts	Mixed Organics	Clean Greenwaste	Wood	Concrete / Asphalt	Concrete / Asphalt	Commingle Recycling	C&D	Tires (by Quantity)	Appliances (by Quantity)		CRT'S	Vehicles (Excluding Trsf.)	Transfers (MSW)	Transfers (ADC)	
			MSW	MSW	MSW	MSIN-TRFR	MSW	MSW	MSW	RGC	RGC	RGC	OYW	OYW	OYW	C&D	RDW	RDW	RDW	RDW	RDW	RDW	RDW	RDW	RDW	RDW	RDW	
03/01/23	791.54	671.94	265.81	164.80	216.79	20.26		4.28		2.77			97.62			10.98				8.23	1			128	1	4	133	
03/02/23	685.12	461.32	182.13	112.91	145.43	20.85							98.50		4.41	108.61				12.28	2		1	132	1	4	137	
03/03/23	520.70	411.26	206.83	133.45	70.98					4.60			98.28							6.56			5	122		4	126	
03/04/23	101.60	66.79	49.53	17.26						5.69			24.12			5.00						1	3	69		1	70	
03/05/23	-	-																									0	
03/06/23	558.30	435.04	96.66	164.16	174.22					2.35			98.10			9.73				13.08			5	119		4	123	
03/07/23	609.47	424.53	146.05	149.44	129.04								121.23			55.90				7.81				119		5	124	
03/08/23	489.31	489.31	164.52	176.16	148.63																		4	113			113	
03/09/23	409.92	401.33	167.10	161.42	54.95	17.86														8.59	2		3	111	1		112	
03/10/23	556.23	429.36	198.37	127.07	83.61	20.31							125.28		1.59							4	4	1	112	1	5	118
03/11/23	209.92	100.16	87.87	12.29									99.25			10.51							1	3	126		4	130
03/12/23	-	-																									0	
03/13/23	599.59	466.82	168.70	141.69	135.29	21.14							121.39			5.27				6.11		1	1	136	1	5	142	
03/14/23	671.41	449.59	151.29	130.95	167.35							2.59				128.48				17.38			1	116		3	119	
03/15/23	553.21	402.16	175.99	158.81	67.36							1.36				63.49				14.47			4	109		3	112	
03/16/23	623.71	384.03	201.49	128.49	54.05								218.97							20.71			2	125		9	134	
03/17/23	562.67	454.22	212.59	162.72	78.91								97.37			7.33				0.91			3	1	134		4	138
03/18/23	65.78	63.68	56.16	7.52								1.57				0.53						4	1	89			89	
03/19/23	-	-																									0	
03/20/23	552.96	399.88	129.91	185.30	84.67							9.92				36.04				10.81			2	130		4	134	
03/21/23	703.81	600.53	159.20	102.02	329.58			9.73					98.90			1.50				2.88			1	106		4	110	
03/22/23	717.22	439.64	166.43	148.26	104.28	20.67						10.45				148.78				20.97	2		1	108	1	4	113	
03/23/23	838.39	529.30	204.95	137.08	166.68	20.59							96.25			198.84				14.00				122	1	4	127	
03/24/23	575.74	447.17	194.21	170.83	62.16	19.97							96.99			22.06				9.52			3	133	1	4	138	
03/25/23	186.41	110.72	62.56	12.69	35.47							1.69				71.91						2	5	98		3	101	
03/26/23	-	-																									0	
03/27/23	333.17	293.15	118.70	148.24	26.21							25.37				12.47				2.18			2	107			107	
03/28/23	461.94	400.28	141.50	129.08	129.70							19.80				37.96				3.90	1		1	1	133			133
03/29/23	582.11	467.44	191.33	135.20	136.27			4.64					97.54			1.07				8.63	7		1	127		4	131	
03/30/23	482.96	392.62	154.47	147.74	90.41								48.53			18.49				23.32	1		1	2	126		2	128
03/31/23	476.86	387.52	211.75	122.91	52.86								38.51			32.26				18.57			3	136		2	138	
	-	-																										0
	-	-																										0
	13,920.05	10,579.79	4,266.10	3,388.49	2,744.90	161.65	-	18.65	-	95.66	-	-	2,087.53	-	-	8.77	917.39	-	-	230.91	25	35	34	3,186	8	86	3280	



Lancaster Landfill & Recycling Facility

April 2023 Tonnage

REFUSE (TONS)

RECYCLING TONS

Date	Gross Tons	Net Tons	REFUSE (TONS)				RECYCLING TONS																Total Vehicles				
			Residential	Commercial	Industrial	Transfers	Disaster Waste	Curbside Greenwaste - AV Haul	Curbside Greenwaste - Transfer	Fill Dirt	Beneficial TPH Soil	Coversoil	Processed Inerts	Mixed Organics	Clean Greenwaste	Wood	Concrete / Asphalt	Concrete / Asphalt	Commingle Recycling	C&D	Tires (by Quantity)	Appliances (by Quantity)		CRT'S	Vehicles (Excluding Trsf.)	Transfers (MSW)	Transfers (ADC)
			MSW	MSW	MSW	MSIN-TRFR	MSW	MSW	RGC	RGC	RGC	OYW	OYW	OYW	C&D	RDW	RDW	RDW	RDW	RDW	RDW	RDW					
04/01/23	89.12	82.16	55.54	7.43	19.19				1.23						5.73					2		2	84			84	
04/02/23	-	-																								0	
04/03/23	457.28	361.98	118.15	160.36	41.35	42.12					95.30										3	3	101	2	4	107	
04/04/23	637.64	474.03	127.63	260.81	44.59	41.00					95.64				45.56			22.41			1		141	2	4	147	
04/05/23	598.66	431.05	162.38	165.20	78.11	21.02		4.34			47.52				115.15			4.94			3		134	1	2	137	
04/06/23	516.49	338.44	178.73	121.50	38.21				3.73		141.48				13.66			19.18	4	1	2		112		6	118	
04/07/23	556.23	417.04	201.41	118.74	76.63	20.26			1.80		118.88				11.21			7.30			1		110	1	5	116	
04/08/23	450.86	437.48	429.13	8.35					5.38						8.00				22	25	26		407			407	
04/09/23	-	-																								0	
04/10/23	506.29	346.40	116.01	141.68	68.64	20.07					97.65				51.85			10.39			1	5	119	1	4	124	
04/11/23	463.46	340.65	107.09	152.94	61.31	19.31			4.05		96.62			1.43	11.14			9.57			1		114	1	4	119	
04/12/23	644.34	491.31	166.97	217.04	69.77	21.25		16.28	0.92		97.02				31.03			24.06			1		127	1	4	132	
04/13/23	459.69	381.39	180.03	125.95	56.52	18.89					48.76				10.80			18.74			1		125	1	2	128	
04/14/23	614.06	537.62	210.10	143.19	163.18	21.15					47.67				23.87			4.90			1		139	1	2	142	
04/15/23	129.46	121.37	74.92	43.95	2.50				3.92						4.17						2	4	108			108	
04/16/23	-	-																								0	
04/17/23	524.19	378.17	132.74	147.85	75.49	22.09			10.76		96.01				36.49			2.76			1		148	1	4	153	
04/18/23	441.20	389.60	144.42	170.20	54.52	20.46			7.53						39.48			4.59					139	1		140	
04/19/23	529.07	438.77	196.94	147.61	68.45	20.65		5.12	1.37		71.93				9.83			7.17	3		1		121	1	3	125	
04/20/23	620.31	498.75	184.00	175.48	139.27				2.78		96.96				5.78			16.04			2		127		4	131	
04/21/23	490.76	422.91	212.21	133.62	48.39			28.69	6.88		24.30				27.97			8.70	1	1			121		1	122	
04/22/23	128.36	88.99	63.15	25.84					9.72		24.19				5.46				1		1		97		1	98	
04/23/23	-	-																								0	
04/24/23	437.45	308.54	101.55	151.40	37.05	18.54					98.61				6.96			23.34			3		117	1	4	122	
04/25/23	571.27	507.09	125.80	206.67	155.34	19.28								1.20	47.56			15.42			1		142	1		143	
04/26/23	586.43	486.52	188.46	162.26	109.62	20.86		5.32			73.40				7.37			19.14			2	1	133	1	3	137	
04/27/23	755.70	640.54	222.85	161.14	201.12	42.68		12.75			73.73				9.25			32.18			1		150	2	3	155	
04/28/23	558.08	480.96	207.62	139.12	113.70	20.52					72.58			2.06				2.48			1		138	1	3	142	
04/29/23	102.15	79.31	74.86	4.45					3.69						16.14			3.01			2	1	102			102	
04/30/23	-	-																								0	
	-	-																								0	
	-	-																								0	
																										0	
	11,868.55	9,481.07	3,982.69	3,292.78	1,722.95	410.15	-	72.50	-	63.76	-	-	1,518.25	-	-	4.69	544.46	-	-	256.32	33	43	58	3,356	20	63	3439



Lancaster Landfill & Recycling Facility  
May 2023 Tonnage

**REFUSE (TONS)**

**RECYCLING TONS**

Date	Gross Tons	Net Tons	REFUSE (TONS)				RECYCLING TONS																				
			Residential	Commercial	Industrial	Transfers	Disaster Waste	Curbside Greenwaste AV Haul	Curbside Greenwaste Transfer	Fill Dirt	Beneficial TPH Soil	Coversoil	Processed Inerts	Mixed Organics	Clean Greenwaste	Wood	Concrete / Asphalt	Concrete / Asphalt	Commingle Recycling	C&D	Tires (by Quantity)	Appliances (by Quantity)	CRT'S	Vehicles (Excluding Trsf.)	Transfers (MSW)	Transfers (ADC)	Total Vehicles
05/01/23	442.66	433.57	115.02	139.88	178.67											8.39			0.70	7		3	111				111
05/02/23	422.09	368.78	124.26	161.13	83.39						23.99				19.26			10.06			1	121		1		122	
05/03/23	560.01	511.80	172.80	151.39	183.59			4.02							38.57			9.64		2	1	130				130	
05/04/23	715.54	527.28	186.68	228.81	111.79						72.47				95.97			19.82		3	1	122		3		125	
05/05/23	602.03	494.39	195.45	153.79	83.84	61.31			3.97		49.94				50.87			2.86			1	121	3	2		126	
05/06/23	371.44	258.43	63.83	24.05	170.55				13.11		97.30				2.60					2		111		4		115	
05/07/23	-	-																								0	
05/08/23	590.18	452.14	129.48	180.05	142.61						97.10			1.30	27.66			11.98		2		148		4		152	
05/09/23	672.59	523.21	130.54	305.64	87.03				3.36		97.39				23.25			25.38		1		155		4		159	
05/10/23	543.81	461.04	173.13	145.12	132.60			10.19			72.66							10.11		1	1	121		3		124	
05/11/23	476.47	357.81	177.45	107.93	72.43						97.91				1.42			19.33				113		4		117	
05/12/23	527.18	411.02	191.63	160.96	43.28			15.15	14.57		98.62				0.67			2.30		1		122		4		126	
05/13/23	115.51	88.60	63.12	24.72	0.76				23.38						3.53						3	87				87	
05/14/23	-	-																								0	
05/15/23	461.58	324.23	102.43	149.77	72.03						97.20				15.73			24.42				114		4		118	
05/16/23	445.49	391.41	121.83	125.61	124.88	19.09			0.46		23.99				22.57			7.06	1			125	1	1		127	
05/17/23	473.84	385.68	175.82	110.90	56.12	42.84					49.60		0.52		24.14			13.90		1	3	111	2	2		115	
05/18/23	477.08	381.37	180.30	100.94	44.16	39.19		16.78			73.64			1.05	10.47			10.55			3	105	2	3		110	
05/19/23	538.38	445.92	195.75	143.35	71.90	20.69		14.23	7.80		49.06				28.94			6.66	1	1	2	129	1	2		132	
05/20/23	106.73	99.11	62.62	17.11	19.38				3.53						1.33			2.76		1	2	115				115	
05/21/23	-	-																								0	
05/22/23	512.71	397.69	122.76	185.07	50.43	39.43					97.31				14.81			2.90		1		126	2	4		132	
05/23/23	369.09	353.10	109.02	125.36	79.46	39.26									7.04			8.95			2	105	2			107	
05/24/23	636.67	594.65	170.68	280.51	86.10	38.97		18.39	1.86		23.85		0.66		9.81			5.84		1	2	128	2	1		131	
05/25/23	509.35	405.04	171.57	131.39	54.57	38.41		9.10			95.49				5.10			3.72		1	1	108	2	4		114	
05/26/23	618.10	494.65	231.25	135.29	71.53	40.80		15.78	4.23		97.75				10.25			11.22		1		141	2	4		147	
05/27/23	190.88	116.31	72.91	31.26	12.14				0.48		72.08				2.01							123		3		126	
05/28/23	-	-																								0	
05/29/23	-	-																								0	
05/30/23	483.65	423.56	124.14	219.94	65.58	13.90			2.05		48.34				6.84			2.86		4	1	141	1	2		144	
05/31/23	557.09	458.46	176.38	186.87	59.33	20.62		15.26	1.40		72.07				17.49			7.67				152	1	3		156	
	-	-																								0	
	-	-																								0	
	12,420.15	10,159.25	3,740.85	3,726.84	2,158.15	414.51	-	118.90	-	80.20	-	-	1,507.76	-	1.18	2.35	448.72	-	-	220.69	9	23	27	3,185	21	62	3268





Lancaster Landfill & Recycling Facility

June 2023 Tonnage

REFUSE (TONS)

RECYCLING TONS

Date	Gross Tons	Net Tons	REFUSE (TONS)				RECYCLING TONS																Total Vehicles				
			Residential	Commercial	Industrial	Transfers	Disaster Waste	Curbside Greenwaste AV Haul	Curbside Greenwaste Transfer	Fill Dirt	Beneficial TPH Soil	Coversoil	Processed Inerts	Mixed Organics	Clean Greenwaste	Wood	Concrete / Asphalt	Concrete / Asphalt	Commingle Recycling	C&D	Tires (by Quantity)	Appliances (by Quantity)		CRT'S	Vehicles (Excluding Trsf.)	Transfers (MSW)	Transfers (ADC)
			MSW	MSW	MSW	MSIN-TRFR	MSW	MSW	MSW	RGC	RGC	RGC	OYW	OYW	OYW	C&D	RDW	RDW	RDW	RDW	RDW	RDW	RDW	RDW	RDW	RDW	RDW
06/01/23	465.91	421.74	200.64	136.98	46.61	20.80		16.71							1.63	7.42			10.70			5	108	1	1	110	
06/02/23	550.02	442.44	212.74	151.10	46.16	21.46		10.98		4.95				2.30	18.51			9.21	1	2	1	121	1	3	125		
06/03/23	500.84	397.67	227.70	118.45	21.37			30.15		1.82				2.61	0.65			3.00		2		132		4	136		
06/04/23	-	-																								0	
06/05/23	451.68	299.86	120.83	131.66	27.08	20.29				8.03				3.43	34.07			8.13				115	1	4	120		
06/06/23	399.39	309.79	120.40	116.03	55.91	17.45									16.54					2	2	117	1	3	121		
06/07/23	468.20	349.24	156.32	122.28	43.61	19.42		7.61		2.27				96.95				18.12		1		117	1	4	122		
06/08/23	494.98	366.30	182.40	99.38	47.14	21.03		16.35						96.11				32.57				118	1	4	123		
06/09/23	640.13	487.96	194.83	148.10	95.51	21.34		28.18		4.57				72.62			57.91	17.07		1	3	156	1	3	160		
06/10/23	145.45	139.49	85.43	39.90	14.16					1.24					0.84	3.88					1	131			131		
06/11/23	-	-																								0	
06/12/23	581.88	481.40	133.27	270.94	56.78	20.41				0.44				73.43			17.08		9.53		1	1	141	1	3	145	
06/13/23	538.38	418.08	126.59	218.48	53.18	19.83				12.89				96.40	0.97	1.84		8.20				145	1	4	150		
06/14/23	653.83	540.52	191.15	228.82	92.40	19.49		8.66		6.73				74.36		12.98		19.24				120	1	3	124		
06/15/23	480.97	442.98	173.31	182.15	58.25	20.01		9.26						24.29		0.80		12.90		1	6	129	1	1	131		
06/16/23	564.36	460.92	211.82	174.90	64.32			9.88		6.67				94.99				1.78			10	142		4	146		
06/17/23	90.07	87.35	62.47	17.96	6.92					1.45						1.27				3		104			104		
06/18/23	-	-																								0	
06/19/23	431.85	309.09	80.68	162.68	46.50	19.23								95.82		22.27		4.67			6	130	1	4	135		
06/20/23	363.54	345.58	129.39	144.75	51.78	19.66									9.92			8.04			3	146	1		147		
06/21/23	669.00	489.22	176.66	163.32	117.12	20.40		11.72		2.89				123.10		29.74		24.05		1		153	1	5	159		
06/22/23	482.58	408.40	183.68	123.28	74.24	19.09		8.11						49.43		15.03		9.72		1		135	1	2	138		
06/23/23	577.01	464.28	209.11	141.99	79.01	28.26		5.91		5.09				74.93		25.35		7.36			2	144	1	3	148		
06/24/23	92.98	78.39	67.39	7.03	3.97					4.24						10.35				1	1	114			114		
06/25/23	-	-																								0	
06/26/23	386.90	315.97	108.38	143.67	43.16	20.76				8.03				49.31		4.24		9.35		2		125	1	2	128		
06/27/23	490.54	332.52	119.63	137.04	55.30	20.55				12.94				120.55		4.33		20.20	4	2		129	1	5	135		
06/28/23	586.63	450.18	227.19	139.00	50.91	20.94		12.14		8.13				98.95	1.44	3.74		24.19				150	1	4	155		
06/29/23	409.78	388.77	202.58	117.18	38.90	20.83		9.28		2.69						8.63		9.69				152	1		153		
06/30/23	610.07	456.66	267.95	132.35	30.63	19.72		6.01		4.79				123.08		2.13	14.83		8.58			182	1	5	188		
	-	-																								0	
	-	-																								0	
																										0	
	12,126.97	9,684.80	4,172.54	3,569.42	1,320.92	430.97	-	190.95	-	99.86	-	-	1,727.66	-	-	15.35	323.00	-	-	276.30	5	20	41	3,456	21	71	3548



Lancaster Landfill & Recycling Facility

July 2023 Tonnage

REFUSE (TONS)

RECYCLING TONS

Date	REFUSE (TONS)							RECYCLING TONS																				
	Gross Tons	Net Tons	Residential	Commercial	Industrial	Transfers	Disaster Waste	Curbside Greenwaste AV Haul	Curbside Greenwaste Transfer	Fill Dirt	Beneficial TPH Soil	Coversoil	Processed Inerts	Mixed Organics	Clean Greenwaste	Wood	Concrete / Asphalt	Concrete / Asphalt	Commingle Recycling	C&D	Tires (by Quantity)	Appliances (by Quantity)	CRT'S	Vehicles (Excluding Trsf.)	Transfers (MSW)	Transfers (ADC)	Total Vehicles	
			MSW	MSW	MSW	MSIN-TRFR	MSW	MSW																				
07/01/23	140.51	111.79	64.58	26.02	21.19				10.70								11.36			6.66	2	1	6	117				117
07/02/23	-	-																										0
07/03/23	447.29	281.60	101.95	139.31	19.46	20.88						117.38					33.11			15.20	5	8	2	129	1	5		135
07/04/23	-	-																										0
07/05/23	587.74	443.69	115.64	220.77	87.24	20.04			20.28			98.72					16.26			8.79		2	1	126	1	4		131
07/06/23	629.02	470.10	177.54	237.43	35.03	20.10						121.99			6.25	7.89				22.79		3		128	1	5		134
07/07/23	541.77	397.25	193.94	110.01	58.68	20.10		14.52				98.79					36.33			9.40		1		136	1	4		141
07/08/23	354.30	345.78	227.07	100.34	1.57			16.80	6.21								2.31					5	1	141				141
07/09/23	-	-																										0
07/10/23	537.90	433.84	134.28	142.95	137.80	18.81			2.42			74.98					19.62			7.04		1	1	136	1	3		140
07/11/23	503.33	466.12	120.47	158.28	167.35	20.02			12.35								14.28			10.58		5	5	151	1			152
07/12/23	772.72	617.72	167.02	143.16	271.03	19.26		17.25	29.04			97.25					9.38			19.33		1	3	154	1	4		159
07/13/23	434.56	281.41	113.42	121.15	20.64	19.19		7.01	4.14			124.36			3.93	13.70				7.02	4	2		105	1	5		111
07/14/23	583.31	416.75	182.85	130.00	66.98	18.66		18.26	17.52			122.97			2.35	16.56				7.16		1	3	126	1	5		132
07/15/23	100.69	91.29	50.62	26.34	14.33												9.40				6	4		93				93
07/16/23	-	-																										0
07/17/23	665.05	498.16	114.29	166.43	197.65	19.79						120.12					26.00			20.77		2	2	125	1	5		131
07/18/23	495.44	449.67	134.06	153.55	142.29	19.77									1.17	37.61				6.99		1	2	141	1			142
07/19/23	675.70	532.81	176.89	100.38	226.55	20.24		8.75	5.13			121.14					5.01			11.61			1	115	1	5		121
07/20/23	498.65	368.52	164.26	99.01	76.08	19.11		10.06				118.75								11.38				111	1	5		117
07/21/23	646.03	459.98	200.65	124.27	109.38	20.03		5.65	5.33			169.22					5.97			5.53	3	2		138	1	7		146
07/22/23	77.64	71.70	62.77	0.25	8.68				5.94													3	5	93				93
07/23/23	-	-																										0
07/24/23	584.48	439.37	109.16	144.97	164.96	20.28			8.83			121.51					14.07			0.70		3	1	111	1	5		117
07/25/23	442.18	319.91	99.98	149.05	51.58	19.30						118.77					0.41			3.09				112	1	5		118
07/26/23	506.88	398.24	173.80	127.83	52.94	43.67						71.42					20.53			16.69				111	2	3		116
07/27/23	517.94	369.91	171.21	106.83	65.72	19.49		6.66				119.27					19.36			9.40		4		115	1	5		121
07/28/23	638.58	477.39	218.76	167.70	71.53	19.40			17.90			117.66			5.23	6.84				13.56				149	1	5		155
07/29/23	72.30	67.96	56.79	11.17					1.58								2.76				8	2	2	106				106
07/30/23	-	-																										0
07/31/23	484.57	354.07	81.35	172.41	81.30	19.01			2.65			94.78					5.73			27.34				108	1	4		113
	-	-																										0
	11,938.58	9,165.03	3,413.35	3,079.61	2,149.96	417.15	-	104.96	-	150.02	-	-	2,029.08	-	-	18.93	334.49	-	-	241.03	28	51	35	3,077	21	84		3182



Lancaster Landfill & Recycling Facility

August 2023 Tonnage

REFUSE (TONS)

RECYCLING TONS

Date	Gross Tons	Net Tons	Residential	Commercial	Industrial	Transfers	Disaster Waste	Curbside Greenwaste - AV Haul	Curbside Greenwaste Transfer	Fill Dirt	Beneficial TPH Soil	Coversoil	Processed Inerts	Mixed Organics	Clean Greenwaste	Wood	Concrete / Asphalt	Concrete / Asphalt	Commingle Recycling	C&D	Tires (by Quantity)	Appliances (by Quantity)	CRT'S	Vehicles (Excluding Trsf.)	Transfers (MSW)	Transfers (ADC)	Total Vehicles	
			MSW	MSW	MSW	MSIN-TRFR	MSW	MSW	MSW	RGC	RGC	RGC	RGC	OYW	OYW	OYW	C&D	RDW	RDW	RDW	RDW	RDW	RDW					
08/01/23	478.62	360.57	153.71	137.06	50.76	19.04				4.60			96.34				14.44			2.67		2		126	1	4	131	
08/02/23	493.64	357.65	165.20	114.92	51.68	19.44		6.41					121.77				11.13			3.09		1	1	106	1	5	112	
08/03/23	503.87	356.42	169.42	105.23	55.78	19.62		6.37		7.72			98.51				30.53			10.69	2			129	1	4	134	
08/04/23	442.93	363.54	165.76	131.88	40.47	18.68		6.75		11.16							47.02			21.21				123	1		124	
08/05/23	101.37	91.43	83.24	7.19	1.00					3.49							6.45					3	2	117			117	
08/07/23	427.89	298.16	74.69	148.80	55.62	19.05				2.63			98.03				18.96			10.11		2	4	129	1	4	134	
08/08/23	527.38	386.71	115.37	166.21	82.22	22.91				2.83			119.79							18.05				146	1	5	152	
08/09/23	538.24	382.70	156.55	153.09	73.06					1.69			119.23				28.98			5.64		4		128		5	133	
08/10/23	509.72	405.01	183.65	149.37	52.48	19.51				10.06			73.61							21.04			4	128	1	3	132	
08/11/23	588.42	457.86	204.45	154.19	67.21	20.95		11.06		1.55			97.64			3.89	17.39			10.09		3		140	1	4	145	
08/12/23	85.97	73.37	57.23	13.81	2.33					9.89							2.04			0.67		4	6	105			105	
08/14/23	452.69	342.75	109.47	134.48	77.12	21.68							94.15			1.48	11.62			2.69			8	122	1	4	127	
08/15/23	518.29	409.88	105.34	239.13	45.48	19.93				15.08			72.32			2.29	10.60			8.12				138	1	3	142	
08/16/23	449.24	371.01	145.69	141.69	53.17	19.29		11.17					47.62				5.23			25.38				109	1	2	112	
08/17/23	461.46	318.51	160.35	91.83	49.13	17.20							117.69				18.62			6.64	12			97	1	5	103	
08/18/23	536.35	463.86	200.12	154.49	87.59	21.66				1.43			69.39							1.67		1		136	1	3	140	
08/19/23	129.19	122.19	97.02	18.34	6.83					5.61							1.39					5	5	125			125	
08/21/23	394.77	385.85	163.14	166.69	32.13	19.06		4.83									4.31			4.61		2		63	1		64	
08/22/23	773.49	557.42	227.12	184.91	116.28	20.05		9.06		2.65			119.50			1.61	68.26			24.05				156	1	5	162	
08/23/23	737.75	541.45	209.07	188.72	101.93	21.30		20.43		3.11			144.40				40.68			8.11				131	1	6	138	
08/24/23	604.12	449.70	179.38	142.23	99.35	19.75		8.99					121.37				24.54			8.51		1	2	119	1	5	125	
08/25/23	572.01	444.56	204.99	150.40	60.04	19.84		9.29		4.56			97.40				0.82			24.67				114	1	4	119	
08/26/23	111.41	109.50	87.42	14.55	7.53					1.91												1	1	103			103	
08/28/23	425.00	393.52	103.31	233.68	56.53					0.42							18.03			13.03		1		122			122	
08/29/23	524.89	410.38	99.04	180.08	105.19	21.32		4.75		3.08			98.78				6.63			6.02	8		1	119	1	4	124	
08/30/23	522.27	405.79	135.19	138.66	87.86	44.08							98.27				2.78			15.43		2		116	2	4	122	
08/31/23	482.34	360.14	166.62	114.29	48.34	23.00		7.89					95.86				17.26			9.08			3	113	1	4	118	
																												0
	12,393.32	9,619.93	3,922.54	3,575.92	1,567.11	447.36	-	107.00	-	93.47	-	-	2,001.67	-	-	9.27	407.71	-	-	261.27	22	32	37	3,260	22	83	3365	



Lancaster Landfill & Recycling Facility

September 2023 Tonnage

REFUSE (TONS)

RECYCLING TONS

Date	REFUSE (TONS)						RECYCLING TONS																					
	Gross Tons	Net Tons	Residential	Commercial	Industrial	Transfers	Disaster Waste	Curbside Greenwaste AV Haul	Curbside Greenwaste Transfer	Fill Dirt	Beneficial TPH Soil	Coversoil	Processed Inerts	Mixed Organics	Clean Greenwaste	Wood	Concrete / Asphalt	Concrete / Asphalt	Commingle Recycling	C&D	Tires (by Quantity)	Appliances (by Quantity)	CRT'S / E-Waste	Vehicles (Excluding Trsf.)	Transfers (MSW)	Transfers (ADC)	Total Vehicles	
			MSW	MSW	MSW	MSIN-TRFR	MSW	MSW		RGC	RGC	RGC	RGC	OYW	OYW	OYW	C&D	RDW	RDW	RDW	RDW	RDW	RDW					
09/01/23	597.45	457.80	201.32	167.48	63.90	18.59		6.51					120.98				11.91			6.76		1	2	147	1	5	153	
09/02/23	102.87	92.79	64.91	27.88					2.69								7.39				5	2	3	105			105	
09/03/23	-	-																									0	
09/04/23	-	-																									0	
09/05/23	585.77	456.71	109.48	261.07	65.81	20.35							116.07				3.53			9.46			3	131	1	5	137	
09/06/23	568.42	446.49	123.58	180.42	122.98	19.51							95.30							26.63		2		132	1	4	137	
09/07/23	674.41	529.47	233.11	189.72	74.45	18.81		13.38	7.20				72.17				44.33			21.24				137	1	3	141	
09/08/23	635.05	480.58	217.36	148.80	83.60	22.21		8.61					122.23		1.21		24.92			6.11				133	1	5	139	
09/09/23	449.76	352.73	234.64	93.70	2.31			22.08					95.05				1.98						1	142		4	146	
09/10/23	-	-																									0	
09/11/23	503.97	379.79	114.71	180.94	64.09	20.05							93.94				16.72			13.52	3	2		125	1	4	130	
09/12/23	639.74	503.07	102.98	288.73	90.99	20.37			12.15				70.23				29.14			25.15	1	1	2	146	1	3	150	
09/13/23	464.26	447.59	124.18	177.29	109.32	20.47		16.33							1.61		10.98			4.08	9			120	1		121	
09/14/23	521.99	432.77	164.28	150.10	90.41	20.33		7.65					71.69				14.66			2.87	9	1	4	140	1	3	144	
09/15/23	545.87	447.94	204.56	141.65	66.59	20.24		14.90					94.56							3.37	3	6	2	150	1	4	155	
09/16/23	203.76	100.52	52.15	48.37									93.13				2.73			7.38		1	2	107		4	111	
09/17/23	-	-																									0	
09/18/23	537.56	370.39	109.96	185.89	54.08	20.46			2.28				141.89		1.59		14.79			6.62	6	2	2	137	1	6	144	
09/19/23	535.33	419.07	161.76	151.59	86.48	19.24			5.06				95.61				10.12			5.47			3	120	1	4	125	
09/20/23	546.30	457.85	169.46	136.14	102.13	19.76		30.36					70.46				5.60			12.39		1		126	1	3	130	
09/21/23	657.99	510.05	172.67	117.80	191.41	19.04		9.13					118.05				6.00			23.89	6	2	2	133	1	5	139	
09/22/23	632.00	504.80	197.61	190.22	82.76	19.92		14.29					119.40				2.33			5.47				134	1	5	140	
09/23/23	214.23	131.49	84.68	27.25	19.56				1.52				72.70				8.52				1	1	1	122		3	125	
09/24/23	-	-																									0	
09/25/23	472.87	359.80	102.73	174.75	63.39	18.93							97.11				4.19			11.77		3		116	1	4	121	
09/26/23	441.00	373.66	120.02	163.34	71.08	19.22							50.11				9.31			7.92	13			133	1	2	136	
09/27/23	551.09	426.85	151.34	156.10	93.08	19.48		6.85					120.67				3.57				4	1		121	1	5	127	
09/28/23	505.37	439.33	165.00	149.61	96.19	20.13		8.40	5.26						1.23		41.92			17.63	6	2		131	1		132	
09/29/23	543.92	424.72	204.17	162.28	44.98			13.29					73.52		2.08		20.66			22.94		6	2	143		3	146	
09/30/23	157.19	101.01	60.90	25.50	14.61				4.37				47.62				4.19				3		1	91		2	93	
	-	-																									0	
	-	-																									0	
	12,288.17	9,647.27	3,647.56	3,696.62	1,754.20	377.11	-	171.78	-	40.53	-	-	2,052.49	-	-	7.72	299.49	-	-	240.67	69	34	30	3,222	19	86	3327	



Lancaster Landfill & Recycling Facility

October 2023 Tonnage

REFUSE (TONS)

RECYCLING TONS

Date	REFUSE (TONS)						RECYCLING TONS																						
	Gross Tons	Net Tons	Residential	Commercial	Industrial	Transfers	Disaster Waste	Curbside Greenwaste AV Haul	Curbside Greenwaste Transfer	Fill Dirt	Beneficial TPH Soil	Coversoil	Processed Inerts	Mixed Organics	Clean Greenwaste	Wood	Concrete / Asphalt	Concrete / Asphalt	Commingle Recycling	C&D	Tires (by Quantity)	Appliances (by Quantity)	CRT'S	Vehicles (Excluding Trsf.)	Transfers (MSW)	Transfers (ADC)	Total Vehicles		
10/01/23	-	-	MSW	MSW	MSW	MSIN-TRFR	MSW	MSW																					0
10/02/23	521.88	448.96	124.78	227.65	96.53							24.59					48.23			0.10	1	2		145		1		146	
10/03/23	508.98	356.18	122.59	195.05	38.54							121.10					13.90			17.80	4	2	1	149		5		154	
10/04/23	564.80	499.48	189.84	176.25	129.31			4.08	3.97			47.08					10.99			3.28	1	1	5	142		2		144	
10/05/23	361.31	312.44	158.64	122.96	30.84							23.68					21.29			3.90	4		1	99		1		100	
10/06/23	553.98	468.68	206.37	164.88	97.43				0.98			74.53					2.47			7.32		3	3	150		3		153	
10/07/23	167.11	94.18	55.30	36.72	2.16							72.93										2	5	102		3		105	
10/08/23	-	-																										0	
10/09/23	592.95	434.23	117.18	264.38	52.67							96.46					28.53			33.73		3		163		4		167	
10/10/23	520.78	386.88	128.35	183.74	54.37	20.42			2.63			117.97								13.30		11	6	122	1	5		128	
10/11/23	534.49	411.83	146.37	184.43	57.25	19.86		3.92				116.09					1.87			4.70			1	131	1	5		137	
10/12/23	538.17	403.80	153.45	147.37	82.88	20.10						95.81			1.20	29.77				7.59			3	132	1	4		137	
10/13/23	532.25	487.40	200.48	173.18	94.09	19.65			2.57							32.89				9.39		2		144	1			145	
10/14/23	561.68	536.35	520.36	13.18	2.81							23.77								1.56	35	40	37	170		1		171	
10/15/23	-	-																										0	
10/16/23	456.88	392.74	115.40	191.59	65.47	20.28						24.39					25.54			14.21				143	1	1		145	
10/17/23	349.85	343.46	111.36	163.15	48.63	20.32									2.31	0.51				3.57				116	1			117	
10/18/23	534.33	436.34	136.25	187.97	87.40	19.74		4.98				97.99												125	1	4		130	
10/19/23	575.56	464.94	155.59	149.22	140.82	19.31			2.60			98.17								9.85				145	1	4		150	
10/20/23	599.01	467.20	193.05	157.27	87.75	19.97		9.16				117.51				7.02				7.28		5		134	1	5		140	
10/21/23	169.56	93.09	65.57	27.52								73.24				3.23						5	2	105		3		108	
10/22/23	-	-																										0	
10/23/23	554.21	381.86	121.00	179.43	60.87	20.56			9.69			122.79			1.87	22.73				15.27		1	1	134	1	5		140	
10/24/23	522.95	406.92	97.20	231.33	59.26	19.13			2.82			98.75								14.46	9	1	1	135	1	4		140	
10/25/23	566.32	441.32	148.52	199.72	89.10			3.98				121.44								3.56	8		2	138		5		143	
10/26/23	398.39	369.55	168.62	118.83	82.10				1.73							20.52				6.59	3		5	117				117	
10/27/23	556.58	549.19	198.37	303.52	47.30										1.22					6.17		5		155				155	
10/28/23	155.67	96.57	64.41	29.02	3.14							48.14				10.96						2		104		2		106	
10/29/23	-	-																										0	
10/30/23	434.99	278.11	77.94	123.27	57.32	19.58						123.59					22.85			10.44		1		129	1	5		135	
10/31/23	460.54	326.96	125.22	161.75	39.99							98.48					22.23			12.87		8	3	128		4		132	
	-	-																											
	12,293.22	9,888.66	3,902.21	4,113.38	1,608.03	238.92	-	26.12	-	26.99	-	-	1,838.50	-	-	6.60	325.53	-	-	206.94	65	94	76	3,457	12	76		3545	

# **ATTACHMENT C**

**PHASE 2A-2 LINER INSPECTION REPORT  
WASTE MANAGEMENT – LANCASTER LANDFILL AND RECYCLING CENTER,  
LANCASTER, CALIFORNIA**

WDID No.: 6B190343001  
BO No.: R6V-2016-0037  
Status Code: ACTIVE  
Permit Type: WDR

Facility Site Name: Lancaster Class III Landfill and Recycling Center  
Facility Location: Lancaster, California

Site Contact: Jordan Kingsbury & Nicole Stetson  
Site Number: (818) 482-8676, (661) 816-6147

Date of Inspection: March 10, 2023

	<u>Name</u>	<u>Agency</u>
Inspectors:	Ashley Taylor	Lahontan RWQCB
	Christina Guerra	Lahontan RWQCB

Facility Personnel:	Jordan Kingsbury	Environmental Protection Specialist
	Scott G. Sumner	P.E. Engineering Manager
	Grant Deem	Geo-Logic

Type of Inspection: Final Liner Inspection / No Sampling

**INSPECTION SUMMARY**

Water Board staff arrived at the Lancaster Landfill and Recycling Center (LLRC) at approximately 10:00 a.m. The weather was partly cloudy, windy, and cold. Onsite we met with the above listed representatives to observe the construction progress of the liner for landfill cell Phase 2A-2. It was noted, precipitation was anticipated for the afternoon. According to <https://dpw.lacounty.gov/wrd/rainfall/#> the last precipitation event occurred on March 2, 2023.

We initially drove around the exterior of the landfill for observation. The weather was windy, and trash was observed leaving the site and over toppling the fence along the northeast perimeter, as shown in Photos 1 and 2. On the southeast portion of the site, at the gate entrance it appeared ponded storm water runoff was exiting the site, Photo 3. Significant ponding was observed mainly along the southern and western boundaries of the site as shown in Photos 4 and 5. Uncovered refuse and debris appeared to be blown from the recent former active face near the stockpiled materials from the current cell construction, see Photo 6. Our observations were communicated to Jordan upon our arrival.

Once inside the landfill, we observed the retention basin and discharge location. The discharge location is not a point and was observed to be a sheet flow mechanism, see photo 7. At the time of inspection water was being pumped from the basin and was being transferred into a

water truck. Jordan Kingsbury stated the water being pumped from the basin was being used for dust control on site.

We then met with the facility personnel listed above to tour the landfill cell Phase 2A-2 construction. We observed 12oz cushion geotextile, the LCRS gravel layer that met or exceeded the proposed thickness of 9" and the one foot or greater soil operation layer as shown in photo 8. The former layers were verified during the January 3, 2023, compliance inspection. The slopes, less in the vicinity of the lysimeter area, were also protected with ballast in the form of sandbags and tarping from approximately 20 feet from the base of the cell. The lysimeter piping had recently been slurried in place on the slope.

### **RECOMMENDATIONS**

Water Board staff recommended that the trash outside the perimeter fencing and over flow onto the mulched portion of the interim cover be cleaned up by March 15, 2023. Water Board staff requested photos be submitted for documentation to the Water Board. Additionally, we recommend Waste Management remove the palm trees and repair the intermediate cover. Please provide photographic demonstration to the Water Board after removal and repair.

### **VIOLATIONS**

- Windblown litter off site is a violation of Section V.III.A.4 of the Board Order. Please provide photo documentation that offsite litter has been picked up by Wednesday March 15, 2023. It is recommended the trash be cleaned up inside the premises to prevent future off site discharge.
- The palm trees concentrated water flow and resulted in erosion of interim cover, which is a violation of Section V.III.A.12 of Board Order and needs to be repaired immediately. Please provide photo documentation of the repair by Wednesday March 15, 2023.
- Ponding on the southern and western boundaries of the site is inconsistent with the site drainage plan and Stormwater Pollution and Prevention Plan and is a violation of Section V.III.A.13 & Section V.E.e.II.2 of the Board Order. Please provide the most current up to date site drainage plan. Additionally, please provide the construction design plans for the proposed retention basin to be performed by others shown in the approved plan set for Phase 2A- construction received on December 8, 2022. These documents shall be received by Water Board staff no later than March 30, 2023.



**PHOTOGRAPHS**



Photo 1: Trash northeast corner of Landfill Perimeter.



Photo 2: Windblown trash off property northeast corner of Challenger Way and Ave F.



Photo 3: Storm water exiting site at southeast corner of Landfill perimeter.



Photo 4: Ponding water, southern perimeter looking east.



Photo 5: Ponding water southern perimeter looking west.



Photo 6: Refuse uncovered blown onto mulch interim cover southeast portion of site.



Photo 7: storm water discharge point, overflow by sheet flow.

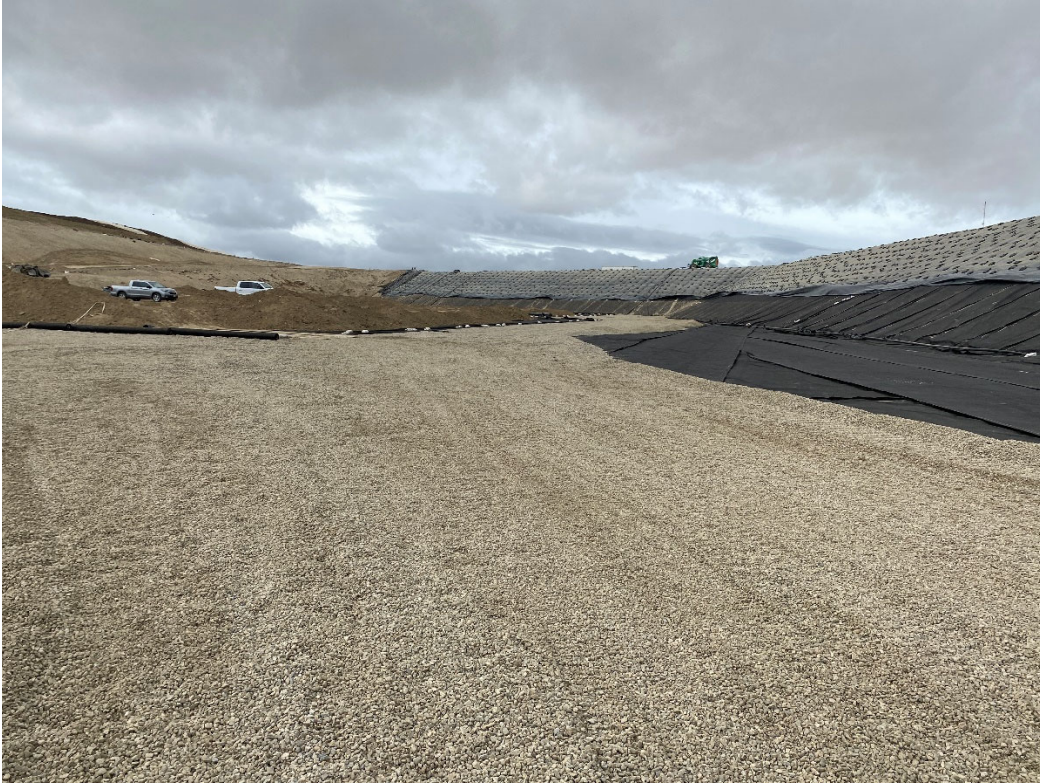


Photo 8: Verified liner system components, geotextile, gravel layer, soil operation layer, and ballast.





**Asteghik Khajetoorians**  
Assistant General Counsel  
9081 Tujunga Avenue  
Sun Valley, California 91352  
(818) 252-3115  
[akhajeto@wm.com](mailto:akhajeto@wm.com)

April 14, 2023

**Via E-Mail**

[jan.zimmerman@waterboards.ca.gov](mailto:jan.zimmerman@waterboards.ca.gov)

Ms. Jan Zimmerman  
Senior Engineering Geologist  
15095 Amargosa Road Bldg. 2, Suite 210  
Victorville, CA 92394

**Re: Lancaster Landfill and Recycling Center  
RWQCB March 15 Inspection Report and NOVs**

Dear Ms. Zimmerman:

On behalf of Waste Management of California, Inc., dba Lancaster Landfill & Recycling Center (“**LLRC**”) this letter follows up and responds to Ms. Ashley Taylor’s inspection report regarding the alleged violations observed during a March 10, 2023 site visit, as outlined in the attached “Phase 2A-2 Liner Inspection Report Waste Management – Lancaster Landfill And Recycling Center, Lancaster, California” Inspection report originally issued on March 13, amended on March 14 with revised regulatory citations and followed by a supplemental report with additional photographs issued on March 15 (“**March 15 Inspection Report**”). (See attached March 15 Inspection Report.) Subsequently, LLRC sent Ms. Taylor and Ms. Christina Guerra correspondence dated March 17 requesting RWQCB rescind the alleged violations set forth in the March 15 Inspection Report and the basis for the request. (See attached March 17 J. Morgan Letter.) Ms. Taylor responded in writing on March 23. (See attached March 23 A. Taylor Email.)

Based on our review of the documentation, including the March 15 Inspection Report and March 23 email (attached), applicable regulations, permits and photographs, LLRC respectfully submits that there is no basis for the alleged violations issued as these are not violations of Board Order WDR #R6V-2016-0037. The Local Enforcement Agency (LEA) appointed by CalRecycle is the enforcement authority with jurisdiction over the regulatory requirements set forth in Title 27 of the California Code of Regulations (CCR), Article 4 CIWMB – Controls. Notably, the LEA has not issued a violation for 27 CCR Section 20820 – Drainage & Erosion Control and not for 27 CCR Section 20830 – Litter Control during its recent inspections. On March 28, 2023, the LEA, Mr. Carlos Ruiz, conducted a monthly inspection of LLRC.

Mr. Ruiz mentioned that Ms. Taylor asked him to follow up on the items discussed in her March 15 Inspection Report. As requested by Ms. Taylor, Mr. Ruiz reviewed these items in detail with WM staff and determined LLRC was in compliance during the inspection and confirmed LLRC's compliance in his email dated March 29, 2023. Thus, the regulatory agency responsible for these very issues found LLRC in compliance with the subject regulations, contrary to the alleged violations issued by the RWQCB. (See attached March 29 C. Ruiz Email).

For the reasons below, LLRC respectfully requests that the RWQCB rescind these unprecedented and unsupported alleged violations:

**1. LLRC did not violate Section III.A.4 of the WDR.**

In its March 15 Inspection Report, RWQCB issued an alleged violation for windblown litter and cited condition Section III.A.4 of the WDRs which states, "The discharge of waste except to authorized disposal areas is prohibited." As we previously noted, on the day of the inspection (March 10), the site sustained significant winds of 15 – 20 MPH with gusts exceeding 20 MPH. First, there was no "discharge" of waste to unauthorized disposal areas. The observed litter was a result of high winds and was contained on-site in accordance with Conditional Use Permit 03-170-(5), Condition No. 68, through our Litter Control Program. The final disposition of the windblown litter was in fact in the landfill – as it does daily, LLRC collected the windblown litter and deposited it in the landfill (on the same day as the inspection) in accordance with its Litter Control Program and provided the photographs to RWQCB on March 13. (See attached Litter Control Program.) Second, the windblown litter did not result in contamination, which is defined in Section 13050 of the Cal. Water Code as an impairment of the quality of the waters of the state by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease, nor did it result in a condition of "pollution or nuisance" as defined in Section 13050.

We have protocols in place to collect windblown litter and dispose of it properly in the landfill. In accordance with our Litter Control Program, windblown litter is controlled through proper site operations, litter fencing, regular litter patrols by site personnel, and a tarping program to contain litter from vehicles delivering waste to LLRC. LLRC diligently executes these litter control programs as required by CUP 03-170-(5) in compliance with 27 CCR Section 20830, which provides as follows:

*Litter shall be controlled, routinely collected and disposed of properly. Windblown materials shall be controlled to prevent injury to the public and personnel. Controls shall prevent the accumulation, or off-site migration, of litter **in quantities that create a nuisance or cause other problems.***

As shown above and in the attachments, the windblow litter did not create a nuisance nor did it cause other problems. Indeed, the conditions observed by Ms. Taylor at

the site are part of daily operations, where windblown litter is cleaned and deposited in the landfill, whether on-site or off-site, in accordance with our Litter Control Program. These regular operations are not of the type that should be subject to NOVs, and indeed LLRC has never been cited with such a violation previously. Accordingly, LLRC requests that RWQCB rescind this NOV.

## **2. LLRC did not violate Section III.A.12 of the WDR.**

In its March 15 Inspection Report, RWQCB also issued a violation for alleged erosion of interim cover, citing condition Section III.A.12 which states, "Surface drainage from offsite areas and internal site drainage from surface and subsurface sources must not contact or percolate through solid wastes discharged at the Facility." Importantly, interim cover was not compromised in any manner. Indeed, waste was not exposed nor was waste observed during the inspection. LLRC verified *more than* 12 inches of interim cover in the subject area. Therefore, there was no erosion of interim cover and no contact or percolation of drainage water through solid waste as there was no exposed trash present. In any event, as directed in the March 15 Inspection Report, LLRC removed the palm trees and sent photographs to Ms. Ashley on March 15.

LLRC actively manages and repairs surface erosion as it may occur, and the presence of minor erosion alone is not a violation. Per 27 CCR Section 20820, there was never any erosion of interim cover resulting in exposure of waste. As is evident in the pictures, any erosion observed was minor. Furthermore, Section III.B.6 of the WDRs provides for thirty (30) days to repair erosion and erosion of wastes after significant earthquake or flood events. The minor erosion which did not even disturb the interim cover was not a violation of Section III.A.12 of the WDR, and there was no evidence of surface drainage contacting or percolating through solid waste.

Based on the above, LLRC requests that RWQCB withdraw this NOV.

## **3. LLRC did not violate conditions Section III.A.13 & Section V.E.e.ii.2.**

In its March 15 Inspection Report, RWQCB issued a violation for ponding and cited conditions Section III.A.13 & Section V.E.e.ii.2. First, the reference to Section V.E.e.ii.2 is confounding because that Section covers requirements of the contents of the SWPPP for BMPs. Nowhere in the March 15 Inspection Report is there an allegation regarding insufficiency of the site's SWPPP. With respect to Condition Section III.A.13, it states "The exterior surfaces **of the Landfill** must be graded to promote lateral run-off of precipitation and to prevent ponding." Importantly, this requirement pertains to "ponding" within the Landfill footprint. The alleged ponding referred to in the March 15 Inspection Report is on the southern perimeter road and not within the Landfill footprint. Furthermore, the exterior surfaces of the Landfill are in fact graded to promote lateral run-off, which was confirmed during the March 10, 2023 site inspection – where there was no ponding on the roads, benches or decks

within the Landfill footprint. Finally, please also note that there was no so called "ponding" – there was approximately one-foot of wet soil however no observable ponding of water. Consequently, there is no basis for the alleged violation and LRRC requests RWQCB rescind this NOV.

The March 15 Inspection Report requests a copy of the "most current up to date site drainage plan." We understand this means the updated drainage plan to reflect the removal of the interim retention basin and are coordinating providing this with Ms. Taylor.

#### **4. Conclusion.**

In conclusion, LLRC respectfully requests that RWQCB rescind these NOVs and issue an amended report.<sup>1</sup> As demonstrated above, there is no basis in fact or in law to support the NOVs. Moreover, the observations could have been communicated as a notice to correct in the inspection report. We take our compliance record seriously and our relationship with the RWQCB is an absolute priority. We look forward to continuing the excellent relationship that we have maintained with RWQCB over the years.

Should you have questions or would like to address our request further, we are available to setup a meeting. Please contact Miriam Cardenas, Environmental Protection Manager, at (951) 334-7138.

Best regards,

*Asteghik Khajetoorians*

Asteghik Khajetoorians  
Assistant General Counsel

cc: (via e-mail)  
Michael Plaziak, Executive Officer, LRWQCB  
Christina Guerra, Engineering Geologist, LRWQCB  
Ashley Taylor, Engineering Geologist, LRWQCB  
Dee Hanson-Lugo, Chief LEA Program Manager  
Karen Gork, Chief of Compliance, LEA  
Rachel Beck, CalRecycle, Closure and Technical Support Unit  
Attachments (March 15 Inspection Report; March 17 J. Morgan Letter; March 23 A. Taylor Email; March 29 C. Ruiz Email; and Litter Control Program.)

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<sup>1</sup> In response to our prior request, Ms. Taylor represented that it is not possible to rescind a NOV. However, this is contrary to our experience as all regulatory agencies have the capability to rescind violations and amend inspection reports. For example, most recently on April 4, 2023, the Los Angeles Regional Water Quality Control Board withdrew a violation via email which pertained to a site SWPPP.

## **Attachments**

## **March 15 Inspection Report**

**PHASE 2A-2 LINER INSPECTION REPORT  
WASTE MANAGEMENT – LANCASTER LANDFILL AND RECYCLING CENTER,  
LANCASTER, CALIFORNIA**

WDID No.: 6B190343001  
BO No.: R6V-2016-0037  
Status Code: ACTIVE  
Permit Type: WDR

Facility Site Name: Lancaster Class III Landfill and Recycling Center  
Facility Location: Lancaster, California

Site Contact: Jordan Kingsbury & Nicole Stetson  
Site Number: (818) 482-8676, (661) 816-6147

Date of Inspection: March 10, 2023

	<u>Name</u>	<u>Agency</u>
Inspectors:	Ashley Taylor	Lahontan RWQCB
	Christina Guerra	Lahontan RWQCB

Facility Personnel:	Jordan Kingsbury	Environmental Protection Specialist
	Scott G. Sumner	P.E. Engineering Manager
	Grant Deem	Geo-Logic

Type of Inspection: Final Liner Inspection / No Sampling

**INSPECTION SUMMARY**

Water Board staff arrived at the Lancaster Landfill and Recycling Center (LLRC) at approximately 10:00 a.m. The weather was partly cloudy, windy, and cold. Onsite we met with the above listed representatives to observe the construction progress of the liner for landfill cell Phase 2A-2. It was noted, precipitation was anticipated for the afternoon. According to <https://dpw.lacounty.gov/wrd/rainfall/#> the last precipitation event occurred on March 2, 2023.

We initially drove around the exterior of the landfill for observation. The weather was windy, and trash was observed leaving the site and over toppling the fence along the northeast perimeter, as shown in Photos 1 and 2. On the southeast portion of the site, at the gate entrance it appeared ponded storm water runoff was exiting the site, Photo 3. Significant ponding was observed mainly along the southern and western boundaries of the site as shown in Photos 4 and 5. Uncovered refuse and debris appeared to be blown from the recent former active face near the stockpiled materials from the current cell construction, see Photo 6. Our observations were communicated to Jordan upon our arrival.

Once inside the landfill, we observed the retention basin and discharge location. The discharge location is not a point and was observed to be a sheet flow mechanism, see photo 7. At the time of inspection water was being pumped from the basin and was being transferred into a

water truck. Jordan Kingsbury stated the water being pumped from the basin was being used for dust control on site.

We then met with the facility personnel listed above to tour the landfill cell Phase 2A-2 construction. We observed 12oz cushion geotextile, the LCRS gravel layer that met or exceeded the proposed thickness of 9" and the one foot or greater soil operation layer as shown in photo 8. The former layers were verified during the January 3, 2023, compliance inspection. The slopes, less in the vicinity of the lysimeter area, were also protected with ballast in the form of sandbags and tarping from approximately 20 feet from the base of the cell. The lysimeter piping had recently been slurried in place on the slope.

### **RECOMMENDATIONS**

Water Board staff recommended that the trash outside the perimeter fencing and over flow onto the mulched portion of the interim cover be cleaned up by March 15, 2023. Water Board staff requested photos be submitted for documentation to the Water Board. Additionally, we recommend Waste Management remove the palm trees and repair the intermediate cover. Please provide photographic demonstration to the Water Board after removal and repair.

### **VIOLATIONS**

- Windblown litter off site is a violation of Section V.III.A.4 of the Board Order. Please provide photo documentation that offsite litter has been picked up by Wednesday March 15, 2023. It is recommended the trash be cleaned up inside the premises to prevent future off site discharge.
- The palm trees concentrated water flow and resulted in erosion of interim cover, which is a violation of Section V.III.A.12 of Board Order and needs to be repaired immediately. Please provide photo documentation of the repair by Wednesday March 15, 2023.
- Ponding on the southern and western boundaries of the site is inconsistent with the site drainage plan and Stormwater Pollution and Prevention Plan and is a violation of Section V.III.A.13 & Section V.E.e.II.2 of the Board Order. Please provide the most current up to date site drainage plan. Additionally, please provide the construction design plans for the proposed retention basin to be performed by others shown in the approved plan set for Phase 2A- construction received on December 8, 2022. These documents shall be received by Water Board staff no later than March 30, 2023.



**PHOTOGRAPHS**



Photo 1: Trash northeast corner of Landfill Perimeter.



Photo 2: Windblown trash off property northeast corner of Challenger Way and Ave F.



Photo 3: Storm water exiting site at southeast corner of Landfill perimeter.



Photo 4: Ponding water, southern perimeter looking east.



Photo 5: Ponding water southern perimeter looking west.



Photo 6: Refuse uncovered blown onto mulch interim cover southeast portion of site.



Photo 7: storm water discharge point, overflow by sheet flow.

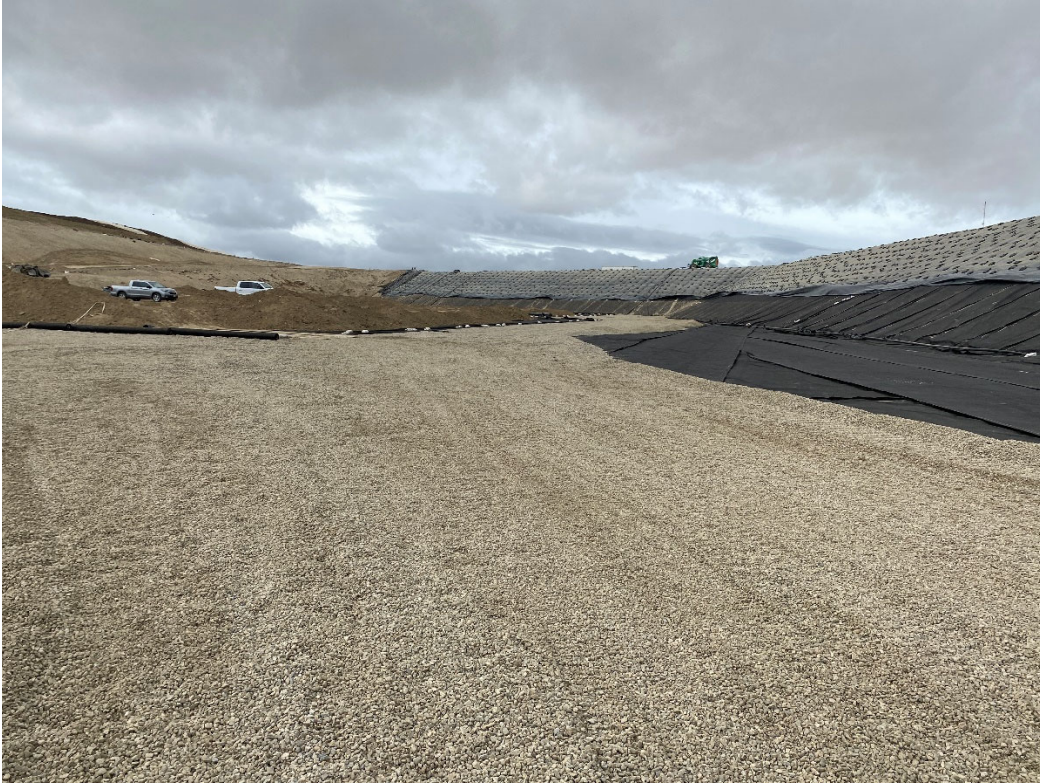


Photo 8: Verified liner system components, geotextile, gravel layer, soil operation layer, and ballast.



**PHASE 2A-2 LINER INSPECTION REPORT  
WASTE MANAGEMENT – LANCASTER LANDFILL AND RECYCLING CENTER,  
LANCASTER, CALIFORNIA**

WDID No.: 6B190343001  
BO No.: R6V-2016-0037  
Status Code: ACTIVE  
Permit Type: WDR

Facility Site Name: Lancaster Class III Landfill and Recycling Center  
Facility Location: Lancaster, California

Site Contact: Jordan Kingsbury & Nicole Stetson  
Site Number: (818) 482-8676, (661) 816-6147

Date of Inspection: March 10, 2023

	<u>Name</u>	<u>Agency</u>
Inspectors:	Ashley Taylor	Lahontan RWQCB
	Christina Guerra	Lahontan RWQCB

Facility Personnel:	Jordan Kingsbury	Environmental Protection Specialist
	Scott G. Sumner	P.E. Engineering Manager
	Grant Deem	Geo-Logic

Type of Inspection: Final Liner Inspection / No Sampling

**INSPECTION SUMMARY**

Water Board staff arrived at the Lancaster Landfill and Recycling Center (LLRC) at approximately 10:00 a.m. The weather was partly cloudy, windy, and cold. Onsite we met with the above listed representatives to observe the construction progress of the liner for landfill cell Phase 2A-2. It was noted, precipitation was anticipated for the afternoon. According to <https://dpw.lacounty.gov/wrd/rainfall/#> the last precipitation event occurred on March 2, 2023.

We initially drove around the exterior of the landfill for observation. The weather was windy, and trash was observed leaving the site and over toppling the fence along the northeast perimeter, as shown in Photos 1 and 2. On the southeast portion of the site, at the gate entrance it appeared ponded storm water runoff was exiting the site, Photo 3. Significant ponding was observed mainly along the southern and western boundaries of the site as shown in Photos 4 and 5. Uncovered refuse and debris appeared to be blown from the recent former active face near the stockpiled materials from the current cell construction, see Photo 6. Our observations were communicated to Jordan upon our arrival.

Once inside the landfill, we observed the retention basin and discharge location. The discharge location is not a point and was observed to be a sheet flow mechanism, see photo 7. At the time of inspection water was being pumped from the basin and was being transferred into a

water truck. Jordan Kingsbury stated the water being pumped from the basin was being used for dust control on site.

We then met with the facility personnel listed above to tour the landfill cell Phase 2A-2 construction. We observed 12oz cushion geotextile, the LCRS gravel layer that met or exceeded the proposed thickness of 9" and the one foot or greater soil operation layer as shown in photo 8. The former layers were verified during the January 3, 2023, compliance inspection. The slopes, less in the vicinity of the lysimeter area, were also protected with ballast in the form of sandbags and tarping from approximately 20 feet from the base of the cell. The lysimeter piping had recently been slurried in place on the slope.

### **RECOMMENDATIONS**

Water Board staff recommended that the trash outside the perimeter fencing and over flow onto the mulched portion of the interim cover be cleaned up by March 15, 2023. Water Board staff requested photos be submitted for documentation to the Water Board. Additionally, we recommend Waste Management remove the palm trees and repair the intermediate cover. Please provide photographic demonstration to the Water Board after removal and repair.

### **VIOLATIONS**

- Windblown litter off site is a violation of Section III.A.4 of the Board Order. Please provide photo documentation that offsite litter has been picked up by Wednesday March 15, 2023. It is recommended the trash be cleaned up inside the premises to prevent future off site discharge.
- The palm trees concentrated water flow and resulted in erosion of interim cover, which is a violation of Section III.A.12 of Board Order and needs to be repaired immediately. Please provide photo documentation of the repair by Wednesday March 15, 2023.
- Ponding on the southern and western boundaries of the site is inconsistent with the site drainage plan and Stormwater Pollution and Prevention Plan and is a violation of Section III.A.13 & Section V.E.e.II.2 of the Board Order. Please provide the most current up to date site drainage plan. Additionally, please provide the construction design plans for the proposed retention basin to be performed by others shown in the approved plan set for Phase 2A- construction received on December 8, 2022. These documents shall be received by Water Board staff no later than March 30, 2023.

**PHOTOGRAPHS**



Photo 1: Trash northeast corner of Landfill Perimeter.



Photo 2: Windblown trash off property northeast corner of Challenger Way and Ave F.



Photo 3: Storm water exiting site at southeast corner of Landfill perimeter.



Photo 4: Ponding water, southern perimeter looking east.



Photo 5: Ponding water southern perimeter looking west.



Photo 6: Refuse uncovered blown onto mulch interim cover southeast portion of site.





Photo 7: Storm water discharge point, overflow by sheet flow.

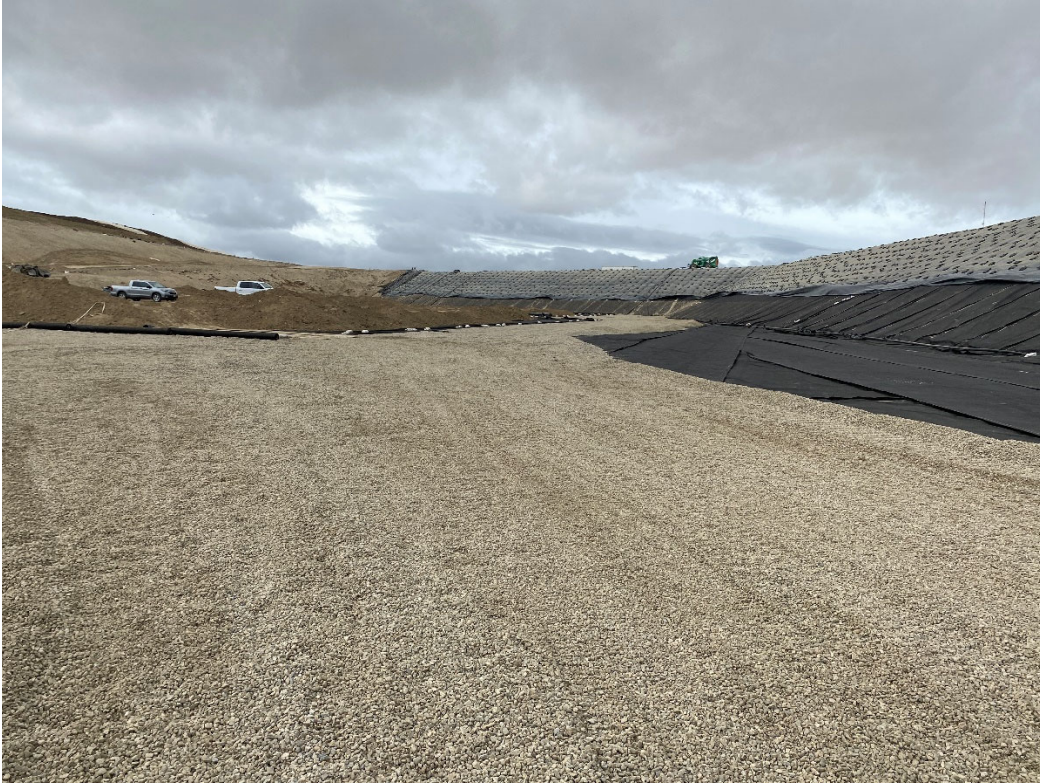


Photo 8: Verified liner system components, geotextile, gravel layer, soil operation layer, and ballast.

**SUPPLEMENTAL PHASE 2A-2 LINER INSPECTION REPORT  
WASTE MANAGEMENT – LANCASTER LANDFILL AND RECYCLING CENTER,  
LANCASTER, CALIFORNIA**

WDID No.: 6B190343001  
BO No.: R6V-2016-0037  
Status Code: ACTIVE  
Permit Type: WDR

Facility Site Name: Lancaster Class III Landfill and Recycling Center  
Facility Location: Lancaster, California

Site Contact: Jordan Kingsbury & Nicole Stetson  
Site Number: (818) 482-8676, (661) 816-6147

Date of Inspection: March 10, 2023

	<u>Name</u>	<u>Agency</u>
Inspectors:	Ashley Taylor	Lahontan RWQCB
	Christina Guerra	Lahontan RWQCB
Facility Personnel:	Jordan Kingsbury	Environmental Protection Specialist
	Scott G. Sumner	P.E. Engineering Manager
	Grant Deem	Geo-Logic

Type of Inspection: Final Liner Inspection / No Sampling

**INSPECTION SUMMARY**

After inspecting the landfill liner cross section, the landfill cover was observed. Palm trees were observed growing in the interim cover along the northwest portion of the landfill, in the same general location as was observed in the January 3, 2023, inspection. Erosional features were observed in between the trees. Photographs 1 through 3 taken on March 10<sup>th</sup>, 2023, are attached for reference.

**PHOTOGRAPHS**



Photo 1: Erosional features between palm trees, northwest portion of landfill.



Photo 2: Palm trees, northwest portion of landfill.



Photo 3: Palm trees, northwest portion of landfill.

## **March 17 J. Morgan Letter**



**LANCASTER LANDFILL & RECYCLING CENTER**

600 East Avenue F  
Lancaster, CA 93535  
(661) 726-3468

March 17, 2023

Dear Ashley and Christina,

This letter responds to the March 10, 2023 inspection regarding the alleged violations that were issued in the March 13, 2023 Inspection Report revised March 14, 2023 and supplemented with additional photos on March 15, 2023. Based on our review of the documentation, including the inspection report and March 14 and 15 emails, with applicable regulations, permits and photos, WM submits that the alleged violations issued are not violations of Board Order #R6V-2016-0037, Revised Waste Discharge Requirements (WDRs). WM takes its compliance program seriously and has significant concerns about the alleged violations and comments in the inspection report. In fact, we believe based on our long history of landfill construction/operations in California that many statements and alleged violations in the report are precedent setting. Furthermore, this is the first time the site has ever received a violation referencing the WDRs despite the numerous visits and inspections by the RWQCB since 2005. WM strongly contends the site was in compliance at the time of the inspection. For the reasons below, WM respectfully requests that the RWQCB rescind the alleged violations:

1. RWQCB issued a violation for windblown litter and cited condition Section III.A.4 which states, "***The discharge of waste except to authorized disposal areas is prohibited.***" Windblown litter is not defined as a discharge of waste in the WDRs or in Water Code 13050. Additionally, as defined in Water Code 13050, the windblown litter did not result in contamination, which is an impairment of the quality of the waters of the state by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. Furthermore, the windblown litter was not discharged into an unauthorized disposal area since this was not the final deposition of the material. We have protocols in place to collect any litter and dispose of it properly in the landfill. WM maintains litter control programs as required by CUP 03-170-(5) conditions 68 and 70 (see attached) that comply with CCR 27 Section 20830 which read as follows:

*Litter shall be controlled, routinely collected and disposed of properly. Windblown materials shall be controlled to prevent injury to the public and personnel. Controls shall prevent the accumulation, or off-site migration, of litter in quantities that create a nuisance or cause other problems.*

Our litter control programs meet these requirements. Additionally, it is important to note, on the day of the inspection on March 10, 2023, the site sustained winds of 15 – 20 MPH with gusts exceeding 20 MPH. We have dedicated personnel, contract labor and portable and permanent fencing to control and collect litter day to day and during high wind events. In 2021 and 2022, we spent over \$500,000 on new fencing and contract labor to control litter from the high winds in the Antelope Valley. In fact, RWQCB staff noted during a call with WM on March 13, 2023, that they observed full litter bags during



the inspection, evidence that our litter control program was actively being implemented at the time.

We have shared the photos of the fencing you provided with our engineering group. It should be noted that the facility shown in these photos appeared to be a compost facility and not a MSW landfill. Managing MSW litter that blows in the wind is part of the landfill operation and CCR Title 27, Section 20830 does not prohibit litter but requires the site to control litter, routinely collect and dispose of it properly, which we do.

2. RWQCB issued a violation for an alleged erosion and cited condition Section III.A.12 which states, "**Surface drainage from offsite areas and internal site drainage from surface and subsurface sources must not contact or percolate through solid wastes discharged at the Facility.**" This violation was issued in reference to an alleged surface erosion. However, cover was not compromised as waste was not exposed nor was waste observed during the inspection. Therefore, there was no contact or percolation of drainage water through solid waste as noted in Section III.A.12. Furthermore, WM verified that more than 12 inches of soil was present in the area. The site actively manages and repairs surface erosion as it may occur, and the presence of minor erosion alone is not a violation. Per CCR Title 27 Section 20820, the site prevented the exposure of waste. Additionally, the WDRs do not state minor erosion must be repaired immediately. Interestingly, Section III.B.6 of the WDRs permit the repair of erosion and erosion of wastes within 30 days after significant earthquake or flood events.
3. RWQCB issued a violation for ponding and cited conditions Section III.A.13 & Section V.E.e.II.2. Condition Section III.A.13 which states, "**The exterior surfaces of the Landfill must be graded to promote lateral run-off of precipitation and to prevent ponding.**" The alleged ponding referred to in the inspection report is on the southern perimeter road and not on the landfill footprint. Furthermore, the exterior surfaces of the landfill, are graded to promote lateral run-off, which was confirmed during the March 10, 2023 inspection, as there was no ponding on the exterior slopes, roads, benches or decks within the landfill footprint. Therefore, this is a misapplication of this condition as RWQCB did not find ponding on exterior surfaces of the landfill.

Again, WM requests the alleged violations be rescinded. WM's regulatory compliance and relationship with the RWQCB is an absolute priority and we are happy to resolve any concerns with the RWQCB as soon as possible.

Should you have questions or would like to address our request further, we are available to setup a meeting.

Respectfully,



Jayna Morgan  
Environmental Protection Manager

CC:

Michael Plaziak, Executive Officer, Lahontan Regional Water Quality Control Board

Jan Zimmerman, Supervisor, Lahontan Regional Water Quality Control Board

Dee Hanson-Lugo, Chief LEA Program Manager

Rachel Beck, CalRecycle, Closure and Technical Support Unit

Attachments

On-Site Litter Control Programs

# **Litter Control Program**

## **LANCASTER LANDFILL AND RECYCLING CENTER LITTER CONTROL PROGRAM**

In accordance with Conditional Use Permit 03-170-(5), Condition No. 68, a Litter Control Program is in place at the Lancaster Landfill and Recycling Center (LLRC). Litter at the LLRC is controlled through proper site operations, litter fencing, litter patrols by site personnel, and a Tarping Program to ensure that waste loads hauled to the LLRC are properly contained.

Daily fill operations include properly compacting and covering the refuse to keep waste in-place and prevent blowing litter. At the working face litter fences of adequate height are placed. A secondary litter fence, at least four (4) feet high, will be placed behind the primary litter fence when wind conditions dictate the need. Facility personnel continuously patrol the access road to the facility scales and the immediate area for litter during the LLRC hours of operation and remove any litter found during the patrol.

Site management contracts with a local temporary employment agency for laborers who collect litter which has blown on and off the site. During especially windy periods, additional help (usually from 5 to 12 laborers) is utilized to assist in litter control during and after the winds. Also, during high wind periods, the working face is located at the lowest elevation available to take advantage of existing terrain as a wind barrier.

Waste Management of California (WMC) conforms to Sections 23114 and 23115 of the California Vehicle Code and ensures that all refuse vehicles have their loads covered. Five types of refuse collection vehicles utilize this facility which include packer trucks, roll-off trucks, 10-wheel dump trucks, 18-wheel tilt-up trucks, and transfer trailer trucks. All of these vehicles are either fully enclosed or tarped with the exception of the 10-wheel dump trucks which are required to be covered unless they are carrying large pieces of inert waste (i.e., broken concrete). Loads of solid waste which are improperly covered or contained and may create significant litter will be detained, and if practicable, correctly covered or contained prior to proceeding to the working face. If this remedial measure cannot be taken, the load shall proceed to the working face under escort.

## **LANCASTER LANDFILL AND RECYCLING CENTER OFF-SITE LITTER RECOVERY PROGRAM**

In accordance with Conditional Use Permit 03-170-(5), Condition No. 70, an Off-Site Litter Recovery Program is in place at the Lancaster Landfill and Recycling Center (LLRC). The off-site litter recovery program at the LLRC has been developed to recover off-site litter from uncovered or improperly covered or contained loads traveling to the LLRC or otherwise emanating from the facility.

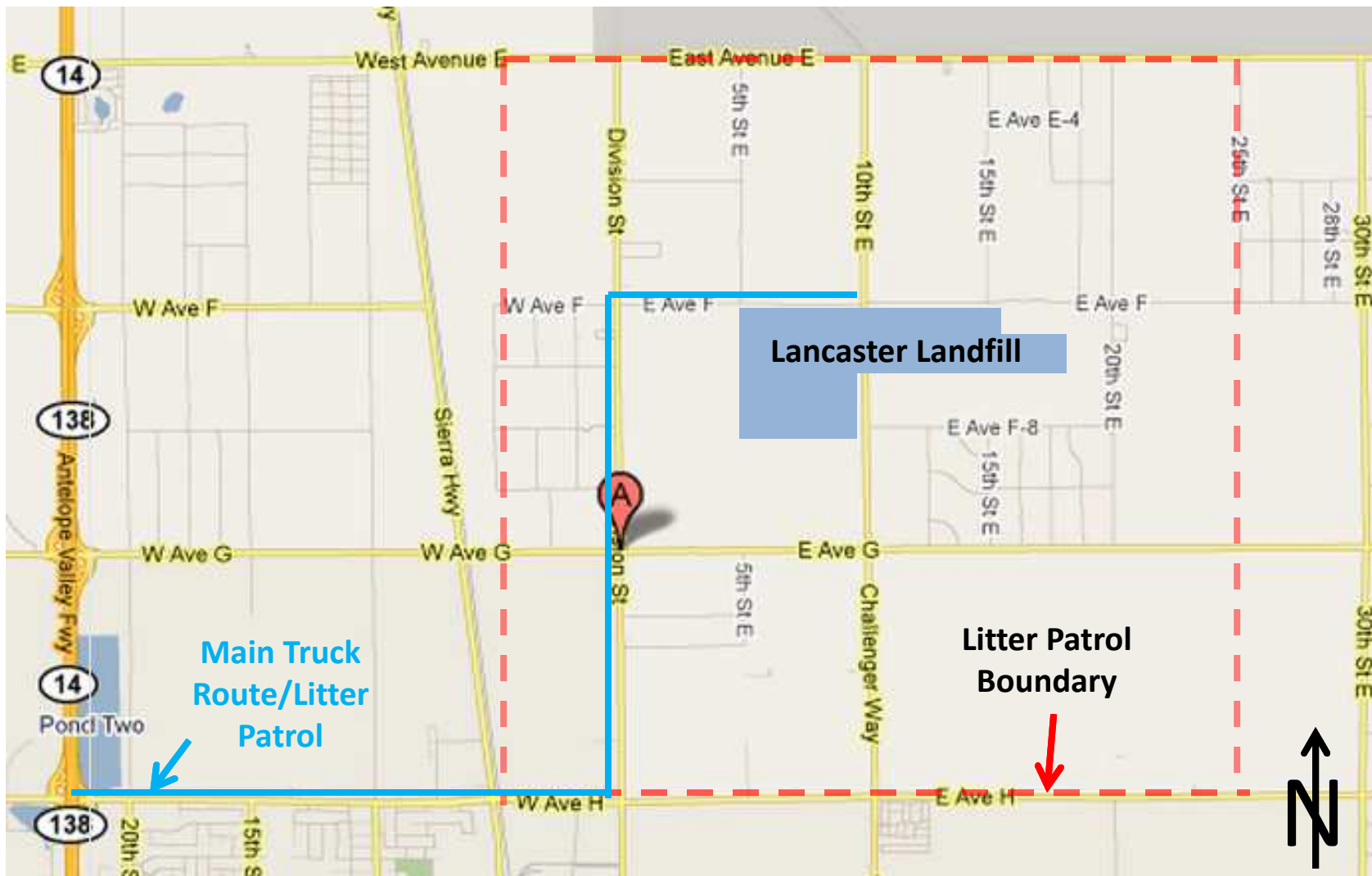
LLRC personnel will perform monthly inspections of the main haul route, which includes Avenue H from State Route 14 to Division Street, Division Street from Avenue H to Avenue F and Avenue F from Division Street to the LLRC entrance (depicted by the blue line on Figure 1). In addition, LLRC personnel will perform monthly inspections/patrols of the surrounding area bound by Avenue E to the north, Avenue H to the south, 5<sup>th</sup> Street West to the west, and 25<sup>th</sup> Street East to the east (see dashed red line on Figure 1). During the inspection/patrol of both the main haul route and surrounding area, personnel will collect and remove all wind-blown trash or litter encountered in the specified area. Inspection/patrol frequency may be increased as warranted by wind conditions.

LLRC personnel will maintain an inspection/patrol log of the off-site litter recovery program which includes the date of inspection/patrol, inspector's name, areas inspected/patrolled, and a description of the results of inspection including locations of litter (see attached Off-Site Litter Recovery Inspection/Patrol Log). The log will be maintained at the LLRC administrative office and will be provided to the Los Angeles County Department of Public Health (DPH) and the Los Angeles Department of Public Works upon request. A copy of the log will also be included in the annual report required pursuant to Part X of the Implementation Monitoring Program.

**LANCASTER LANDFILL AND RECYCLING CENTER  
OFF-SITE LITTER RECOVERY PROGRAM  
INSPECTION/PATROL LOG**

<b>Date</b>	<b>Inspector</b>	<b>Area Inspected/ Patrolled</b>	<b>Results of Inspection/Patrol</b>

Figure 1  
Lancaster Landfill CUP 03-170 Condition No. 70  
Litter Patrol Route and Area





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## Lahontan Regional Water Quality Control Board

June 20, 2023

GeoTracker: T10000007159  
WDID No: 6B191112004

Nicole Stetson  
Waste Management  
1200 West City Ranch Road  
Palmdale, CA 93551  
[NStetson@wm.com](mailto:NStetson@wm.com)

### **Status of Lancaster Landfill and Recycling Center Inspection Violations, Board Order No. R6V-2016-0037, Lancaster, Los Angeles County**

Lahontan Regional Water Quality Control Board (Water Board) staff issued Waste Management violations incurred at the Lancaster Landfill and Recycling Center (Landfill) on March 10, 2023, based on site conditions observed during field inspections conducted on January 3, 2023, and March 10, 2023. The violations cited in the Phase 2A-2 Liner Inspection Report dated, March 10, 2023, are as follows:

- Windblown litter off site is a violation of Section III.A.4 of the Board Order. Please provide photo documentation that offsite litter has been picked up by Wednesday March 15, 2023. It is recommended the trash be cleaned up inside the premises to prevent future off-site discharge.
- The palm trees concentrated water flow and resulted in erosion of interim cover, which is a violation of Section III.A.12 of Board Order and needs to be repaired immediately. Please provide photo documentation of the repair by Wednesday March 15, 2023.
- Ponding on the southern and western boundaries of the site is inconsistent with the site drainage plan and Stormwater Pollution and Prevention Plan and is a violation of Section III.A.13 & Section V.E.e.II.2 of the Board Order. Please provide the most current up to date site drainage plan. Additionally, please provide the construction design plans for the proposed retention basin to be performed by others shown in the approved plan set for Phase 2A-2 construction received on December 8, 2022. These documents shall be received by Water Board staff no later than March 30, 2023.

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PETER C. PUMPHREY, CHAIR | MICHAEL R. PLAZIAK, PG, EXECUTIVE OFFICER



Waste Management corrected these violations and provided documentation by email. On March 13, 2023, photo documentation was provided depicting the pick-up or removal of windblown litter along the northeastern fence line. On March 15, 2023, photo documentation was provided depicting the removed palm trees from the interim cover and regrading of the interim cover slope. Water Board staff received the updated Storm Water Pollution Prevention Plan (SWPPP) on May 31, 2023, reflecting the Phase 2A-2 cell construction, future storm water detention basin, and current landfill storm water drainage.

Waste Management has addressed these violations and the Water Board has deemed them historical.

If you have any questions regarding this letter, please contact me at (760) 243-4350 or email at [ashley.taylor@waterboards.ca.gov](mailto:ashley.taylor@waterboards.ca.gov) or Jan Zimmerman, Supervising Engineering Geologist, at (760) 241-7376 or email at [jan.zimmerman@waterboards.ca.gov](mailto:jan.zimmerman@waterboards.ca.gov).



Ashley Taylor, PG  
Engineering Geologist

cc: Mark Verwiell, Waste Management ([mverwiell@wm.com](mailto:mverwiell@wm.com))  
Scott Sumner, Waste Management ([ssumner@wm.com](mailto:ssumner@wm.com))  
Tracy Freeman, Waste Management ([tfreema7@wm.com](mailto:tfreema7@wm.com))  
Nai Teurn, CalRecycle ([nai.teurn@calrecycle.ca.gov](mailto:nai.teurn@calrecycle.ca.gov))  
Rachel Beck, CalRecycle ([Rachel.beck@calrecycle.ca.gov](mailto:Rachel.beck@calrecycle.ca.gov))  
Lilit Baghumyan, LA County, Department of Public Health  
([lbaghumyan@ph.lacounty.gov](mailto:lbaghumyan@ph.lacounty.gov))  
Dorcas Hanson-Lugo, LA County, Department of Public Health  
([dlugo@ph.lacounty.gov](mailto:dlugo@ph.lacounty.gov))

# **ATTACHMENT D**

# Mariposa Biology

4729 ROLANDO BLVD SAN DIEGO, CA 92115  
TEL 714-671-8037

cjones171@cox.net

August 24, 2023

Ms. Tracy Freeman  
Lancaster Landfill  
600 E Ave F  
Lancaster, CA 93535

RE: Lancaster Landfill CUP 03-170-(5) Condition 51 Annual Report for 2023

Dear Ms. Freeman,

This Annual Report describes compliance with Condition 51 of the Lancaster Landfill Conditional Use Permit (CUP). Condition 51 has to do with landfill cover and revegetation and all conditions have been satisfied as of 2023. Details on the compliance are described below each CUP measure. Figure 1 shows an aerial view of the landfill. A site visit was conducted at Lancaster Landfill on August 23, 2023. All photographs in this report are from this date.

On August 20, three days prior to the site visit, a storm associated with Hurricane Hilary passed over the landfill. The storm dropped 5.98 inches of rain within 24 hours on the landfill. The average annual rainfall for the area is 6.68 inches. The exterior slopes of the landfill showed no signs of erosion from this unusually strong storm.

## **Condition 51a**

- Three copies of a landscape plan shall be submitted to and approved by the Director of the Department within 180 days after the Effective Date. The landscape plan shall show size, type, and location of all plants, trees, and watering facilities. All landscaping shall be maintained in a neat, clean, and healthful condition, including proper pruning, weeding, removal of litter, fertilizing, and replacement of plants when necessary.

A landscape plan was prepared by Craig Thomas Duncan Landscape Architecture in 2000 and was submitted to the Planning Department of Los Angeles County to fulfill this condition. The landscaped area is in front of the office buildings and landfill entrance on Ave F.

In 2021, the landscaping was improved. Older trees and shrubs were trimmed or removed, depending on their condition. Removed plants were replaced with 56 new 5-gallon drought tolerant plants. The irrigation system was also upgraded to accommodate the new planting design.

In 2023, the oleander shrubs have shown growth as compared to 2022 and all plants appeared healthy. Photograph 1 shows the landscaping in 2023.

### **Condition 51b**

- An annual monitoring report shall be prepared by an independent, qualified biologist and submitted to the Director of the Department providing status and progress of the provisions in this Condition No. 51. The monitoring report may be submitted as part of the annual report required pursuant to Part X of the IMP.

This 2023 Annual Report satisfies Condition 51b. This report is based on site conditions that were observed on August 23, 2023.

### **Condition 51c**

- The Permittee shall employ an expert or experts, including an independent, qualified biologist, to satisfy this Condition No. 51. Soil sampling and laboratory analysis shall be conducted in areas that are required to be re vegetated before any re vegetation occurs to identify chemical or physical soil properties that may adversely affect plant growth or establishment. Soil amendments and fertilizer recommendations shall be applied and plant materials selected, based on the above referenced testing procedure and results.

Revegetation of the landfill is planned to take place after the landfill closes and soil sampling will be conducted at that time. As of 2023, soil sampling has not been needed.

### **Condition 51d**

- The Permittee shall apply a temporary vegetation cover on any slope or other landfill area that is projected to be inactive for a period greater than 180 days, as set forth in the IMP. The Permittee shall identify such slope or area in the annual monitoring described in subsection (b) above, and include an interim reclamation and re-vegetation plan as well as the timing of the proposed work for review and approval by the Director of the Department.

There are two types of temporary vegetation cover on inactive slopes. One is natural vegetation and consists of a mixture of native and non-native grasses and shrubs. The other temporary cover is green waste grindings and wood chips. Both of these covers have proven effective at preventing erosion at Lancaster Landfill, and held up during the Hurricane Hilary storm.

The slopes with temporary vegetation are shown in Figure 1 and in Photographs 2-8. The slopes were intact during the site visit and there were no signs of erosion on the vegetation or the mulch cover areas. The southwest corner of the site was part of the active face during the site visit.

### **Condition 51e**

- Except as otherwise provided in this Condition No 51, all final fill slopes shall be reclaimed and re-vegetated in lifts substantially in conformance with Mitigation Monitoring Program.

There were no final fill slopes in 2023.

### **Condition 51f**

- Notwithstanding the foregoing provisions of this Condition No. 51, the Permittee shall comply with the requirements of State regulations, the Department, and the TAC, so long as the Limits of Fill are not exceeded, if in consultation with the Department of Public Works, the Department determines that a different vegetation design or play:
  - i . would better protect public health and safety;

ii. would enable re-vegetation of the final slopes at least as well as described in subsection (e), above; and/or

iii. would be required because the minimum standards adopted by the CalRecycle have been amended:

This condition pertains to final fill slopes and there were no final fill slopes in 2023.

**Condition 51g**

- All Joshua trees to be impacted by development of the Project shall be preserved and transplanted at the existing Facility with best management practices known prior to the commencement of grading operations.

There were no impacts to Joshua trees in 2023.

If you have any questions or concerns regarding this report, please contact me at 714-671-8037 or [cjones171@cox.net](mailto:cjones171@cox.net).

Sincerely,

A handwritten signature in black ink that reads "Cynthia Jones Daverin". The signature is written in a cursive, flowing style.

Cynthia Jones Daverin



### Lancaster Landfill

Write a description for your map.



Photograph 1. Landscaping looking east on Ave F from the landfill entrance.



Photograph 2. The west facing temporary slope near the office.





Photograph 3. Looking east along Ave F, at the west end of the north slope.



Photograph 4. Looking west from the intersection of Ave F and Challenger Way, at the east end of the north slope.



Photograph 5. Looking south from the intersection of Ave F and Challenger Way, at the north end of the east slope.



Photograph 6. Looking north at the southern end of the east slope along Challenger Way.



Photograph 7. The east end of the south slope, looking west from Challenger Way.



Photograph 8. Looking at the southern slope from a distance, looking north from Challenger Way.

# **ATTACHMENT E**



February 17, 2020

Mr. Coby Skye  
**Los Angeles County**  
**Department of Public Works**  
Environmental Programs  
900 S. Fremont Avenue  
Alhambra, CA 91803

**RE: WM/HZI Meeting with County DPW on November 4<sup>th</sup>, 2019 Lancaster Landfill Organics**

Dear Mr. Skye,

Thank you for meeting with Waste Management (WM) and Hitachi Zosen Inova (HZI) on November 4<sup>th</sup>, 2019 at Los Angeles Public Works Headquarters. Subsequent to our meeting we had a meeting at the projected project site with the LA County enforcement staff who directed us to set up a meeting with LA County regional planning to discuss the permit process. Based on the attached email chain, we are providing the below information at Mr. Samuel Dea's request.

Per our meeting, WM and HZI are working together to install an advanced high solids anaerobic digestion system at Waste Management's Lancaster Landfill and Recycling Center (LLRC) north of the City of Lancaster in unincorporated Los Angeles County, California (CUP No. 03-170). When complete, the project will be able to divert 500 tons of food waste and green waste per day from landfilling by converting the organic feedstock into low carbon intensity renewable natural gas (RNG), to be used as transportation fuel, and into high-quality compost with HZI Kompogas® high-solids continuous plug flow anaerobic digesters. We have recently received positive results from SoCalGas's Interconnection Capacity Study. The **attached study** shows that the Utility's system at the proposed interconnection location has the capacity to accept delivery of RNG from our proposed facility.

As you are aware, organic waste legislation in California is driving organics recycling and processing infrastructure towards composting and anaerobic digestion. Assembly Bill (AB) 1594 commenced this year stating that the use of green material as alternative daily cover (ADC) at landfills no longer constitutes diversion through recycling or beneficial re-use and shall be considered disposal. Further, Senate Bill (SB) 1383 is the most significant waste reduction mandate to be adopted in California in the last 30 years. SB 1383 requires the state to reduce organic waste disposal by 75% by 2025. In other words, the state must reduce organic waste disposal by more than 20 million tons annually by 2025. This legislation will require mandatory food waste collection for businesses and

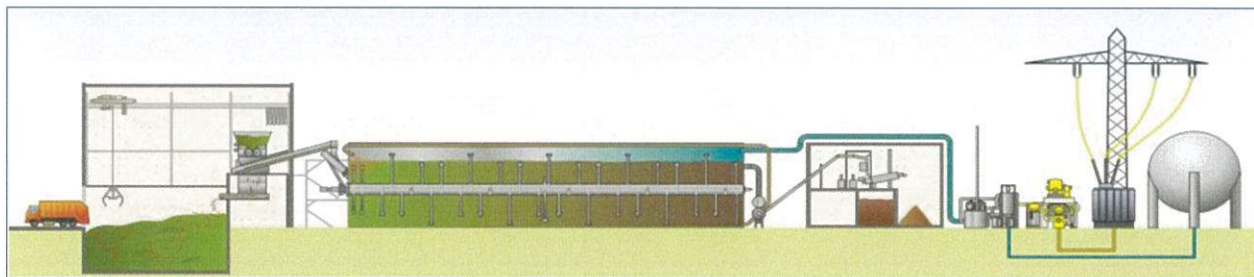


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residential customers. On January 1, 2022 the enforcement provisions, including penalties for noncompliance issued by the state, take effect.

We conducted a comprehensive review of the existing conditions of the **attached CUP** No. 03-170 (specifically Conditions Nos. 95-102) and the approved/certified environmental documents. We believe the requested changes will not trigger any major revisions to our existing Conditional Use Permit and/or require new CEQA documentation/analysis. Per our conversations with the Los Angeles County Department of Regional Planning, they are comfortable with our proposals as they determined that the digesters are accessories to the landfill. As to the review and approval process, it is likely that a modification to the existing CUP is the best option if certain assumptions (e.g. EIR addendum) are confirmed. It is important to note, that there would be no increase in tonnage over our current CUP and Solid Waste Facility Permit (SWFP); SWIS 19-AA-0050, which therefore means there would be no additional truck trips. Subsequent to the County's formal approval, other permits (i.e. SWFP, WDRs etc.) would be amended as needed to reflect requested project changes.

Waste Management's Lancaster Reclaimable Anaerobic Composter (RAC) (Expired Permit #19-AA-1124) was a WM research anaerobic digestion/composting operation that operated at the Lancaster Landfill and Recycling Center. The research project was approximately \$1.3 M to construct, and operated for about two years, starting 2011. WM learned the amount of biogas created from this dry digestion system could be of high quality, but much lower yield than a more sophisticated wet or dry digestion system given the same feedstock. The proposed system will leverage HZI's proven Kompogas® continuous plug-flow anaerobic digestion technology. HZI is the leading solutions provider, owner and operator with over 90 plants worldwide.



- |                                   |                                       |                            |                            |
|-----------------------------------|---------------------------------------|----------------------------|----------------------------|
| <i>1. Feedstock Pre-Treatment</i> | <i>2. Anaerobic Digestion Process</i> | <i>3. Post-Treatment /</i> | <i>5. RNG Production /</i> |
|                                   |                                       | <i>4. Exhaust Air</i>      | <i>Energy Utilization</i>  |
|                                   |                                       | <i>Treatment</i>           |                            |

### **1. Feedstock Reception and Pre-Treatment**

All organic waste is received in a negative air-pressure building to reduce the chance of odors escaping off site. After accessing the building through high-speed doors, the waste is unloaded into a pit bunker. From there, a fully automated crane system is used to convey the material to a slow-moving shredder for correct sizing. With the feedstock sized to a maximum of 2", metals are removed, additional screening removes contaminants, and the pre-treated material is automatically fed to the Kompogas® digesters. The process works 24/7/365 producing a consistent supply of renewable biogas.

## **2. Anaerobic Digestion Process**

The digester is the heart of the Kompogas® facility. A feed-screw conveyor transports the prepared organic matter into the digester. Digestate rich in microorganisms is recirculated to the digester inlet to immediately activate and accelerate the anaerobic digestion process (inoculation). If needed, the addition of reclaimed process water creates the optimal consistency for decomposition. Inside the digester, thermophilic microorganisms decompose the organic matter and produce carbon-neutral biogas in an anaerobic (no oxygen) environment. A temperature of 131°F and hydraulic residence time of approximately fourteen (14) days ensure that pathogens are eliminated. With this, the digestate is completely sanitized during processing, and the gas potential is maximized.

A specially developed heating system regulates the temperature during processing. The organic material is transported through the digester in what is known as a plug-flow process. Here the material moves horizontally through the digester before it is discharged. A slowly turning agitator ensures that the digestate is optimally mixed and that biogas is released.

## **3. Discharge and Post-Treatment**

(a) Dewatering: A screw press separates the digested residue into solid and liquid digestate. The press can be set to produce the desired amount of dry matter in the solid digestate. In addition to the screw press, a decanter further separates indigestible solids from the liquid digestate.

(b) Aerobic stabilization / compost: Solid digestate is taken from underneath the dewatering presses with a front-end loader and deposited into one of several open aerobization boxes located in the compost hall. The digestate is subject to aerobic stabilization and removal of volatile organic compounds. Air is blown for approximately twenty-one (21) days through the material by means of ventilation channels in the floor, therefore allowing a rapid aerobic stabilization. Stabilized material is then sieved to remove remaining oversize materials and impurities. Once it has been sieved, the resulting compost is used in agriculture as fertilizer or soil conditioner.

(c) Liquid digestate dispatch: Liquid digestate from the dewatering process is reused in the digestion process or sent to a large liquid digestate storage tank typically outside of the compost building. The liquid digestate can be used directly as soil amendment.

## **4. Exhaust Air Treatment**

The entire process takes place in a completely enclosed system to prevent odors. To ensure nothing escapes untreated into the surrounding environment, all exhaust air from the plant's work areas and other spaces is collected and cleaned. A biofilter made of torn root wood and tree bark neutralizes all odors biologically. The purified air is subsequently released into the atmosphere.

## **5. RNG Production and Energy Utilization**

After a pre-treatment process for removal of H<sub>2</sub>S and excess moisture, the raw biogas from the Kompogas® digester is upgraded and fed into the gas grid as renewable natural gas (RNG). Producing RNG via the anaerobic digestion process is beneficial to the environment and avoids traditional

Mr. Coby Skye  
February 17, 2020  
Page 4 of 4

natural gas extraction methods. RNG has additional benefits when used for compressed natural gas (CNG) fueling, when generating electricity for electric vehicles, and when used to make renewable hydrogen.

If you have any questions, please contact me at (818) 252-3147.

Very truly yours,



Doug Cordoran  
Director of Public Sector Services

Cc: Samuel Dea  
Zoning Permits North Section  
Department of Regional Planning  
320 W. Temple Street  
Los Angeles CA 90012

Jayna Morgan, WM  
Lex Heslin, Hitachi Zosen Inova

**Attachments/Links:**

- SoCalGas – Hitachi Zosen Inova USA LLC, – AV AD Biogas Project, Lancaster Interconnect Capacity Study Dated 01/06/2020
- Report Conditional Use Permit NO. 03-170
- Lancaster AD.WM,HZI Plant General Arrangement Topo
- Lancaster AD.WM.HZI Plant General Arrangement on Overlay



# **ATTACHMENT F**

**TEST REPORT FOR  
2023 LANDFILL GAS FLARE COMPLIANCE SOURCE  
TEST AT LANCASTER LANDFILL AND  
RECYCLING CENTER  
AVAQMD FACILITY ID: 2129  
PERMIT TO OPERATE NUMBER: C012559**

Prepared For:

**Waste Management of California, Inc.**  
600 E Avenue F  
Lancaster, California 93535

For Submittal To:

**Antelope Valley Air Quality Management District**  
43301 Division Street, Suite 206  
Lancaster California 93535

Prepared By:

**Montrose Air Quality Services, LLC**  
1631 E. St. Andrew Pl.  
Santa Ana, California 92705  
(714) 279-6777

Pete San Juan

Test Date: **March 31, 2023**  
Production Date: **May 30, 2023**  
Report Number: **W002AS-025314-RT-4704**




## CONFIDENTIALITY STATEMENT

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### REVIEW AND CERTIFICATION

All work, calculations, and other activities and tasks performed and presented in this document were carried out by me or under my direction and supervision. I hereby certify that, to the best of my knowledge, Montrose operated in conformance with the requirements of the Montrose Quality Management System and ASTM D7036-04 during this test project.

Signature:  \_\_\_\_\_ Date: 5/30/2023

Name: Pete San Juan Title: Field Project Manager

I have reviewed, technically and editorially, details, calculations, results, conclusions, and other appropriate written materials contained herein. I hereby certify that, to the best of my knowledge, the presented material is authentic, accurate, and conforms to the requirements of the Montrose Quality Management System and ASTM D7036-04.

Signature:  \_\_\_\_\_ Date: 5/30/2023

Name: Surya Adhikari Title: Senior Reporting QC Specialist

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## 1.0 INTRODUCTION AND SUMMARY

Montrose Air Quality Services, LLC (MAQS) was contracted by Waste Management of California, Inc. to perform the biennial source testing on one Landfill Gas Fired (LFG) Flare (Permit to Operate No. C012559) located at the Lancaster Landfill and Recycling Center. The landfill is operated by Waste Management of California, Inc. The testing was performed to satisfy requirements delineated by the Antelope Valley Air Quality Management District (AVAQMD) Permit to Operate, Condition #10.

Measurements of the flare emissions were conducted at the flare exhaust and at the inlet (landfill gas) of the flare. Table 1-1 provides a test matrix of the parameters tested at each sample location.

The tests on the flare were conducted on March 31, 2023. The testing was performed by Pete San Juan and Jason Sering of MAQS. Pete San Juan was the on-site Qualified Individual for MAQS. Kyle Evans of Waste Management coordinated the source test program.

MAQS qualifies as an independent testing laboratory and is certified to conduct testing for criteria pollutants according to District Methods. Testing was conducted in accordance with the previously approved Test Plan Number W07-129-TP submitted on February 8, 2021 by the facility and the notification letter submitted to AVAQMD on February 28, 2023.

The results of the emission tests are summarized in Tables 1-2 through 1-5. Detailed test results are presented in Section 4.0. All raw data, laboratory results, calculations and QA/QC data can be found in the Appendices.

**TABLE 1-1  
 TEST MATRIX  
 LANCASTER LANDFILL AND RECYCLING CENTER  
 LANDFILL GAS FLARE  
 MARCH 31, 2023**

Parameter	Inlet	Exhaust
Oxygen (O <sub>2</sub> )	X	X
Carbon Dioxide (CO <sub>2</sub> )	X	X
Nitrogen (N <sub>2</sub> )	X	X
Carbon Monoxide (CO)		X
Nitrogen Oxides (NO <sub>x</sub> )	--	X
Moisture (H <sub>2</sub> O)	X	X
Flow Rate (dscfm)	X	X
Temperature (°F)	X	X
Total Particulate Matter (PM)		X
Methane (CH <sub>4</sub> )	X	X
Total Gaseous Non-Methane Organics (TGNMO)	X	X
Trace Volatile Organics (VOCs)	X	X
Hydrogen Sulfide (H <sub>2</sub> S)	X	--
Reduced Sulfur Compounds (TRS)	X	--
Fuel Btu/Scf and F-Factor (dscf/MMBtu)	X	--

**TABLE 1-2  
 GASEOUS EMISSION EXHAUST RESULTS SUMMARY  
 LANCASTER LANDFILL AND RECYCLING CENTER  
 LANDFILL GAS FLARE  
 MARCH 31, 2023**

Parameter/Units	Result	Limit
<b>NO<sub>x</sub></b>		
ppm	13.37	--
ppm @ 3% O <sub>2</sub>	28.06	--
lb/hr (as NO <sub>2</sub> )	1.14	3.64
lb/day (as NO <sub>2</sub> )	27.43	87.36
lb/MMBtu (as NO <sub>2</sub> )	0.04	0.06
lb/MMScf (as NO <sub>2</sub> )	14.7	--
<b>CO</b>		
ppm	36.0	--
ppm @ 3% O <sub>2</sub>	75.5	--
lb/hr	1.87	12.14
lb/day	45.0	292
lb/MMBtu	0.066	0.20
lb/MMScf	24.1	--

**TABLE 1-3  
 VOC TEST RESULTS SUMMARY  
 LANCASTER LANDFILL AND RECYCLING CENTER  
 LANDFILL GAS FLARE  
 MARCH 31, 2023**

Parameter/Units	Inlet Result	Exhaust Result	Limit
<b>Hydrocarbons as Methane</b>			
ppm	356,500	<1.85	--
lb/hr	872	<0.055	--
<b>Destruction Efficiency, % as Methane</b>	--	>99.99%	>99
<b>VOC</b>			
ppm (as CH <sub>4</sub> )	359	1.75	--
lb/hr (as CH <sub>4</sub> )	0.88	0.05	3.68
lb/day (as CH <sub>4</sub> )	21.1	1.25	88.32
lb/MMBtu (as CH <sub>4</sub> )	-	0.0018	--
ppm (as hexane)	59.8	0.29	--
ppm @ 3% O <sub>2</sub> (as hexane) <sup>(1)</sup>	61.2	0.73	20.0
lb/MMScf (as hexane)	-	0.60	--
lb/hr (as hexane)	0.79	0.047	--
<b>Destruction Efficiency, % as Hexane<sup>(1)</sup></b>	--	94.1%	>98

(1) District Rule 1302 requires that a flare meet the concentration standard of 20 ppm as Hexane or DRE of 98%.



**TABLE 1-4  
 EXHAUST PARTICULATE MATTER RESULTS SUMMARY  
 LANCASTER LANDFILL AND RECYCLING CENTER  
 LANDFILL GAS FLARE  
 MARCH 31, 2023**

Parameter/Units	Result	Limit
<b>Particulate Matter</b>		
gr/dscf	0.0002	--
lb/hr	0.021	1.02
lb/day	0.50	24.48
lb/MMBtu	0.00073	--
lb/MMScf	0.27	--

**TABLE 1-5  
 EXHAUST SULFUR TEST RESULTS SUMMARY  
 LANCASTER LANDFILL AND RECYCLING CENTER  
 LANDFILL GAS FLARE  
 MARCH 31, 2023**

Parameter/Units	Result	Limit
<b>Oxides of Sulfur</b>		
lb/hr	0.029	--
lb/day	0.69	--
lb/month <sup>(1)</sup>	21.0	3643
tons/year <sup>(2)</sup>	0.13	21.86
<b>Inlet TRS as H<sub>2</sub>S, ppmv</b>	2.94	250

Notes:

(1) Based on 365 days/year, 12 months/year, and landfill gas flow rate of 967dscfm.

(2) Based on 365 days/year and landfill gas flow rate of 967dscfm.

## 2.0 UNIT DESCRIPTION

The landfill gas control system and flare station at Lancaster Landfill includes a gas collection system, gas wells, and one LFG Specialties Model EF945110 enclosed flare rated at 60.72 MMBtu/hr to incinerate the landfill gas.

As the refuse in the landfill decomposes, gases, which contain methane and other decomposition products, are generated in the ground. The landfill gas is collected using vertical and horizontal gas extraction wells located in the landfill and along the perimeter.

The landfill gas is delivered to the flare station utilizing up to two (2) variable speed blowers with 50HP motors. The collected gas is incinerated at a temperature in excess of 1,400°F using special low NO<sub>x</sub> burners at the base of the enclosed flare. The flare is permitted to process a maximum of 2,000 scfm of LFG.

The Lancaster Landfill flare station consists of one flare and related landfill gas handling system. The flare consists of vertical, round, blanket refractory lined shells with main and ignition burners located near the base. The ignition burner fires propane gas to start the combustion. The main burner fires only landfill gas. The flare is equipped with inlet air dampers to control the flow of combustion air to the burners. Thermocouples are installed at various heights to provide temperature indication for control of combustion temperature. A flow meter monitors the flow rate of the landfill gas.

The landfill gas flare measures 9 feet inside diameter by 45 feet high. It is rated at burning 2,000 scfm of landfill gas at a minimum temperature of 1,400°F.

### **3.0 TEST DESCRIPTION**

#### **3.1 TEST CONDITIONS**

The flare was operated at an average landfill gas flow rate of 979 scfm during the test period. Temperature and fuel flow rate were monitored and recorded every 10 minutes throughout the test period. The temperature was controlled by using the bottom positioned thermocouple set at 1,470°F during the testing. The total heat input for the flare was 21.35 MMBtu/hr during the test which is below its permit limit of 60.72 MMBtu/hr. In addition, the volume of condensate flow burned in the flare was 1 gallon per minute which is also below the permitted limit of 4 gallons per minute (GPM).

#### **3.2 SAMPLE LOCATIONS**

Samples were collected at the flare exhaust and at the inlet (landfill gas fuel) to the flare. The flare has an inner diameter of 109 inches. The ports were 40 feet above the ground; the stack exit was 45 feet above ground. Twenty-four traverse points were used on all particulate, flow rate, and gaseous concentration tests. VOC samples were collected from a single point. More detailed sample location data is located in Appendix A.1.

Inlet flow rates were also taken via a pitot traverse in the inlet duct. The inlet duct for the flare has an inner diameter of 10 inches and area of 0.55 square feet.

#### **3.3 TEST PROCEDURES**

The test procedures used for the inlet and flare exhaust measurements are summarized below in Tables 3-1 and 3-2, respectively. The procedures selected are consistent with previously approved source test protocol by AVAQMD. Brief discussions of each procedure are given below in Sections 3.3.1 through 3.3.8. Only a single measurement of each parameter was performed. However, duplicate measurements for TNMOC were taken per SCAQMD Methods 25.1 and 25.3. Triplicate samples were collected on the flare inlet and stack for speciated trace organics via EPA TO-15 Methodology. In addition, triplicate samples were collected for total Reduced Sulfur.

**TABLE 3-1  
INLET TEST PROCEDURES  
LANCASTER LANDFILL AND RECYCLING CENTER  
LANDFILL GAS FLARE  
MARCH 31, 2023**

Parameter	Sample Medium	Analytical Technique	Reference Method	Number of Replicates
Flow Rate <sup>(1)</sup>	Pitot Tube	Differential Pressure	SCAQMD 2.1	1
Moisture	Thermometer	Wet bulb/Dry bulb	SCAQMD 4.1	1
N <sub>2</sub> , O <sub>2</sub> , and CO <sub>2</sub>	Tedlar Bag	GC/TCD	SCAQMD 10.1	1
Methane and Total Gaseous Non-Methane Organics	SS Tank & SS Trap	TCA/FID	SCAQMD 25.1	1 (In Duplicate)
H <sub>2</sub> S	Tedlar Bag	GC/SCD	SCAQMD 307-91	3
Reduced Sulfur Compounds	Tedlar Bag	GC/SCD	SCAQMD 307-91	3
Fuel Btu and F Factor	Tedlar Bag	GC/FID	ASTM D1945/D3588	1
Trace Organics	Summa Can	GC/MS	EPA TO-15	3

(1) Inlet flow rate was recorded every 10 minutes via dedicated and certified facility's meter.

**TABLE 3-2  
EXHAUST TEST PROCEDURES  
LANCASTER LANDFILL AND RECYCLING CENTER  
LANDFILL GAS FLARE  
MARCH 31, 2023**

Parameter	Sample Medium	Analytical Technique	Reference Method	Number of Replicates
Flow Rate	Pitot Tube	Differential Pressure	SCAQMD 2.1	1
Moisture	Impinger Train	Gravimetric	SCAQMD 4.1	1
Particulate Matter	Wet Impingement Train	Gravimetric	SCAQMD 5.1	1
Methane and Total Gaseous Non-Methane Organics	SS Tank & H <sub>2</sub> O Imp.	TCA/FID	SCAQMD 25.3	1 (In Duplicate)
NO <sub>x</sub>	CEM	Chemiluminescence	SCAQMD 100.1	1
O <sub>2</sub>	CEM	Paramagnetic	SCAQMD 100.1	1
CO <sub>2</sub>	CEM	NDIR	SCAQMD 100.1	1
CO	CEM	NDIR/GFC	SCAQMD 100.1	1
Trace Organics	Summa Can	GC/MS	EPA TO-15	3

### **3.3.1 SCAQMD Method 2.1 – Flow Rate**

Landfill gas flow rate into the flare was set to specification using on-site instrumentation. The inlet gas density is calculated using the measured concentrations of oxygen, carbon dioxide, nitrogen and methane. The outlet gas flow rate was measured in conjunction with particulate test using a combined pitot/probe system following SCAQMD Methods 2.1 and 5.1. All emission rate calculations are based on flow rate measured during particulate test. Exhaust flow rate was also calculated using EPA Method 19 and presented in the appendices.

### **3.3.2 SCAQMD Method 4.1 – Moisture**

Moisture was measured at both the inlet and outlet streams of the flare. A single measurement at the inlet was made with wet-bulb and dry-bulb duct temperature and use of a Psychrometric table for moisture content determination. The moisture determination of the flare exhaust was made in combination with the particulate matter test.

### **3.3.3 SCAQMD Method 5.1 – Particulate Matter**

Particulate matter concentration and emission rate were determined by wet impingement following the SCAQMD Method 5.1. A quartz probe with an integral quartz nozzle were used to sample the exhaust stream. The sample travels from the probe to the impingers through flexible Teflon tubing. Between the third and fourth impinger is a tared backup filter. A thermocouple and pitot probe are attached to the probe to facilitate isokinetic sampling at each of the 24 traverse points. Two ports were used to access the traverse points. A single 60-minute sample was collected. Isokinetic sampling rate was maintained within  $100 \pm 10\%$ .

Samples were analyzed following the procedures in SCAQMD Method 5.1. The analysis involves an organic extraction of the liquid fraction. The total particulate consists of the dried combined probe and impinger water fraction, back-up filter, and organic extraction. All fractions were summed and results are reported as total particulate matter. Since particulate catch was very low, no further analysis of acid and sulfate on the aqueous fraction was required. Particulate analyses were performed by MAQS' Santa Ana Laboratory.

### **3.3.4 SCAQMD Methods 25.1 & 25.3 – Methane and Total Gaseous Non-Methane Organics**

Methane and total gaseous non-methane organics were measured at the inlet and exhaust following SCAQMD Methods 25.1 and 25.3, respectively. Atmospheric Analysis and Consulting, Inc. in Ventura, California analyzed the inlet samples following the SCAQMD Method 25.1.

The exhaust gas measurements were conducted using SCAQMD Method 25.3. The sample is collected using a stainless-steel probe connected by Teflon tubing to a glass impinger containing 2-3 ml of purified H<sub>2</sub>O. The condensable organics are captured in the water impinger. Non-condensable organics travel through the water fraction and are collected in an evacuated stainless-steel tank. The probe and sample line are purged with flue gas continuously for 5 minutes before sampling. The exhaust sampling was conducted simultaneously with the collection of the inlet samples for the determination of destruction efficiency. The tank and impinger contents were analyzed in accordance with the SCAQMD method 25.3 by Enthalpy Analytical in Orange, California using TCA/FID.

### 3.3.5 SCAQMD Method 100.1 – NO<sub>x</sub>, O<sub>2</sub>, CO<sub>2</sub>, and CO

Inlet N<sub>2</sub>, O<sub>2</sub>, and CO<sub>2</sub> measurements were acquired from the Tedlar bag samples of the landfill gas following SCAQMD Method 10.1. Quantum Analytical, Inc. analyzed these samples by GC/TCD.

Measurements of NO<sub>x</sub>, O<sub>2</sub>, CO<sub>2</sub>, and CO at the exhaust were conducted using SCAQMD Method 100.1 sampling with a continuous emission monitoring system (CEMS).

These CEMS measurements were obtained using MAQS' continuous emissions monitoring system described in Appendix D. The system includes a stainless-steel probe connected to a 50' heated Teflon line to extract the exhaust sample. The sample gas is then directed through a thermo-electric moisture knockout cooler. A peristaltic pump continuously drains the knockout. The sample then travels through a filtering system to the test van sample manifold using Teflon tubing. Leak checks were conducted prior to and at the conclusion of compliance testing by operating the sample pump, plugging the probe inlet and all pressure side system exits except for one analyzer rotameter, then measuring the leakage rate on that rotameter.

A calibration error test was performed on each analyzer prior to testing and at the completion of the test program. The calibration error test was conducted by spanning the instrument with zero and high span gas and then recording the as-found value when injecting zero, mid and high span gases. The allowable deviation is 2% of scale for SCAQMD Method 100.1 procedures. The instrument linearity was calculated from the pre-test and post-test calibration error test results. The analyzers met the 1% at midpoint linearity criteria as specified in SCAQMD Method 100.1.

EPA Protocol 1 Calibration Gases were used for all analyzer calibrations. In accordance with SCAQMD Method 100.1 procedures, pre- and post-test system bias checks were conducted for each test run. The system bias check was conducted by delivering zero and upscale gas to the CEM probe tip and recording the as-found analyzer responses. No analyzer adjustments were made between these pre- and post-system bias checks. Calculations for the correction of measured system bias and instrument drift were then applied to each test run. The allowable limit of system bias deviation is 5% of instrument range. The NO<sub>x</sub> analyzer was on the NO<sub>x</sub> mode of operation. A NO<sub>2</sub> to NO conversion efficiency (CE) test was performed prior to the start of compliance test and CE was greater than 90% as specified in the method.

A single 60-minute emissions measurement was performed for the flare to determine the concentration of NO<sub>x</sub>, O<sub>2</sub>, CO<sub>2</sub>, and CO. The average concentrations were determined during each test period using a 24-point traverse. This test average was then corrected for measured system bias and drift. Exhaust N<sub>2</sub> data was calculated by the difference from the concentration of the other major exhaust gas components.

### 3.3.6 SCAQMD Method 307-91 – Hydrogen Sulfide and Reduced Sulfur Compounds

Samples for determination of hydrogen sulfide and speciated reduced sulfur compounds were sampled in triplicate at the landfill gas inlet and collected in Tedlar bags. The samples were analyzed by GC/SCD by Quantum Analytical Services, Inc. in Carson, California, following the SCAQMD Method 307-91 protocol. The Tedlar bag samples were analyzed within 24 hours of sampling. Exhaust Sulfur is calculated based on inlet TRS.

### **3.3.7 EPA Method TO-15 – Trace Organic Hydrocarbons**

Trace organic species at the inlet and outlet were collected in summa canisters. The samples were analyzed by GC/MS by Enthalpy Analytical in Orange, California, following EPA Method TO-15 protocol. The flare inlet and exhaust were sampled simultaneously.

### **3.3.8 Fuel Analysis**

One inlet landfill gas sample was collected in a Tedlar bag and analyzed for F-Factor (dscf/MMBtu) and high heating value (HHV) Btu/Scf by D1945/D3588. Sample was analyzed by Quantum Analytical Services, Inc. in Carson, California.

## **4.0 TEST RESULTS AND OVERVIEW**

### **4.1 TEST RESULTS**

The results of the source tests of the landfill gas flare at Lancaster Landfill demonstrate that all criteria pollutant emissions are in compliance with AVAQMD Permit to Operate limits. The average results and the respective emission limits specified in the permit were presented earlier in Tables 1-2 through 1-5. Tables 4-1 and 4-2 present detailed test results of each parameter for the flare. Table 4-3 presents the Trace Organic results. Emissions are reported in units of measure consistent with those specified in the AVAQMD permit. Additional information is included in the appendices as presented in the Table of Contents.

The Flare landfill gas flow rate as measured by facility meter was averaged 979 scfm during the testing. The temperature set point was 1,470°F monitored at the bottom thermocouple.



**TABLE 4-1  
 GASEOUS AND PARTICULATE MATTER RESULTS  
 LANCASTER LANDFILL AND RECYCLING CENTER  
 LANDFILL GAS FLARE  
 MARCH 31, 2023**

Parameter/Units	Inlet Result	Exhaust Result	Limit
<b>N<sub>2</sub>, %</b>	27.81	80.11	--
<b>O<sub>2</sub>, %</b>	1.19	12.37	--
<b>CO<sub>2</sub>, %</b>	35.01	7.52	--
<b>H<sub>2</sub>O, %</b>	1.32	9.2	--
<b>Flow Rate, wscfm</b>	979	12,953	2,000 (inlet)
<b>Flow Rate, dscfm</b>	967	11,755	--
<b>Temperature, °F<sup>(1)</sup></b>	93	1,415	--
<b>Temperature, °F<sup>(2)</sup></b>	--	1,475	>1400
<b>Condensate Flow, GPM</b>	1.0	--	4
<b>F-Factor</b>	10,171	--	--
<b>Btu/Scf</b>	363.5	--	--
<b>Heat Input, MMBtu/hr</b>	21.35	--	60.72
<b>NO<sub>x</sub></b>			
ppm	--	13.37	--
ppm @ 3% O <sub>2</sub>	--	28.06	--
lb/hr (as NO <sub>2</sub> )	--	1.14	3.64
lb/day (as NO <sub>2</sub> )	--	27.43	87.36
lb/MMBtu (as NO <sub>2</sub> )	--	0.040	0.06
lb/MMScf (as NO <sub>2</sub> )	--	14.68	--
<b>CO</b>			
ppm	--	36.0	--
ppm @ 3% O <sub>2</sub>	--	75.54	--
lb/hr	--	1.87	12.14
lb/day	--	44.95	292
lb/MMBtu	--	0.066	0.20
lb/MMScf	--	24.06	--
<b>Particulate Matter</b>			
gr/dscf	--	0.0002	
lb/hr	--	0.0207	1.02
lb/day	--	0.50	24.48
lb/MMBtu	--	0.00073	--
lb/MMScf	--	0.27	--

Notes:

- (1) Temperatures taken from the sampling ports.
- (2) Temperatures taken from the facility.

**TABLE 4-2  
VOC AND SULFUR RESULTS  
LANCASTER LANDFILL AND RECYCLING CENTER  
LANDFILL GAS FLARE  
MARCH 31, 2023**

Parameter/Units	Inlet Result	Exhaust Result	Limit
<b>N<sub>2</sub>, %</b>	27.81	80.11	--
<b>O<sub>2</sub>, %</b>	1.19	12.37	--
<b>CO<sub>2</sub>, %</b>	35.01	7.52	--
<b>H<sub>2</sub>O, %</b>	1.32	9.2	--
<b>Flow Rate, wscfm</b>	979	12,953	2000 (inlet)
<b>Flow Rate, dscfm</b>	967	11,755	--
<b>Temperature, °F<sup>(2)</sup></b>	93	1,415	--
<b>Temperature, °F<sup>(3)</sup></b>	--	1,475	>1400
<b>Condensate Flow, GPM</b>	1.0	--	4
<b>F-Factor Btu/Scf</b>	10,171 363.5	-- --	-- --
<b>Heat Input, MMBtu/hr</b>	21.35	--	60.72
<b>Hydrocarbons (as Methane)</b>			
ppm	356,500	<1.85	--
lb/hr	872	<0.055	--
<b>Destruction Efficiency, % Methane</b>	--	>99.994	>99
<b>VOC</b>			
ppm (as CH <sub>4</sub> )	359	1.75	--
lb/hr (as CH <sub>4</sub> ) <sup>(2)</sup>	0.88	0.05	3.68
lb/day (as CH <sub>4</sub> )	21.1	1.25	88.32
lb/MMBtu (as CH <sub>4</sub> )	--	0.0018	--
ppm (as hexane)	59.8	0.29	--
ppm @ 3% O <sub>2</sub> (as hexane) <sup>(1)</sup>	61.2	0.73	20
lb/MMScf (as hexane)	--	0.60	--
lb/hr (as hexane)	0.79	0.047	--
<b>Destruction Efficiency, % as Hexane<sup>(1)</sup></b>	--	94.1	>98
<b>Oxides of Sulfur</b>			
lb/hr	--	0.029	
lb/day	--	0.69	
lb/month <sup>(4)</sup>	--	21.0	3643
tons/year <sup>(5)</sup>	--	0.13	21.86
<b>TRS as H<sub>2</sub>S, ppm</b>	2.94	--	250

Notes:

- (1) District Rule 1302 requires that a flare meet the standard of 20 ppm as Hexane or DRE of 98%.
- (2) Temperatures taken from the sampling ports.
- (3) Temperatures taken from the facility.
- (4) Based on 12 months/year and landfill gas flow rate of 967 dscfm.
- (5) Based on 365 days/year and a landfill gas flow rate of 967 dscfm.

**TABLE 4-3  
TRACE ORGANIC SPECIES DESTRUCTION EFFICIENCY RESULTS  
LANCASTER LANDFILL AND RECYCLING CENTER  
LANDFILL GAS FLARE  
MARCH 31, 2023**

Sample Location: Test Number: Flow Rate, dscfm:		Inlet VOC - AVG 1, 2 & 3 967		Exhaust VOC - AVG 1, 2 & 3 11,755		Destruction Efficiency				
Species	ppb	lb/hr	ppb	lb/hr	%					
<b>Benzene:</b>		6.67	$7.96 \times 10^{-5}$	ND<	0.30	<	$4.35 \times 10^{-5}$	>	45.31%	
<b>Benzyl Chloride:</b>	ND<	1.50	<	$2.90 \times 10^{-5}$	ND<	0.30	<	$7.06 \times 10^{-5}$	N/A	
<b>Chlorobenzene:</b>		1.50		$2.58 \times 10^{-5}$	ND<	0.30	<	$6.28 \times 10^{-5}$	"0"	
<b>1,2-Dichlorobenzene:</b>	ND<	1.5	<	$3.37 \times 10^{-5}$	ND<	0.30	<	$8.20 \times 10^{-5}$	N/A	
<b>1,4-Dichlorobenzene:</b>		2.07		$4.65 \times 10^{-5}$	ND<	0.30	<	$8.20 \times 10^{-5}$	"0"	
<b>1,1-Dichloroethane:</b>	ND<	1.50	<	$2.27 \times 10^{-5}$	ND<	0.30	<	$5.52 \times 10^{-5}$	N/A	
<b>1,2-Dichloroethane:</b>	ND<	1.50	<	$2.27 \times 10^{-5}$	ND<	0.30	<	$5.52 \times 10^{-5}$	N/A	
<b>1,1-Dichloroethylene:</b>	ND<	1.50	<	$2.22 \times 10^{-5}$	ND<	0.30	<	$5.40 \times 10^{-5}$	N/A	
<b>Dichloromethane:</b>	ND<	1.50	<	$1.95 \times 10^{-5}$	ND<	0.30	<	$4.74 \times 10^{-5}$	N/A	
<b>1,2-dibromomethane:</b>	ND<	1.50	<	$4.31 \times 10^{-5}$	ND<	0.30	<	$1.05 \times 10^{-4}$	N/A	
<b>Perchloroethene:</b>		2.03		$5.16 \times 10^{-5}$	ND<	0.30	<	$9.25 \times 10^{-5}$	"0"	
<b>Carbon Tetrachloride:</b>	ND<	1.50	<	$3.53 \times 10^{-5}$	ND<	0.30	<	$8.58 \times 10^{-5}$	N/A	
<b>Toluene:</b>		66.67		$9.39 \times 10^{-4}$	ND<	0.30	<	$5.14 \times 10^{-5}$	>	94.53%
<b>1,1,1-Trichloroethane:</b>	ND<	1.50	<	$3.06 \times 10^{-5}$	ND<	0.30	<	$7.44 \times 10^{-5}$	N/A	
<b>Trichloroethene:</b>	ND<	1.50	<	$3.01 \times 10^{-5}$	ND<	0.30	<	$7.33 \times 10^{-5}$	N/A	
<b>Chloroform:</b>	ND<	1.50	<	$2.74 \times 10^{-5}$	ND<	0.30	<	$6.66 \times 10^{-5}$	N/A	
<b>Vinyl Chloride:</b>	ND<	1.50	<	$1.43 \times 10^{-5}$	ND<	0.30	<	$3.48 \times 10^{-5}$	N/A	
<b>m,p-Xylene:</b>		33.33		$5.41 \times 10^{-4}$	ND<	0.60	<	$1.18 \times 10^{-4}$	>	78.1%
<b>o-Xylene:</b>		11.00		$1.71 \times 10^{-4}$	ND<	0.30	<	$5.92 \times 10^{-5}$	>	65.48%
<b>Total Trace Organics:</b>			<	$2.19 \times 10^{-3}$			<	$1.31 \times 10^{-3}$	>	39.91%

ND< - indicates that the species was not detected in the sample above the analytical detection limit for this species.

The values reported in this table are below the detection limit for this species and the actual concentration is lower.

N/A - indicates that the destruction efficiency cannot be calculated because the inlet concentration is below the detection limit.

Zero"0" - Zero is reported when inlet species were detected but reported inlet emission rate is less than the reported outlet emission rate which resulted the destruction efficiency in negative value.

## 4.2 TEST OVERVIEW

No sampling or analytical problems occurred during the testing program. The flare exhaust flow rate was measured during the particulate test. All calculated exhaust emission rate values are based upon the measured exhaust gas flow rate. Landfill gas flow rate was obtained from the facility fuel meter in addition to being measured using SCAQMD Method 2.1. Both measured landfill gas flow rate by Method 2.1 and facility meter reported flow rate are within approximately 10% of each other. A copy of the facility fuel meter calibration is included in the appendices.

## **APPENDIX A TEST DATA**

## **Appendix A.1**

### **Sample Location Data**

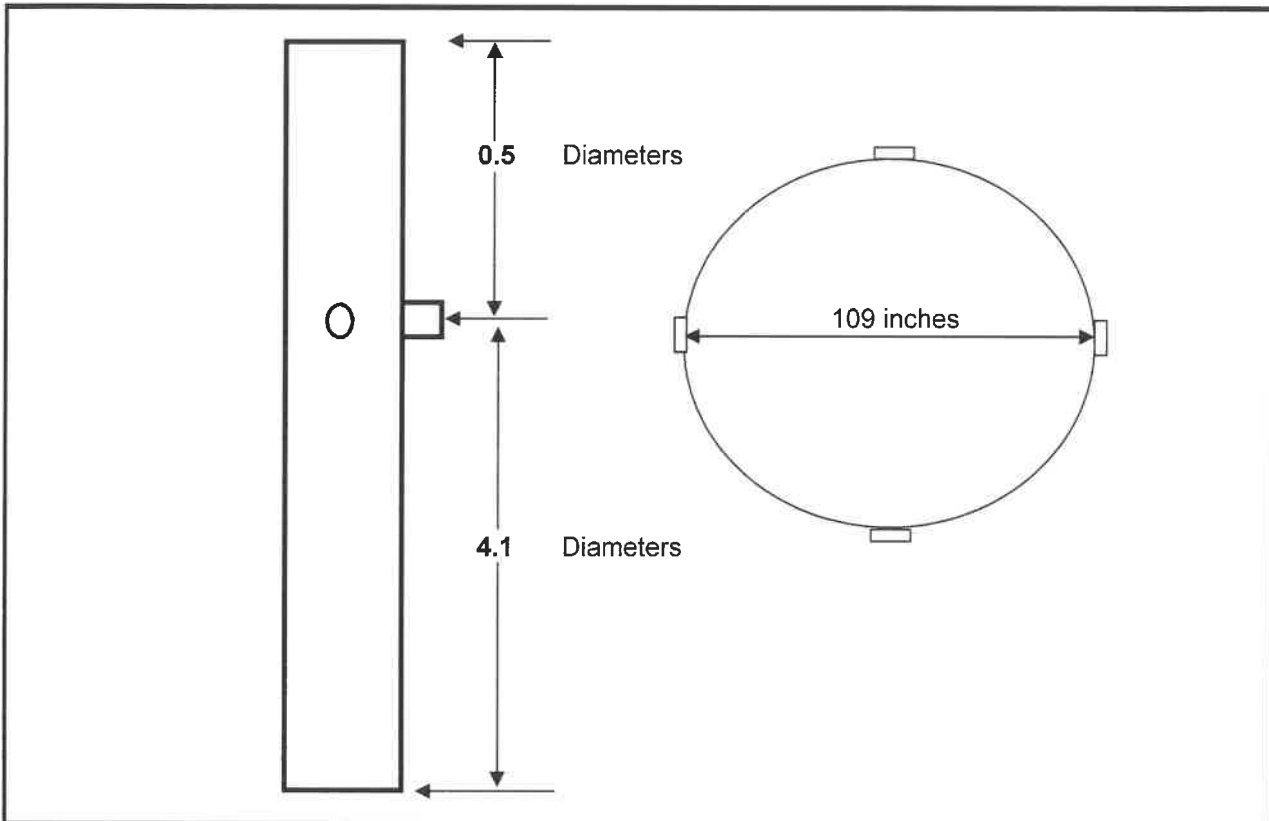
## METHOD 1 DATA SHEET EXHAUST SAMPLE LOCATION

Client: Waste Management

Date: 3/31/23

Location: Flare

Performed By: PS, JS



Diameter (inches)	<u>109.00</u>
Upstream (inches)	<u>444.00</u>
Downstream (inches)	<u>55.00</u>
Coupling (in.)	<u>3.00</u>
Stack Area (ft <sup>2</sup> )	<u>64.80</u>

Sample Point	% of Diameter	Dist from Wall (inches)	Dist from Port (inches)
1	2.1	2.3	5.3
2	6.7	7.3	10.3
3	11.8	12.9	15.9
4	17.7	19.3	22.3
5	25.0	27.3	30.3
6	35.6	38.8	41.8
7	64.4	70.2	73.2
8	75.0	81.8	84.8
9	82.3	89.7	92.7
10	88.2	96.1	99.1
11	93.3	101.7	104.7
12	97.9	106.7	109.7

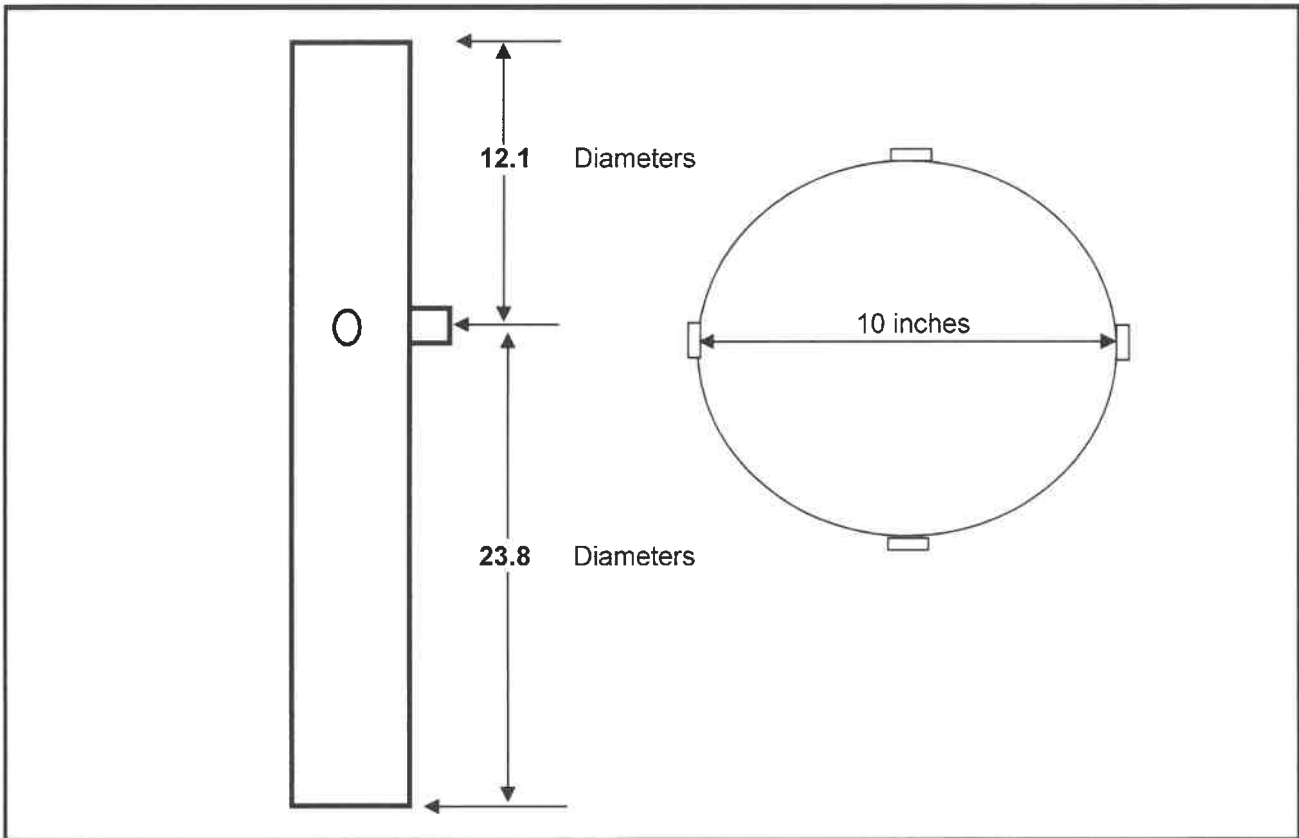
## METHOD 1 DATA SHEET INLET SAMPLE LOCATION

Client: Waste Management

Date: 3/31/23

Location: Flare

Performed By: PS, JS



Diameter (inches)	<u>10.00</u>
Upstream (inches)	<u>237.60</u>
Downstream (inches)	<u>121.20</u>
Coupling (in.)	<u>1.00</u>
Stack Area (ft <sup>2</sup> )	<u>0.55</u>

Sample Point	% of Diameter	Dist from Wall (inches)	Dist from Port (inches)
1	4.6	0.5	1.5
2	13.9	1.4	2.4
3	23.1	2.3	3.3
4	32.4	3.2	4.2

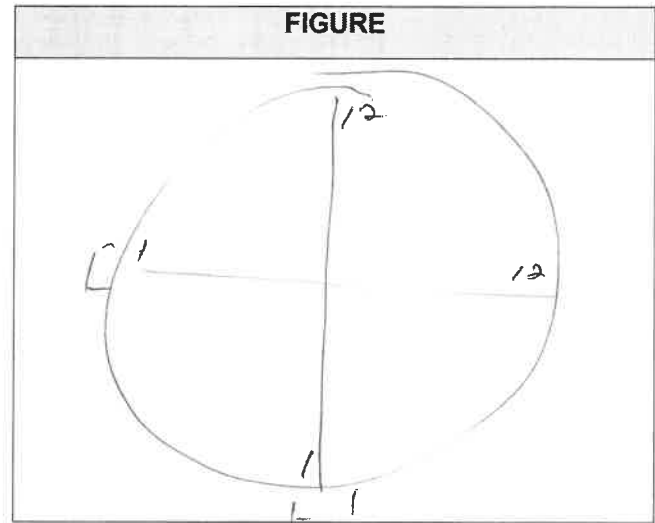
## **Appendix A.2**

### **Field Data Sheets**



### CYCLONIC FLOW VERIFICATION DATA SHEET

FACILITY	LANUASION
SOURCE	Flare
DATE	3/31/23
PROJECT NUMBER	025317
STACK DIAMETER/DIMENSION	
BAROMETRIC PRESSURE	27.43
STATIC PRESSURE	-0.06
RUN NUMBER	1
TOTAL TRAVERSE POINTS	21
OPERATOR	JS/SJ



SAMPLE POINT	DISTANCE FROM SAMPLE PORT (INCHES)	NULL POINT ROTATION ANGLE	
		NORTH/SOUTH	EAST/WEST
1	5.3	3	1
2	10.3	1	2
3	15.9	3	1
4	22.3	0	0
5	30.3	5	1
6	41.8	1	3
7	53.2	2	1
8	64.8	1	2
9	72.7	3	1
10	85.1	1	0
11	104.7	0	1
12	109.7	1	1
		<b>AVERAGE</b>	



**WET CHEMICAL SAMPLING SYSTEM DATA AND WORKSHEET**

CLIENT: WMT  
 LOCATION: KARCASTER PLANT  
 DATE: 3-31-23  
 RUN NO: 1-PM  
 OPERATOR: JS  
 METER BOX NO: 6 WCS  
 METER ΔH@: 1.606  
 METER Yd: 1.003  
 STACK AREA, FT<sup>2</sup>: 64.8  
 TRAVERSE POINTS, MIN/POINT: 24/2.5  
 ΔH=      X ΔP:  
 Probe Condition, pre/post test: good/good  
 Silica Gel Expended, Y/N:  
 Filter Condition after Test: good/good  
 Check Weight: 499.8/506.0

AMBIENT TEMPERATURE: 29.0 F  
 BAROMETRIC PRESSURE: 27.03  
 ASSUMED MOISTURE: 9%  
 PITOT TUBE COEFF, Cp: 0.84  
 PROBE ID NO/MATERIAL: 67 022  
 PROBE LENGTH: 120  
 NOZZLE ID NO/MATERIAL: 71T 022  
 NOZZLE DIAMETER: 0.862  
 FILTER NO/TYPE: 83-4512  
 PRE-TEST LEAK RATE: 10.05 CFM@ 10 in. Hg.  
 POST-TEST LEAK RATE: 10.05 CFM@ 11 in. Hg.  
 PITOT LEAK CHECK - PRE: Good POST: Good  
 CHAIN OF CUSTODY: SAMPLE CUSTODIAN JS  
ADN 852 #10  
SAMPLER JS  
SAMPLE CUSTODIAN JSJ

Imp. # Contents Post-Test - Pre-Test = Difference  
1 120 922.6 753.0  
2 120 744.2 737.8  
3 120 630.3 627.5  
4 56 904.1 887.4  
 Total: 100m LR

Point	Time	Meter Volume, ft <sup>3</sup>	ΔP in. H <sub>2</sub> O	ΔH in. H <sub>2</sub> O	Stack Temp, °F	Probe Temp, °F	Filter Temp, °F	Imp. Out Temp, °F	Meter Temp, °F		Vacuum in. Hg.	O <sub>2</sub> %	Pstatic in. H <sub>2</sub> O
									In	Out			
1	10:17	141.100	.025	3.75	1421	NA	NA	58	64	60	3		-0.58
1	10:19:30	146.211	.022	3.33	1422			58	63	62	3		
10	10:22	148.222	.027	3.48	1419			55	63	62	3		
4	10:24:30	150.231	.018	2.73	1420			53	63	61	3		
8	10:27	152.229	.017	2.58	1418			53	64	61	3		
7	10:29:30	154.271	.016	2.42	1419			51	65	61	3		
6	10:32	156.286	.017	2.58	1416			52	65	62	3		
5	10:34:30	158.281	.013	1.92	1414			51	66	62	3		
4	10:37	160.284	.008	1.21	1412			52	68	62	3		
3	10:39:30	162.301	.009	1.86	1413			52	68	62	3		
2	10:42	164.342	.008	1.21	1411			53	69	61	3		
1	10:44:30	166.404	.007	1.06	1409			54	69	61	3		
6	10:47	168.452	.022	3.83	1419			51	71	66	3		
11	10:50	170.501	.020	3.03	1420			49	68	63	3		
10	11:01	172.511	.022	3.33	1418			49	66	61	3		
9	11:03:30	174.529	.019	2.88	1418			48	66	60	3		
8	11:06	176.531	.017	2.58	1417			48	66	60	3		
7	11:09:30	178.551	.016	2.42	1415			46	65	60	3		
6	11:21	180.522	.015	2.83	1414			46	66	61	7		
5	11:23:30	182.531	.009	1.36	1415			47	66	60	3		
4	11:26	184.519	.008	1.21	1413			47	66	60	3		
3	11:28:30	186.513	.008	1.21	1411			46	66	61	3		
2	11:31	188.102	.006	0.91	1408			47	67	61	3		
Average:	11:33:30	190.692	.005	0.76	1405			48	66	60	3		

Comments: 126/42.688



**FLUE GAS VELOCITY DATASHEET**

CLIENT: WASTE MANAGEMENT  
 LOCATION: LANCASTER  
 UNIT: FLARE  
 TEST DATE: 3/21/23  
 TEST NUMBER: 1  
 LEAK CHECK PRE-  POST-   
 ΔP INDICATOR TYPE: ELECTRONIC  
 ΔP INDICATOR ID: ADDA 860

PERFORMED BY: [Signature]  
 BAR. PRESSURE: 2763  
 STATIC PRESSURE: 335  
 TC READOUT ID: PIC43  
 TC ID: DB  
 PITOT TUBE ID: SE  
 PITOT TUBE COEFFICIENT: 0.84  
 ZERO:  LEVEL:

Time	Port	Point	Vel. Head in. H <sub>2</sub> O	Temp., °F	Time	Port	Point	Vel. Head in. H <sub>2</sub> O	Temp., °F
	T	4	0.43	93					
		3	0.46						
		2	0.50						
		1	0.42						
	S	4	0.46						
		3	0.41						
		2	0.37						
		1	0.36						
		WB	65						
		DB	93						
		H <sub>2</sub> O%	1.32						

Comments: \_\_\_\_\_

**SCAQMD METHOD 25.3  
EVACUATED CANISTER SAMPLING DATA**

Client/Facility: W/M LANCASTER Date: 3/31/23

Unit/Location: FLAME EXHAUST Performed By: BT/JS

Probe Material SS Probe Length 4'

Connecting Tubing Material TEFLON Connecting Tubing Length 24"

Barometric Pressure 27.63 Ambient Temperature 50°

Test No.							
Vial ID		<u>16A</u>		<u>16B</u>			
Canister ID		<u>16A</u>		<u>16B</u>			
		Time	Vacuum	Time	Vacuum	Time	Vacuum
Pre-Test Leak Check	Start	<u>10:00</u>	<u>30.0</u>	<u>10:00</u>	<u>30.0</u>		
Pre-Test Leak Check	Stop	<u>10:10</u>	<u>30.0</u>	<u>10:10</u>	<u>30.0</u>		
Sample Collection	Start	<u>10:17</u>	<u>30.0</u>	<u>10:17</u>	<u>30.0</u>		
		<u>10:27</u>	<u>27.0</u>	<u>10:27</u>	<u>27.0</u>		
		<u>10:37</u>	<u>23.0</u>	<u>10:37</u>	<u>24.0</u>		
		<u>10:47</u>	<u>20.7</u>	<u>10:47</u>	<u>21.0</u>		
		<u>10:57</u>	<u>17.0</u>	<u>10:57</u>	<u>16.5</u>		
		<u>10:07</u>	<u>13.5</u>	<u>11:07</u>	<u>13.0</u>		
Sample Collection	Stop	<u>11:17</u>	<u>10.0</u>	<u>11:17</u>	<u>10.0</u>		
Post-Test Leak Check	Start	<u>11:40</u>	<u>10.0</u>	<u>11:40</u>	<u>10.0</u>		
Post-Test Leak Check	Stop	<u>11:50</u>	<u>10.0</u>	<u>11:50</u>	<u>10.0</u>		
Line Rinse Volume							

Comments: \_\_\_\_\_



**EPA METHOD TO-15  
EVACUATED CANISTER SAMPLING DATA**

Client/Facility: W/M LANCASTER Date: 3/31/23  
 Unit/Location: LINE EXHAUST Performed By: ST/JS  
 Probe Material SS Probe Length 4'  
 Connecting Tubing Material TEFLON Connecting Tubing Length 3'  
 Barometric Pressure 27.43 Ambient Temperature 50°

Test No.		R-1		R-2		R-3	
Canister ID		C80052		C80154		C80156	
		Time	Vacuum	Time	Vacuum	Time	Vacuum
Pre-Test Leak Check	Start	0900	30 -	0900	29 -	0900	29
Pre-Test Leak Check	Stop	0910	30 -	0910	29 -	0910	29
Sample Collection	Start	1017	30 -	1052	29 -	1127	29 -
		1027	22.0	1006	21.5	1137	22.0
		1037	13.5	1112	14.0	1147	14.0
		1047	5.0	1122	5.0	1157	5.0
Sample Collection	Stop						
Post -Test Leak Check	Start	12:05	5.0	1205	5.0	1205	5.0
Post-Test Leak Check	Stop	12:15	5.0	1215	5.0	1215	5.0

Comments: \_\_\_\_\_



**EPA METHOD TO-15  
EVACUATED CANISTER SAMPLING DATA**

Client/Facility: Wm LANDASTER Date: 3/31/23  
 Unit/Location: FLARE IN Performed By: ST/SB  
 Probe Material SS Probe Length 36"  
 Connecting Tubing Material Teflon Connecting Tubing Length 36"  
 Barometric Pressure 27.63 Ambient Temperature 50°

Test No.		R-1		R-2		R-3	
Canister ID		C80126		C80131		C80155	
		Time	Vacuum	Time	Vacuum	Time	Vacuum
Pre-Test Leak Check	Start	0900	30.0	0906	30.0	0900	30.0
Pre-Test Leak Check	Stop	0910	30.0	0910	30.0	0910	30.0
Sample Collection	Start	1017	30.0	1052	30.0	1127	30.0
		1027	21.5	1102	22.8	1137	22.1
		1037	13.0	1112	14.3	1147	14.5
		1047	5.0	1122	5.0	1157	5.0
Sample Collection	Stop						
Post -Test Leak Check	Start	1205	5.0	1205	5.0	1205	5.0
Post-Test Leak Check	Stop	1215	5.0	1215	5.0	1215	5.0

Comments: \_\_\_\_\_



**SCAQMD METHOD 25.1  
TANKS AND TRAPS SAMPLING DATA**

Client/Facility: LANCASTER W/M Date: 3/31/23  
 Unit/Location: PLATE INLET Performed By: SA  
 Probe Material SS Probe Length 30"  
 Barometric Pressure 27.63 Ambient Temperature 50°

Test No.		1		1			
Trap ID		164		114			
Tank ID		282		140			
		Time	Vacuum	Time	Vacuum	Time	Vacuum
Pre-Test Leak Check	Start	10:00	38.0	10:00	29.0		
Pre-Test Leak Check	Stop	10:10	30.0	10:10	29.0		
Sample Collection	Start	10:17	31.0	10:17	29.0		
		10:27	27.5	10:27	26.9		
		10:37	24.0	10:37	24.2		
		10:47	21.0	10:47	21.0		
		10:57	16.5	10:57	17.0		
		11:07	12.4	11:07	13.3		
Sample Collection	Stop	11:17	9.0	11:17	10.0		
Post-Test Leak Check	Start	11:40	9.0	11:40	10.0		
Post-Test Leak Check	Stop	11:50	9.0	11:50	10.0		
Trap Purge							

Comments: \_\_\_\_\_



**TEDLAR BAG SAMPLING DATA SHEET**

CLIENT: NM LANCASTER PERFORMED BY: 

LOCATION: FLAME IN (LFG) UNIT: FLAME

Test #	IN 1	IN 2	IN 3		
Date	3/31	3/31	3/31		
Time (start/stop)	1017 1057	1040 1100	1103 1123		
Bag #	IN #1				

Comments: \_\_\_\_\_

\_\_\_\_\_


\_\_\_\_\_

\_\_\_\_\_

## **Appendix A.3**

### **RM CEMS DAS and Strip Chart Data**

REFERENCE METHOD 1-MINUTE AVERAGE DATA

RUN NUMBER 1						
Date	Time	O <sub>2</sub>	CO <sub>2</sub>	NO <sub>x</sub>	CO	
3/31/2023	10:18:00 AM	12.072	7.984	13.386	18.569	12
3/31/2023	10:19:00 AM	12.472	7.588	12.802	18.324	12
3/31/2023	10:20:00 AM	12.468	7.617	12.804	58.708	12,11
3/31/2023	10:21:00 AM	12.161	7.876	13.682	21.469	11
3/31/2023	10:22:00 AM	12.492	7.571	12.407	18.89	11
3/31/2023	10:23:00 AM	12.034	7.964	13.533	26.976	10
3/31/2023	10:24:00 AM	12.03	7.905	13.804	14.612	10
3/31/2023	10:25:00 AM	12.543	7.515	12.521	65.473	10,9
3/31/2023	10:26:00 AM	12.081	7.95	12.88	75.06	9
3/31/2023	10:27:00 AM	12.05	7.952	13.239	13.975	9
3/31/2023	10:28:00 AM	12.376	7.644	12.587	16.014	8
3/31/2023	10:29:00 AM	12.455	7.561	12.085	66.462	8
3/31/2023	10:30:00 AM	12.705	7.299	12.023	65.356	8,7
3/31/2023	10:31:00 AM	11.921	8.018	14.095	59.827	7
3/31/2023	10:32:00 AM	12.353	7.687	12.971	30.223	7
3/31/2023	10:33:00 AM	12.252	7.741	13.345	16.143	6
3/31/2023	10:34:00 AM	12.536	7.508	13.977	19.919	6
3/31/2023	10:35:00 AM	12.627	7.404	13.009	39.082	6,5
3/31/2023	10:36:00 AM	12.6	7.424	13.317	27.357	5
3/31/2023	10:37:00 AM	12.66	7.252	12.517	48.909	5
3/31/2023	10:38:00 AM	12.698	7.348	13.484	98.292	4
3/31/2023	10:39:00 AM	13.005	7.022	13.503	49.908	4
3/31/2023	10:40:00 AM	12.839	7.143	13.675	88.915	4,3
3/31/2023	10:41:00 AM	12.731	7.194	12.922	93.343	3
3/31/2023	10:42:00 AM	12.763	7.176	13.598	76.344	3
3/31/2023	10:43:00 AM	12.76	7.214	13.393	55.089	2
3/31/2023	10:44:00 AM	13.114	6.945	13.711	15.963	2
3/31/2023	10:45:00 AM	12.972	6.987	13.546	6.834	2,1
3/31/2023	10:46:00 AM	13.015	6.987	14.113	12.688	1
3/31/2023	10:47:00 AM	13.232	6.811	13.681	13.011	1
3/31/2023	11:04:00 AM	11.987	7.753	12.405	0.796	12
3/31/2023	11:05:00 AM	12.143	7.605	12.046	1.16	12
3/31/2023	11:06:00 AM	12.104	7.669	12.341	1.382	12,11
3/31/2023	11:07:00 AM	12.134	7.64	12.917	1.744	11
3/31/2023	11:08:00 AM	12.396	7.395	11.42	15.14	11
3/31/2023	11:09:00 AM	12.244	7.487	11.996	14.046	10
3/31/2023	11:10:00 AM	12.246	7.524	11.781	13.659	10
3/31/2023	11:11:00 AM	12.091	7.651	12.486	9.936	10,9
3/31/2023	11:12:00 AM	12.19	7.563	11.753	16.237	9
3/31/2023	11:13:00 AM	11.965	7.795	12.567	14.717	9
3/31/2023	11:14:00 AM	12.032	7.711	12.154	7.887	8
3/31/2023	11:15:00 AM	12.196	7.562	11.678	11.05	8
3/31/2023	11:16:00 AM	12.183	7.569	12.027	10.67	8,7
3/31/2023	11:17:00 AM	12.052	7.668	12.117	7.712	7
3/31/2023	11:18:00 AM	12.079	7.653	12.455	8.126	7
3/31/2023	11:19:00 AM	12.126	7.641	12.516	10.531	6
3/31/2023	11:20:00 AM	12.64	7.145	13.537	61.861	6
3/31/2023	11:21:00 AM	12.198	7.531	14.771	50.268	6,5
3/31/2023	11:22:00 AM	12.077	7.646	15.055	23.773	5
3/31/2023	11:23:00 AM	12.038	7.709	14.825	23.354	5
3/31/2023	11:24:00 AM	12.22	7.48	14.752	22.702	4
3/31/2023	11:25:00 AM	12.655	7.108	15.566	71.686	4
3/31/2023	11:26:00 AM	12.555	7.171	15.874	47.682	4,3
3/31/2023	11:27:00 AM	12.618	7.109	15.367	66.275	3
3/31/2023	11:28:00 AM	12.674	7.096	15.322	68.94	3
3/31/2023	11:29:00 AM	12.669	7.044	15.356	44.144	2
3/31/2023	11:30:00 AM	12.602	7.108	14.904	66.033	2
3/31/2023	11:31:00 AM	12.927	6.813	14.538	82.011	2,1
3/31/2023	11:32:00 AM	12.659	7.115	15.166	72.925	1
3/31/2023	11:33:00 AM	12.575	7.141	15.079	85.163	1
						
Average		12.42	7.46	13.36	36.06	



REFERENCE METHOD DATA LOGGER

Date	Time	O <sub>2</sub> %	CO <sub>2</sub> %	NO <sub>x</sub> PPM	CO PPM	
3/31/2023	8:45:00	20.862	0.014	0.026	0.096	
3/31/2023	8:46:00	12.244	7.487	0.094	-0.078	
3/31/2023	8:47:00	0.003	-0.027	0.033	-0.026	
3/31/2023	8:48:00	0.007	-0.036	0.023	-0.044	< Zero NO
3/31/2023	8:49:00	0.03	0.018	2.923	11.614	
3/31/2023	8:50:00	-0.007	0.027	0.994	4.242	
3/31/2023	8:51:00	-0.002	-0.015	0.027	0.058	< Direct Zero
3/31/2023	8:52:00	13.936	12.461	10.607	41.417	
3/31/2023	8:53:00	19.29	18.998	17.013	66.27	
3/31/2023	8:54:00	19.28	18.989	18.078	70.243	
3/31/2023	8:55:00	19.281	18.986	22.497	87.059	< Direct NO
3/31/2023	8:56:00	19.281	18.99	22.479	86.698	< Direct High
3/31/2023	8:57:00	11.589	11.897	15.214	75.864	
3/31/2023	8:58:00	10.306	10.591	11.026	45.454	< Direct Mid
3/31/2023	8:59:00	8.945	9.301	10.998	45.896	
3/31/2023	9:00:00	0.006	-0.044	8.616	22.828	
3/31/2023	9:01:00	0.001	-0.05	14.363	0.372	
3/31/2023	9:02:00	0.003	-0.051	15.374	-0.028	
3/31/2023	9:03:00	0.003	-0.03	15.543	-0.035	
3/31/2023	9:04:00	0.003	-0.037	15.574	-0.026	< NO2 Audit NOx
3/31/2023	9:05:00	0.003	-0.031	1.896	-0.048	
3/31/2023	9:06:00	0.005	-0.029	0.061	-0.05	< NO2 Audit NO Mode
3/31/2023	9:07:00	-0.013	-0.053	-0.023	-0.037	
3/31/2023	9:08:00	-0.023	-0.029	0.23	0.021	
3/31/2023	9:09:00	-0.011	-0.023	0.5	0.041	
3/31/2023	9:10:00	0.006	-0.028	0.238	0.063	
3/31/2023	9:11:00	0.023	-0.022	0.176	0.065	
3/31/2023	9:12:00	0.04	-0.004	0.075	0.059	
3/31/2023	9:13:00	2.477	-0.005	0.08	0.06	
3/31/2023	9:14:00	13.294	7.557	-0.053	0.058	
3/31/2023	9:15:00	10.3	10.54	-0.07	-0.026	< System O2/CO2
3/31/2023	9:16:00	8.441	5.161	5.548	-0.009	
3/31/2023	9:17:00	0.019	-0.049	10.917	-0.024	
3/31/2023	9:18:00	0.017	-0.062	10.894	-0.034	
3/31/2023	9:19:00	0.017	-0.05	10.932	-0.03	
3/31/2023	9:20:00	0.017	-0.068	10.911	-0.037	
3/31/2023	9:21:00	0.017	-0.069	10.936	-0.041	
3/31/2023	9:22:00	0.016	-0.074	10.98	-0.051	
3/31/2023	9:23:00	0.014	-0.085	10.956	-0.057	
3/31/2023	9:24:00	0.015	-0.083	10.893	-0.05	
3/31/2023	9:25:00	0.016	-0.09	10.886	-0.053	
3/31/2023	9:26:00	0.002	-0.121	6.319	1.991	
3/31/2023	9:27:00	0.007	-0.08	-0.404	36.307	
3/31/2023	9:28:00	0.006	-0.078	-0.38	45.025	< System CO
3/31/2023	9:29:00	0.006	-0.065	-0.393	45.037	
3/31/2023	9:30:00	0.006	-0.082	-0.421	45.024	



### REFERENCE METHOD DATA LOGGER

Date	Time	O <sub>2</sub> %	CO <sub>2</sub> %	NO <sub>x</sub> PPM	CO PPM	
3/31/2023	9:31:00	0.006	-0.101	-0.359	45.04	
3/31/2023	9:32:00	0.005	-0.1	-0.312	45.059	
3/31/2023	9:33:00	2.525	-0.094	-0.399	45.049	
3/31/2023	9:34:00	20.892	0.056	-0.402	24.199	
3/31/2023	9:35:00	17.227	0.032	1.395	0.62	
3/31/2023	9:36:00	0.007	-0.099	11.109	-0.018	
3/31/2023	9:37:00	-0.002	-0.097	11.114	-0.062	< System NOx
3/31/2023	9:38:00	-0.005	-0.088	11.086	-0.071	
3/31/2023	9:39:00	-0.006	-0.115	11.113	-0.072	
3/31/2023	9:40:00	16.546	-0.002	2.975	-0.075	
3/31/2023	9:41:00	20.88	0.063	0.008	0.012	
3/31/2023	9:42:00	20.878	0.045	0	0.034	
3/31/2023	9:43:00	20.876	0.048	0.02	0.068	
3/31/2023	9:44:00	20.873	0.043	0.011	0.096	
3/31/2023	9:45:00	20.87	0.076	0.034	0.114	
3/31/2023	9:46:00	20.852	0.07	-0.035	0.09	
3/31/2023	9:47:00	20.852	0.053	-0.04	0.077	
3/31/2023	9:48:00	20.852	0.065	-0.061	0.099	
3/31/2023	9:49:00	20.851	0.06	-0.02	0.09	
3/31/2023	9:50:00	20.856	0.049	-0.006	0.108	
3/31/2023	9:51:00	20.858	0.052	-0.046	0.106	
3/31/2023	9:52:00	20.861	0.042	-0.086	0.095	
3/31/2023	9:53:00	20.863	0.046	-0.103	0.09	
3/31/2023	9:54:00	20.86	0.041	-0.034	0.087	
3/31/2023	9:55:00	20.861	0.041	-0.205	0.088	
3/31/2023	9:56:00	20.865	0.046	-0.228	0.077	
3/31/2023	9:57:00	20.862	0.034	-0.235	0.093	
3/31/2023	9:58:00	20.862	0.031	-0.213	0.128	
3/31/2023	9:59:00	20.856	0.036	-0.299	0.143	
3/31/2023	10:00:00	20.855	0.032	-0.262	0.087	
3/31/2023	10:01:00	20.859	0.031	-0.259	0.088	
3/31/2023	10:02:00	20.865	0.011	0.052	0.091	
3/31/2023	10:03:00	20.862	0.014	0.026	0.096	
3/31/2023	10:04:00	20.866	0.009	-0.006	0.094	
3/31/2023	10:05:00	20.864	0.018	0.154	0.145	
3/31/2023	10:06:00	20.858	0.01	0.185	0.324	
3/31/2023	10:07:00	20.855	0.004	0.027	0.182	
3/31/2023	10:08:00	20.857	-0.008	0.018	0.079	
3/31/2023	10:09:00	20.854	0.003	0.157	0.146	
3/31/2023	10:10:00	18.743	2.005	2.194	4.137	
3/31/2023	10:11:00	12.508	7.629	12.87	91.841	
3/31/2023	10:12:00	12.321	7.842	13.82	25.05	
3/31/2023	10:13:00	12.383	7.749	13.742	19.598	
3/31/2023	10:14:00	11.844	8.252	14.531	13.803	
3/31/2023	10:15:00	12.164	7.859	13.299	14.371	
3/31/2023	10:16:00	12.076	8.047	13.729	21.811	

5/26/2023  
9:28 AM



## REFERENCE METHOD DATA LOGGER

Date	Time	O <sub>2</sub> %	CO <sub>2</sub> %	NO <sub>x</sub> PPM	CO PPM	
3/31/2023	10:17:00	12.309	7.776	12.967	12.528	< Start Time 1017
3/31/2023	10:18:00	12.072	7.984	13.386	18.569	12
3/31/2023	10:19:00	12.472	7.588	12.802	18.324	12
3/31/2023	10:20:00	12.468	7.617	12.804	58.708	12,11
3/31/2023	10:21:00	12.161	7.876	13.682	21.469	11
3/31/2023	10:22:00	12.492	7.571	12.407	18.89	11
3/31/2023	10:23:00	12.034	7.964	13.533	26.976	10
3/31/2023	10:24:00	12.03	7.905	13.804	14.612	10
3/31/2023	10:25:00	12.543	7.515	12.521	65.473	10,9
3/31/2023	10:26:00	12.081	7.95	12.88	75.06	9
3/31/2023	10:27:00	12.05	7.952	13.239	13.975	9
3/31/2023	10:28:00	12.376	7.644	12.587	16.014	8
3/31/2023	10:29:00	12.455	7.561	12.085	66.462	8
3/31/2023	10:30:00	12.705	7.299	12.023	65.356	8,7
3/31/2023	10:31:00	11.921	8.018	14.095	59.827	7
3/31/2023	10:32:00	12.353	7.687	12.971	30.223	7
3/31/2023	10:33:00	12.252	7.741	13.345	16.143	6
3/31/2023	10:34:00	12.536	7.508	13.977	19.919	6
3/31/2023	10:35:00	12.627	7.404	13.009	39.082	6,5
3/31/2023	10:36:00	12.6	7.424	13.317	27.357	5
3/31/2023	10:37:00	12.66	7.252	12.517	48.909	5
3/31/2023	10:38:00	12.698	7.348	13.484	98.292	4
3/31/2023	10:39:00	13.005	7.022	13.503	49.908	4
3/31/2023	10:40:00	12.839	7.143	13.675	88.915	4,3
3/31/2023	10:41:00	12.731	7.194	12.922	93.343	3
3/31/2023	10:42:00	12.763	7.176	13.598	76.344	3
3/31/2023	10:43:00	12.76	7.214	13.393	55.089	2
3/31/2023	10:44:00	13.114	6.945	13.711	15.963	2
3/31/2023	10:45:00	12.972	6.987	13.546	6.834	2,1
3/31/2023	10:46:00	13.015	6.987	14.113	12.688	1
3/31/2023	10:47:00	13.232	6.811	13.681	13.011	1
3/31/2023	10:48:00	13.102	6.866	14.132	12.261	Port Change
3/31/2023	10:49:00	13.661	6.367	13.954	8.631	
3/31/2023	10:50:00	17.263	3.069	7.62	4.554	
3/31/2023	10:51:00	20.825	-0.058	-0.615	0.667	
3/31/2023	10:52:00	20.826	-0.087	-0.699	0.011	
3/31/2023	10:53:00	20.82	-0.105	-0.778	0.01	
3/31/2023	10:54:00	20.825	-0.125	-0.837	0.01	
3/31/2023	10:55:00	20.83	-0.13	-0.873	0.01	
3/31/2023	10:56:00	20.826	-0.128	-0.89	0.01	
3/31/2023	10:57:00	20.824	-0.144	-0.76	0.023	
3/31/2023	10:58:00	20.827	-0.123	-0.9	0.027	
3/31/2023	10:59:00	20.822	-0.116	-0.95	0.008	
3/31/2023	11:00:00	20.817	-0.136	-0.896	0.008	
3/31/2023	11:01:00	20.826	-0.169	-0.944	0.009	
3/31/2023	11:02:00	16.414	3.874	5.263	0.344	

5/26/2023  
9:28 AM



REFERENCE METHOD DATA LOGGER

Date	Time	O <sub>2</sub> %	CO <sub>2</sub> %	NO <sub>x</sub> PPM	CO PPM	
3/31/2023	11:03:00	12.061	7.699	12.053	1.366	< Resume Test
3/31/2023	11:04:00	11.987	7.753	12.405	0.796	12
3/31/2023	11:05:00	12.143	7.605	12.046	1.16	12
3/31/2023	11:06:00	12.104	7.669	12.341	1.382	12,11
3/31/2023	11:07:00	12.134	7.64	12.917	1.744	11
3/31/2023	11:08:00	12.396	7.395	11.42	15.14	11
3/31/2023	11:09:00	12.244	7.487	11.996	14.046	10
3/31/2023	11:10:00	12.246	7.524	11.781	13.659	10
3/31/2023	11:11:00	12.091	7.651	12.486	9.936	10,9
3/31/2023	11:12:00	12.19	7.563	11.753	16.237	9
3/31/2023	11:13:00	11.965	7.795	12.567	14.717	9
3/31/2023	11:14:00	12.032	7.711	12.154	7.887	8
3/31/2023	11:15:00	12.196	7.562	11.678	11.05	8
3/31/2023	11:16:00	12.183	7.569	12.027	10.67	8,7
3/31/2023	11:17:00	12.052	7.668	12.117	7.712	7
3/31/2023	11:18:00	12.079	7.653	12.455	8.126	7
3/31/2023	11:19:00	12.126	7.641	12.516	10.531	6
3/31/2023	11:20:00	12.64	7.145	13.537	61.861	6
3/31/2023	11:21:00	12.198	7.531	14.771	50.268	6,5
3/31/2023	11:22:00	12.077	7.646	15.055	23.773	5
3/31/2023	11:23:00	12.038	7.709	14.825	23.354	5
3/31/2023	11:24:00	12.22	7.48	14.752	22.702	4
3/31/2023	11:25:00	12.655	7.108	15.566	71.686	4
3/31/2023	11:26:00	12.555	7.171	15.874	47.682	4,3
3/31/2023	11:27:00	12.618	7.109	15.367	66.275	3
3/31/2023	11:28:00	12.674	7.096	15.322	68.94	3
3/31/2023	11:29:00	12.669	7.044	15.356	44.144	2
3/31/2023	11:30:00	12.602	7.108	14.904	66.033	2
3/31/2023	11:31:00	12.927	6.813	14.538	82.011	2,1
3/31/2023	11:32:00	12.659	7.115	15.166	72.925	1
3/31/2023	11:33:00	12.575	7.141	15.079	85.163	1
3/31/2023	11:34:00	12.569	7.151	15.274	37.21	
3/31/2023	11:35:00	20.806	-0.18	0.14	0.074	
3/31/2023	11:36:00	12.079	7.761	0.035	-0.088	
3/31/2023	11:37:00	10.177	11.464	-0.083	-0.169	
3/31/2023	11:38:00	7.089	7.015	-0.11	-0.203	
3/31/2023	11:39:00	10.26	10.603	-0.061	-0.012	< System O2/CO2
3/31/2023	11:40:00	10.255	10.603	-0.064	-0.215	
3/31/2023	11:41:00	10.251	10.595	-0.143	-0.219	
3/31/2023	11:42:00	10.245	10.576	-0.161	-0.24	
3/31/2023	11:43:00	14.705	6.291	-0.088	-0.226	
3/31/2023	11:44:00	0.226	0.001	10.914	-0.177	
3/31/2023	11:45:00	-0.01	-0.024	11.244	-0.232	< System NOx
3/31/2023	11:46:00	9.805	0.031	8.412	-0.236	
3/31/2023	11:47:00	1.24	-0.021	-0.177	22.982	
3/31/2023	11:48:00	-0.009	-0.028	-0.176	43.298	



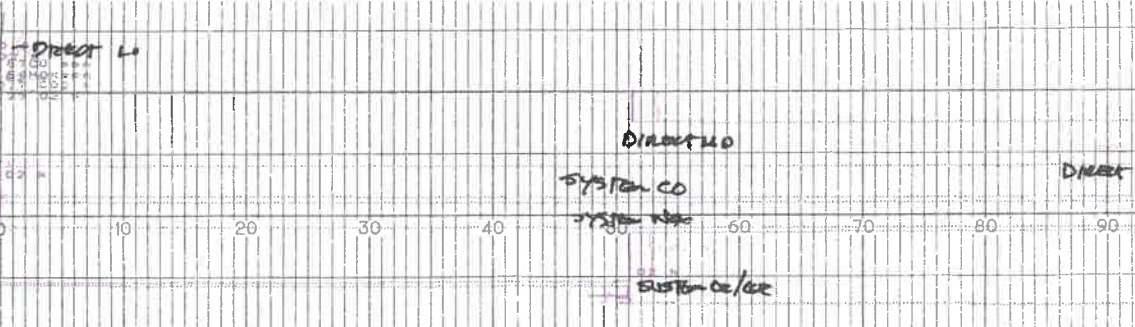
## REFERENCE METHOD DATA LOGGER

Date	Time	O <sub>2</sub> %	CO <sub>2</sub> %	NO <sub>x</sub> PPM	CO PPM	
3/31/2023	11:49:00	-0.012	0.007	-0.159	44.749	< System CO
3/31/2023	11:50:00	16.852	0.522	-0.119	36.446	
3/31/2023	11:51:00	19.198	18.882	18.974	28.94	
3/31/2023	11:52:00	19.278	18.986	22.984	81.4	
3/31/2023	11:53:00	19.28	18.977	22.927	86.477	< Direct High
3/31/2023	11:54:00	17.014	17.131	22.534	86.587	
3/31/2023	11:55:00	10.302	10.715	11.327	62.934	
3/31/2023	11:56:00	10.3	10.688	11.109	44.987	< Direct Mid
3/31/2023	11:57:00	10.297	10.689	11.127	45.755	
3/31/2023	11:58:00	0.335	0.585	1.002	25.958	
3/31/2023	11:59:00	-0.014	0.008	-0.091	0.4	
3/31/2023	12:00:00	-0.07	0.005	-0.045	-0.226	< Direct Zero
3/31/2023	12:01:00	-0.035	0.107	0.026	-0.174	
3/31/2023	12:02:00	-0.01	0.252	0.029	-0.148	
3/31/2023	12:03:00	0.013	0.336	0.007	-0.157	
3/31/2023	12:04:00	0.034	0.386	0.059	-0.147	
3/31/2023	12:05:00	0.053	0.404	0.044	-0.147	

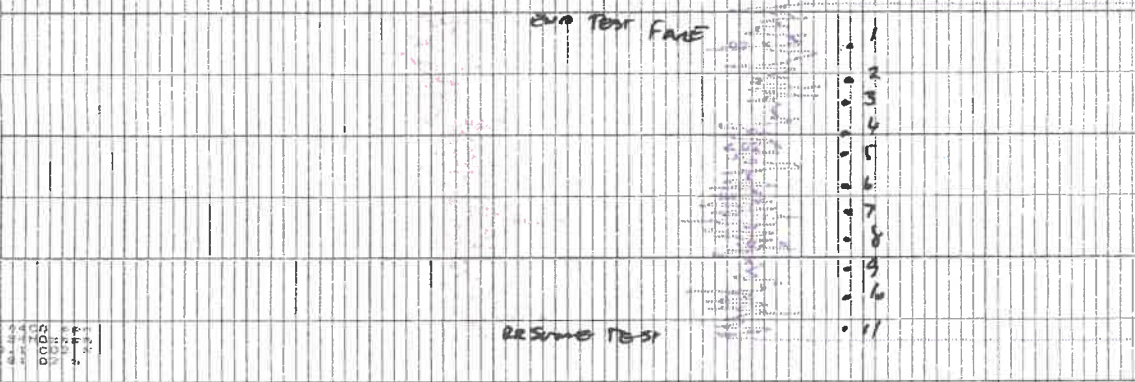
5/26/2023  
9:28 AM



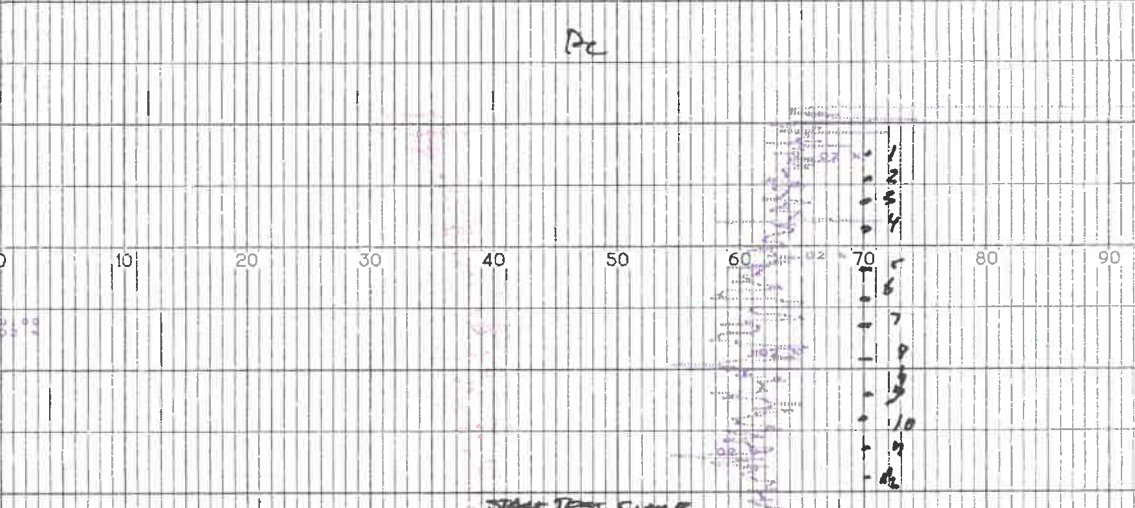
CU 56  
NOx 18  
CO2 % 10  
D2 % 10  
MAR. 31 12:00-



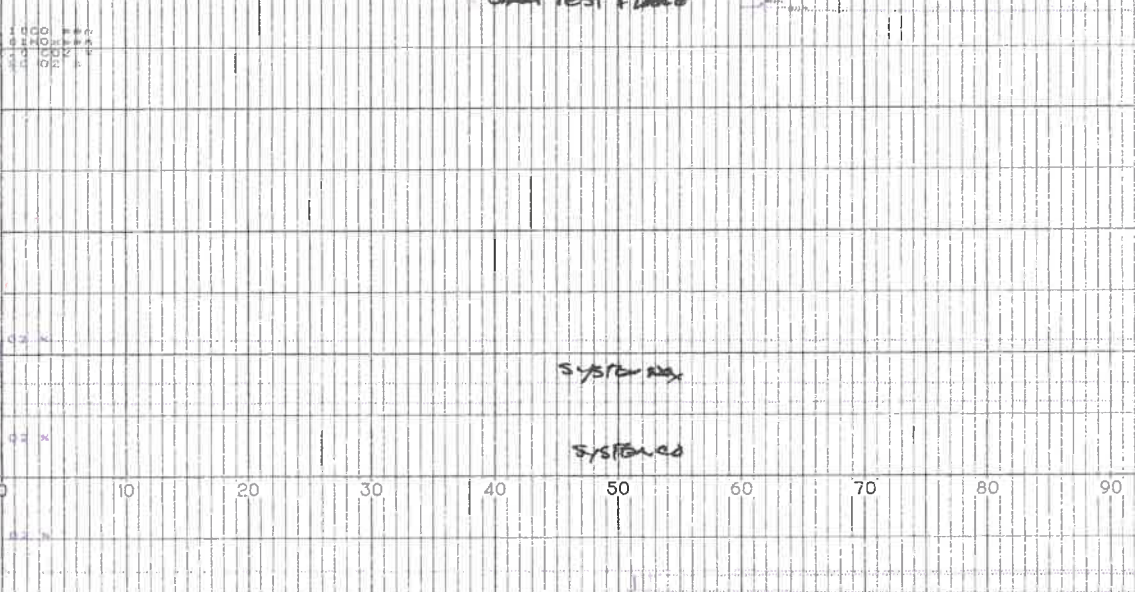
CO 20  
NOx 20  
CO2 % 20  
D2 % 20  
MAR. 31 11:00-



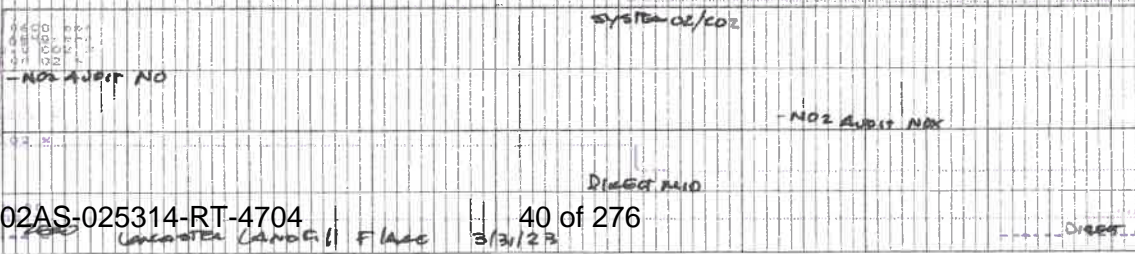
CO 20  
NOx 20  
CO2 % 20  
D2 % 20  
MAR. 31 10:00-



CO 20  
NOx 20  
CO2 % 20  
D2 % 20  
MAR. 31 09:00-



CO 20  
NOx 20  
CO2 % 20  
D2 % 20  
MAR. 31 09:00-



W

## **Appendix A.4 Laboratory Data**

## **Appendix A.4.1**

### **SCAQMD Method 5.1 Laboratory Data**

## PARTICULATE SCAQMD 5.1, WET IMPINGEMENT

<b>Project #</b>	<u>PROJ-025314</u>			<b>Sample Date:</b>	<u>Mar 31, 2023</u>
<b>Client/Location:</b>	<u>WM Lancaster</u>			<b>Analysis Date:</b>	<u>Apr 10, 2023</u>
<b>Sample Location:</b>	<u>Flare Exhaust</u>	<b>DI H<sub>2</sub>O Blank (mg/ml)</b>	<u>0.0000</u>	<b>Analyst:</b>	<u>AE</u>
<b>Test #</b>	<u>1</u>	<b>MeCl<sub>2</sub> Blank (mg/ml)</b>	<u>0.0000</u>		

Item	Item Number	Final Weight (g)	Tare Weight (g)	Gain Weight (mg)	Aliquot Correction (ml/ml)	Net Gain (mg/sample)	Blank Based on Total Volume (mg)
1. Glass Fiber Filter (backup filter)	83-4512	0.3669	0.3669	0.0	-----	0.0	-----
2. Insoluble Particulate Filter	55-7662	0.1520	0.1514	0.6	-----	0.6	-----
3. Impingers and Probe Catches a. Water Fraction	9447	29.6453	29.6453	0.0	394	0.0	0.0
					394		
b. Organic Fraction 125 ml MeCl <sub>2</sub> (5x25mL)	9448	31.0265	31.0265	0.0	394	0.0	0.0
					394		

Total Particulate = 0.6

Method of Sample Prep/Analysis Notes

## PARTICULATE SCAQMD 5.1, WET IMPINGEMENT

<b>Project #</b>	<u>PROJ-025314</u>		
<b>Client/Location:</b>	<u>WM Lancaster</u>	<b>Sample Date:</b>	<u>Mar 31, 2023</u>
<b>Sample Location:</b>	<u>Flare Exhaust</u>	<b>Analysis Date:</b>	<u>Apr 10, 2023</u>
<b>Test #</b>	<u>FB</u>	<b>DI H<sub>2</sub>O Blank (mg/ml)</b>	<u>0.0000</u>
		<b>MeCl<sub>2</sub> Blank (mg/ml)</b>	<u>0.0000</u>
		<b>Analyst:</b>	<u>AE</u>

Item	Item Number	Final Weight (g)	Tare Weight (g)	Gain Weight (mg)	Aliquot Correction (ml/ml)	Net Gain (mg/sample)	Blank Based on Total Volume (mg)
1. Glass Fiber Filter (backup filter)	83-4514	0.3690	0.3690	0.0	-----	0.0	-----
2. Insoluble Particulate Filter	55-7661	0.1506	0.1506	0.0	-----	0.0	-----
3. Impingers and Probe Catches a. Water Fraction	9443	28.5850	28.5845	0.5	290	0.5	0.0
					290		
b. Organic Fraction 125 ml MeCl <sub>2</sub> (5x25mL)	9445	28.7534	28.7534	0.0	290	0.0	0.0
					290		
DI H <sub>2</sub> O Blank	9444	30.2601	30.2601	0.0	250	-----	-----
					250		
MeCl <sub>2</sub> Blank	9446	27.8547	27.8547	0.0	250	-----	-----
					250		

Total Particulate = 0.5

Method of Sample Prep/Analysis Notes

## PARTICULATE SCAQMD 5.1, WET IMPINGEMENT

**Project #** PROJ-025314  
**Client/Location:** WM Lancaster  
**Sample Location:** Flare Exhaust     **DI H<sub>2</sub>O Blank (mg/ml)** 0.0000     **Sample Date:** Mar 31, 2023  
**Test #** 1     **MeCl<sub>2</sub> Blank (mg/ml)** 0.0000     **Analysis Date:** Apr 10, 2023  
**Analyst:** AE

Item	Item Number	Final Weight (g)	Tare Weight (g)	Gain Weight (mg)	Aliquot Correction (ml/ml)	Net Gain (mg/sample)	Blank Based on Total Volume (mg)
1. Glass Fiber Filter (backup filter)	93-4514# 2	0.3669	0.3669	0.0	-----	0.0	-----
2. Insoluble Solids Filter	55-7662	0.1520	0.1514	0.6	-----	0.6	-----
3. Impingers and Probe Catches							
a. Water Fraction	9447	29.6453	29.6453	0.0	394 394	0.0	0.0
b. Organic Fraction 125 ml MeCl <sub>2</sub> (5x25mL)	9448	31.0265	31.0265	0.0	394 394	0.0	0.0

\* VM 4/17/23

Total Particulate = 0.6

Method of Sample Prep/Analysis Notes

## PARTICULATE SCAQMD 5.1, WET IMPINGEMENT

**Project #** PROJ-025314  
**Client/Location:** WM Lancaster  
**Sample Location:** Flare Exhaust      **DI H<sub>2</sub>O Blank (mg/ml)** 0.0000      **Sample Date:** Mar 31, 2023  
**Test #** FB      **MeCl<sub>2</sub> Blank (mg/ml)** 0.0000      **Analysis Date:** Apr 10, 2023  
**Analyst:** AE

Item	Item Number	Final Weight (g)	Tare Weight (g)	Gain Weight (mg)	Aliquot Correction (ml/ml)	Net Gain (mg/sample)	Blank Based on Total Volume (mg)
1. Glass Fiber Filter (backup filter)	83-4514	0.3690	0.3640	0.0	-----	0.0	-----
2. Insoluble Solids Filter	55-7661	0.1506	0.1506	0.0	-----	0.0	-----
3. Impingers and Probe Catches							
a. Water Fraction	9443	28.5850	28.5845	0.5	290 290	0.5	0.0
b. Organic Fraction							
125 ml MeCl <sub>2</sub> (5x25mL)	9445	28.7537	28.7534 <del>30.2601</del> m 7/17/23	0.0	290 290	0.0	0.0
DI H <sub>2</sub> O Blank	9444	30.2601	30.2601	0.0	250 250	-----	-----
MeCl <sub>2</sub> Blank	9446	27.8547	27.8547	0.0	250 250	-----	-----

Total Particulate = 0.5

Method of Sample Prep/Analysis Notes
--------------------------------------

# CHAIN OF CUSTODY

CLIENT: WM Lancaster      PROJ #: 025314      TEST DATE(S): 3/31/2023  
 LOCATION: Lancaster Landfill      SAMPLER(S): DH/AD/PSJ  
 SAMPLE LOCATION: Flare Exhaust      PROJECT MANAGER: PSJ  
 TEST METHOD(S): SCAQMD 5.1      DATE DUE: ASAP  
 OUTSIDE LAB REQUIRED?: No      COMPLIANCE TEST?: Yes

DATE	TIME	TEST #	SAMPLE DESCRIPTION	CONTAINERS	SAMPLER	COMMENTS
3/31/2023		1	Flare Exhaust	2	JS, PSJ	<del>4512</del> 4512
3/31/23		FB	FB	2	JS, PSJ	4514

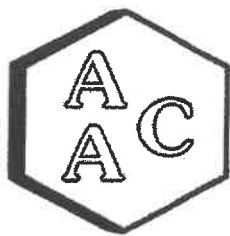
RELEASED BY	DATE/TIME	RECEIVED BY	DATE/TIME
	4/6 1535	Allison Enright	4/10/23 1100

ANALYSIS REQUIRED: SCAQMD 5.1



## **Appendix A.4.2**

### **SCAQMD Method 25.1 Laboratory Data**



## Atmospheric Analysis & Consulting, Inc.

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CLIENT : Montrose Air Quality Services  
PROJECT NAME : Lancaster Flare  
PROJECT NO. : PROJ-025314  
AAC PROJECT NO. : 230585  
REPORT DATE : 04/14/2023

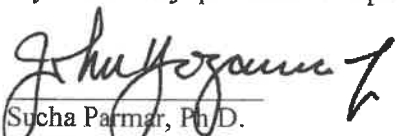
On April 3<sup>rd</sup> 2023, Atmospheric Analysis & Consulting, Inc. received two (2) Six-Liter Summa Canisters and two (2) traps for TNMNEOC analysis by SCAQMD 25.1 and Fixed Gases analysis by EPA 3C. Upon receipt, the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.	Return Pressure (mmHg)
WM Lancaster Flare In	230585-42748	342.5
WM Lancaster Flare In	230585-42749	334.5

This analysis is performed in accordance with AAC's Quality Manual. Test results apply to the sample(s) as received. For detailed information pertaining to specific EPA, NCASI, ASTM and SCAQMD accreditations (Methods & Analytes), please visit our website at [www.aaclab.com](http://www.aaclab.com).

I certify that this data is technically accurate, complete, and in compliance with the terms and conditions of the contract. No problems were encountered during receiving, preparation, and/or analysis of these samples. The Technical Director or his/her designee, as verified by the following signature, has authorized release of the data.

If you have any questions or require further explanation of data results, please contact the undersigned.

  
Sucha Parmar, Ph.D.  
Technical Director

This report consists of 48 pages.



### SAMPLE RECEIPT / LOG-IN REPORT

**Client Name:** Montrose Air Quality Services

**Project Name:** Lancaster Flare

**AAC Project No.:** 230585

**Sampled By:** Client

**Received By:** G. Ruelas

**Turn Around Time:** Normal (10days)

**Lab Due Date:** 04/10/2023

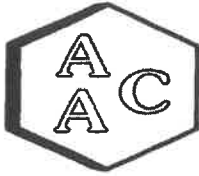
**Final Due Date:** 04/17/2023

<u>Sample Receipt Date Time</u>	<u>Clients ID</u>	<u>Sampling Date/Time</u>	<u>Sample #</u>	<u>Matrix</u>	<u>Analysis Requested</u>
04/03/2023 1200	WM Lancaster Flare In	03/31/2023	42748	Canister & Trap	SCAQMD 25.1
04/03/2023 1200	WM Lancaster Flare In	03/31/2023	42749	Canister & Trap	SCAQMD 25.1

**REMARKS:**

Client returned 1x 25.1 set.

Total Samples: 2



**CANISTER PRESSURE LOG**

Client: Montrose Air Quality Services

Project No.: 230585

Date: 04/03/2023

Canister #	Sample #	Initial Pressure mmHg	Final Pressure mmHg
282	42748	342.5	905.5
140	42749	334.5	908.0



230585

# CHAIN OF CUSTODY AND ANALYSIS REQUEST - Chain of Custody is a LEGAL DOCUMENT. Complete all relevant fields.

Client/Company Name <b>MONTROSE A&amp;S</b> Project Manager Name		Project Name <b>LANCASTER FLARE</b> Project Number <b>PWJ - 025314</b>		AAC Project No.: Send Report To (Name/Email/Address) <b>P. Sambano</b> <b>psambano@montrose-env.com</b>	
Turnaround Time <input type="checkbox"/> Rush 24 h <input type="checkbox"/> Same Day <input type="checkbox"/> Rush 48 h <input type="checkbox"/> 5 Days <input checked="" type="checkbox"/> Rush 72 h <input type="checkbox"/> Normal		Sampler Name <b>J. Sambano</b> Print: Signature:		Send Invoice To (Name/Email/Address)	
Client Sample Name <b>WM LANCASTER FLARE IN CAN 282</b> <b>" CAN 140</b> <b>TRAP 114</b>		Sampling Date <b>3/31/23</b> <b>3/31/23</b>	Sampling Time <b>10AM</b> <b>10AM</b>	Container Type/Qty <b>1 CAN / TRAP</b> <b>1 CAN / TRAP</b>	Analysis Requested <b>SCHEM 251</b>
Client Notes/Special Instructions:		EDD? <input type="checkbox"/> Yes <input type="checkbox"/> No	LAB USE ONLY Notes:		
Relinquished By Print: <b>Rail Malaga</b> Signature:		Date <b>3/31/23</b>	Received By Print: Signature:	Date <b>3/31/23</b>	Time <b>12:00</b>
Relinquished By Print: Signature:		Date Time	Received By Print: Signature:	Date Time	Time
PO Number		LAB USE ONLY Lab ID		Sample Received via: <input type="checkbox"/> FedEx <input type="checkbox"/> UPS <input type="checkbox"/> Courier <input type="checkbox"/> Other	
Temperature °C Thermometer ID Initials		Returned Eqmt Total cans: Unused cans: Flow Controllers:		PO Number	

6x 25.1 507

# **Equipment Prep Sheets & Trap Burning Logs**



Equipment Preparation Data Sheet  
SCAQMD 25.1

Analyst: KM Date and Time: 03/16/2023 8:00

Client: Montrose Air Quality Services Project Name: Lancaster Flare

Thermometer ID: #5 Gauge ID: Ashcroft Box #: 000NA

SAMPLE 01	
Can #	282
Can Cleaning Date	3/16/2023
Initial Pressure (mmHg)	9.0
Flow #	NA
Flow Cleaning Date	03/16/2023
Trap #	164
Trap Cleaning Date	03/16/2023
Probes washed	Y
Probes Baked in Oven	Y
System Purged	Y
Leak Checked	Y
Gauge Checked	Y

SAMPLE 02	
Can #	140
Can Cleaning Date	3/16/2023
Initial Pressure (mmHg)	10.0
Flow #	NA
Flow Cleaning Date	03/16/2023
Trap #	114
Trap Cleaning Date	03/16/2023
Probes washed	Y
Probes Baked in Oven	Y
System Purged	Y
Leak Checked	Y
Gauge Checked	Y

Comments:  
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Comments:  
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**Atmospheric Analysis & Consulting, Inc.**

**Sample Receiving Data Sheet  
SCAQMD 25.1**

Analyst:     KM     Project #:     230585     Courier:                     

Sample Receiving Date and Time:                     04/03/2023 12:00    

Thermometer ID:     #5     Gauge ID:     Ashcroft     Box #:     000NA    

SAMPLE 01	
Sample ID	42748
Can #	282
Flow #	NA
Tank vol	6L
Initial Pressure (mmHg)	9.0
Return Pressure (mmHg)	342.5
Trap #	164
Received on dry ice	Y
Purge Start Time	10:25 AM
Purge End Time	10:28 AM
Purged Date	04/04/2023
Final Pressure (mmHg)	905.5
Dilution Factor	2.64

SAMPLE 02	
Sample ID	42749
Can #	140
Flow #	NA
Tank vol	6L
Initial Pressure (mmHg)	10.0
Return Pressure (mmHg)	334.5
Trap #	114
Received on dry ice	Y
Purge Start Time	9:43 AM
Purge End Time	9:46 AM
Purged Date	04/04/2023
Final Pressure (mmHg)	908.0
Dilution Factor	2.71

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SCAQMD 25.1  
Trap Burning Summary Sheet

Client : Montrose Air Quality Services  
Project Number : 230585

Analyst: KM

SAMPLE	1
Sample ID	42748
Trap #	164
ICV#	1231
ICV Volume (L)	6L
Analysis Date	04/04/2023
Cold Purge Start Time	10:25
Cold Purge End Time	10:28
Initial Pressure (mmHg)	0.0
Trap Burning Start Time	10:28
Trap Burning End Time	10:58
Final Pressure (mmHg)	885.0
Analysis Pressure (mmHg)	885.0
Total Vol. Collected in ICV	6.99
Dilution Factor	1.00
Was Decoke Used?	N

SAMPLE	2
Sample ID	42749
Trap #	114
ICV#	22083
ICV Volume (L)	6L
Analysis Date	04/04/2023
Cold Purge Start Time	9:43
Cold Purge End Time	9:46
Initial Pressure (mmHg)	6.5
Trap Burning Start Time	9:46
Trap Burning End Time	10:16
Final Pressure (mmHg)	836.5
Analysis Pressure (mmHg)	836.5
Total Vol. Collected in ICV	6.55
Dilution Factor	1.00
Was Decoke Used?	N

Comments:  
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# Results



# Atmospheric Analysis & Consulting, Inc.

## LABORATORY ANALYSIS REPORT

CLIENT : Montrose Air Quality Services  
 PROJECT NO. : 230585  
 MATRIX : Air  
 UNITS : ppmC

SAMPLING DATE : 03/31/2023  
 RECEIVING DATE : 04/03/2023  
 ANALYSIS DATE : 04/06-13/2023  
 REPORT DATE : 04/14/2023

### ANALYSIS METHOD: SCAQMD 25.1

Client ID	Lab ID #	Tank Vol Liters (V <sub>Tank</sub> )	Initial Pressure mmHg (P <sub>i</sub> )	Return Pressure mmHg (P <sub>r</sub> )	Final Pressure mmHg (P <sub>f</sub> )	Sample Vol. (L) (V <sub>Sample</sub> )	Tank Dil Factor (DF <sub>Tank</sub> )	NMNEOC Tank (C <sub>Tank</sub> )	NMNEOC Trap (C <sub>Trap</sub> )	TNMNEOC (Total VOC ppmC)
WM Lancaster Flare In	230585-42748	6.00	9.0	342.5	905.5	2.63	2.64	41.6	231.8	273.4
WM Lancaster Flare In	230585-42749	6.00	10.0	334.5	908.0	2.56	2.71	39.5	404.5	444.0

NMNEOC Tank PQL = 0.253 ppm x DF x 3

### EPA 3C

Reporting Limit: 0.1 %		Analyte			
Client ID	Lab ID #	O <sub>2</sub>	CO	CH <sub>4</sub>	CO <sub>2</sub>
WM Lancaster	230585-42748	1.4 %	<0.3 %	35.9 %	33.7 %
WM Lancaster	230585-42749	1.7 %	<0.3 %	35.4 %	33.3 %

Fixed Gases have been normalized to 100% on a dry basis



## Method 25.1 Calculation Summary Sheet

### TCA Calculations (Trap):

$$C_{\text{Trap}} = \frac{(C_{\text{CO}_2} \times DF_{\text{ICV}} \times V_{\text{ICV}})}{(V_{\text{Sample}})}$$

#### Where:

$C_{\text{Trap}}$  = Gaseous concentration of TNMOC collected in the trap, ppmv (as Carbon)

$C_{\text{CO}_2}$  = CO<sub>2</sub> concentration of collection vessel, ppmv (from Raw Data printout)

$DF_{\text{ICV}}$  = Dilution Factor resulting from the pressurization of the intermediate collection vessel for analysis ( $P_p/P_f$ ) (from Trap Burning Data Sheet)

$V_{\text{ICV}}$  = Volume collected in the intermediate collection vessel during the trap burning process in Liters ( $V_c \times (P_r - P_i) / P_a$ ) (from Trap Burning Data Sheet)

$V_{\text{Sample}}$  = Volume sampled in collection tank in Liters ( $V_{\text{Tank}} \times (P_r - P_i) / P_a$ ) (from Sample Receiving Data Sheet)

#### Where:

$V_c$  = Volume of the Intermediate collection vessel in liters (from Trap Burning Data Sheet)

$P_p$  = final pressure of the ICV after pressurization for analysis (from Trap Burning Data Sheet)

$P_f$  = final pressure of the ICV after the trap burning process (from Trap Burning Data Sheet)

$P_i$  = initial pressure of the ICV before the trap burning process (from Trap Burning Data Sheet)

$P_a$  = atmospheric pressure (760 mmHg)

$V_{\text{Tank}}$  = Volume of the sampling tank in liters (from Sample Receiving Data Sheet)

$P_r$  = Return canister pressure of the sampling tank (from Sample Receiving Data Sheet)

$P_i$  = Initial canister pressure of the sampling tank (from Sample Receiving Data Sheet)

$P_a$  = atmospheric pressure (760 mmHg)

### TCA Calculations (Tank):

$$C_{\text{Tank}} = C_{\text{TCA}} \times DF_{\text{Tank}} \times 3.0$$

#### Where:

$C_{\text{Tank}}$  = Gaseous concentration of tank, ppmv (as Carbon)

$C_{\text{TCA}}$  = Average of analysis results from chromatograms, ppmv (as Propane)

$DF_{\text{Tank}}$  = Dilution factor resulting from tank pressurization upon receipt ( $P_f/P_i$ )

3.0 = Conversion of result (as Propane) to (as Carbon)

#### Where:

$P_f$  = Final canister pressure after pressurization for analysis (from Sample Receiving Data Sheet)

$P_r$  = Return canister pressure upon sample receipt (from Sample Receiving Data Sheet)

### Final Calculation (Tank and Trap):

$$\text{Total VOC (ppmC)} = (C_{\text{Trap}} + C_{\text{Tank}})$$

### Fixed Gases Calculations (Tank):

$$FG \text{ (i.e. O}_2\text{)} = C_{\text{fg}} \times DF_{\text{Tank}} / NF$$

#### Where:

$C_{\text{fg}}$  = Average of analysis results from chromatograms, %

$DF_{\text{Tank}}$  = Dilution factor resulting from tank pressurization upon receipt ( $P_f/P_r$ )

NF = Normalization Factor = sum of averages of all Fixed Gases x  $DF_{\text{Tank}} / 100\%$

# QA/QC Summary



# Atmospheric Analysis & Consulting, Inc.

## Quality Control/Quality Assurance Report

Date Analyzed : 04/13/2023  
 Analyst : RW/KM  
 Units : %

Instrument ID : TCD #1  
 Calb Date : 08/22/22  
 Reporting Limit : 0.1%

### I - Opening Continuing Calibration Verification - SCAQMD 25.1.25.3

AAC ID	Analyte	O <sub>2</sub>	N <sub>2</sub>	CH <sub>4</sub>	CO	CO <sub>2</sub>
CCV	Spike Conc	10.2	20.2	10.0	10.0	10.0
	Result	10.2	22.8	10.2	9.2	9.9
	% Rec *	100.6	112.8	102.0	92.4	99.2

### II - Method Blank - SCAQMD 25.1.25.3

AAC ID	Analyte	O <sub>2</sub>	N <sub>2</sub>	CH <sub>4</sub>	CO	CO <sub>2</sub>
MB	Concentration	ND	ND	ND	ND	ND

### III - Laboratory Control Spike & Duplicate - SCAQMD 25.1.25.3

AAC ID	Analyte	O <sub>2</sub>	N <sub>2</sub>	CH <sub>4</sub>	CO	CO <sub>2</sub>
Lab Control Standards	Sample Conc	0.0	0.0	0.0	0.0	0.0
	Spike Conc	10.2	20.2	10.0	10.0	10.0
	LCS Result	10.4	22.6	10.3	9.2	10.1
	LCSD Result	10.6	22.8	10.3	9.2	10.0
	LCS % Rec *	102.2	111.5	102.4	92.6	100.5
	LCSD % Rec *	104.5	112.7	103.2	92.5	100.0
	% RPD ***	2.3	1.0	0.7	0.1	0.5

### IV - Sample & Sample Duplicate - SCAQMD 25.1.25.3

AAC ID	Analyte	O <sub>2</sub>	N <sub>2</sub>	CH <sub>4</sub>	CO	CO <sub>2</sub>
230585-42748	Sample	0.6	11.9	15.0	0.0	14.0
	Sample Dup	0.6	11.9	14.9	0.0	14.0
	Mean	0.6	11.9	14.9	0.0	14.0
	% RPD ***	2.6	0.4	0.7	0.0	0.0

### V - Matrix Spike & Duplicate - SCAQMD 25.1.25.3

AAC ID	Analyte	N <sub>2</sub>	CH <sub>4</sub>	CO	CO <sub>2</sub>
230585-42748	Sample Conc	5.9	7.5	0.0	7.0
	Spike Conc	10.0	10.0	10.0	10.0
	MS Result	16.7	17.9	9.5	17.2
	MSD Result	16.8	17.8	9.6	17.1
	MS % Rec **	107.0	104.2	95.5	102.0
	MSD % Rec **	108.0	103.4	95.9	101.1
	% RPD ***	0.9	0.8	0.3	0.9

### VI - Closing Continuing Calibration Verification - SCAQMD 25.1.25.3

AAC ID	Analyte	O <sub>2</sub>	N <sub>2</sub>	CH <sub>4</sub>	CO	CO <sub>2</sub>
CCV	Spike Conc	10.2	20.2	10.0	10.0	10.0
	Result	9.7	21.6	10.6	9.5	10.3
	% Rec *	95.3	106.8	105.7	95.5	103.2

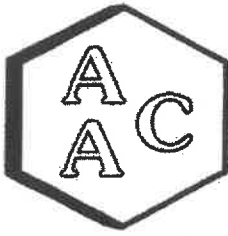
\* Must be 85-115%

\*\* Must be 75-125%

\*\*\* Must be < 25%

ND = Not Detected

<RL = less than Reporting Limit



# Atmospheric Analysis & Consulting, Inc.

## SCAQMD 25.1 Quality Control/Quality Assurance Report

Date Analyzed : 04/06/2023  
 Analyst : RW/KM

Instrument ID : FID#4  
 Calb Date : 10/24/2021  
 Units : ppmV

### I - Opening Calibration Verification Standard

AAC ID	Analyte	Concentration	Result	% Recovery *
O-CV	CO <sub>2</sub>	50.55	50.04	99.0
O-CV dp	CO <sub>2</sub>	50.55	49.99	98.9
O-CV tp	CO <sub>2</sub>	50.55	51.70	102.3

### II - Method Blank

AAC ID	Analyte	Result
MB	CO <sub>2</sub>	ND

### III - Matrix Spike & Duplicate

AAC ID	Analyte	Sample Concentration	Spike Added	MS Result	MSD Result	MS % Rec ***	MSD % Rec ***	% RPD****
230505-42389 B	CO <sub>2</sub>	15.2	50.6	67.41	66.77	103.2	102.0	1.2

### IV - 1 ppm Backflush Standards

AAC ID	Analyte	Result	% Recovery **
Backflush 1	CO <sub>2</sub>	1.052	104.1
Backflush 2	CO <sub>2</sub>	1.076	106.4
Backflush 3	CO <sub>2</sub>	1.092	108.0

### V - Bracketed Closing Calibration Verification Standards

AAC ID	Analyte	Concentration	Result	% Recovery *
C-CV Low	CO <sub>2</sub>	10.1	9.10	90.1
C-CV High	CO <sub>2</sub>	50.3	50.61	100.6

\* Must be 90-110%

\*\* Must be 80-120%

\*\*\* Must be 75-125%

\*\*\*\* Must be < 25%



# Atmospheric Analysis & Consulting, Inc.

## SCAQMD 25.1 Quality Control/Quality Assurance Report

Date Analyzed : 04/06/2023

Analyst : RW/KM

Instrument ID : FID #4

Calb Date : 10/24/2021

Units : ppmV

Sample Duplicate analysis RPD's

AAC ID	Result	Result Dup	%RPD
230505-42389 B	29.9	31.0	3.8
230505-42390 B	75.5	76.0	0.6
230505-42391 B	58.0	60.0	3.3
230505-42392 B	105.1	105.5	0.5
230585-42748 B	87.3	87.4	0.2
230585-42749 B	158.7	157.5	0.8

Conc. (ppmv)	%RPD
1-3	≤20
4-6	≤15
7-12	≤12
13-30	≤10
31-50	≤5





# Atmospheric Analysis & Consulting, Inc.

## SCAQMD 25.1,3 Quality Control/Quality Assurance Report

Date Analyzed : 04/10/2023  
 Analyst : RW/KM

Instrument ID : FID#4  
 Calb Date : 10/24/2022  
 Units : ppmV

### I - Opening Calibration Verification Standard

AAC ID	Analyte	Concentration	Result	% Recovery *
O-CV	NMNEOC	50.95	48.90	96.0
O-CV dp	NMNEOC	50.95	47.79	93.8
O-CV tp	NMNEOC	50.95	49.60	97.3

### II - Method Blank

AAC ID	Analyte	Result
MB	NMNEOC	ND

### III - Matrix Spike & Duplicate

AAC ID	Analyte	Sample Concentration	Spike Added	MS Result	MSD Result	MS % Rec ***	MSD % Rec ***	% RPD****
230585-42748	NMNEOC	2.63	51.0	55.59	52.61	104.0	98.1	5.8

### IV - 1 ppm Backflush Standards

AAC ID	Analyte	Result	% Recovery **
Backflush 1	NMNEOC	1.010	99.9
Backflush 2	NMNEOC	1.058	104.6
Backflush 3	NMNEOC	1.062	105.0

### V - Bracketed Closing Calibration Verification Standards

AAC ID	Analyte	Concentration	Result	% Recovery *
C-CV Low	NMNEOC	10.1	9.94	98.3
C-CV High	NMNEOC	51.0	48.96	96.1

\* Must be 90-110%  
 \*\* Must be 80-120%  
 \*\*\* Must be 75-125%  
 \*\*\*\* Must be < 25%



# Atmospheric Analysis & Consulting, Inc.

## *SCAQMD 25.1,3 Quality Control/Quality Assurance Report*

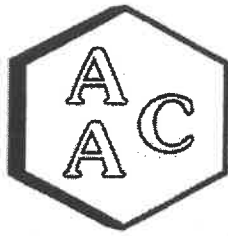
Date Analyzed : 04/10/2023  
 Analyst: : RW/KM

Instrument ID : FID #4  
 Calb Date : 10/24/2022  
 Units : ppmV

### Sample Duplicate analysis RPD's

AAC ID	Result	Result Dup	%RPD
230585-42748	5.2	5.3	1.0
230585-42749	4.9	4.8	1.5
230584-42742	1.7	1.9	12.2
230584-42743	2.0	2.0	1.6

Quality Assurance Criteria	
Conc. (ppmv)	%RPD
0.253-3	≤20
4-6	≤15
7-12	≤12
13-30	≤10
31-50	≤5



## Atmospheric Analysis & Consulting, Inc.

### Quality Control/Quality Assurance Report Trap Combustion by SCAQMD EPA 25.1

Date Analyzed : 4/4/2023  
Analyst : KM/ZD  
PQL : 10 ppm

Instrument ID : System 25.1  
Units : ppm

#### Method Blank

Analyte	Qualifying Result	Result
CO2	<10	4.3

#### Recovery Check Standard

Analyte	Result	%Recovery*
CO2	102.168	N/A

#### Combustion Efficiency Standard

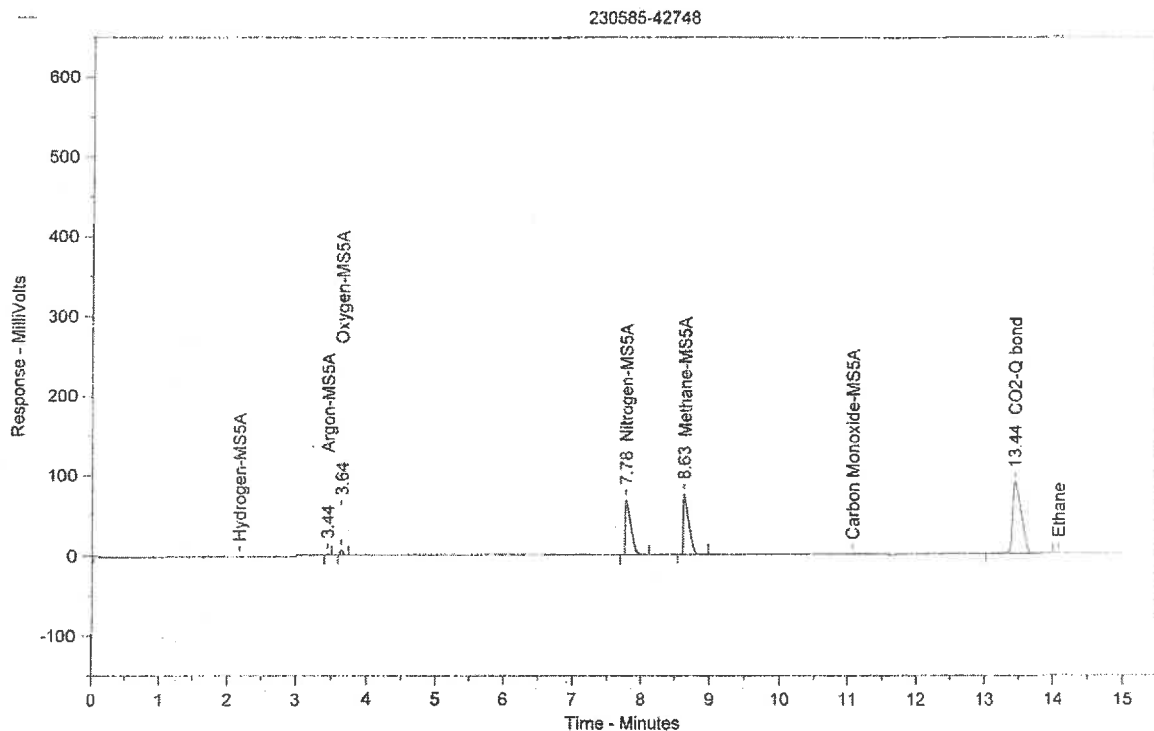
Analyte	Result	%Recovery*
CH4 (as CO2)	100.953	99

*MB must be < PQL*

*\* Must be 95-105%*

# Raw Data

Chrom Perfect Chromatogram Report



Sample Name = 230585-42748

Instrument = Instrument 1

Raw File Name = C:\Chromperfect 1\CPDATA\1\2022\041323.0006.raw Date Taken (end) = 4/13/2023 8:23:59 AM

Method File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2021\D1945-D1908\10.METHOD Factor = 1

Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2022\FG-072522 Standard.CAL

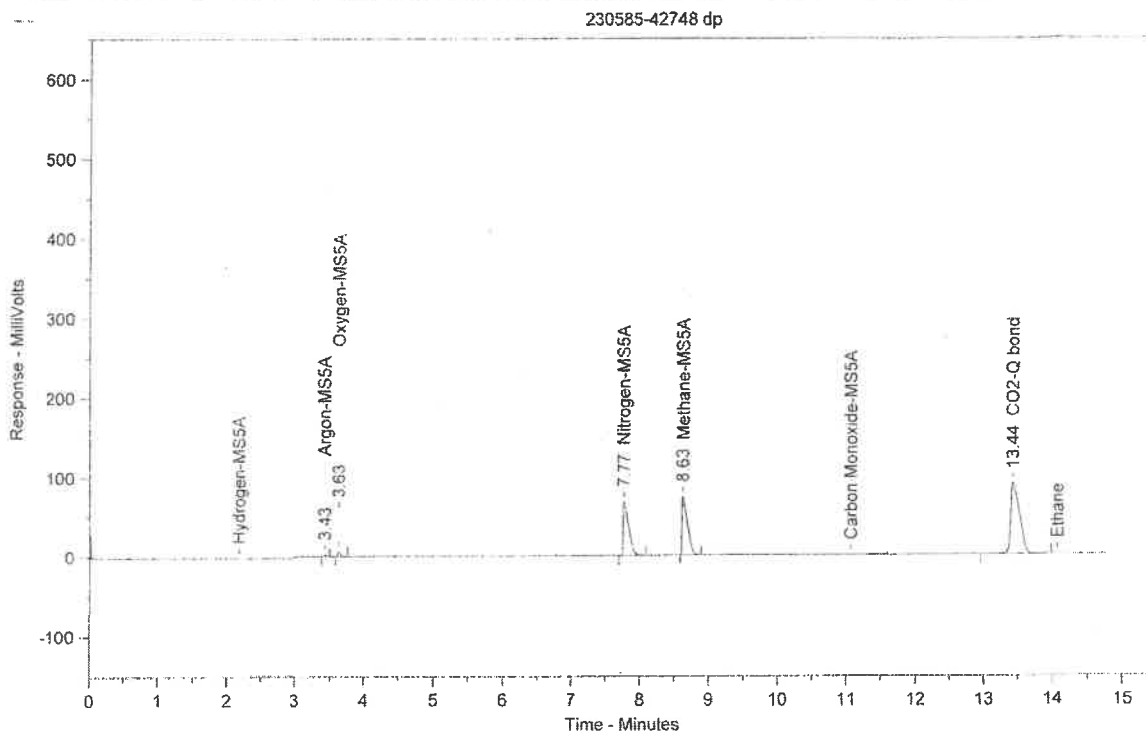
Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.44	Argon-MS5A	0.130	0.312	3519	0.224	BB	0.03
2	3.64	Oxygen-MS5A	0.591	1.420	14993	0.955	BB	0.04
3	7.78	Nitrogen-MS5A	11.908	28.640	370289	23.576	BB	0.09
4	8.63	Methane-MS5A	14.953	35.963	395237	25.165	BB	0.09
5	13.44	CO2-Q bond	13.997	33.665	786567	50.081	BB	0.14

Total Area = 1570605

Total Height = 239602.2

Total Amount = 41.57872

*hw*  
4-13-23



Sample Name = 230585-42748 dp

Instrument = Instrument 1

Raw File Name = C:\Chromperfect 1\CPDATA\1\2022\041323.0007.raw Date Taken (end) = 4/13/2023 8:44:32 AM  
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 Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2022\FG-072522 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.43	Argon-MS5A	0.131	0.316	3557	0.227	BB	0.03
2	3.63	Oxygen-MS5A	0.576	1.391	14624	0.934	BB	0.03
3	7.77	Nitrogen-MS5A	11.858	28.634	368720	23.548	BB	0.09
4	8.63	Methane-MS5A	14.852	35.865	392573	25.071	BB	0.09
5	13.44	CO2-Q bond	13.994	33.793	786375	50.220	BB	0.14

Total Area = 1565849

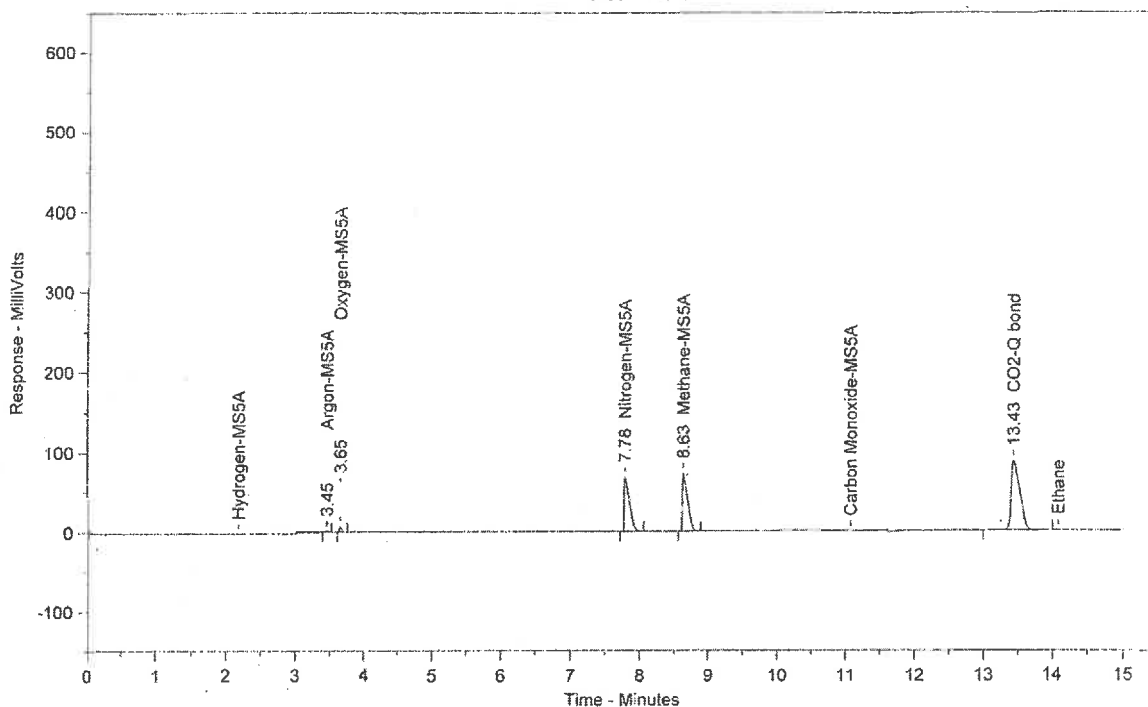
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Total Amount = 41.4109

*pw*  
4-13-23

Chrom Perfect Chromatogram Report

230585-42749



Sample Name = 230585-42749

Instrument = Instrument 1

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Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2022\FG-072522 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.45	Argon-MS5A	0.133	0.330	3615	0.238	BB	0.03
2	3.65	Oxygen-MS5A	0.662	1.641	16801	1.104	BB	0.04
3	7.78	Nitrogen-MS5A	11.791	29.234	366656	24.100	BB	0.09
4	8.63	Methane-MS5A	14.277	35.397	377362	24.804	BB	0.08
5	13.43	CO2-Q bond	13.470	33.398	756950	49.754	BB	0.14

Total Area = 1521384

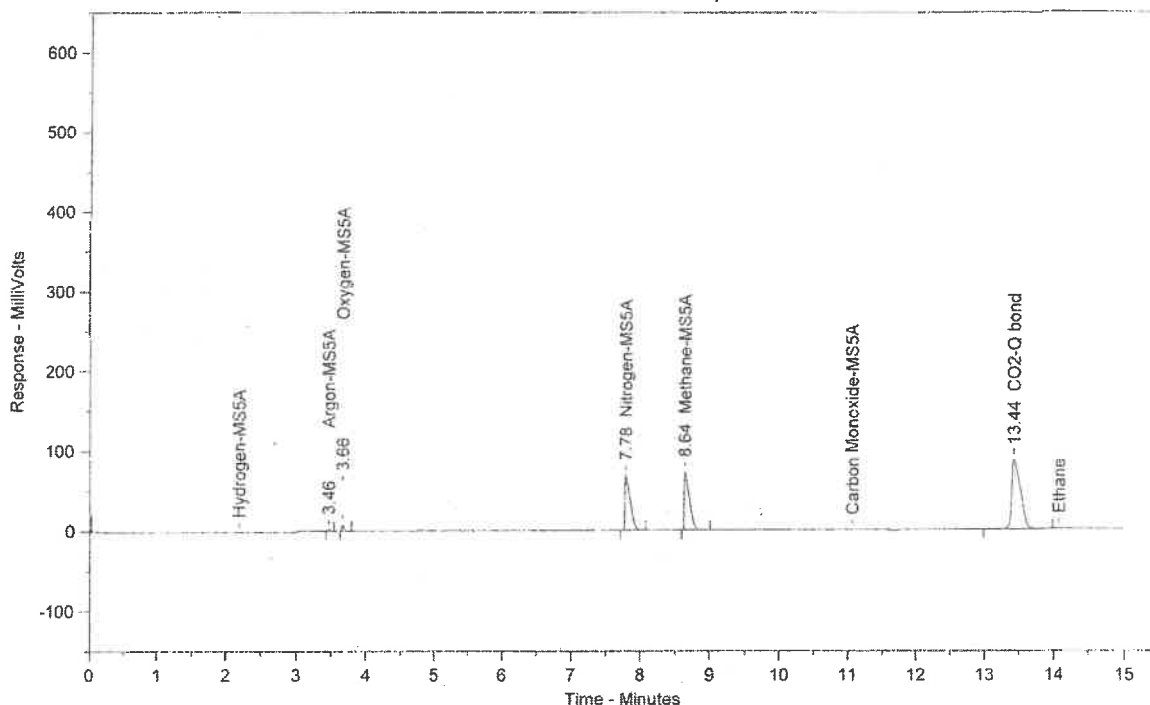
Total Height = 236176

Total Amount = 40.3333

*fw*  
4-13-23

Chrom Perfect Chromatogram Report

230585-42749 dp



Sample Name = 230585-42749 dp

Instrument = Instrument 1

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 Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #01\2022\FG-072522 Standard.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	3.46	Argon-MS5A	0.131	0.328	3565	0.236	BB	0.03
2	3.66	Oxygen-MS5A	0.669	1.667	16977	1.123	BB	0.04
3	7.78	Nitrogen-MS5A	11.757	29.311	365582	24.181	BB	0.09
4	8.64	Methane-MS5A	14.200	35.403	375346	24.827	BB	0.08
5	13.44	CO2-Q bond	13.353	33.291	750365	49.633	BB	0.14

Total Area = 1511835

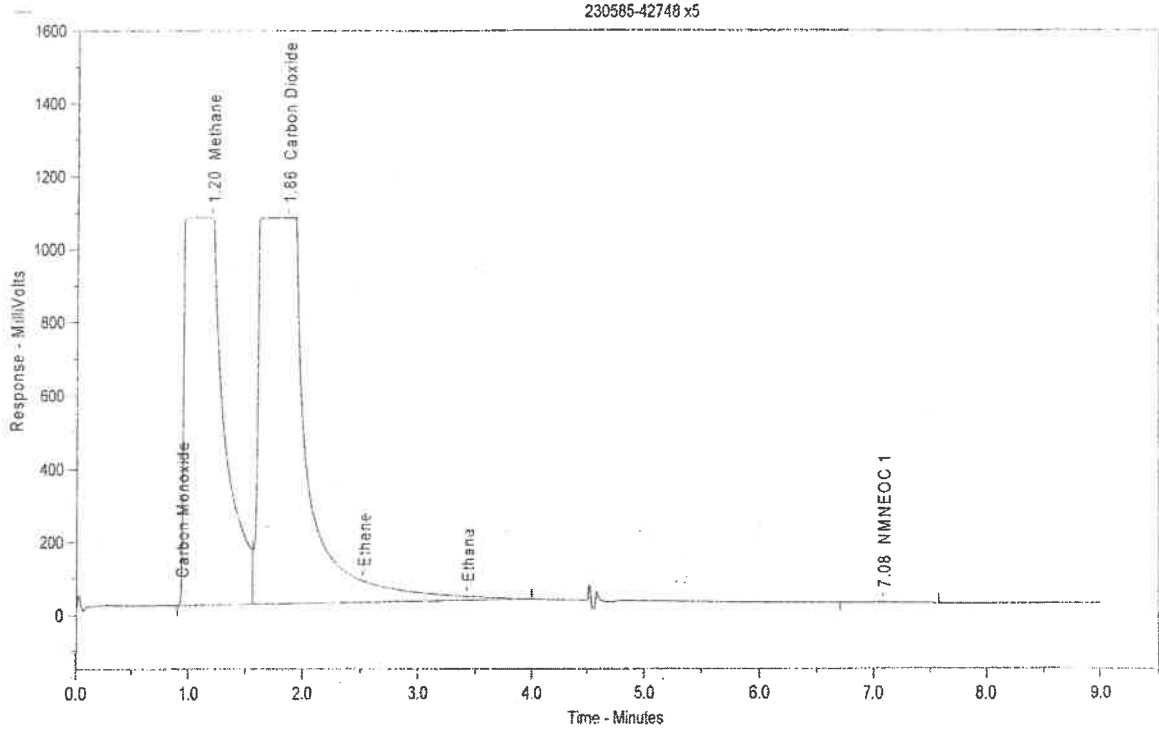
Total Height = 236252.1

Total Amount = 40.1104

*fw*  
4-13-23



Chrom Perfect Chromatogram Report



Sample Name = 230585-42748 x5

Instrument = Instrument 4

Raw File Name = C:\Chromperfect 1\CPDATA\4\2022\04\10\23.0008.raw Date Taken (end) = 4/10/2023 9:41:01 AM  
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 Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #04\2022\102422-25.1,3.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
<del>1</del>	<del>1.20</del>	<del>Methane</del>	<del>8451.530</del>	<del>42.004</del>	<del>25037400</del>	<del>44.790</del>	<del>BV</del>	<del>0.35</del>
<del>2</del>	<del>1.86</del>	<del>Carbon Dioxide</del>	<del>11340.363</del>	<del>57.203</del>	<del>30893662</del>	<del>55.167</del>	<del>VB</del>	<del>0.39</del>
3	7.08	NMNEOC 1	5.225	0.026	20554	0.037	BB	0.42

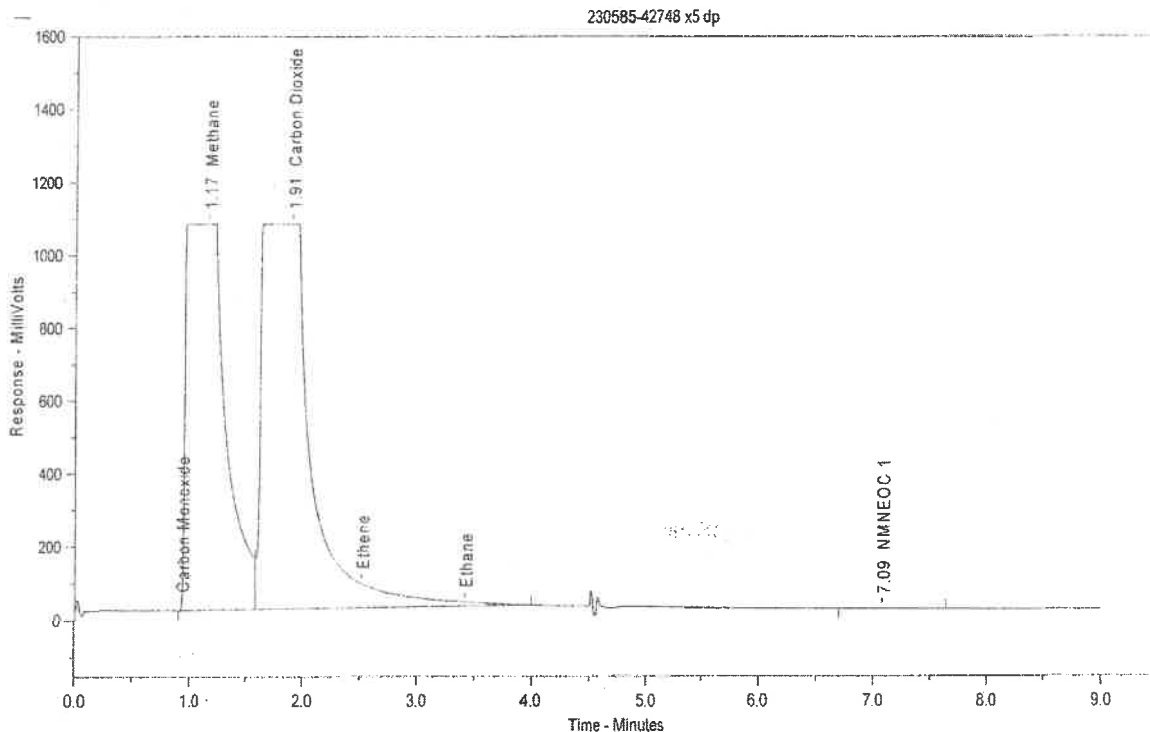
Total Area = 5.589182E+07

Total Height = 2117203

Total Amount = 19797.14

*fw*  
4-10-23

Chrom Perfect Chromatogram Report



Sample Name = 230585-42748 x5 dp

Instrument = Instrument 4

Raw File Name = C:\Chromperfect 1\CPDATA\4\2022\04\1023.0009.raw Date Taken (end) = 4/10/2023 9:57:19 AM  
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Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
<del>1</del>	<del>1.17</del>	<del>Methane</del>	<del>8610.264</del>	<del>42.936</del>	<del>26631342</del>	<del>44.441</del>	<del>BV</del>	<del>0.35</del>
<del>2</del>	<del>1.91</del>	<del>Carbon Dioxide</del>	<del>11731.651</del>	<del>57.635</del>	<del>31897696</del>	<del>55.523</del>	<del>VB</del>	<del>0.41</del>
3	7.09	NMNEOC 1	5.277	0.026	20757	0.036	BB	0.46

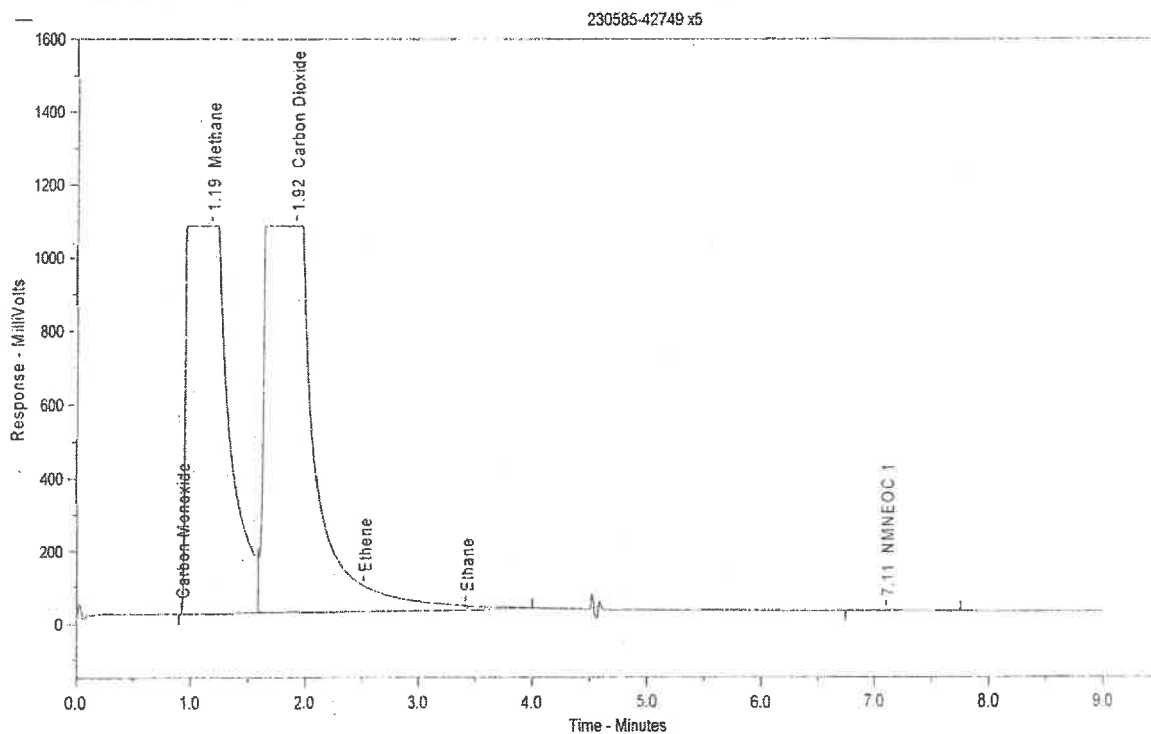
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Total Height = 2115390

Total Amount = 20355.19

*fw*  
4-10-23

Chrom Perfect Chromatogram Report



Sample Name = 230585-42749 x5

Instrument = Instrument 4

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Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
<del>1</del>	<del>1.10</del>	<del>Methane</del>	<del>8991.544</del>	<del>42.446</del>	<del>26637174</del>	<del>44.350</del>	<del>BV</del>	<del>0.37</del>
<del>2</del>	<del>1.92</del>	<del>Carbon Dioxide</del>	<del>12486.884</del>	<del>57.504</del>	<del>33135448</del>	<del>55.410</del>	<del>VB</del>	<del>0.42</del>
3	7.11	NMNEOC 1	4.890	0.023	19236	0.032	BB	0.53

Total Area = 5.979186E+07

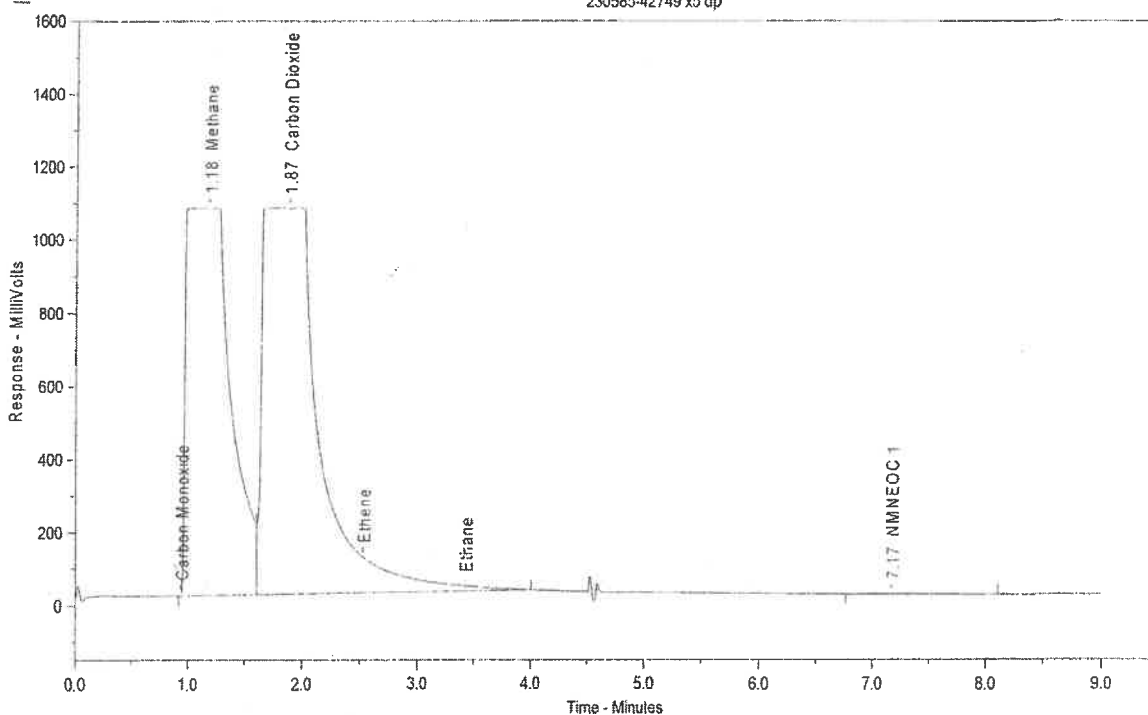
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Total Amount = 21183.32

*fw*  
4-10-23

Chrom Perfect Chromatogram Report

230585-42749 x5 dp



Sample Name = 230585-42749 x5 dp

Instrument = Instrument 4

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Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #04\2022\102422-25.1,3.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
<del>1</del>	<del>1.18</del>	<del>Methane</del>	<del>9776.887</del>	<del>42.383</del>	<del>28963730</del>	<del>44.486</del>	<del>BV</del>	<del>0.41</del>
<del>2</del>	<del>1.87</del>	<del>Carbon Dioxide</del>	<del>15280.284</del>	<del>57.596</del>	<del>36124656</del>	<del>55.485</del>	<del>VB</del>	<del>0.46</del>
3	7.17	NMNEOC 1	4.819	0.021	18957	0.029	BB	0.73

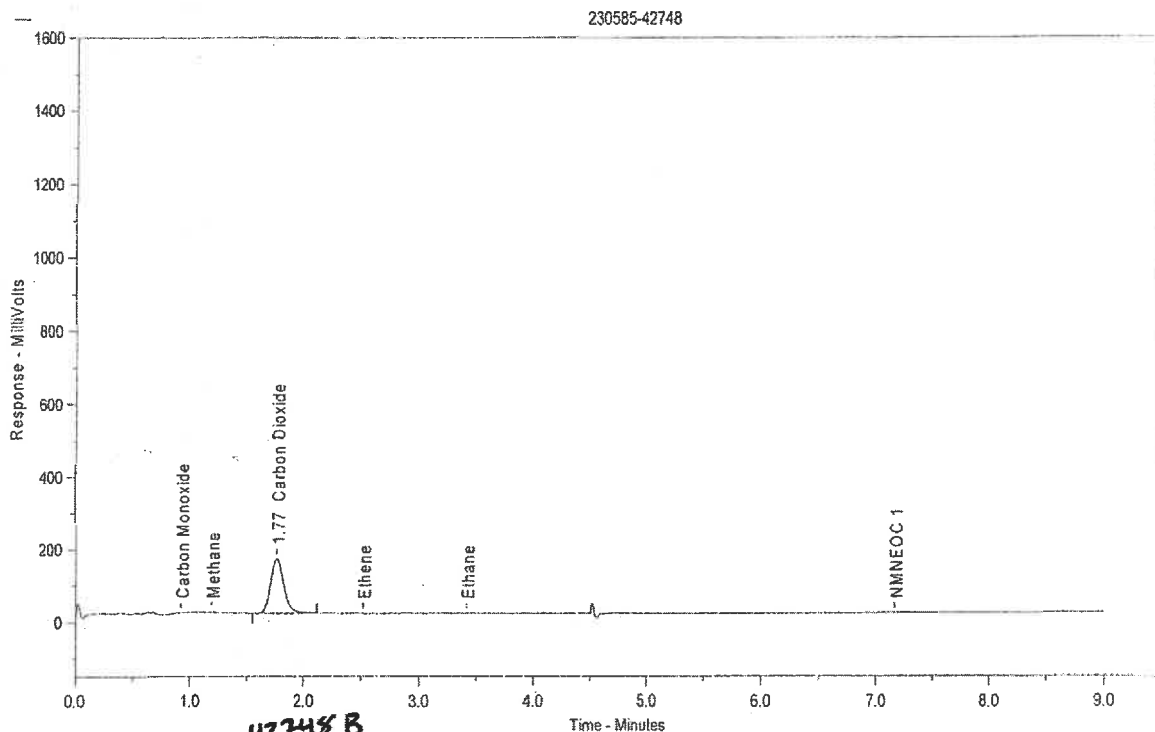
Total Area = 6.510734E+07

Total Height = 2116258

Total Amount = 23067.99

*fw*  
*4-10-23*

Chrom Perfect Chromatogram Report



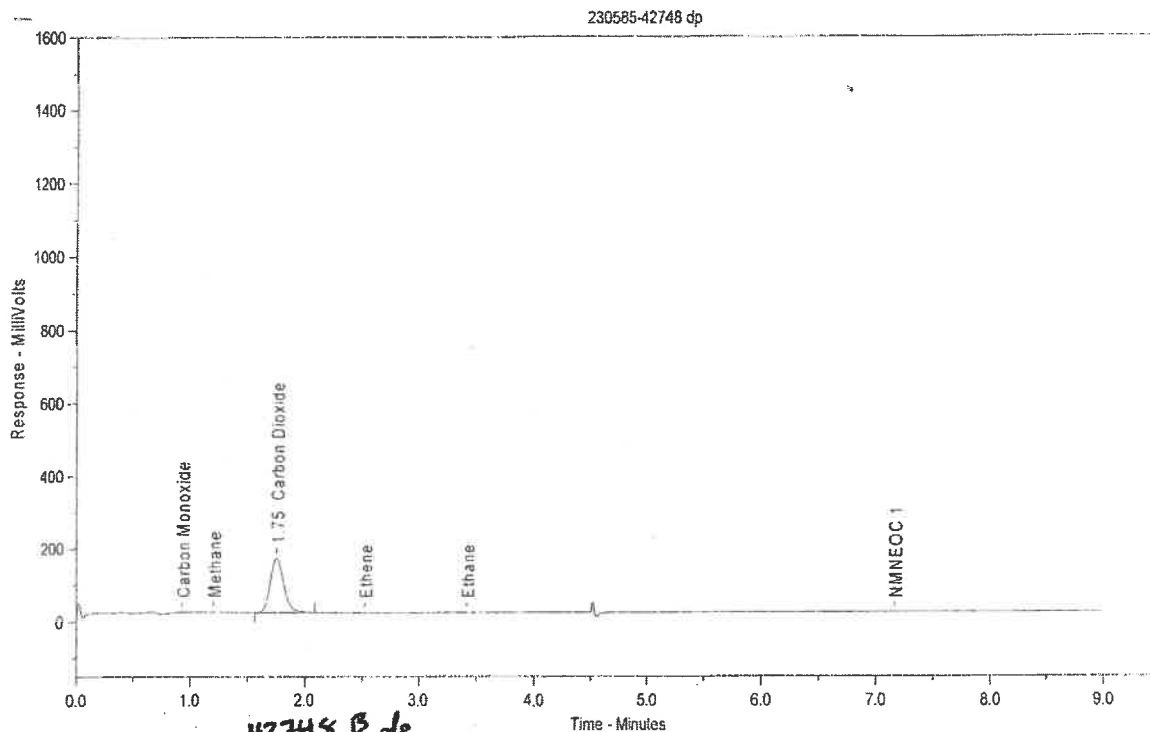
Sample Name = ~~230585-42748~~ **42748 B**  
**RW 4.14.23**  
 Instrument = Instrument 4

Raw File Name = C:\Chromperfect 1\CPDATA\4\2022\1040623.0021.raw Date Taken (end) = 4/6/2023 1:42:08 PM  
 Method File Name = C:\Chromperfect 1\Cpmethods\Inst #04\2022\102422 25.DOCUMENT.METHOD Factor = 1  
 Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #04\2022\102422-25.1,3.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	1.77	Carbon Dioxide	87.278	100.000	1186514	100.000	BB	0.12
Total Area = 1186514			Total Height = 149713		Total Amount = 87.27757			

*RW*  
*4-6-23*

Chrom Perfect Chromatogram Report



*42748 B dp*  
*fw 4.14.23*

Sample Name = 230585-42748 dp

Instrument = Instrument 4

Raw File Name = C:\Chromperfect 1\CPDATA\4\2022\040623.0022.raw Date Taken (end) = 4/6/2023 1:54:19 PM  
 Method File Name = C:\Chromperfect 1\Cpmethods\Inst #04\2022\102422 25.DD.CAL Factor = 1  
 Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #04\2022\102422-25.1,3.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	1.75	Carbon Dioxide	87.410	100.000	1188315	100.000	BB	0.12

Total Area = 1188315

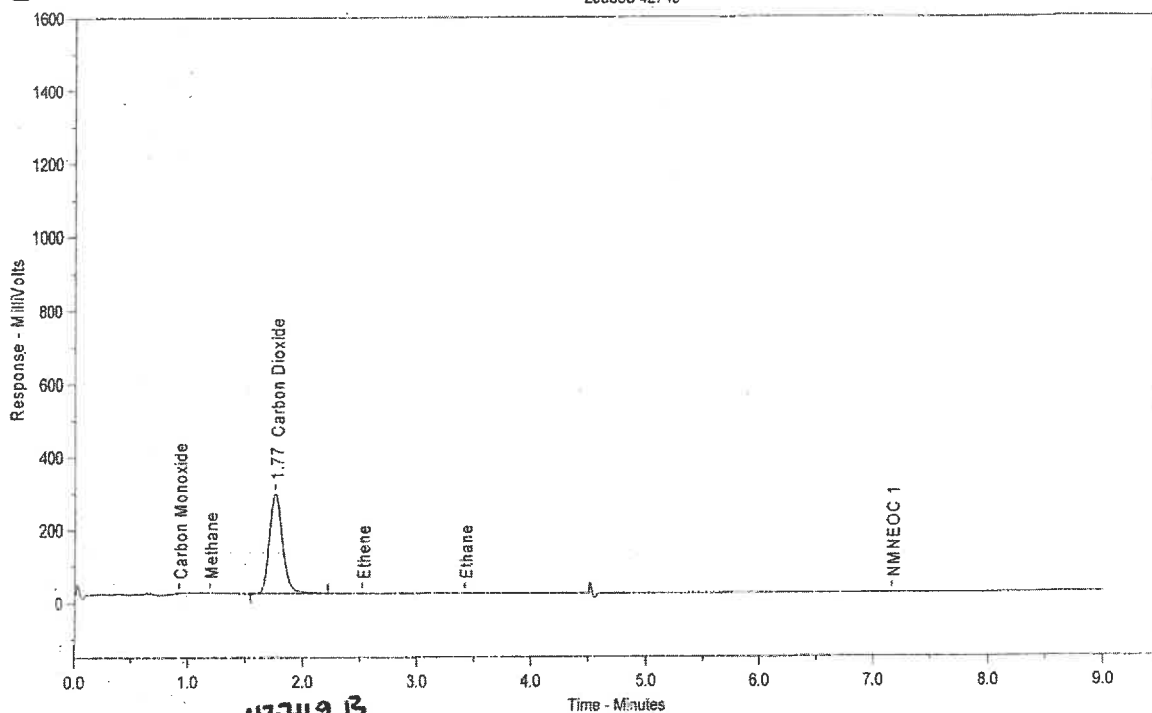
Total Height = 149634.1

Total Amount = 87.41003

*fw*  
*4-6-23*

Chrom Perfect Chromatogram Report

230585-42749



Sample Name = 230585-~~42749~~ **42749 B**  
*RW 4-14-23*

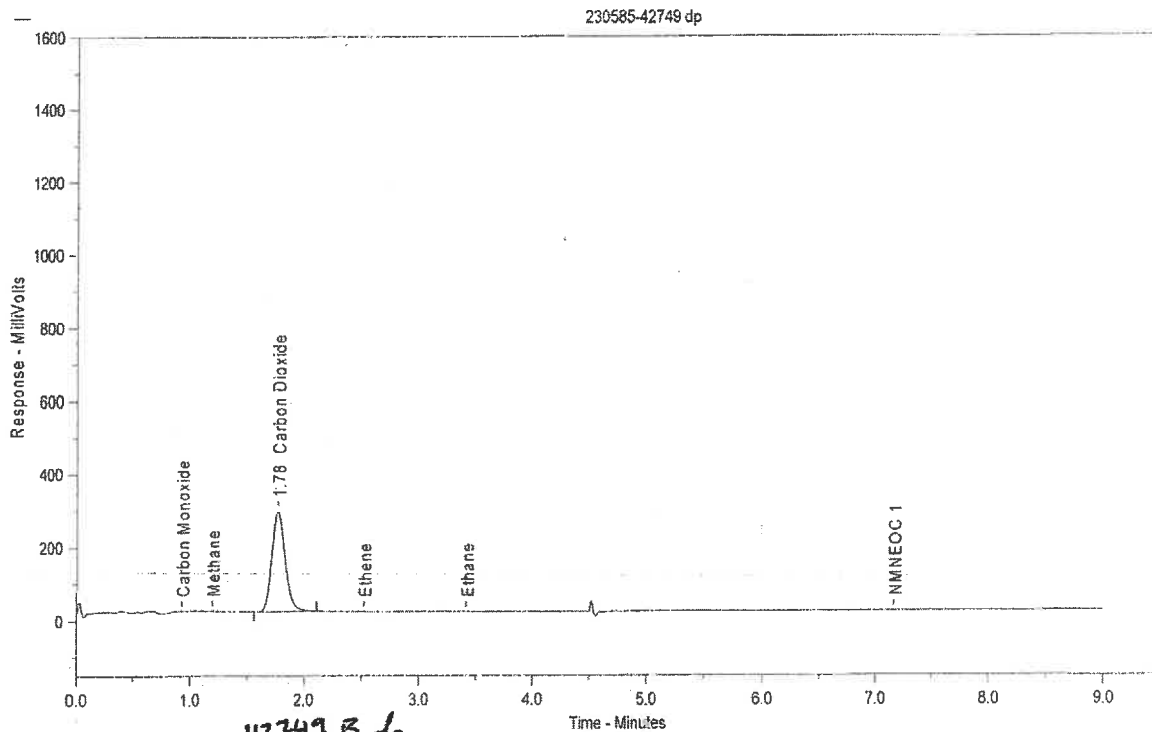
Instrument = Instrument 4

Raw File Name = C:\Chromperfect 1\CPDATA\4\2022\940623.0023.raw Date Taken (end) = 4/6/2023 2:07:10 PM  
 Method File Name = C:\Chromperfect 1\Cpmethods\Inst #04\2022\102422 25.DOC.METHOD Factor = 1  
 Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #04\2022\102422-25.1,3.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	1.77	Carbon Dioxide	158.739	100.000	2158015	100.000	BB	0.12
Total Area = 2158015			Total Height = 271925.1		Total Amount = 158.7392			

*RW*  
*4-6-23*

Chrom Perfect Chromatogram Report



Sample Name = 230585-42749 dp  
*42749 B dp*  
*fw 4.14.23*

Instrument = Instrument 4

Raw File Name = C:\Chromperfect 1\CPDATA\4\2022\040623.0024.raw Date Taken (end) = 4/6/2023 2:21:00 PM  
 Method File Name = C:\Chromperfect 1\Cpmethods\Inst #04\2022\102422 25.DOC.METHOD Factor = 1  
 Calibration File Name = C:\Chromperfect 1\Cpmethods\Inst #04\2022\102422-25.1,3.CAL

Peak #	Ret. Time	Name	Amount	Amt %	Area	Area %	Type	Width
1	1.78	Carbon Dioxide	157.514	100.000	2141352	100.000	BB	0.12

Total Area = 2141352

Total Height = 271432.7

Total Amount = 157.5135

*fw*  
*4-6-23*



# Calibration Summary

Chrom Perfect Calibration File

File Name: C:\Chromperfect \Cpmethods\Inst #01\2022\FG-072522 Standard.CAL  
Version: 364

Creator: CH  
Description: Fixed Gases

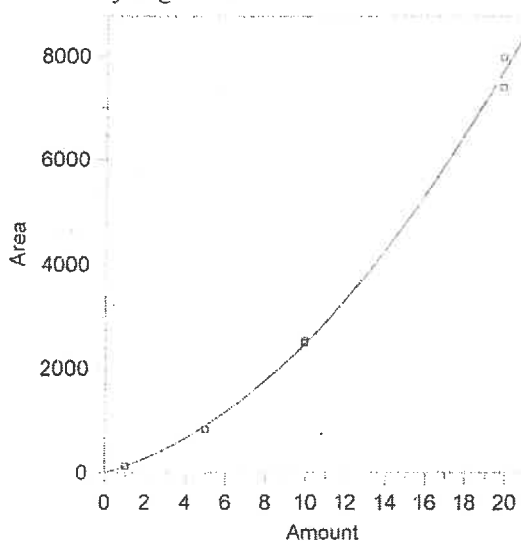
Internal standard calibration  
No injection volume correction  
No sample weight correction  
Area reject threshold: 50  
Reference peak area reject threshold: 50  
Amount units: percent  
No default component

Method of calculating data point averages: Equal weight for all updates  
No calibration update report

All levels are normal data points.



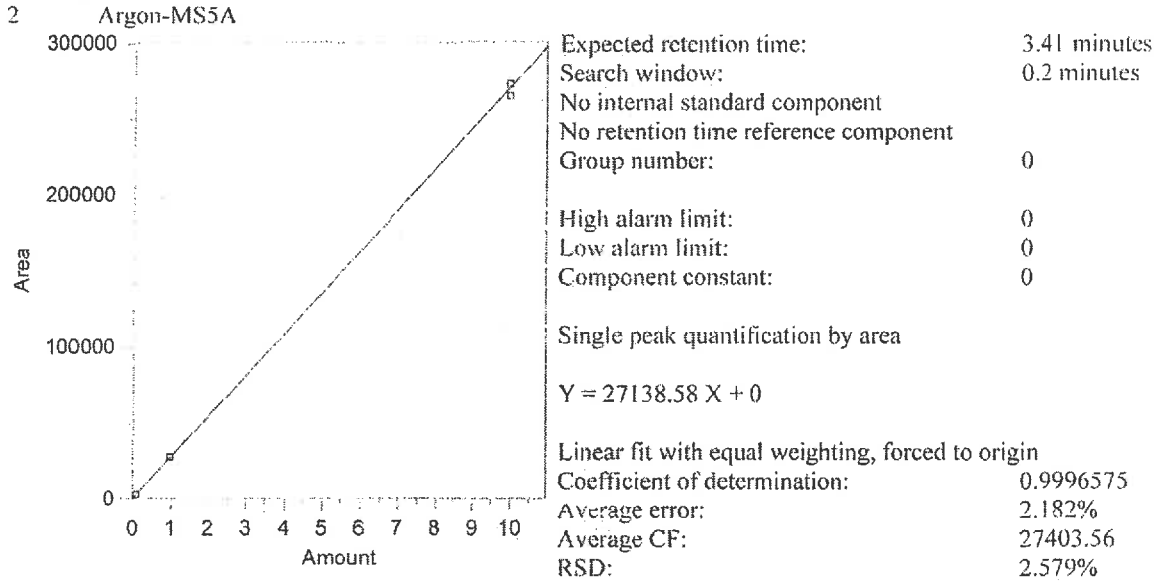
Hydrogen-MS5A



Expected retention time: 2.18 minutes  
 Search window: 0.2 minutes  
 No internal standard component  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0  
 Single peak quantification by area  
 $Y = 14.00787 X^2 + 110.6525 X + 0$   
 Quadratic fit with equal weighting, forced to origin  
 Coefficient of determination: 0.9974378  
 Average error: 4.341%  
 Average CF: 235.0719  
 RSD: 45.119%

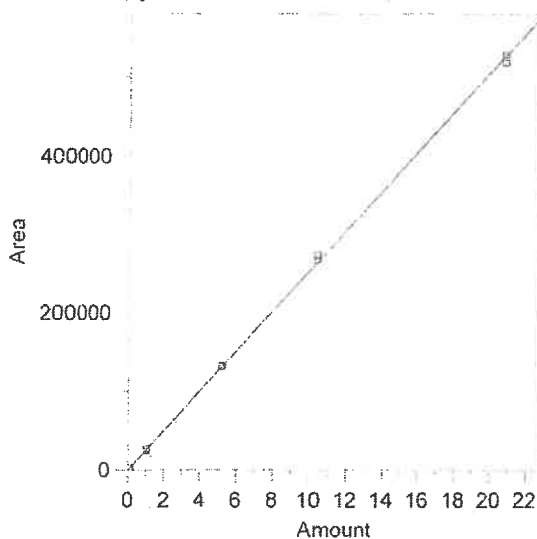
Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	(0)	0	--	--	Manual	12/13/2021 7:04:25 AM
2	(0)	0	--	--	Manual	12/13/2021 7:04:26 AM
3	0.991	(130)	131.1806	5.337	Manual	1/12/2023 9:17:40 AM
4	0.991	(129)	130.1715	4.527	Manual	1/12/2023 9:17:42 AM
5	4.955	(834)	168.5148	-6.524	Manual	7/25/2022 4:28:57 PM
6	4.955	(828)	167.1039	-7.196	Manual	8/3/2022 11:39:32 AM
7	9.91	(2531)	255.3986	2.376	Manual	7/25/2022 4:31:55 PM
8	9.91	(2503)	252.5732	1.244	Manual	7/25/2022 4:31:58 PM
9	19.82	(7399)	373.3098	-3.858	Manual	7/25/2022 4:32:03 PM
10	19.82	(7978)	402.5227	3.666	Manual	7/25/2022 4:32:08 PM

Chrom Perfect Calibration File



Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1	(2719)	27190	0.189	Manual	8/22/2022 12:43:52 PM
2	0.1	(2621)	26210	-3.422	Manual	8/22/2022 12:43:55 PM
3	0.1	(2843)	28430	4.759	Manual	8/22/2022 12:43:58 PM
4	0.997	(27264)	27346.04	0.764	Manual	8/22/2022 12:44:10 PM
5	0.997	(28059)	28143.43	3.703	Manual	8/22/2022 12:44:17 PM
6	0.997	(27833)	27916.75	2.867	Manual	8/22/2022 12:44:25 PM
7	9.97	(265147)	26594.48	-2.005	Manual	8/22/2022 12:44:43 PM
8	9.97	(272845)	27366.6	0.840	Manual	8/22/2022 12:44:50 PM
9	9.97	(273524)	27434.7	1.091	Manual	8/22/2022 12:44:58 PM
10	(0)	0	--	--	Manual	10/2/2020 11:16:32 AM

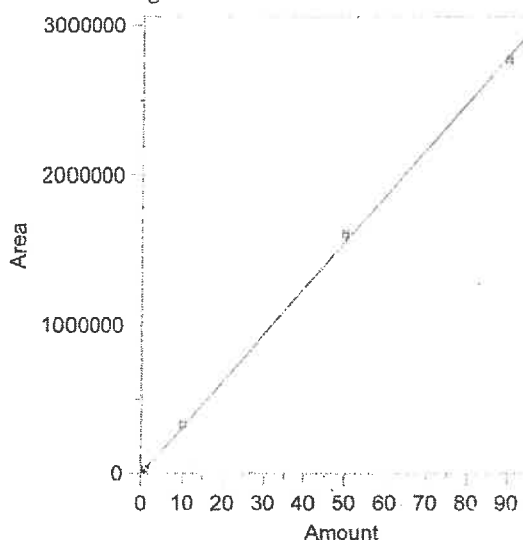
3 Oxygen-MS5A



Expected retention time: 3.56 minutes  
 Search window: 0.2 minutes  
 No internal standard component  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0  
 Single peak quantification by area  
 Y = 25387.19 X + 0  
 Linear fit with equal weighting, forced to origin  
 Coefficient of determination: 0.999484  
 Average error: 3.609%  
 Average CF: 25961.29  
 RSD: 4.643%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.104	(2846)	27365.38	7.792	Manual	7/25/2022 4:18:04 PM
2	0.104	(2945)	28317.31	11.542	Manual	8/3/2022 11:36:30 AM
3	1.041	(25087)	24098.94	-5.074	Manual	7/25/2022 4:27:21 PM
4	1.041	(27465)	26383.29	3.924	Manual	7/25/2022 4:27:25 PM
5	5.203	(132958)	25554.1	0.657	Manual	7/25/2022 4:29:15 PM
6	5.203	(132028)	25375.36	-0.047	Manual	7/25/2022 4:29:19 PM
7	10.405	(273984)	26331.96	3.721	Manual	7/25/2022 4:32:21 PM
8	10.405	(267903)	25747.53	1.419	Manual	7/25/2022 4:32:26 PM
9	20.81	(519775)	24977.18	-1.615	Manual	7/25/2022 4:32:30 PM
10	20.81	(529861)	25461.85	0.294	Manual	7/25/2022 4:32:35 PM

4 Nitrogen-MS5A



Expected retention time: 7.75 minutes  
 Search window: 0.2 minutes  
 No internal standard component  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0

Single peak quantification by area

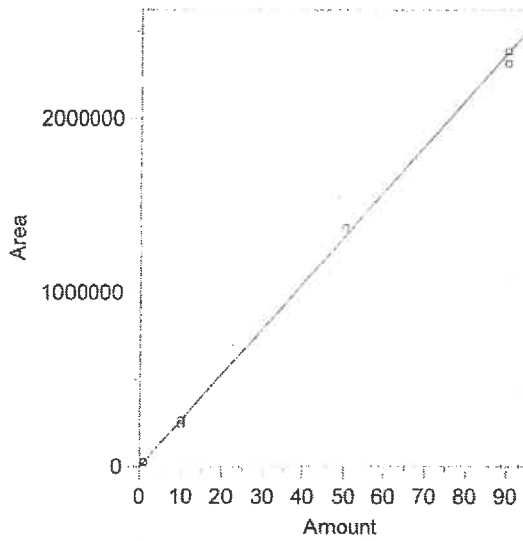
$Y = 31095.6 X + 0$

Linear fit with equal weighting, forced to origin

Coefficient of determination: 0.9994298  
 Average error: 3.053%  
 Average CF: 31751.3  
 RSD: 3.134%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1	(3029)	30290	-2.591	Manual	8/10/2022 9:43:58 AM
2	0.1	(3260)	32600	4.831	Manual	8/10/2022 9:44:01 AM
3	1	(32017)	32017	2.963	Manual	8/10/2022 9:44:05 AM
4	1	(31045)	31045	-0.163	Manual	8/10/2022 9:44:10 AM
5	10	(334411)	33441.1	7.543	Manual	8/10/2022 9:39:49 AM
6	10	(325185)	32518.5	4.576	Manual	8/10/2022 9:39:53 AM
7	50	(1593368)	31867.36	2.482	Manual	8/10/2022 9:40:16 AM
8	50	(1607729)	32154.58	3.406	Manual	8/10/2022 9:40:20 AM
9	90	(2779033)	30878.14	-0.699	Manual	8/10/2022 9:40:33 AM
10	90	(2763123)	30791.37	-1.268	Manual	8/10/2022 9:40:40 AM

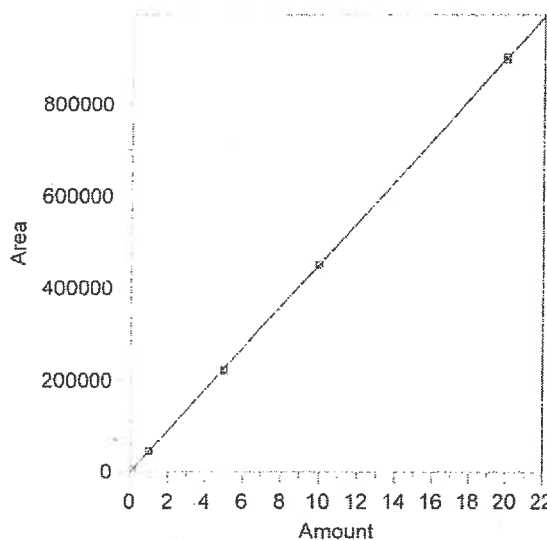
5 Methane-MSSA



Expected retention time: 8.63 minutes  
 Search window: 0.2 minutes  
 No internal standard component  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0  
 Single peak quantification by area  
 Y = 26432.15 X + 0  
 Linear fit with equal weighting, forced to origin  
 Coefficient of determination: 0.9989166  
 Average error: 4.560%  
 Average CF: 26357.82  
 RSD: 6.490%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1	(2552)	25520	-3.451	Manual	8/10/2022 9:44:50 AM
2	0.1	(2407)	24070	-8.937	Manual	8/10/2022 9:44:54 AM
3	1	(29976)	29976	13.407	Manual	8/10/2022 9:45:08 AM
4	1	(26213)	26213	-0.829	Manual	8/10/2022 9:45:11 AM
5	10	(264662)	26466.2	0.129	Manual	8/10/2022 9:42:15 AM
6	10	(242095)	24209.5	-8.409	Manual	8/10/2022 9:42:19 AM
7	50	(1370838)	27416.76	3.725	Manual	8/10/2022 9:42:29 AM
8	50	(1371335)	27426.7	3.763	Manual	8/10/2022 9:42:33 AM
9	90	(2387703)	26530.03	0.370	Manual	8/10/2022 9:42:49 AM
10	90	(2317503)	25750.03	-2.581	Manual	8/10/2022 9:42:53 AM

6 Carbon Monoxide-MS5A



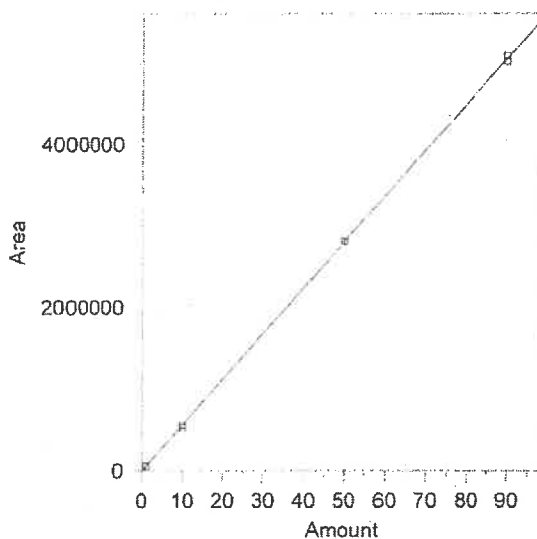
Expected retention time: 11.07 minutes  
 Search window: 0.3 minutes  
 No internal standard component  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0  
 Single peak quantification by area  
 $Y = 45053.8 X + 0$   
 Linear fit with equal weighting, forced to origin  
 Coefficient of determination: 0.999939  
 Average error: 2.480%  
 Average CF: 45848.55  
 RSD: 4.376%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1	(5108)	51080	13.376	Manual	7/25/2022 4:23:10 PM
2	0.1	(4576)	45760	1.567	Manual	7/25/2022 4:23:13 PM
3	1.001	(47156)	47108.89	4.561	Manual	7/25/2022 4:28:16 PM
4	1.001	(45414)	45368.63	0.699	Manual	7/25/2022 4:28:19 PM
5	5.003	(223637)	44700.58	-0.784	Manual	7/25/2022 4:30:00 PM
6	5.003	(219941)	43961.82	-2.424	Manual	7/25/2022 4:30:05 PM
7	10.005	(452138)	45191.2	0.305	Manual	7/25/2022 4:34:06 PM
8	10.005	(452138)	45191.2	0.305	Manual	7/25/2022 4:34:11 PM
9	20.01	(905175)	45236.13	0.405	Manual	7/25/2022 4:34:15 PM
10	20.01	(898189)	44887.01	-0.370	Manual	7/25/2022 4:34:21 PM



Chrom Perfect Calibration File

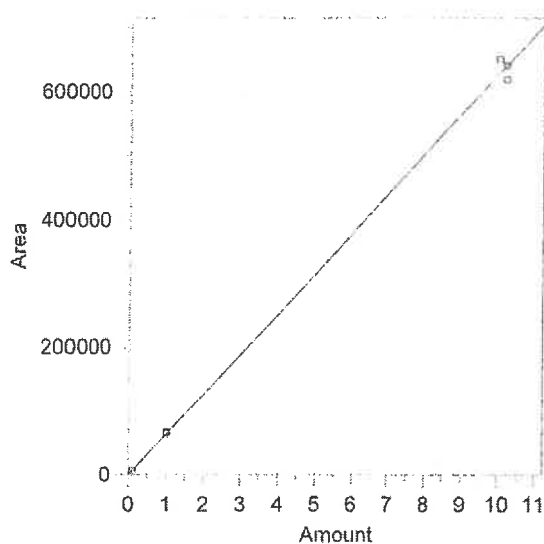
7 CO2-Q bond



Expected retention time: 13.4 minutes  
 Search window: 0.3 minutes  
 No internal standard component  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0  
 Single peak quantification by area  
 Y = 56193.41 X + 0  
 Linear fit with equal weighting, forced to origin  
 Coefficient of determination: 0.9998862  
 Average error: 4.019%  
 Average CF: 56727.38  
 RSD: 5.578%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.1	(6202)	62020	10.369	Manual	8/23/2022 11:47:28 AM
2	0.1	(5996)	59960	6.703	Manual	8/23/2022 11:47:32 AM
3	1	(52054)	52054	-7.366	Manual	8/23/2022 11:47:39 AM
4	1	(60017)	60017	6.804	Manual	8/23/2022 11:47:50 AM
5	10	(557328)	55732.8	-0.820	Manual	8/23/2022 11:48:02 AM
6	10	(526629)	52662.9	-6.283	Manual	8/23/2022 11:48:07 AM
7	50	(2813966)	56279.32	0.153	Manual	8/23/2022 11:48:15 AM
8	50	(2805680)	56113.6	-0.142	Manual	8/23/2022 11:48:23 AM
9	90	(5020303)	55781.14	-0.734	Manual	8/23/2022 11:48:35 AM
10	90	(5098777)	56653.08	0.818	Manual	8/23/2022 11:48:43 AM

8 Ethane



Expected retention time: 14.08 minutes  
 Search window: 0.3 minutes  
 No internal standard component  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0  
 Single peak quantification by area  
 $Y = 62827.24 X + 0$   
 Linear fit with equal weighting, forced to origin  
 Coefficient of determination: 0.9986554  
 Average error: 2.234%  
 Average CF: 63751.15  
 RSD: 2.643%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.102	(6413)	62872.55	0.072	Manual	8/24/2022 4:26:15 PM
2	0.102	(6443)	63166.67	0.540	Manual	8/24/2022 4:26:20 PM
3	0.102	(6565)	64362.75	2.444	Manual	8/24/2022 4:28:17 PM
4	1.021	(64657)	63327.13	0.796	Manual	8/24/2022 4:28:29 PM
5	1.021	(66424)	65057.79	3.550	Manual	8/24/2022 4:28:36 PM
6	1.021	(67872)	66476	5.808	Manual	8/24/2022 4:28:43 PM
7	10.21	(1619430)	60668.95	-3.435	Manual	8/24/2022 4:28:54 PM
8	10.21	(641470)	62827.62	0.001	Manual	8/24/2022 4:29:03 PM
9	10.021	(651374)	65000.9	3.460	Manual	8/24/2022 4:31:59 PM
10	(0)	(0)	--	--	Manual	8/24/2022 4:32:12 PM

Chrom Perfect Calibration File

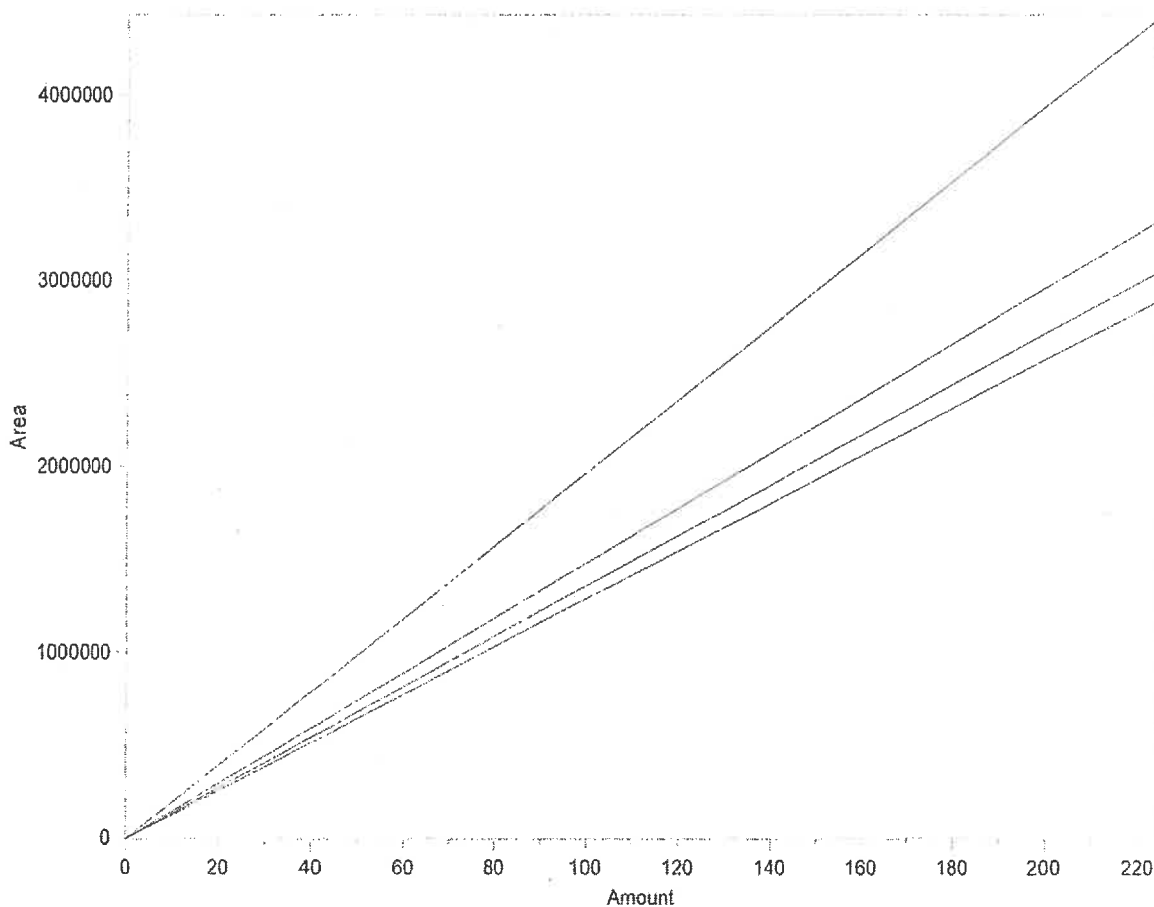
File Name: C:\Chromperfect\1\Cpmethods\Inst #04\2022\102422-25.1,3.CAL  
Version: 193

Creator: TT  
Description: Methane, Ethane, Non-Methane and Non-Ethane with catalysts

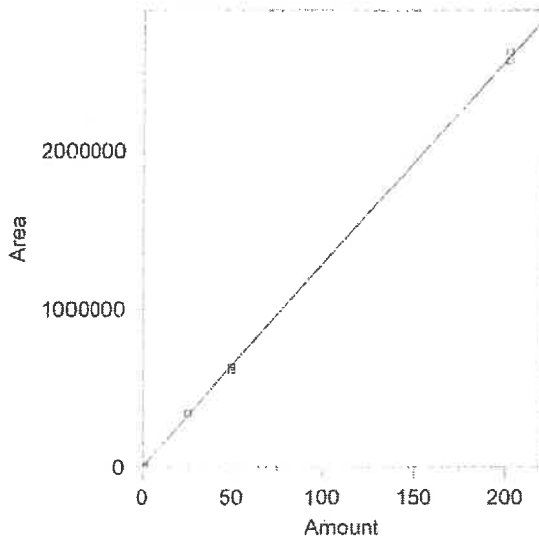
External standard calibration  
No injection volume correction  
No sample weight correction  
Area reject threshold: 500  
Reference peak area reject threshold: 500  
Amount units:  
No default component

Method of calculating data point averages: Equal weight for all updates  
No calibration update report

All levels are normal data points.



1 Carbon Monoxide



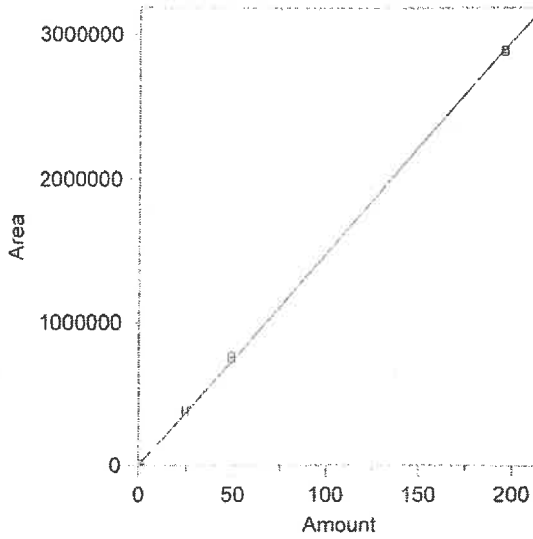
Expected retention time: 0.93 minutes  
 Search window: 0.1 minutes  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0  
 Single peak quantification by area  
 $Y = 12894.33 X + 0$   
 Linear fit with equal weighting, forced to origin  
 Coefficient of determination: 0.9996529  
 Average error: 2.863%  
 Average CF: 9565.482  
 RSD: 64.417%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1.008	(13909)	13798.61	7.013	Manual	10/24/2022 1:31:26 PM
2	0	0	--	0.000	Manual	12/8/2021 7:48:21 AM
3	1.008	(13967)	13856.15	7.459	Manual	10/24/2022 1:31:34 PM
4	25.2	(336959)	13371.39	3.700	Manual	10/24/2022 1:31:40 PM
5	25.2	(338750)	13442.46	4.251	Manual	10/24/2022 1:31:44 PM
6	50.4	(617419)	12250.38	-4.994	Manual	10/24/2022 1:31:50 PM
7	50.4	(638807)	12674.74	-1.703	Manual	10/24/2022 1:31:54 PM
8	201.6	(2572526)	12760.54	-1.038	Manual	10/24/2022 1:32:00 PM
9	201.6	(2634112)	13066.03	1.332	Manual	10/24/2022 1:32:05 PM
10	0	(0)	--	0.000	Manual	12/8/2021 7:47:45 AM
11	0	(0)	--	0.000	Manual	12/8/2021 7:47:46 AM

Chrom Perfect Calibration File

2

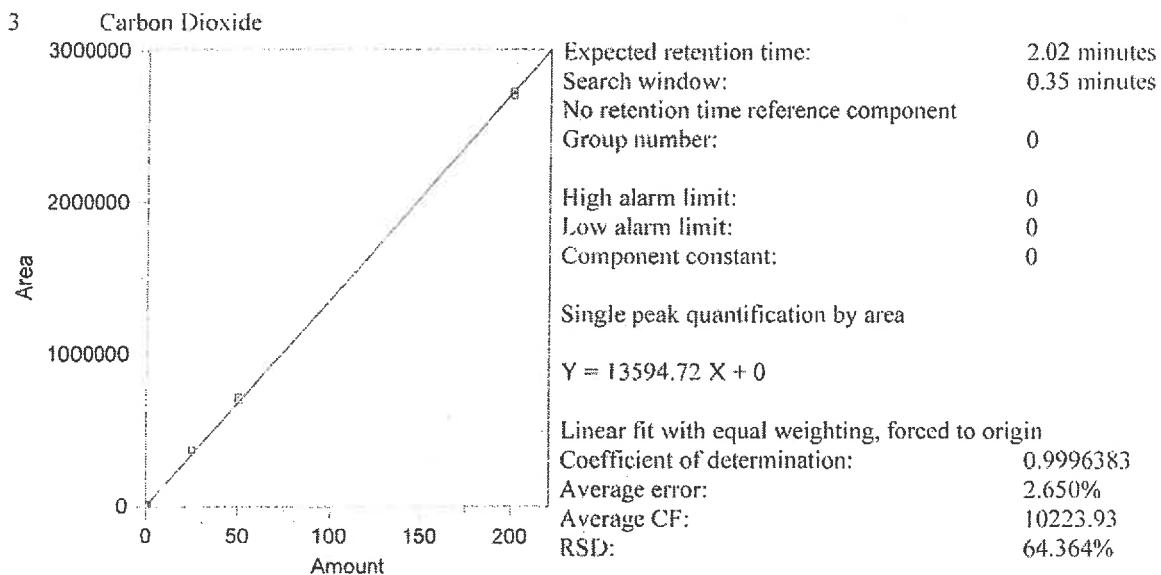
Methane



Expected retention time: 1.2 minutes  
 Search window: 0.2 minutes  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0  
 Single peak quantification by area  
 Y = 14812.35 X + 0  
 Linear fit with equal weighting, forced to origin  
 Coefficient of determination: 0.9997074  
 Average error: 3.585%  
 Average CF: 11285.41  
 RSD: 64.425%

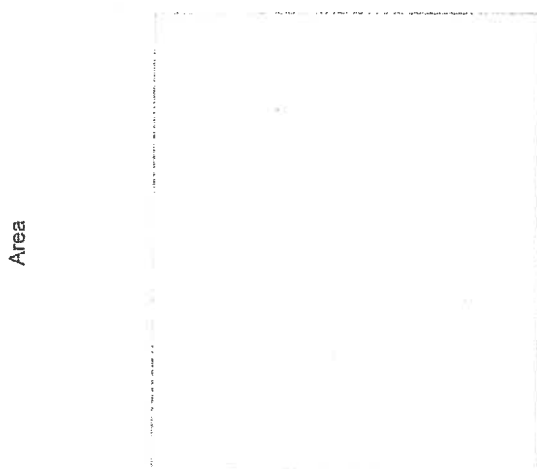
Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0	(0)	--	0.000	Manual	12/8/2021 7:52:05 AM
2	0	0	--	0.000	Manual	12/8/2021 7:48:21 AM
3	0.97	(16191)	16691.75	12.688	Manual	10/24/2022 1:32:28 PM
4	0.97	(15514)	15993.81	7.976	Manual	10/24/2022 1:32:31 PM
5	24.46	(388288)	15874.41	7.170	Manual	10/24/2022 1:32:35 PM
6	24.46	(371262)	15178.33	2.471	Manual	10/24/2022 1:32:43 PM
7	48.93	(758289)	15088.68	1.866	Manual	10/24/2022 1:32:47 PM
8	48.93	(772530)	15788.47	6.590	Manual	10/24/2022 1:32:51 PM
9	195.7	(2897540)	14806.03	-0.043	Manual	10/24/2022 1:32:57 PM
10	195.7	(2880310)	14717.99	-0.637	Manual	10/24/2022 1:33:02 PM
11	0	(0)	--	0.000	Manual	12/8/2021 7:53:17 AM

Chrom Perfect Calibration File



Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0	(0)	--	0.000	Manual	12/8/2021 7:50:08 AM
2	0	0	--	0.000	Manual	12/8/2021 7:48:21 AM
3	1.01	(13731)	13595.05	0.002	Manual	10/24/2022 1:39:41 PM
4	1.01	(14180)	14039.6	3.272	Manual	10/24/2022 1:39:45 PM
5	25.13	(371212)	14771.67	8.657	Manual	10/24/2022 1:40:00 PM
6	25.13	(371262)	14773.66	8.672	Manual	10/24/2022 1:40:05 PM
7	50.25	(698747)	13905.41	2.285	Manual	10/24/2022 1:40:11 PM
8	50.25	(717971)	14287.98	5.100	Manual	10/24/2022 1:40:16 PM
9	201	(2738330)	13623.53	0.212	Manual	10/24/2022 1:40:22 PM
10	201	(2706730)	13466.32	-0.944	Manual	10/24/2022 1:40:26 PM
11	0	(0)	--	0.000	Manual	12/8/2021 7:51:51 AM

4 Ethene



Expected retention time: 2.52 minutes  
 Search window: 0.2 minutes  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0

Single peak quantification by area

Y = 0.0

Linear fit with equal weighting, forced to origin

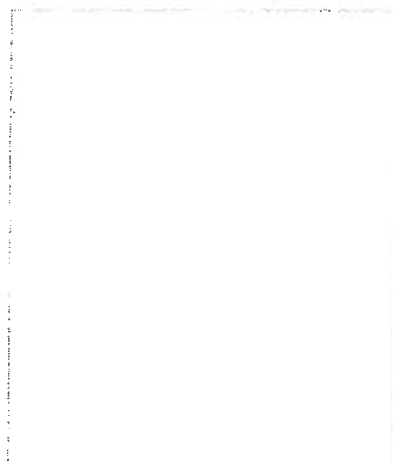
Coefficient of determination: 1  
 Average error: 0.000%  
 Average CF: 0  
 RSD: 0.000%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1	(0)	0	0.000	CAChromperfect ICPDATA\42020\010820.0021.BND	1/8/2020 12:55:22 PM
2	0	0	--	0.000	Manual	12/8/2021 7:48:21 AM
3	(0)	(0)	--	--	CAChromperfect ICPDATA\42020\010820.0020.BND	1/8/2020 12:51:17 PM
4	(0)	(0)	--	--	CAChromperfect ICPDATA\42020\010820.0019.BND	1/10/2020 9:40:44 AM
5	(0)	(0)	--	--	CAChromperfect ICPDATA\42020\010820.0022.BND	1/10/2020 9:41:15 AM
6	(0)	(0)	--	--	CAChromperfect ICPDATA\42020\010820.0017.BND	1/8/2020 11:33:39 AM
7	(0)	(0)	--	--	CAChromperfect ICPDATA\42020\010820.0016.BND	1/8/2020 11:06:51 AM
8	(0)	(0)	--	--	CAChromperfect ICPDATA\42020\010820.0015.BND	1/8/2020 10:51:38 AM
9	(0)	(0)	--	--	CAChromperfect ICPDATA\42020\010820.0014.BND	1/8/2020 10:36:41 AM
10	(0)	(0)	--	--	CAChromperfect ICPDATA\42020\010820.0013.BND	1/8/2020 10:20:34 AM
11	(0)	(0)	--	--	CAChromperfect ICPDATA\42020\010820.0012.BND	1/8/2020 10:05:02 AM

Chrom Perfect Calibration File

5 Ethane

Area

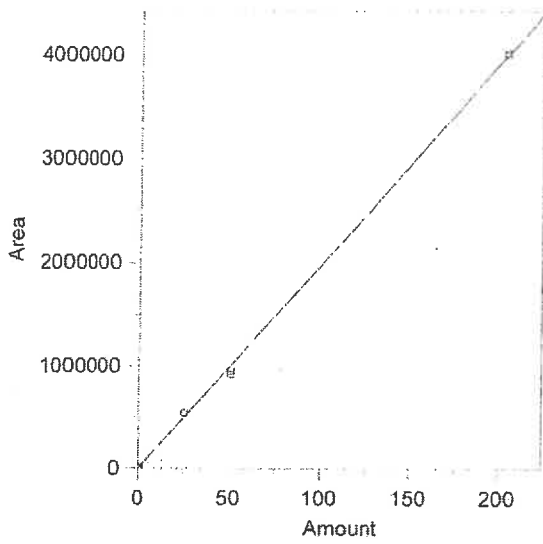


Expected retention time: 3.42 minutes  
 Search window: 0.2 minutes  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0  
 Single peak quantification by area  
 Y = 0.0  
 Linear fit with equal weighting, forced to origin  
 Coefficient of determination: 1  
 Average error: 0.000%  
 Average CF: 0  
 RSD: 0.000%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	1	(0)	0	0.000	C:\Chromperfect\PCPDATA\4\2020\010820.0021.BND	1/8/2020 12:55:22 PM
2	0	0	--	0.000	Manual	12/8/2021 7:48:21 AM
3	(0)	(0)	--	--	C:\Chromperfect\PCPDATA\4\2020\010820.0020.BND	1/8/2020 12:51:17 PM
4	(0)	(0)	--	--	C:\Chromperfect\PCPDATA\4\2020\010820.0019.BND	1/10/2020 9:40:44 AM
5	(0)	(0)	--	--	C:\Chromperfect\PCPDATA\4\2020\010820.0022.BND	1/10/2020 9:41:15 AM
6	(0)	(0)	--	--	C:\Chromperfect\PCPDATA\4\2020\010820.0017.BND	1/8/2020 11:33:39 AM
7	(0)	(0)	--	--	C:\Chromperfect\PCPDATA\4\2020\010820.0016.BND	1/8/2020 11:06:51 AM
8	(0)	(0)	--	--	C:\Chromperfect\PCPDATA\4\2020\010820.0015.BND	1/8/2020 10:51:38 AM
9	(0)	(0)	--	--	C:\Chromperfect\PCPDATA\4\2020\010820.0014.BND	1/8/2020 10:36:41 AM
10	(0)	(0)	--	--	C:\Chromperfect\PCPDATA\4\2020\010820.0013.BND	1/8/2020 10:20:34 AM
11	(0)	(0)	--	--	C:\Chromperfect\PCPDATA\4\2020\010820.0012.BND	1/8/2020 10:05:02 AM



6 NMNEOC I



Expected retention time: 7.17 minutes  
 Search window: 0.5 minutes  
 No retention time reference component  
 Group number: 0  
 High alarm limit: 0  
 Low alarm limit: 0  
 Component constant: 0  
 Single peak quantification by area  
 $Y = 19668.22 X + 0$   
 Linear fit with equal weighting, forced to origin  
 Coefficient of determination: 0.9994808  
 Average error: 3.064%  
 Average CF: 17320.47  
 RSD: 37.862%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	0.25	(4892)	19568	-0.510	Manual	10/24/2022 1:40:44 PM
2	0.25	4976	19904	1.199	Manual	10/24/2022 1:40:47 PM
3	1.02	(19309)	18930.39	-3.751	Manual	10/24/2022 1:40:52 PM
4	(1.02)	(19725)	--	--	Manual	10/24/2022 1:40:55 PM
5	(25.48)	(5540925)	--	--	Manual	10/24/2022 1:41:01 PM
6	25.48	(542117)	21276.18	8.175	Manual	10/24/2022 1:41:05 PM
7	50.95	(919294)	18043.06	-8.263	Manual	10/24/2022 1:41:11 PM
8	50.95	(952177)	18688.46	-4.981	Manual	10/24/2022 1:41:16 PM
9	203.8	(4029413)	19771.41	0.525	Manual	10/24/2022 1:41:21 PM
10	203.8	(4015413)	19702.71	0.175	Manual	10/24/2022 1:41:27 PM
11	0	(0)	--	0.000	Manual	12/8/2021 7:49:47 AM

## **Appendix A.4.3**

### **SCAQMD Method 25.3 and EPA TO-15 Laboratory Data**



**ENTHALPY**  
ANALYTICAL

Enthalpy Analytical  
931 West Barkley Ave  
Orange, CA 92868  
(714) 771-6900

enthalpy.com

Lab Job Number: 482670  
Report Level: II  
Report Date: 04/17/2023

**Analytical Report** *prepared for:*

Pete San Juan  
Montrose Air Quality Services  
1631 E. St Andrew Pl  
Santa Ana, CA 92705

Location: Waste Mangement Lancaster PROJ-025314

*Authorized for release by:*

Richard Villafania, Project Manager  
[richard.villafania@enthalpy.com](mailto:richard.villafania@enthalpy.com)

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105

### Sample Summary

Pete San Juan	Lab Job #:	482670
Montrose Air Quality Services	Location:	Waste Mangement Lancaster PROJ-025314
1631 E. St Andrew Pl Santa Ana, CA 92705	Date Received:	04/03/23

Sample ID	Lab ID	Collected	Matrix
WM LANCASTER FLARE INLET RUN 1	482670-001	03/31/23 10:47	Air
WM LANCASTER FLARE INLET RUN 2	482670-002	03/31/23 11:22	Air
WM LANCASTER FLARE INLET RUN 3	482670-003	03/31/23 11:57	Air
WM LANCASTER FLARE EXH RUN 1	482670-004	03/31/23 10:47	Air
WM LANCASTER FLARE EXH RUN 2	482670-005	03/31/23 11:22	Air
WM LANCASTER FLARE EXH RUN 3	482670-006	03/31/23 11:57	Air
WM LANCASTER FLARE EXH RUN 1 (16A)	482670-007	03/31/23 11:17	Air
WM LANCASTER FLARE EXH RUN 1 (16B)	482670-008	03/31/23 11:17	Air

## Case Narrative

---

Montrose Air Quality Services  
1631 E. St Andrew Pl  
Santa Ana, CA 92705  
Pete San Juan

Lab Job Number: 482670

Location: Waste Mangement Lancaster PROJ-025314

Date Received: 04/03/23

---

This data package contains sample and QC results for eight air samples, requested for the above referenced project on 04/03/23. The samples were received intact.

### **Volatile Organics in Air by MS (EPA TO-15):**

- WM LANCASTER FLARE INLET RUN 1 (lab # 482670-001), WM LANCASTER FLARE INLET RUN 2 (lab # 482670-002), and WM LANCASTER FLARE INLET RUN 3 (lab # 482670-003) were diluted due to high non-target analytes.
- No other analytical problems were encountered.

### **Non-Methane Non-Ethane Organic Compounds (SCAQMD 25.3):**

- This data package contains the raw instrument data for the samples and QA/QC as well as the ICAL and MDL/PQL summary. Supporting field documentation (if supplied by the client) follows the COC and receipt documentation. Samples were analyzed by SCAQMD method 25.3 and 10.1 modified (% and ppm level fixed gases).
- No analytical problems were encountered.

# ENTHALPY ANALYTICAL

Enthalpy Analytical - Orange

931 W. Barkley Avenue, Orange, CA 92868

Phone 714-771-6900

Quote No: Montrose\_032723A\_PS

2.3/15.2

Air Chain of Custody Record

Lab No: 4822670

Page: 1 of 1

Turn Around Time (rush by advanced notice only)

Standard: x

5 Day: 3 Day: Custom.TAT:

2 Day: 1 Day:

### CUSTOMER INFORMATION

Company: Montrose AOS

Report To: Pete San Juan

Email: psanjuan@montrose-env.com

Address: 1631 E St Andrew Pl

Phone: 6266176313

Fax:

### PROJECT INFORMATION

Name: Waste Management Lancaster

Number: PROJ-025314

P.O. #: PO-043197

Address:

Global ID:

Sampled By:

### Analysis Requested

TO-15 Rule 1350.1 Comp.

Sample ID	Type (I) Indoor (A) Ambient (SV) Soil Vapor (S) Source	Equipment Information		Sampling Information				Vacuum End (inHg)			
		Canister ID	Size (1L, 3L, 6L, 15L)	Flow Controller ID	Sample Start Date	Sample Start Time	Vacuum Start (inHg)		Sample End Date	Sample End Time	
1	S	C80126	6L		3/31/2023	10:17 AM	30	3/31/2023	10:47	5	X
2	S	C80131			"	10:52 AM	30	"	11:22	5	X
3	S	C80155			"	11:27 AM	30	"	11:57	5	X
4	S	C80052			"	10:17 AM	30	"	10:47	5	X
5	S	C80154			"	10:52 AM	29	"	11:22	5	X
6	S	C80156			"	11:27 AM	29	"	11:57	5	X
7	S	C80094	16A		"	10:17 AM	30	"	11:17	10	X
8	S	C80114	16B		"	10:17 AM	30	"	11:17	10	X
9											
10											

Signature: *[Signature]*

Print Name: Pete San Juan

Company / Title: FPM

Date / Time: 4/3/2023 15:11

Relinquished By:

Received By: *[Signature]*

Relinquished By:

Received By:

Relinquished By:

Received By:



# ENTHALPY ANALYTICAL

## SAMPLE ACCEPTANCE CHECKLIST

**Section 1**  
 Client: MAQS Project: Waste Management Lancaster  
 Date Received: 4/3/23 Sampler's Name Present:  Yes  No

**Section 2**  
 Sample(s) received in a cooler?  Yes, How many? 1  No (skip section 2) Sample Temp (°C) (No Cooler): \_\_\_\_\_  
 Sample Temp (°C), One from each cooler: #1: 13.2 #2: \_\_\_\_\_ #3: \_\_\_\_\_ #4: \_\_\_\_\_  
*(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)*  
 Shipping Information: \_\_\_\_\_

**Section 3**  
 Was the cooler packed with:  Ice  Ice Packs  Bubble Wrap  Styrofoam  
 Paper  None  Other \_\_\_\_\_  
 Cooler Temp (°C): #1: 2.3 #2: \_\_\_\_\_ #3: \_\_\_\_\_ #4: \_\_\_\_\_

**Section 4**

	YES	NO	N/A
Was a COC received?	X		
Are sample IDs present?	X		
Are sampling dates & times present?	X		
Is a relinquished signature present?	X		
Are the tests required clearly indicated on the COC?	X		
Are custody seals present?		X	
If custody seals are present, were they intact?			X
Are all samples sealed in plastic bags? (Recommended for Microbiology samples)			X
Did all samples arrive intact? If no, indicate in Section 4 below.	X		
Did all bottle labels agree with COC? (ID, dates and times)	X		
Were the samples collected in the correct containers for the required tests?	X		
Are the containers labeled with the correct preservatives?			X
Is there headspace in the VOA vials greater than 5-6 mm in diameter?			X
Was a sufficient amount of sample submitted for the requested tests?	X		

**Section 5 Explanations/Comments**  
 \_\_\_\_\_  
 \_\_\_\_\_

**Section 6**  
 For discrepancies, how was the Project Manager notified?  Verbal PM Initials: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Email (email sent to/on): \_\_\_\_\_ / \_\_\_\_\_  
 Project Manager's response: \_\_\_\_\_

Completed By: [Signature] Date: 4/3/23

Enthalpy Analytical, a subsidiary of Montrose Environmental Group, Inc.  
 931 W. Berkley Ave, Orange, CA 92868 • T: (714) 771-6900 • F: (714) 538-1209  
 www.enthalpy.com/socal  
 Sample Acceptance Checklist - Rev 4, 8/8/2017

## Analysis Results for 482670

 Pete San Juan  
 Montrose Air Quality Services  
 1631 E. St Andrew Pl  
 Santa Ana, CA 92705

 Lab Job #: 482670  
 Location: Waste Mangement Lancaster PROJ-025314  
 Date Received: 04/03/23

<b>Sample ID:</b> WM LANCASTER FLARE INLET RUN 1	<b>Lab ID:</b> 482670-001 <b>Matrix:</b> Air	<b>Collected:</b> 03/31/23 10:47
---	---	----------------------------------

482670-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15									
Prep Method: METHOD									
Benzene	6.5		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Benzene	21		ug/m3	4.8	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Benzyl chloride	ND		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Benzyl chloride	ND		ug/m3	7.8	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Chlorobenzene	ND		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Chlorobenzene	ND		ug/m3	6.9	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,2-Dichlorobenzene	ND		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,2-Dichlorobenzene	ND		ug/m3	9.0	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,4-Dichlorobenzene	1.9		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,4-Dichlorobenzene	11		ug/m3	9.0	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,1-Dichloroethane	ND		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,1-Dichloroethane	ND		ug/m3	6.1	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,2-Dichloroethane	ND		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,2-Dichloroethane	ND		ug/m3	6.1	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,1-Dichloroethene	ND		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,1-Dichloroethene	ND		ug/m3	5.9	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Methylene Chloride	ND		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Methylene Chloride	ND		ug/m3	5.2	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,2-Dibromoethane	ND		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,2-Dibromoethane	ND		ug/m3	12	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Tetrachloroethene	2.0		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Tetrachloroethene	13		ug/m3	10	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Carbon Tetrachloride	ND		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Carbon Tetrachloride	ND		ug/m3	9.4	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Toluene	66		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Toluene	250		ug/m3	5.7	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,1,1-Trichloroethane	ND		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
1,1,1-Trichloroethane	ND		ug/m3	8.2	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Trichloroethene	ND		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Trichloroethene	ND		ug/m3	8.1	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Chloroform	ND		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Chloroform	ND		ug/m3	7.3	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Vinyl Chloride	ND		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
Vinyl Chloride	ND		ug/m3	3.8	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
m,p-Xylenes	33		ppbv	3.0	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ



### Analysis Results for 482670

482670-001 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
m,p-Xylenes	<b>140</b>		ug/m3	13	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
o-Xylene	<b>11</b>		ppbv	1.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
o-Xylene	<b>47</b>		ug/m3	6.5	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ
<b>Surrogates</b>				<b>Limits</b>					
Bromofluorobenzene	108%		%REC	60-140	7.5	311012	04/04/23 14:34	04/04/23 14:34	ZNZ

## Analysis Results for 482670

<b>Sample ID:</b> WM LANCASTER FLARE INLET RUN 2	<b>Lab ID:</b> 482670-002 <b>Matrix:</b> Air	<b>Collected:</b> 03/31/23 11:22
---	---	----------------------------------

482670-002 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15									
Prep Method: METHOD									
Benzene	6.8		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Benzene	22		ug/m3	4.8	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Benzyl chloride	ND		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Benzyl chloride	ND		ug/m3	7.8	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Chlorobenzene	ND		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Chlorobenzene	ND		ug/m3	6.9	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,2-Dichlorobenzene	ND		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,2-Dichlorobenzene	ND		ug/m3	9.0	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,4-Dichlorobenzene	2.1		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,4-Dichlorobenzene	12		ug/m3	9.0	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,1-Dichloroethane	ND		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,1-Dichloroethane	ND		ug/m3	6.1	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,2-Dichloroethane	ND		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,2-Dichloroethane	ND		ug/m3	6.1	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,1-Dichloroethene	ND		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,1-Dichloroethene	ND		ug/m3	5.9	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Methylene Chloride	ND		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Methylene Chloride	ND		ug/m3	5.2	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,2-Dibromoethane	ND		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,2-Dibromoethane	ND		ug/m3	12	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Tetrachloroethene	2.1		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Tetrachloroethene	14		ug/m3	10	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Carbon Tetrachloride	ND		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Carbon Tetrachloride	ND		ug/m3	9.4	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Toluene	67		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Toluene	250		ug/m3	5.7	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,1,1-Trichloroethane	ND		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
1,1,1-Trichloroethane	ND		ug/m3	8.2	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Trichloroethene	ND		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Trichloroethene	ND		ug/m3	8.1	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Chloroform	ND		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Chloroform	ND		ug/m3	7.3	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Vinyl Chloride	ND		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
Vinyl Chloride	ND		ug/m3	3.8	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
m,p-Xylenes	34		ppbv	3.0	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
m,p-Xylenes	150		ug/m3	13	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
o-Xylene	11		ppbv	1.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
o-Xylene	49		ug/m3	6.5	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ
<b>Surrogates</b>				<b>Limits</b>					
Bromofluorobenzene	109%		%REC	60-140	7.5	311012	04/04/23 16:11	04/04/23 16:11	ZNZ

## Analysis Results for 482670

## Analysis Results for 482670

<b>Sample ID:</b> WM LANCASTER FLARE INLET RUN 3	<b>Lab ID:</b> 482670-003 <b>Matrix:</b> Air	<b>Collected:</b> 03/31/23 11:57
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482670-003 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15									
Prep Method: METHOD									
Benzene	6.7		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Benzene	21		ug/m3	4.8	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Benzyl chloride	ND		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Benzyl chloride	ND		ug/m3	7.8	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Chlorobenzene	ND		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Chlorobenzene	ND		ug/m3	6.9	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,2-Dichlorobenzene	ND		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,2-Dichlorobenzene	ND		ug/m3	9.0	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,4-Dichlorobenzene	2.2		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,4-Dichlorobenzene	13		ug/m3	9.0	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,1-Dichloroethane	ND		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,1-Dichloroethane	ND		ug/m3	6.1	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,2-Dichloroethane	ND		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,2-Dichloroethane	ND		ug/m3	6.1	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,1-Dichloroethene	ND		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,1-Dichloroethene	ND		ug/m3	5.9	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Methylene Chloride	ND		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Methylene Chloride	ND		ug/m3	5.2	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,2-Dibromoethane	ND		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,2-Dibromoethane	ND		ug/m3	12	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Tetrachloroethene	2.0		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Tetrachloroethene	14		ug/m3	10	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Carbon Tetrachloride	ND		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Carbon Tetrachloride	ND		ug/m3	9.4	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Toluene	67		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Toluene	250		ug/m3	5.7	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,1,1-Trichloroethane	ND		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
1,1,1-Trichloroethane	ND		ug/m3	8.2	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Trichloroethene	ND		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Trichloroethene	ND		ug/m3	8.1	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Chloroform	ND		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Chloroform	ND		ug/m3	7.3	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Vinyl Chloride	ND		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
Vinyl Chloride	ND		ug/m3	3.8	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
m,p-Xylenes	33		ppbv	3.0	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
m,p-Xylenes	140		ug/m3	13	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
o-Xylene	11		ppbv	1.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
o-Xylene	47		ug/m3	6.5	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ
<b>Surrogates</b>				<b>Limits</b>					
Bromofluorobenzene	107%		%REC	60-140	7.5	311012	04/04/23 16:37	04/04/23 16:37	ZNZ

## Analysis Results for 482670

## Analysis Results for 482670

<b>Sample ID:</b> WM LANCASTER FLARE EXH RUN 1	<b>Lab ID:</b> 482670-004 <b>Matrix:</b> Air	<b>Collected:</b> 03/31/23 10:47
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482670-004 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15									
Prep Method: METHOD									
Benzene	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Benzene	ND		ug/m3	0.96	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Benzyl chloride	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Benzyl chloride	ND		ug/m3	1.6	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Chlorobenzene	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Chlorobenzene	ND		ug/m3	1.4	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,2-Dichlorobenzene	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,2-Dichlorobenzene	ND		ug/m3	1.8	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,4-Dichlorobenzene	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,4-Dichlorobenzene	ND		ug/m3	1.8	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,1-Dichloroethane	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,1-Dichloroethane	ND		ug/m3	1.2	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,2-Dichloroethane	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,2-Dichloroethane	ND		ug/m3	1.2	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,1-Dichloroethene	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,1-Dichloroethene	ND		ug/m3	1.2	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Methylene Chloride	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Methylene Chloride	ND		ug/m3	1.0	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,2-Dibromoethane	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,2-Dibromoethane	ND		ug/m3	2.3	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Tetrachloroethene	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Tetrachloroethene	ND		ug/m3	2.0	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Carbon Tetrachloride	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Carbon Tetrachloride	ND		ug/m3	1.9	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Toluene	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Toluene	ND		ug/m3	1.1	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,1,1-Trichloroethane	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
1,1,1-Trichloroethane	ND		ug/m3	1.6	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Trichloroethene	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Trichloroethene	ND		ug/m3	1.6	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Chloroform	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Chloroform	ND		ug/m3	1.5	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Vinyl Chloride	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
Vinyl Chloride	ND		ug/m3	0.77	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
m,p-Xylenes	ND		ppbv	0.60	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
m,p-Xylenes	ND		ug/m3	2.6	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
o-Xylene	ND		ppbv	0.30	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
o-Xylene	ND		ug/m3	1.3	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ
<b>Surrogates</b>				<b>Limits</b>					
Bromofluorobenzene	102%		%REC	60-140	1.5	311012	04/04/23 13:03	04/04/23 13:03	ZNZ

## Analysis Results for 482670

### Analysis Results for 482670

<b>Sample ID:</b> WM LANCASTER FLARE EXH RUN 2	<b>Lab ID:</b> 482670-005 <b>Matrix:</b> Air	<b>Collected:</b> 03/31/23 11:22
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482670-005 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15									
Prep Method: METHOD									
Benzene	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Benzene	ND		ug/m3	0.96	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Benzyl chloride	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Benzyl chloride	ND		ug/m3	1.6	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Chlorobenzene	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Chlorobenzene	ND		ug/m3	1.4	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,2-Dichlorobenzene	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,2-Dichlorobenzene	ND		ug/m3	1.8	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,4-Dichlorobenzene	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,4-Dichlorobenzene	ND		ug/m3	1.8	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,1-Dichloroethane	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,1-Dichloroethane	ND		ug/m3	1.2	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,2-Dichloroethane	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,2-Dichloroethane	ND		ug/m3	1.2	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,1-Dichloroethene	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,1-Dichloroethene	ND		ug/m3	1.2	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Methylene Chloride	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Methylene Chloride	ND		ug/m3	1.0	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,2-Dibromoethane	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,2-Dibromoethane	ND		ug/m3	2.3	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Tetrachloroethene	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Tetrachloroethene	ND		ug/m3	2.0	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Carbon Tetrachloride	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Carbon Tetrachloride	ND		ug/m3	1.9	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Toluene	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Toluene	ND		ug/m3	1.1	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,1,1-Trichloroethane	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
1,1,1-Trichloroethane	ND		ug/m3	1.6	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Trichloroethene	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Trichloroethene	ND		ug/m3	1.6	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Chloroform	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Chloroform	ND		ug/m3	1.5	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Vinyl Chloride	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
Vinyl Chloride	ND		ug/m3	0.77	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
m,p-Xylenes	ND		ppbv	0.60	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
m,p-Xylenes	ND		ug/m3	2.6	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
o-Xylene	ND		ppbv	0.30	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
o-Xylene	ND		ug/m3	1.3	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ
<b>Surrogates</b>				<b>Limits</b>					
Bromofluorobenzene	103%		%REC	60-140	1.5	311012	04/04/23 13:35	04/04/23 13:35	ZNZ



## Analysis Results for 482670

## Analysis Results for 482670

<b>Sample ID:</b> WM LANCASTER FLARE EXH RUN 3	<b>Lab ID:</b> 482670-006 <b>Matrix:</b> Air	<b>Collected:</b> 03/31/23 11:57
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482670-006 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: EPA TO-15									
Prep Method: METHOD									
Benzene	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Benzene	ND		ug/m3	0.96	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Benzyl chloride	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Benzyl chloride	ND		ug/m3	1.6	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Chlorobenzene	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Chlorobenzene	ND		ug/m3	1.4	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,2-Dichlorobenzene	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,2-Dichlorobenzene	ND		ug/m3	1.8	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,4-Dichlorobenzene	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,4-Dichlorobenzene	ND		ug/m3	1.8	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,1-Dichloroethane	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,1-Dichloroethane	ND		ug/m3	1.2	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,2-Dichloroethane	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,2-Dichloroethane	ND		ug/m3	1.2	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,1-Dichloroethene	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,1-Dichloroethene	ND		ug/m3	1.2	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Methylene Chloride	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Methylene Chloride	ND		ug/m3	1.0	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,2-Dibromoethane	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,2-Dibromoethane	ND		ug/m3	2.3	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Tetrachloroethene	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Tetrachloroethene	ND		ug/m3	2.0	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Carbon Tetrachloride	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Carbon Tetrachloride	ND		ug/m3	1.9	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Toluene	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Toluene	ND		ug/m3	1.1	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,1,1-Trichloroethane	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
1,1,1-Trichloroethane	ND		ug/m3	1.6	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Trichloroethene	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Trichloroethene	ND		ug/m3	1.6	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Chloroform	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Chloroform	ND		ug/m3	1.5	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Vinyl Chloride	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
Vinyl Chloride	ND		ug/m3	0.77	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
m,p-Xylenes	ND		ppbv	0.60	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
m,p-Xylenes	ND		ug/m3	2.6	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
o-Xylene	ND		ppbv	0.30	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
o-Xylene	ND		ug/m3	1.3	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ
<b>Surrogates</b>				<b>Limits</b>					
Bromofluorobenzene	104%		%REC	60-140	1.5	311012	04/04/23 14:08	04/04/23 14:08	ZNZ

### Analysis Results for 482670

<b>Sample ID:</b> WM LANCASTER FLARE EXH RUN 1 (16A)	<b>Lab ID:</b> 482670-007 <b>Matrix:</b> Air	<b>Collected:</b> 03/31/23 11:17
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482670-007 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: SCAQMD 25.3									
Methane	<1.8		ppmC	1.8	1.8	311231	04/07/23	04/07/23	MPD
Carbon Monoxide	60.6		ppmC	1.8	1.8	311231	04/07/23	04/07/23	MPD
Ethene/Ethane	<1.8		ppmC	1.8	1.8	311231	04/07/23	04/07/23	MPD
Carbon Dioxide	6.8		%v/v	0.0002	1.8	311231	04/07/23	04/07/23	MPD
Oxygen	12.9		%v/v	0.2	1.8	311231	04/07/23	04/07/23	MPD
TNMNEOC	1.6		ppmC	0.6	1.8	311231	04/07/23	04/07/23	MPD

<b>Sample ID:</b> WM LANCASTER FLARE EXH RUN 1 (16B)	<b>Lab ID:</b> 482670-008 <b>Matrix:</b> Air	<b>Collected:</b> 03/31/23 11:17
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482670-008 Analyte	Result	Qual	Units	RL	DF	Batch	Prepared	Analyzed	Chemist
Method: SCAQMD 25.3									
Methane	<1.9		ppmC	1.9	1.9	311231	04/07/23	04/07/23	MPD
Carbon Monoxide	15.7		ppmC	1.9	1.9	311231	04/07/23	04/07/23	MPD
Ethene/Ethane	<1.9		ppmC	1.9	1.9	311231	04/07/23	04/07/23	MPD
Carbon Dioxide	6.8		%v/v	0.0002	1.9	311231	04/07/23	04/07/23	MPD
Oxygen	12.9		%v/v	0.2	1.9	311231	04/07/23	04/07/23	MPD
TNMNEOC	1.9		ppmC	0.6	1.9	311231	04/07/23	04/07/23	MPD

< Value is less than indicated concentration  
 ND Not Detected

### Batch QC

<b>Type: Lab Control Sample</b>	<b>Lab ID: QC1056129</b>	<b>Batch: 311012</b>
<b>Matrix: Air</b>	<b>Method: EPA TO-15</b>	<b>Prep Method: METHOD</b>

QC1056129 Analyte	Result	Spiked	Units	Recovery	Qual	Limits
Benzene	8.562	10.00	ppbv	86%		70-130
Benzyl chloride	10.13	10.00	ppbv	101%		70-130
Chlorobenzene	8.769	10.00	ppbv	88%		70-130
1,2-Dichlorobenzene	9.421	10.00	ppbv	94%		70-130
1,4-Dichlorobenzene	9.556	10.00	ppbv	96%		70-130
1,1-Dichloroethane	10.00	10.00	ppbv	100%		70-130
1,2-Dichloroethane	11.36	10.00	ppbv	114%		70-130
1,1-Dichloroethene	10.20	10.00	ppbv	102%		70-130
Methylene Chloride	8.085	10.00	ppbv	81%		70-130
1,2-Dibromoethane	9.502	10.00	ppbv	95%		70-130
Tetrachloroethene	10.11	10.00	ppbv	101%		70-130
Carbon Tetrachloride	11.43	10.00	ppbv	114%		70-130
Toluene	9.455	10.00	ppbv	95%		70-130
1,1,1-Trichloroethane	11.24	10.00	ppbv	112%		70-130
Trichloroethene	9.571	10.00	ppbv	96%		70-130
Chloroform	10.14	10.00	ppbv	101%		70-130
Vinyl Chloride	10.16	10.00	ppbv	102%		70-130
m,p-Xylenes	19.52	20.00	ppbv	98%		70-130
o-Xylene	9.882	10.00	ppbv	99%		70-130
<b>Surrogates</b>						
Bromofluorobenzene	10.47	10.00	ppbv	105%		60-140

### Batch QC

<b>Type: Lab Control Sample Duplicate</b>	<b>Lab ID: QC1056130</b>	<b>Batch: 311012</b>
<b>Matrix: Air</b>	<b>Method: EPA TO-15</b>	<b>Prep Method: METHOD</b>

QC1056130 Analyte	Result	Spiked	Units	Recovery	Qual	Limits	RPD	RPD Lim
Benzene	8.653	10.00	ppbv	87%		70-130	1	25
Benzyl chloride	10.26	10.00	ppbv	103%		70-130	1	25
Chlorobenzene	8.779	10.00	ppbv	88%		70-130	0	25
1,2-Dichlorobenzene	9.642	10.00	ppbv	96%		70-130	2	25
1,4-Dichlorobenzene	9.714	10.00	ppbv	97%		70-130	2	25
1,1-Dichloroethane	10.31	10.00	ppbv	103%		70-130	3	25
1,2-Dichloroethane	11.53	10.00	ppbv	115%		70-130	1	25
1,1-Dichloroethene	10.22	10.00	ppbv	102%		70-130	0	25
Methylene Chloride	8.024	10.00	ppbv	80%		70-130	1	25
1,2-Dibromoethane	9.683	10.00	ppbv	97%		70-130	2	25
Tetrachloroethene	10.33	10.00	ppbv	103%		70-130	2	25
Carbon Tetrachloride	11.66	10.00	ppbv	117%		70-130	2	25
Toluene	9.574	10.00	ppbv	96%		70-130	1	25
1,1,1-Trichloroethane	11.47	10.00	ppbv	115%		70-130	2	25
Trichloroethene	9.784	10.00	ppbv	98%		70-130	2	25
Chloroform	10.30	10.00	ppbv	103%		70-130	2	25
Vinyl Chloride	9.760	10.00	ppbv	98%		70-130	4	25
m,p-Xylenes	19.86	20.00	ppbv	99%		70-130	2	25
o-Xylene	10.06	10.00	ppbv	101%		70-130	2	25
<b>Surrogates</b>								
Bromofluorobenzene	10.48	10.00	ppbv	105%		60-140		

### Batch QC

<b>Type: Blank</b>	<b>Lab ID: QC1056131</b>	<b>Batch: 311012</b>
<b>Matrix: Air</b>	<b>Method: EPA TO-15</b>	<b>Prep Method: METHOD</b>

QC1056131 Analyte	Result	Qual	Units	RL	Prepared	Analyzed
Benzene	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
Benzyl chloride	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
Chlorobenzene	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
1,2-Dichlorobenzene	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
1,4-Dichlorobenzene	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
1,1-Dichloroethane	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
1,2-Dichloroethane	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
1,1-Dichloroethene	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
Methylene Chloride	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
1,2-Dibromoethane	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
Tetrachloroethene	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
Carbon Tetrachloride	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
Toluene	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
1,1,1-Trichloroethane	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
Trichloroethene	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
Chloroform	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
Vinyl Chloride	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
m,p-Xylenes	ND		ppbv	0.40	04/04/23 11:24	04/04/23 11:24
o-Xylene	ND		ppbv	0.20	04/04/23 11:24	04/04/23 11:24
<b>Surrogates</b>				<b>Limits</b>		
Bromofluorobenzene	98%		%REC	60-140	04/04/23 11:24	04/04/23 11:24

ND Not Detected



# Results

SCAQMD 25.3/10.1 Results Summary

Parameter	Units	Nomenclature	Sample 1	Sample 2
Enthalpy LR/Sample ID #	none	Eid	482670-007	482670-008
Client Sample ID#	none	Cid	WM LANCASTER FLARE EXH RUN 1 (16A)	WM LANCASTER FLARE EXH RUN 1 (16B)
<b>Sample Data</b>				
Canister ID #	none	Tid	C80094	C80014
Canister Volume	Liters (L)	Vc	6.0	6.0
Initial Canister Pressure	mmHg (A)	Pi	0.0	0.0
Initial Canister Pressure Check Date	mm/dd/yy	none	3/28/2023	3/28/2023
Post Sampling Canister Pressure	mmHg (A)	Pr	494.5	468.1
Post Purge Final Canister Pressure	mmHg (A)	Pf	900.20	900.00
Canister Receipt Date	mm/dd/yy	none	4/3/2023	4/3/2023
Atmospheric Pressure	mmHg (A)	Pa	760.0	760.0
Canister Dilution Factor	none	Dftank	1.82	1.92
Sample Volume	Liters (L)	Vsample	3.90	3.70
Aqueous Impinger Volume	Milliliters (ml)	Vi	2.969	2.762
TOC Analysis Dilution Factor	none	Dftoc	4.0	4.0
Ideal Gas Volume	Liters/mole	Vid	24.47	24.47
Atomic Weight of Carbon	grams/mole	Ac	12.01	12.01
Bias Correction Factor	none	Cfb	1.086	1.086
<b>Results and Calculations</b>				
Avg Raw TOC Result	ppmC	Ci	0.26	0.30
TOC Trip Blank Result	ppmC	Cb	0.07	0.07
Final Gaseous TOC Result = (((Ci - Cb) x TOCdf) x Vi x Pa x Vid) / (Vc x Pr x Ac)	ppmC	Cw	1.15	1.34
Avg Raw NMNEOC Result	ppmC	Cm	0.20	0.20
Final NMNEOC Result = Cm x (Pf/Pr-Pi)	ppmC	Cc	0.36	0.38
Final Methane Result = Avg Conc x (Pf/Pr-Pi)	ppmC	Cmt	< 1.8	< 1.9
Final Carbon Monoxide Result = Avg Conc x (Pf/Pr-Pi)	ppmC	Cco	60.6	15.7
Final Ethene/Ethane Result = Avg Conc x (Pf/Pr-Pi)	ppmC	Cet	< 1.8	< 1.9
Final Carbon Dioxide Result = Avg Conc x (Pf/Pr-Pi)	%v/v	Cco2	6.8	6.8
Final Oxygen Result = Avg Conc x (Pf/Pr-Pi)	%v/v	Co2	12.9	12.9
Final TNMNEOC Result = (Cc + Cw) x Cfb	ppmC	Cvoc	1.6	1.9





# Sample Data

	Sample 1	Sample 2
Enthalpy ID	482670-007	482670-008
Client ID	WM LANCASTER FLARE EXH RUN 1 (16A)	WM LANCASTER FLARE EXH RUN 1 (16B)
LIMS Batch ID:	311231	311231
Canister ID #	C80094	C80014
Canister Cleaning Date	3/24/2023	3/24/2023
Canister Volume	6.0	6.0
Initial Canister Pressure	0	0
Canister Pressure Check Date	3/28/2023	3/28/2023
Post Sampling Canister Pressure	-265.5	-291.9
Post Purge Final Canister Pressure	140.2	140.0
Canister Receipt and Purge Date	4/3/2023	4/3/2023
Analysis Date/Time	4/7/2023	4/7/2023
Reagent Water ID	032823A	032823A
Vial ID#	16A	16B
TOC final return Volume	2.9693	2.7618
TOC Analytical Dilution Factor	4.00	4.00
Result 1	0.90	0.70
Result 2	0.90	0.70
RPD %	0.00	0.00
Avg Methane Result	0.90	0.70
Result 1	33.30	8.30
Result 2	33.30	8.00
RPD %	0.00	3.68
Avg Carbon Monoxide Result	33.30	8.15
Result 1	0.20	0.20
Result 2	0.20	0.20
RPD %	0.00	0.00
Avg TNMNEOC Result	0.20	0.20
Result 1	37301.20	35366.00
Result 2	37379.50	35355.20
RPD %	0.21	0.03
Avg Carbon Dioxide Result	37340.35	35360.60
Result 1	0.00	0.00
Result 2	0.00	0.00
RPD %	#DIV/0!	#DIV/0!
Avg Ethene/Ethane Result	0.0	0.0
Result 1	7.10	6.70
Result 2	7.10	6.70
RPD %	0.00	0.00
Avg Oxygen Result	7.10	6.70
Result 1	42.40	40.30
Result 2	42.40	40.20
RPD %	0.00	0.25
Avg Nitrogen Result	42.40	40.25
Avg raw TOC	0.2599	0.2954
TOC Blank	0.0748	0.0748
Fixed Gases Total %	96.9	97.1

Title : c:\bruker\sw\data\2023\040623\_25\_3\2023-04-07 01-31-38\_482670-007 inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\bruker\sw\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mch  
Sample ID : 482670-007

Injection Date: 2023-04-07 01:31 Calculation Date: 2023-04-13 15:30

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCD#1 Sample Rate : 5.00 Hz  
Channel : Middle = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Methana	0.9	4.941	0.041	5609	BB	8.6	
2	Carbon Monox	33.3	7.028	-0.001	203350	BB	16.0	
3	NMNEOC	0.2	14.582	0.875	6373	BB	30.6	
Totals:		34.4		0.915	215332			

Total Unidentified Counts : 22970 Counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 3

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSS: 1 microVolts

Noise (used): 35 microVolts - monitored before this run

Manual Injection

Warning: Include Origin with 1/n, 1/nx, or 1/nx2 Weight

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Title : c:\bruker\ms\data\2023\040623\_25\_3\2023-04-07\_01-31-38\_482670-007 inj 1 - master scaqmd 253 analysis 022822 fgl21922.run  
Run File : c:\bruker\ms\data\2023\040623\_25\_3\2023-04-07\_01-31-38\_482670-007 inj 1 - master scaqmd 253 quant 022822 fgl21922.mch  
Method File : c:\bruker\ms\data\2023\040623\_25\_3\2023-04-07\_01-31-38\_482670-007 inj 1 - master scaqmd 253 quant 022822 fgl21922.mch  
Sample ID : 482670-007

Injection Date: 2023-04-07 01:31 Calculation Date: 2023-04-12 15:16

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-45SD \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No	Peak Name	Result	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Dioxi	37301.2	4.775	-1.729	419788064	BB	18.3	M
2	Ethane	9.940						
Totals:		37301.2		-1.729	419788064			

Status Codes:  
M - Missing peak

Total Unidentified Counts : 55771 counts

Detected Peaks: 8 Rejected Peaks: 4 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 27 microVolts - monitored before this run

Manual injection

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Title : c:\bruker\msdata\2023\040623\_25\_3\2023-04-07 01-31-38\_482670-007 inj\_1 -master.scagmd 253 analysis 022822 fg121922.run  
Run File : c:\bruker\msdata\2023\040623\_25\_3\2023-04-07 01-31-38\_482670-007 inj\_1 -master.scagmd 253 quant 022822 fg121922.mch  
Method File : c:\bruker\msmethods\active\_gc\_methods 2022\master.scagmd 253 quant 022822 fg121922.mch  
Sample ID : 482670-007

Injection Date: 2023-04-07 01:31 Calculation Date: 2023-04-12 14:54

Operator : MPD Detector Type: 4XX-GC (10 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCD#1 Sample Rate : 5.00 Hz  
Channel : Rear = TCD Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No	Peak Name	Result (%)	Ret. Time (min)	Ret. Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Code
1	Helium		2.000					M
2	Hydrogen		2.350					M
3	Oxygen	7.1	3.029	-0.096	2456200	BV	3.4	
4	Nitrogen	42.4	3.537	-0.010	11491451	VB	8.9	
5	Methane		4.789					M
6	Carbon Monox		7.011					M
Totals:		49.5		-0.106	13947651			

Status Codes:

M - Missing Peak

Total Unidentified Counts : 93166 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 6

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -17215 microVolts LSB: 1 microVolts

Noise (used): 200 microVolts - fixed value

Noise (monitored before this run): 308 microVolts

Manual Injection

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Injection Date: 2023-04-07 01:57 Calculation Date: 2023-04-13 15:32

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
 Workstation: Windows Bus Address : 44  
 Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
 Channel : Middle - FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-45SD \*\*

Run Mode : Analysis - Subtract Blank Baseline  
 Peak Measurement: Peak Area  
 Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Methane	0.9	4.941	0.041	5990	BB	8.9	
2	Carbon Monox	33.3	7.022	-0.007	203709	BB	16.0	
3	NMNEOC	0.2	14.585	0.878	4256	BB	34.2	
Totals:					34.4		213855	

Total Unidentified Counts : 22266 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 3

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 25 microVolts - monitored before this run

Manual Injection

Warning: Include Origin with 1/n, 1/nx, or 1/nx2 Weight

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Title : c:\brukerws\data\2023\040623\_25\_3\2023-04-07\_01-57-27\_482670-007 inj\_2 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerws\data\2023\040623\_25\_3\2023-04-07\_01-57-27\_482670-007 inj\_2 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerws\methods\active\_gc\_methods\_2022\master\_scaqmd\_253\_quant\_022822\_fg121922.mch  
Sample ID : 482670-007

Injection Date: 2023-04-07 01:57 Calculation Date: 2023-04-12 15:16

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCX#1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-BB0-4SSD \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Dioxi	37379.5	4.775	-1.729	420668928	BB	18.3	M
2	Ethane	9.940						
Totals:		37379.5		-1.729	420668928			

Status Codes:  
M - Missing peak

Total Unidentified Counts : 57241 counts

Detected Peaks: 8 Rejected Peaks: 3 Identified Peaks: 2

Multiplic: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 20 microVolts - monitored before this run

Manual injection

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Title : c:\bruker\work\2023\040523\_25\_3\2023-04-07\_01-57-27\_482670-007\_inj\_2-master.scagmd 253 analysis 022822 fg121922.run  
 Run File : c:\bruker\work\2023\040523\_25\_3\2023-04-07\_01-57-27\_482670-007\_inj\_2-master.scagmd 253 analysis 022822 fg121922.run  
 Method File : c:\bruker\work\methods\active\_gc\_methods\2022\master.scagmd 253 quant 022822 fg121922.mch  
 Sample ID : 482670-007

Injection Date: 2023-04-07 01:57 Calculation Date: 2023-04-12 14:55

Operator : MPD Detector Type: 4XX-GC (10 Volts)  
 Workstation: Windows Bus Address : 44  
 Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
 Channel : Res = TCD Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-B90-459D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
 Peak Measurement: Peak Area  
 Calculation Type: External Standard

Peak No	Peak Name	Result (\$V)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Helium		2.000					M
2	Hydrogen		2.350					M
3	Oxygen	7.1	3.028	-0.097	2455027	BV	3.4	
4	Nitrogen	42.4	3.537	-0.010	11500133	VB	8.9	
5	Methane		4.789					M
6	Carbon Monox	0.1	6.919	-0.092	15233	BB	0.0	
Totals:		49.6		-0.199	13970393			

Status Codes:  
 M - Missing peak

Total Unidentified Counts : 101893 counts

Detected Peaks: 6 Rejected Peaks: 0 Identified Peaks: 6  
 Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -1736 microVolts ISB: 1 microVolts

Noise (used): 200 microVolts - fixed value  
 Noise (monitored before this run): 61 microVolts

Manual Injection

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Title : c:\brukerws\data\2023\040623\_25\_3\2023-04-07 02-23-13 482670-008 inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerws\data\2023\040623\_25\_3\2023-04-07 02-23-13 482670-008 inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerws\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mch  
Sample ID : 482670-008

Injection Date: 2023-04-07 02:23 Calculation Date: 2023-04-07 14:59

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCRA#1 Sample Rate : 5.00 Hz  
Channel : Middle - FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: External Standard  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Methane	0.7	4.928	0.028	4214	BB	8.3	
2	Carbon Monox	8.3	7.055	0.010	50638	BB	19.4	
3	NMNH2C	0.2	14.675	1.158	6083	BB	27.0	
Totals:		9.2		1.196	60935			

Total Unidentified Counts : 4635 counts

Detected Peaks: 5 Rejected Peaks: 1 Identified Peaks: 3

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts USB: .1 microVolts

Noise (used): 27 microVolts - monitored before this run

Manual injection

Warning: Include Origin with 1/n, 1/nx, or 1/nx2 Weight

Title : c:\bruker\sw\data\2023\040623\_25\_3\2023-04-07\_02-23-13\_482670-008 inj 1 - master eaagmd 253 analysis 022822 fg121922.run  
Run File : c:\bruker\sw\data\2023\040623\_25\_3\2023-04-07\_02-23-13\_482670-008 inj 1 - master eaagmd 253 quant 022822 fg121922.mch  
Method File : c:\bruker\sw\methods\active\_gc\_methods\2022\master eaagmd 253 quant 022822 fg121922.mch  
Sample ID : 482670-008

Injection Date: 2023-04-07 02:23 Calculation Date: 2023-04-12 15:16

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCR#1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSMS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-BA0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Diox	35366.0	4.788	-1.716	399008672	BB	18.4	M
2	Ethane	9.940						
Totals:		35366.0		-1.716	399008672			

Status Codes:  
M - Missing peak

Total Unidentified Counts : 65484 counts

Detected Peaks: 9 Rejected Peaks: 4 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 14 microVolts - monitored before this run

Manual injection

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Title : c:\bruker\sw\data\2023\040623\_25\_3\2023-04-07\_02-23-13\_482670-008 inj 1 - master scaqmd 253 analysis 022622 fg121922.run  
Method File : c:\bruker\sw\methods\active\_gc\_methods\2022\master scaqmd 253 quant 022622 fg121922.mch  
Sample ID : 482670-008

Injection Date: 2023-04-07 02:23 Calculation Date: 2023-04-12 14:55

Operator : MPD Detector Type: 4XX-GC (10 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/FCA#1 Sample Rate : 5.00 Hz  
Channel : Rear = TCD Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01197-6211-B80-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation type: External Standard

Peak No.	Peak Name	Result (kV)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Helium		2.000					M
2	Hydrogen		2.350					M
3	Oxygen	6.7	3.028	-0.097	2320200	BV	3.4	
4	Nitrogen	40.3	3.541	-0.006	10935237	VB	9.1	
5	Methane		4.789					M
6	Carbon Monox		7.011					M
Totals:		47.0		-0.103	13255437			

Status Codes:

M - Missing peak

Total Unidentified Counts : 84552 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 6

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -16194 microVolts LSB: 1 microVolts

Noise (used): 200 microVolts - fixed value

Noise (monitored before this run): 161 microVolts

Manual Injection

\*\*\*\*\*

Title : c:\brukerws\data\2023\040623\_25\_3\2023-04-07 02-48-59 482670-008 inj\_2 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerws\methods\active\_gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
Method File : c:\brukerws\methods\active\_gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : 482670-008

Injection Date: 2023-04-07 02:48 Calculation Date: 2023-04-07 14:59  
Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Middle ~ FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis ~ Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Methane	0.7	4.932	0.032	4134	BB	8.5	
2	Carbon Monox	8.0	7.035	-0.010	48728	BB	18.1	
3	NMNEBC	0.2	14.685	1.168	4676	BB	40.8	
Totals:		8.9		1.190	57536			

Total Unidentified Counts : 20394 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 3

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: .1 microVolts

Noise (used): 60 microVolts - monitored before this run

Manual Injection

Warning: Include Origin with 1/n, 1/nx, or 1/nx2 Weight

\*\*\*\*\*

Title : c:\bruker\sw\data\2023\040623\_25\_3\2023-04-07\_02-48-59\_482670-008\_inj\_2 - master.scagmd 253 analysis 022822 fg121922.run  
Method File : c:\bruker\sw\methods\active\_gc\_methods\_2022\master.scagmd 253 quant 022822 fg121922.mch  
Sample ID : 482670-008

Injection Date: 2023-04-07 02:48 Calculation Date: 2023-04-12 15:17

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSMS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-BE0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Dioxi	35355.2	4.785	-1.719	397887296	BB	18.4	M
2	Ethane	9.940						
Totals:		35355.2		-1.719	397887296			

Status Codes:  
M - Missing peak

Total Unidentified Counts : 72091 counts

Detected Peaks: 10 Rejected Peaks: 5 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSS: 1 microVolts

Noise (used): 11 microVolts - monitored before this run

Manual injection

\*\*\*\*\*

Title : c:\bruker\work\2023\040623\_25\_3\2023-04-07\_02-48-59\_482670-008 inj\_2 - master scaqmd 253 analysiis 022822 fg121922.run  
Method File : c:\bruker\work\methods\active\_gc\_methods\_2022\master\_scaqmd\_253\_quant\_022822\_fg121922.mch  
Sample ID : 482670-008

Injection Date: 2023-04-07 02:48 Calculation Date: 2023-04-12 14:55

Operator : MPD Detector Type: 4XX-GC (10 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCR#1 Sample Rate : 5.00 Hz  
Channel : Rear = TCD Run Time : 23.000 min

\*\* MSMS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result (%)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Helium		2.000					M
2	Hydrogen		2.350					M
3	Oxygen	6.7	3.027	-0.098	2321923	BV	3.4	
4	Nitrogen	40.2	3.540	-0.007	10899857	V3	8.7	M
5	Methane		4.789					M
6	Carbon Monox		7.011					M
Totals:		46.9		-0.105	13221780			

Status Codes:

M - Missing peak

Total Unidentified Counts : 114932 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 6

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -18475 microVolts LSB: 1 microVolts

Noise (used): 200 microVolts - fixed value

Noise (monitored before this run): 133 microVolts

Manual injection

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General Info  
 Analysis Name 20230407A.adb  
 Template Name 040723.tdb  
 Operator Administrator  
 Date 4/7/2023  
 Time 8:38:07 AM

Element	Integration Time	Samples	Template Settings		Volume	Max Conc.
			Extra Samples	Max. CV		
Carbon	75	3	2	5	200	20
Nitrogen	100	2	2	2	200	20
Sample Time	300					

CurveNo	Type	FileName:	Calibration Info			A0:	A1:	A2:
			Volume	Correlation	R-squared			
1	IC	20210913C.adb	200	0.999016	0.99803	0	604,338	0
2	TC	20211018C.adb	200	0.999756	0.99951	0	517,086	0

Identification	Inj. Type	Sample Info			Inj. Volume
		Conc.	Area	CV	
System Rinse	TOC	0.0972	-	-	
	TC	0.2178	112626	4.7	200
	IC	0.1206	72888	1.9	200
MB 040723	TOC	0.0869	-	-	
	TC	0.1913	98944	8.7	200
	IC	0.1045	63124	2.6	200
RL check 1.0 ug/ml S18102	TOC	0.9503	-	-	
	TC	1.4005	724172	4.1	200
	IC	0.4502	272085	2.8	200
CCV 10ug/ml S18103	TOC	9.1407	-	-	
	TC	9.5938	4960804	1.0	200
	IC	0.4531	273831	2.8	200
Water Blank	TOC	0.1048	-	-	
	TC	0.2629	135957	11.4	200
	IC	0.1581	95560	1.0	200
482670 Trip Blank	TOC	0.0748	-	-	
	TC	0.2106	108867	8.6	200
	IC	0.1358	82041	4.5	200
482670-007 4x	TOC	0.2599	-	-	
	TC	1.0401	537846	4.5	200
	IC	0.7803	471552	4.8	200
482670-008 4x	TOC	0.2954	-	-	
	TC	1.1988	619904	3.8	200
	IC	0.9035	546006	1.6	200
H2O blank	TOC	0.2898	-	-	
	TC	0.5027	259953	5.2	200
	IC	0.2130	128698	6.9	200
RL check 1.0 ug/ml S18102	TOC	0.9035	-	-	
	TC	1.2764	659992	7.1	200
	IC	0.3729	225350	2.6	200
CCV 10ug/ml S18103	TOC	9.2964	-	-	
	TC	9.6864	5008725	0.4	200
	IC	0.3901	235740	2.2	200



# QA/QC Data



## SCAQMD 25.3/10.1 QAQC Summary

Opening TNMNEOC CV's				
Analyte	Target	Result	% rec	Rec Limit
TNMNEOC Low	1.0	1.0	100.0	90-110
TNMNEOC High	10.4	10.9	104.8	90-110

Opening FG's CV's				
Analyte	Target	Result	% rec	Rec Limit
Oxygen	21.5	20.4	94.9	85-115
Nitrogen	78.1	76.7	98.2	85-115
Carbon Monoxide	5.00	5.1	102.0	85-115
Methane	5.02	5.1	101.6	85-115
Carbon Dioxide	4.99	4.4	87.6	85-115

Opening TOC CV's				
Analyte	Target	Result	% rec	Rec Limit
TOC	10.00	9.1	91.4	90-110

Continuing TNMNEOC CV's				
Analyte	Target	Result	% rec	Rec Limit
TNMNEOC Low	1.0	1.0	100.0	90-110
TNMNEOC High	10.4	10.9	104.8	90-110

Closing TNMNEOC CV's				
Analyte	Target	Result	% rec	Rec Limit
TNMNEOC Low	1.0	1.0	100.0	90-110
TNMNEOC High	10.4	10.9	104.8	90-110

Closing FG's CV's				
Analyte	Target	Result	% rec	Rec Limit
Oxygen	21.5	20.3	94.4	85-115
Nitrogen	78.1	76.5	98.0	85-115
Carbon Monoxide	5.00	5.1	101.9	85-115
Methane	5.02	5.1	101.7	85-115
Carbon Dioxide	4.99	4.4	87.7	85-115

Closing TOC CV's				
Analyte	Target	Result	% rec	Rec Limit
TOC	10.00	9.3	93.0	90-110

Title : c:\brukerwa\data\2023\040623 25.3\2023-04-06 16-29-46 argon blank inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerwa\data\2023\040623 25.3\2023-04-06 16-29-46 argon blank inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerwa\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mch  
Sample ID : Argon Blank

Injection Date: 2023-04-06 16:29 Calculation Date: 2023-04-07 14:36

Operator : MPP Detector Type: 4XX-CC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/PCA#1 Sample Rate : 5.00 Hz  
Channel : Maddle = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Methane		4.590					M
2	Carbon Monox		7.045					M
3	NMECC		13.517					M
Totals:			0.0	0.000	0			

Status Codes:  
M - Missing Peak

Total Unidentified Counts : 5567 counts

Detected Peaks: 2 Rejected Peaks: 1 Identified Peaks: 3

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 47 microVolts - monitored before this run

Manual Injection

Warning: Include Origin with 1/n, 1/nX, or 1/nX2 Weight

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Title : c:\brukerws\data\2023\040623\_25.3\2023-04-06 16:29-46 argon blank inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerws\methods\vective gc methods 2022\master scaqmd 253 quant 022822 fg121922.mch  
Method File : Argon Blank  
Sample ID : Argon Blank

Injection Date: 2023-04-06 16:29 Calculation Date: 2023-04-12 14:41  
Operator : MPP Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Run Address: 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-EBD-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Dioxid		6.304					M
2	Ethane		9.340					M
Totals:					0.0	0.000		

Status Codes:  
M - Missing peak

Total Unidentified Counts : 167221 counts

Detected Peaks: 12 Rejected Peaks: 9 Unidentified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 12 microVolts - monitored before this run

Manual injection

\*\*\*\*\*

Title : c:\brukerws\data\2023\040623 25.3\2023-04-06 16-29-46 argon blank inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerws\data\2023\040623 25.3\2023-04-06 16-29-46 argon blank inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerws\methods\active gc methods 2022\master scaqmd 253 quent 022822 fg121922.mtb  
Sample ID : Argon Blank

Injection Date: 2023-04-06 16:29 Calculation Date: 2023-04-12 14:50

Operator : MPD Detector Type: 4XX-GC (10 Volts)  
Workstation : Windows Bus Address : 44  
Instrument : Bruker GC/ICM#1 Sample Rate : 5.00 Hz  
Channel : Rear = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BE0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result (kV)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code (sec)	Width 1/2	Status Codes
1	Helium		2.000					M
2	Hydrogen		2.350					M
3	Oxygen		3.125					M
4	Nitrogen		4.250					M
5	Methane		7.011					M
6	Carbon Monox							M
Totals:			0.0	0.000	0			

Status Codes:  
M - Missing peak

Total Unidentified Counts : 21135 counts

Detected Peaks: 3 Rejected Peaks: 1 Unidentified Peaks: 6

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -17730 microVolts LSB: 1 microVolts

Noise (used): 200 microVolts - fixed value  
Noise (monitored before this run): 64 microVolts

Manual injection

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Title : c:\brukerw\data\2023\040623\_25.3\2023-04-06 16-55-36 argon blank inj 2 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerw\methods\nactive gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : Argon Blank **3MP**

Injection Date: 2023-04-06 16:55 Calculation Date: 2023-04-07 14:36

Operator : MEP  
Workstation: Windows  
Instrument : Bruker GC/TCA#1  
Channel : Middle = FID  
Detector Type: 4XX-SC (1000 Volts)  
Bus Address : 44  
Sample Rate : 5.00 Hz  
Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-45SD \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Methane		4.590					M
2	Carbon Monox		7.045					M
3	NMNEOC		13.517					M
Totals:		0.0		0.000				

Status Codes:  
M - Missing peak

Total Unidentified Counts : 27717 counts

Detected Peaks: 2 Rejected Peaks: 0 Identified Peaks: 3

Multipplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 72 microVolts - monitored before this run

Manual Injection

Warning: Include Origin with 1/n, 1/nX, or 1/nX2 Weight

\*\*\*\*\*

Injection Date: 2023-04-06 16:55 Calculation Date: 2023-04-12 14:41  
 Operator : MPP Detector Type: 4X-GC (1000 Volts)  
 Installation : Windows Sample Address :  
 Instrument : Bruker GC/TCR#1 Sample Rate : 5.00 Hz  
 Channel : Front = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
 Peak Measurement: Peak Area  
 Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Dioxide	6.504	6.504					M
2	Ethane	9.940	9.940					M
Totals:								0.000

Status Codes:  
 M - Missing peak

Total Unidentified Counts : 155041 counts

Detected Peaks: 5 Rejected Peaks: 2 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 25 microVolts - monitored before this run

Manual injection

\*\*\*\*\*

Title : c:\brukerws\data\2023\040623\_25.3\2023-04-06 16-55-36 argon blank inj 2 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerws\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mch  
Sample ID : Argon Blank **WMP**

Injection Date: 2023-04-06 16:55 Calculation Date: 2023-04-12 14:50

Operator : MPP Detector Type: 4XX-GC (10 Volts)  
Yield : 100% Bus Address : 4400 Hz  
Instrument : Bruker GC/IC#1 Sample Rate : 23.000 min  
Channel : Rear = TCD Run Time

\*\* MSWS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-BB0-495D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result (RV)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Helium		2.000					M
2	Hydrogen		2.350					M
3	Nitrogen		3.447					M
4	Oxygen		3.789					M
5	Methane		4.789					M
6	Carbon Monox		7.011					M
Totals:			0.0	0.000	0			

Status Codes:  
M - Missing peak

Total Unidentified Counts : 10456 counts

Detected Peaks: 2 Rejected Peaks: 0 Identified Peaks: 6

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -16364 microVolts LSB: 1 microVolts

Noise (used): 200 microVolts - fixed value  
Noise (monitored before this run): 78 microVolts

Manual injection

\*\*\*\*\*

Injection Date: 2023-04-06 17:21 Calculation Date: 2023-04-17 08:31  
 Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
 Workstation: Windows Bus Address: 44  
 Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
 Channel : Middle = FID Run Time : 23.000 min  
 \*\* MSWS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
 Peak Measurement: Peak Area  
 Calculation Type: External Standard

Peak No	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	SEP. Code (sec)	Width I/2 (sec)	Status Codes
1	Methane	0.9	4.942	0.042	5461	BB	8.6	
2	Carbon Monox	3.0	7.301	0.231	18300	BB	13.8	
3	NMNEOC	1.0	14.242	-0.405	24471	BB	19.6	
Totals:		4.9		-0.132	48232			

Total Unidentified Counts : 374509 counts  
 Detected Peaks: 6 Rejected Peaks: 0 Identified Peaks: 3  
 Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0  
 Baseline Offset: 40 microVolts LSB: 1 microVolts  
 Noise (used): 47 microVolts - monitored before this run  
 Manual injection

Warning: Include Origin with 1/n, 1/nX, or 1/nX2 Weight  
 \*\*\*\*\*



Title : c:\brukerw\data\2023\040623\_25.3\2023-04-06 17-21-23 1.0 ppmc s15523 inj 1 - master sceqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerw\data\2023\040623\_25.3\2023-04-06 17-21-23 1.0 ppmc s15523 inj 1 - master sceqmd 253 quant 022822 fg121922.mth  
Method File : c:\brukerw\methode\active gc methods 2022\master sceqmd 253 quant 022822 fg121922.mth  
Sample ID : 1.0 ppmc 515523

Injection Date: 2023-04-06 17:21 Calculation Date: 2023-04-12 14:42

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/IC#1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSMS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-880-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result PpmCarbon	Ret. Time (min)	Time Offset (min)	Area (Counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Dioxi	1.0	4.858	-1.546	10783	BB	20.3	
2	Ethane	0.9	9.962	0.022	9165	BB	27.9	
Totals:					1.9	-1.524	19948	

Total Unidentified Counts : 158301 counts

Detected Peaks: 17 Rejected Peaks: 10 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 9 microVolts - monitored before this run

Manual injection

\*\*\*\*\*

Injection Date: 2023-04-06 17:47 Calculation Date: 2023-04-17 08:32  
 Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
 Workstation: Windows Bus Address: 44  
 Instrument : Bruker GC/TCA#1 Sample Rate: 5.00 Hz  
 Channel : Middle = FID Run Time : 23.000 min  
 \*\* MSWS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*  
 Run Mode : Analysis - Subtract Blank Baseline  
 Peak Measurement: Peak Area  
 Calculation Type: External Standard

Peak No.	Peak Name	Result ppmcarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Methane	0.9	4.940	0.040	5688	BB	9.3	
2	Carbon Monox	2.9	7.301	0.231	17427	BB	13.5	
3	NMNSOC	1.0	14.258	-0.389	25838	BB	19.6	
Totals:		4.8		-0.118	48953			

Total Unidentified Counts : 336771 counts  
 Detected Peaks: 7 Rejected Peaks: 2 Identified Peaks: 3  
 Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0  
 Baseline Offset: 0 microVolts LSB: 1 microVolts  
 Noise (used): 28 microVolts - monitored before this run  
 Manual injection

warning: Include Origin with 1/n, 1/nX, or 1/nX2 Weight

Title : c:\brukerwa\data\2023\040623\_25\3\2023-04-06 17-47-10 1.0 ppmc s15523 inj 2 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerwa\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mch  
Sample ID : 1.0 ppmc s15523 **ppm**

Injection Date: 2023-04-06 17:47 Calculation Date: 2023-04-12 14:43

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 49  
Instrument : Bruker GC/PCA#1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Dioxi	1.0	4.968	-1.536	10779	BB	20.3	
2	Ethane	1.0	10.005	0.065	9633	BB	29.5	
Totals:				-1.471	20412			

Total Unidentified Counts : 148035 counts

Detected Peaks: 7 Rejected Peaks: 2 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -1 microVolts LSB: 1 microVolts

Noise (used): 27 microVolts - monitored before this run

Manual Injection

\*\*\*\*\*

Injection Date: 2023-04-06 18:12 Calculation Date: 2023-04-17 08:34  
 Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
 Workstation: Windows Bus Address : 44  
 Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
 Channel : Middle = FID Run Time : 23.000 min  
 \*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*  
 Run Mode : Analysis - Subtract Blank Baseline  
 Peak Measurement: Peak Area  
 Calculation Type: External Standard

Peak No	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Code
1	Methane	9.7	4.943	0.043	60931	BB	9.4	
2	Carbon Monox	6.2	7.140	0.070	37962	BB	23.1	
3	NMNEOC	10.9	14.232	-0.415	266741	BB	17.8	
Totals:		26.8		-0.302	365624			

Total Unidentified Counts : 307941 counts  
 Detected Peaks: 6 Rejected Peaks: 1 Identified Peaks: 3  
 Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0  
 Baseline Offset: 0 microVolts LSB: 1 microVolts  
 Noise (used): 93 microVolts - monitored before this run  
 Manual injection  
 Warning: Include Origin with 1/n, 1/nX, or 1/nX2 Weight

\*\*\*\*\*

Title : c:\brukerws\data\2023\040623\040623\_25\_3\2023-04-06 18-12-58 10 ppmc s16946 inj 1 - master scaqmd 253 analysis 022922 fg121922.run  
Run File : c:\brukerws\data\2023\040623\040623\_25\_3\2023-04-06 18-12-58 10 ppmc s16946 inj 1 - master scaqmd 253 analysis 022922 fg121922.run  
Method File : c:\brukerws\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : 10 ppmc S16946

Injection Date: 2023-04-06 18:12 Calculation Date: 2023-04-12 14:43

Operator : MFD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCM1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSMS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-SB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak NO.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon DIOxi	9.3	4.945	-1.559	104621	BB	19.0	
2	Ethane	10.3	9.992	0.052	103672	BB	29.3	
Totals:		19.6		-1.507	208493			

Total Unidentified Counts : 152829 counts

Detected Peaks: 12 Rejected Peaks: 5 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 13 microVolts - monitored before this run

Manual injection

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Title : c:\bruker\sw\data\2023\040623\_25\_3\2023-04-06 10-38-43 10 ppmc s16946 inj.2 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\bruker\sw\data\2023\040623\_25\_3\2023-04-06 10-38-43 10 ppmc s16946 inj.2 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\bruker\sw\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : 10 ppmc s16946 PVA

Injection Date: 2023-04-06 18:38 Calculation Date: 2023-04-17 08:35

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address: 44  
Instrument : Bruker GC/TGA#1 Sample Rate : 5.00 Hz  
Channel : Middle = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	SEP. Cnt	Width (sec)	Status Code
1	Methane	9.7	4.946	0.046	60786	BB	9.4	
2	Carbon Monox	6.2	7.143	0.073	37836	BB	23.4	
3	MMNEOC	10.9	14.225	-0.422	266395	BB	17.7	
Totals:		26.8		-0.303	365017			

Total Unidentified Counts : 370124 counts

Detected Peaks: 6 Rejected Peaks: 0 Identified Peaks: 3

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts USB: 1 microVolts

Noise (used): 23 microVolts - monitored before this run

Manual injection

Warning: Include Origin with i/n, 1/nx, or 1/nx2 Weight

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Title : c:\bruker\sw\data\2023\040623 25.3\2023-04-06 18-38-43 10 ppmc sl6946 inj 2 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\bruker\sw\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : 10 ppmc sl6946

Injection Date: 2023-04-06 18:38 Calculation Date: 2023-04-12 14:43

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 54  
Instrument : Bruker GC/TCD#1 Sample Rate : 5.00 Hz  
Channel : FRONT - FID Run Time : 23.000 min

\*\* MSMS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width (sec)	Status Codes
1	Carbon Dioxi	9.4	4.938	-1.566	106030	BB	18.9	
2	Ethane	10.2	10.005	0.065	103029	BB	29.2	
Totals:		19.6		-1.501	209059			

Total Unidentified Counts : 138136 counts

Detected Peaks: 12 Rejected Peaks: 5 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 3 microVolts LSB: 1 microVolts

Noise (used): 12 microVolts - monitored before this run

Manual Injection

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Print Date: Wed Apr 12 14:44:36 2023 Page 1 of 1  
 Title : c:\brukerw\data\2023\040623 25.3\2023-04-06 19-04-34 fgs ccv a18115 inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
 Run File : c:\brukerw\data\2023\040623 25.3\2023-04-06 19-04-34 fgs ccv a18115 inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
 Method File : c:\brukerw\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
 Sample ID : FGS CCV S18115

Injection Date: 2023-04-06 19:04 Calculation Date: 2023-04-12 14:44

Operator : MPD Detector Type: 4XX-SC (1000 Volts)  
 Workstation : Windows Bus Address : 44  
 Instrument : Bruker GC/TGA#1 Sample Rate : 5.00 Hz  
 Channel : Front \* FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-BE0-45SD \*\*

Run Mode : Analysis - Subtract Blank Baseline  
 Peak Measurement: Peak Area  
 Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Code	Sep. 1/2	Width	Status Codes
1	Carbon D1oxi	43728.3	4.788	-1.746	492118208	BB	18.9		M
2	Ethane	9.940							
Totals:			43728.3	-1.746	492118208				

Status Codes:  
 M - Missing peak

Total Unidentified Counts : 59992 counts

Detected Peaks: 8 Rejected Peaks: 3 Identified Peaks: 2

Multipplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts USB: 1 microVolts

Noise (used): 21 microVolts - monitored before this run

Manual injection

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Title : c:\brukerws\data\2023\040623 25.3\2023-04-06 19-04-34 fgs ccv s18115 inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerws\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : FGS CCV S18115

Injection Date: 2023-04-06 19:04 Calculation Date: 2023-04-12 14:51

Operator : MPD Detector Type: 4XX-GC (10 Volts)  
Workstation : Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 4.00 Kz  
Channel : Rear = TCD Run Time : 23.000 min

\*\* MSMS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-459D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result (%)	Ret. Time (min)	Time Offset (min)	Area (counts)	Width Sep. 1/2 (sec)	Status Codes
1	Helium		2.000				M
2	Hydrogen		2.350				M
3	Nitrogen	3.3	2.654	-0.101	1149009	BB 2.8	
4	Methane	5.1	3.654	0.107	1288308	BB 2.8	
5	Methanol	5.1	4.828	0.049	4207103	BB 9.8	
6	Carbon Monox	5.1	6.820	-0.191	1411639	BB 16.7	
Totals:							8066157

Status Codes:  
M - Missing peak

Total Unidentified Counts : 17874 counts

Detected Peaks: 7 Rejected Peaks: 1 Identified Peaks: 6

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -13624 microVolts LSB: 1 microVolts

Noise (used): 200 microVolts - fixed value  
Noise (monitored before this run): 303 microVolts

Manual Injection

\*\*\*\*\*

Title : c:\brukerws\data\2023\040623\_25\_3\2023-04-06 19-30-17 fgs ccv s18115 inj 2 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerws\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : FGS CCV S18115 **dup**

Injection Date: 2023-04-06 19:30 Calculation Date: 2023-04-12 14:44  
Operator : MPP Detector Type: 4XX-GC (1000 Volts)  
Injection : Windows Bus Address : 4  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSMS 8.0.1 for SCIOW Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Dioxi	43824.0	4.755	-1.749	493195712	BB	18.9	M
Totals:		43824.0		-1.749	493195712			

Status Codes:  
M - Missing Peak

Total Unidentified Counts : 57298 counts

Detected Peaks: 8 Rejected Peaks: 3 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 30 microVolts - monitored before this run

Manual Injection

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Title : c:\bruker\work\data\2023\040623\_25\_3\2023-04-06 19-30-17 fgs ccv s18115 inj 2 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\bruker\work\data\2023\040623\_25\_3\2023-04-06 19-30-17 fgs ccv s18115 inj 2 - master scaqmd 253 quant 022822 fg121922.mch  
Sample ID : FGS CCV S18115 **DWP**

Injection Date: 2023-04-06 19:30 Calculation Date: 2023-04-12 14:52

Operator : MPD Detector Type: 4XX-GC (10 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Rear = ICD Run Time : 23.000 min

\*\* MSMS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result (mV)	Ret. Time (min)	Time Offset (min)	Area (counts)	Width 1/2 (sec)	Status Codes
1	Helium		2.000				M
2	Hydrogen		2.350				M
3	Oxygen	3.3	3.023	-0.102	1153402	BB 3.6	
4	Nitrogen	4.8	3.653	0.106	1300828	BB 5.9	
5	Methane	5.2	4.857	0.046	4274331	BB 9.6	
6	Carbon Monox	5.1	6.819	-0.192	1414384	BB 16.7	
Totals:			18.4	-0.140	8092945		

Status Codes:  
M - Missing peak

Total Unidentified Counts : 15336 counts

Detected Peaks: 7 Rejected Peaks: 1 Identified Peaks: 6

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -13412 microVolts LSB: 1 microVolts

Noise (used): 200 microVolts - fixed value

Noise (monitored before this run): 47 microVolts

Manual injection

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Title : c:\brukers\data\2023\040623 25.3\2023-04-06 19-56-07 lab air inj 1 - master sceqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukers\methods\active gc methods 2022\master sceqmd 253 quant 022822 fg121922.mth  
Method File : Lab Air  
Sample ID : Lab Air

Injection Date: 2023-04-06 19:56 Calculation Date: 2023-04-07 14:43

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Middle = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Methane	2.1	4.943	0.353	13081	BB	9.0	
2	Carbon Monox	0.4	8.045	1.000	2852	BB	24.2	
3	NMNEOC	0.1	14.379	0.862	2060	BB	43.1	
Totals:					2.215	17393		

Total Unidentified Counts : 24379 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 3

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 47 microVolts - monitored before this run

Manual injection

Warning: Include Origin with 1/n, 1/nX, or 1/nX2 Weight

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Title : c:\brukerws\data\2023\040623 25.3\2023-04-06 19-56-07 lab air inj 1 - master scagmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerws\data\2023\040623 25.3\2023-04-06 19-56-07 lab air inj 1 - master scagmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerws\methods\active gc methods 2022\master scagmd 253 quant 022822 fg121922.mth  
Sample ID : Lab Air

Injection Date: 2023-04-06 19:56 Calculation Date: 2023-04-12 14:44  
Operator : MEP Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmcarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Width 1/2 (sec)	Status Codes
1	Carbon Diox1	412.1	4.932	-1.572	4638176	BB 18.8	M
2	Ethane		9.940				
Totals:		412.1		-1.572	4638176		

Status Codes:  
M - Missing Peak

Total Unidentified Counts : 147151 counts

Detected Peaks: 8 Rejected Peaks: 4 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 12 microVolts - monitored before this run

Manual injection

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Title : c:\brukerws\data\2023\040623 25\_3\2023-04-06 19-56-07 Lab air inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerws\data\2023\040623 25\_3\2023-04-06 19-56-07 Lab air inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerws\methods\active\_gc\_methods\2022\master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : Lab Air

Injection Date: 2023-04-06 19:56 Calculation Date: 2023-04-12 14:52

Operator : MPD Detector Type: 4XX-GC (10 Volts)  
Workstation: Windows Bus Address : 44  
Instrument: Bruker GC/TCD#1 Sample Rate : 5.00 Hz  
Channel : Rear = TCD Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak NO.	Peak Name	Result (%V)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Helium		2.000					M
2	Hydrogen		2.350					M
3	Oxygen	20.4	3.030	-0.095	7091394	BV	3.1	
4	Nitrogen	76.7	3.472	-0.075	20788960	VB	11.2	
5	Methane		4.789					M
6	Carbon Monox		7.011					M
Totals:			97.1	-0.170	27880354			

Status Codes:  
M - Missing peak

Total Unidentified Counts : 11752 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 6

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -14771 microVolts LSB: 1 microVolts

Noise (used): 200 microVolts - fixed value  
Noise (monitored before this run): 57 microVolts

Manual injection

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Title : c:\brukerwa\data\2023\040623 25.3\2023-04-06 20-21-52 lab air inj 2 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerwa\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : Lab Air **DUP**

Injection Date: 2023-04-06 20:21 Calculation Date: 2023-04-07 14:44  
Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Midale = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result PPM/Carbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Methane	1.9	4.941	0.351	12156	BB	9.0	
2	Carbon Monox	0.4	8.015	0.970	2322	BB	23.8	
3	NMNEOC	0.1	14.482	0.965	1703	BB	22.7	
Totals:					2.4		16181	

Total Unidentified Counts : 22242 counts  
Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 3  
Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 47 microVolts - monitored before this run

Manual injection

Warning: Include Origin with 1/n, 1/nX, or 1/nX2 Weight

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Title : c:\brukerwa\data\2023\040623 25\_3\2023-04-06 20-21-52 lab air inj 2 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerwa\data\2023\040623 25\_3\2023-04-06 20-21-52 lab air inj 2 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerwa\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mch  
Sample ID : Lab Air *04p*

Injection Date: 2023-04-06 20:21 Calculation Date: 2023-04-12 14:45

Operator : MPD Detector Type: 4XX-SC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width (sec)	Status Codes
1	Carbon Dioxi	419.2	4.928	-1.576	4717399	BB	18.8	M
2	Ethane	9.940	9.940					
Totals:		419.2	-1.576		4717399			

Status Codes:  
M - Missing peak

Total Unidentified Counts : 158894 counts

Detected Peaks: 7 Rejected Peaks: 3 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 28 microVolts - monitored before this run

Manual injection

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Title : c:\brukerws\data\2023\040623\_25\_3\2023-04-06\_20-21-52\_lab air inj 2 -- master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerws\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mch  
Sample ID : Lab Air *YMF*

Injection Date: 2023-04-06 20:21 Calculation Date: 2023-04-12 14:52

Operator : MPD Detector Type: 4XX-GC (10 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Rear = TCD Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result (%)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Helium		2.000					M
2	Hydrogen		2.350					M
3	Oxygen	20.4	3.027	-0.098	7101369	BV	3.1	
4	Nitrogen	76.6	3.470	-0.077	20772488	VB	11.2	M
5	Methane		4.789					M
6	Carbon Monox		7.011					M
Totals:					97.0			
					-0.175		27873857	

Status Codes:  
M - Missing peak

Total Unidentified Counts : 132653 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 6

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -16021 microVolts LSB: 1 microVolts

Noise (used): 200 microVolts - fixed value

Noise (monitored before this run): 393 microVolts

Manual injection

\*\*\*\*\*

Title : c:\bruker\sw\data\2023\040623\_25.2\2023-04-07 00-14-05 argon blank inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\bruker\sw\data\2023\040623\_25.2\2023-04-07 00-14-05 argon blank inj 1 - master scaqmd 253 quant 022822 fg121922.mch  
Method File : c:\bruker\sw\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mch  
Sample ID : Argon Blank

Injection Date: 2023-04-07 00:14 Calculation Date: 2023-04-07 14:37

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Middle = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No	Peak Name	Result ppmCarbon	Ret. Time (min)	Ret. Time (min)	Area (counts)	Area (counts)	Width (sec)	Width (sec)	Status Code
1	Methane	4.590	7.045	7.045					M
2	Carbon Monox	13.517	13.517	13.517					M
Totals:		0.0			0.000				

Status Codes:  
M - Missing peak

Total Unidentified Counts : 4805 counts

Detected Peaks: 2 Rejected Peaks: 1 Identified Peaks: 3

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSS: 1 microVolts

Noise (used): 59 microVolts - monitored before this run

Manual Injection

Warning: Include Origin with 1/n, 1/nX, or 1/nX2 Weight

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Title : c:\bruker\sw\data\2023\040623\_25\_3\2023-04-07 00-14-05 argon blank in 1 - master scaqmd 253 analysis 022822 fgi21922.run  
Run File : c:\bruker\sw\data\2023\040623\_25\_3\2023-04-07 00-14-05 argon blank in 1 - master scaqmd 253 quant 022822 fgi21922.mth  
Method File : c:\bruker\sw\methods\active gc methods 2022\master scaqmd 253 quant 022822 fgi21922.mth  
Sample ID : Argon Blank

Injection Date: 2023-04-07 00:14 Calculation Date: 2023-04-12 14:41

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Front - FID Run Time : 23.000 min

\*\* MSMS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result PpmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Dioxl		6.504					M
2	Ethane		9.940					M
Totals:						0		

Status Codes:  
M - Missing peak

Total Unidentified Counts : 152081 counts

Detected Peaks: 5 Rejected Peaks: 2 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 38 microVolts - monitored before this run

Manual injection

\*\*\*\*\*

Injection Date: 2023-04-07 00:14 Calculation Date: 2023-04-12 14:50  
 Operator : MPD Detector Type: 4XX-GC (10 Volts)  
 Workstation: Windows Bus Address : 44  
 Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
 Channel : Rear = TCD Run Time : 23.000 min  
 \*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
 Peak Measurement: Peak Area  
 Calculation Type: External Standard

Peak NO.	Peak Name	Result (\$V)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Helium	2.000	2.000					M
2	Hydrogen	2.350	2.350					M
3	Oxygen	3.125	3.125					M
4	Nitrogen	3.547	3.547					M
5	Methane	4.789	4.789					M
6	Carbon Monox	7.011	7.011					M
Totals:		0.0		0.000	0			

Status Codes:  
 M - Missing Peak  
 Total Unidentified Counts : 6173 counts  
 Detected Peaks: 3 Rejected Peaks: 0 Identified Peaks: 6  
 Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0  
 Baseline Offset: -19496 microVolts LSB: 1 microVolts

Noise (used): 200 microVolts - fixed value  
 Noise (monitored before this run): 73 microVolts  
 Manual injection

\*\*\*\*\*

Title : c:\bruker\msdata\2023\040623\_25\_3\2023-04-07\_00-39-57\_1.0\_ppmc\_s13523\_inj\_1 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\bruker\msdata\2023\040623\_25\_3\2023-04-07\_00-39-57\_1.0\_ppmc\_s13523\_inj\_1 - master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : 1.0 ppmC S13523

Injection Date: 2023-04-07 00:39 Calculation Date: 2023-04-17 08:41

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Middle = FID Run Time : 23.000 min

v\* MSWS 9.0.1 for SCION Version 9.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Ret. Time Offset (min)	Area (counts)	Sep. Code	Width (sec)	Status Codes
1	Methane	0.8	4.943	0.043	5272	BB	9.0	
2	Carbon Monox	2.4	7.302	0.232	14761	BB	13.8	
3	NNNEOC	1.0	14.235	-0.412	25583	BB	18.9	
Totals:		4.2		-0.137	45616			

Total Unidentified Counts : 359489 counts

Detected Peaks: 6 Rejected Peaks: 0 Identified Peaks: 3

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 33 microVolts - monitored before this run

Manual injection

Warning: Include Origin with 1/n, 1/nx, or 1/nx2 Weight

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Injection Date: 2023-04-07 00:39 Calculation Date: 2023-04-12 14:48  
 Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
 Workstation: Windows Bus Address : 44  
 Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
 Channel : Front = FID Run Time : 23.000 min  
 \*\* MSWS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*  
 Run Mode : Analysis - Subtract Blank Baseline  
 Peak Measurement: Peak Area  
 Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ref. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Diox	1.1	4.938	-1.566	12886	BB	20.1	
2	Ethane	0.9	9.965	0.025	9323	BB	28.1	
Totals:					2.0		22209	
					-1.541			

Total Unidentified Counts : 128983 counts  
 Detected Peaks: 7 Rejected Peaks: 2 Identified Peaks: 2  
 Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0  
 Baseline Offset: 0 microVolts LSB: 1 microVolts  
 Noise (used): 34 microVolts - monitored before this run  
 Manual injection

\*\*\*\*\*

Title : c:\bruker\data\2023\040623\_25\_3\2023-04-07\_01-05-42\_10 ppmc s16946 inj 1 -- master scaqmd 253 analysis 022622 fg121922.run  
Run File : c:\bruker\data\2023\040623\_25\_3\2023-04-07\_01-05-42\_10 ppmc s16946  
Method File : c:\bruker\methods\active gc methods 2022\master scaqmd 253 quant 022622 fg121922.mth  
Sample ID : 10 ppmc s16946

Injection Date: 2023-04-07 01:05 Calculation Date: 2023-04-17 08:43

Operator : MPD Detector Type: 4MX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCM#1 Sample Rate : 5.00 Hz  
Channel : Middle = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Width (sec)	1/2 Sep. Code	Status Codes
1	Methane	9.6	4.941	0.041	60158	BB	9.4	
2	Carbon Monox	6.1	7.102	0.032	37589	BB	22.7	
3	NMNEOC	10.9	14.215	-0.432	268075	BB	17.8	
Totals:		26.6		-0.359	365822			

Total Unidentified Counts : 304653 counts

Detected Peaks: 6 Rejected Peaks: 1 Identified Peaks: 3

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 62 microVolts ~ monitored before this run

Manual injection

Warning: include Origin with 1/n, 1/nX, or 1/nX2 Weight

Title : c:\brukerws\data\2023\040623\_25\_3\2023-04-07 01-05-42.10 ppmc s16946 inj\_1 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerws\data\2023\040623\_25\_3\2023-04-07 01-05-42.10 ppmc s16946 inj\_1 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerws\methods\active\_gc\_methods\_2022\master\_scaqmd\_253\_quant\_022822\_fg121922.mbt  
Sample ID : 10 ppmc s16946

Injection Date: 2023-04-07 01:05 Calculation Date: 2023-04-12 14:48

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Front - FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCIION Version 8.0.1 \*\* 01197-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Width Sep. Code (sec)	Status Codes
1	Carbon Dioxi	9.7	4.942	-1.562	109146	BB 19.0	
2	Ethane	10.2	9.978	0.038	103010	BB 29.2	
Totals:		19.9		-1.524	212156		

Total Unidentified Counts : 107668 counts

Detected Peaks: 7 Rejected Peaks: 2 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts ISS: 1 microVolts

Noise (used): 24 microVolts - monitored before this run

Manual injection

\*\*\*\*\*



Title : c:\brukerw\data\2023\040623\_25\_3\2023-04-07\_03-14-51\_argon\_blank\_inj\_1 ~ master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerw\methods\active\_gc\_methods\_2022\master\_scaqmd\_253\_quant\_022822\_fg121922.mch  
Sample ID : Argon Blank

Injection Date: 2023-04-07 03:14 Calculation Date: 2023-04-07 14:37

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Middle = FID Run Time : 23.000 min

\*\* MWS 6.0.1 for SCION Version 8.0.1 \*\* 01187--6211-BE0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Methane		4.590					M
2	Carbon Monox		7.045					M
3	MMNEC		13.517					M
Totals:			0.0	0.000	0			

Status Codes:  
M - Missing Peak

Total Unidentified Counts : 21317 counts

Detected Peaks: 2 Rejected Peaks: 0 Identified Peaks: 3

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 40 microVolts - monitored before this run

Manual Injection

Warning: Include Origin with 1/n, 1/nX, or 1/nX2 Weight

\*\*\*\*\*

Title : c:\bruker\data\2023\040623\_25\_3\2023-04-07 03-14-51\_argon blank inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\bruker\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : Argon Blank

Injection Date: 2023-04-07 03:14 Calculation Date: 2023-04-12 14:42  
Operator : MEP Detector Type: 4XX-GC (1000 volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TOF#1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result PpmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code (sec)	Width 1/2	Status Codes
1	Carbon Dioxi		6.504					M
2	Ethane		9.940					M
Totals:								
0.0								0.000
								0

Status Codes:  
M - Missing Peak

Total Unidentified Counts : 147869 counts

Detected Peaks: 6 Rejected Peaks: 3 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 19 microVolts - monitored before this run

Manual injection

\*\*\*\*\*

Title : c:\brukerw\data\2023\040623\_25\_3\2023-04-07\_03-14-51\_argon blank inj\_1 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerw\data\2023\040623\_25\_3\2023-04-07\_03-14-51\_argon blank inj\_1 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerw\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mch  
Sample ID : Argon Blank

Injection Date: 2023-04-07 03:14 Calculation Date: 2023-04-12 14:51

Operator : MPD Detector Type: 4XX-GC (10 Volts)  
Workstation: Windows Bus Address : 44  
Instrument: Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Rear = TCD Run Time : 23.000 min

\*\* MWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result (\$V)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Helium	0.0	2.000					M
2	Hydrogen		2.350					M
3	Oxygen		3.125					M
4	Nitrogen		3.547					M
5	Methane		4.789					M
6	Carbon Monox		7.011					M
Totals:			0.0	0.000	0			

Status Codes:  
M - Missing Peak

Total Unidentified Counts : 37869 counts

Detected Peaks: 3 Rejected Peaks: 0 Identified Peaks: 6

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -18630 microVolts LSS: 1 microVolts

Noise (used): 200 microVolts - fixed value  
Noise (monitored before this run): 308 microVolts

Manual injection

\*\*\*\*\*

Title : c:\bruker\msd\data\2023\040623\_25\_3\2023-04-07 03-40-38 1.0 ppmc sl1523.inj 1 -- master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\bruker\msd\data\2023\040623\_25\_3\2023-04-07 03-40-38 1.0 ppmc sl1523.inj 1 -- master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\bruker\msd\data\2023\040623\_25\_3\2023-04-07 03-40-38 1.0 ppmc sl1523.inj 1 -- master scaqmd 253 analysis 022822 fg121922.run  
Sample ID : 1.0 ppmc SL1523

Injection Date: 2023-04-07 03:40 Calculation Date: 2023-04-17 08:33

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Middle = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCIION Version 9.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Methane	0.8	4.942	0.042	5192	BB	8.9	
2	Carbon Monox	2.3	7.302	0.232	13828	BB	13.4	
3	NMNEOC	1.0	14.235	-0.412	24208	BB	19.3	
Totals:		4.1		-0.138	43228			

Total Unidentified Counts : 385681 counts

Detected Peaks: 6 Rejected Peaks: 0 Identified Peaks: 3

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 35 microVolts - monitored before this run

Manual injection

Warning: Include Origin with 1/n, 1/nX, or 1/nX2 Weight

\*\*\*\*\*

Title : c:\brukerwa\data\2023\040623 25.3\2023-04-07 03-40-38 1.0 ppmc s15523 inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerwa\data\2023\040623 25.3\2023-04-07 03-40-38 1.0 ppmc s15523 inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerwa\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : 1.0 ppmc S15523

Injection Date: 2023-04-07 03:40 Calculation Date: 2023-04-12 14:48

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Dioxi	1.2	4.922	-1.582	13813	BB	20.3	
2	Ethane	1.0	9.982	0.042	9783	BB	28.3	
Totals:		2.2		-1.540	23596			

Total Unidentified Counts : 134216 counts

Detected Peaks: 8 Rejected Peaks: 2 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 18 microVolts - monitored before this run

Manual injection

\*\*\*\*\*

Title : c:\brukerws\data\2023\040623 25.3\2023-04-07 04-06-29 10 ppmc s16946 inj 1 -- master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\brukerws\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : 10 ppmc s16946

Injection Date: 2023-04-07 04:06 Calculation Date: 2023-04-17 08:36

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Middle = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01197-6211-850-455D \*\*

Run Mode : Analysis -- Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Methane	9.6	4.943	0.043	60081	BB	9.4	
2	Carbon Monox	6.0	7.092	0.022	36740	BB	21.9	
3	NNNEOC	10.9	14.235	-0.412	267196	BB	17.7	
Totals:					26.5		364017	
					-0.347			

Total Unidentified Counts : 363226 counts

Detected Peaks: 6 Rejected Peaks: 0 Identified Peaks: 3

Multipplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microvolts LSB: 1 microVolts

Noise (used): 62 microVolts - monitored before this run

Manual injection

Warning: Include Origin with 1/n, 1/nX, or 1/nx2 Weight

\*\*\*\*\*

Title : c:\bruker\work\data\2023\040623\_25\_3\2023-04-07\_04-06-28\_10 ppmc s16946.in1\_1 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\bruker\work\data\2023\040623\_25\_3\2023-04-07\_04-06-28\_10 ppmc s16946.in1\_1 - master scaqmd 253 analysis 022822 fg121922.mch  
Sample ID : 10 ppmc S16946

Injection Date: 2023-04-07 04:06 Calculation Date: 2023-04-12 14:49  
Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument: Bruker GC/TCM1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCIION Version 8.0.1 \*\* 01187-6211-BE0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (Sec)	Status Codes
1	Carbon Dioxi	9.6	4.938	-1.566	108499	BB	19.0	
2	Ethane	10.2	9.978	0.038	102649	BB	29.1	
Totals:		19.8		-1.528	211148			

Total Unidentified Counts : 104141 counts

Detected Peaks: 8 Rejected Peaks: 2 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 17 microVolts - monitored before this run

Manual injection

\*\*\*\*\*

Title : c:\bruker\sws\data\2023\040623 25.3\2023-04-07 04-32-20 fgs ccv s18115 inj 1 -- master scaqmd 253 analysis 022822 fgl21922.run  
Method File : c:\bruker\sws\methods\active gc methods 2022\master scaqmd 253 quant 022822 fgl21922.mth  
Sample ID : FGS CCV S18115

Injection Date: 2023-04-07 04:32 Calculation Date: 2023-04-12 14:49

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: windows Bus Address : 44  
Instrument : Bruker GC/TCD#1 Sample Rate : 5.00 Hz  
Channel : Front = FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Dioxi	43810.6	4.752	-1.752	493044896	BB	18.8	M
2	Ethane	9.940						
Totals:		43810.6		-1.752	493044896			

Status Codes:  
M - Missing peak

Total Unidentified Counts : 64180 counts

Detected Peaks: 9 Rejected Peaks: 4 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 31 microVolts - monitored before this run

Manual injection

\*\*\*\*\*



Title : c:\brukerws\data\2023\040623\_25-3\2023-04-07 04-32-20 fgs ccv s18115 inj 1 - master scaqmd 253 analysis 022822 fgl21922.run  
Method File : c:\brukerws\methods\active gc methods 2022\master scaqmd 253 quant 022822 fgl21922.mch  
Sample ID : Fgs CCV S18115

Injection Date: 2023-04-07 04:32 Calculation Date: 2023-04-12 14:56

Operator : MPD Detector Type: 4XX-GC (10 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Rear = TCD Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION version 8.0.1 \*\* 01187-6211-BB0-45SD \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result (%)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Helium		2.000					M
2	Hydrogen		2.350					M
3	Oxygen	3.3	3.024	-0.101	1148940	BB	3.8	
4	Nitrogen	4.8	3.654	0.107	1259148	BB	5.9	
5	Methane	5.1	4.837	0.048	4208931	BB	9.8	
6	Carbon Monox	5.1	6.816	-0.195	1405596	BB	16.7	
Totals:			18.3	-0.141	8062615			

Status Codes:  
M - Missing peak  
Total Unidentified Counts : 166783 counts  
Detected Peaks: 7 Rejected Peaks: 0 Identified Peaks: 6  
Multiplier: 1 Divisor: 1 Unidentified Peak Factor: C

Baseline Offset: -16894 microVolts LSB: 1 microVolts  
Noise (used): 200 microVolts - fixed value  
Noise (monitored before this run): 160 microVolts  
Manual Injection

\*\*\*\*\*

Title : c:\bruker\sw\data\2023\040623\_25\_3\2023-04-07 04:58-14 lab air inj 1 - master scaqmd 253 analysis 022822 fgi21922.run  
Method File : c:\bruker\sw\methods\active gc methods 2022\master scaqmd 253 quant 022822 fgi21922.mth  
Sample ID : Lab Air

Injection Date: 2023-04-07 04:58 Calculation Date: 2023-04-07 15:34

Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 440  
Instrument : Bruker GC/TGA#1 Sample Rate : 5.00  
Channel : Middle - FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-B80-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Methane	2.2	4.938	0.038	14061	BB	9.2	
2	Carbon Monox	0.5	7.978	0.933	2938	BB	12.9	
3	NNNEOC	0.2	14.688	1.171	4815	BB	-14.7	
Totals:					2.9		2.142	21814

Total Unidentified Counts : 20246 counts

Detected Peaks: 5 Rejected Peaks: 0 Unidentified Peaks: 3

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 64 microVolts - monitored before this run

Manual injection

Warning: Include Origin with 1/n, 1/nX, or 1/nX2 Weight

\*\*\*\*\*

Title : c:\bruker\sw\data\2023\040523\_25\_3\2023-04-07 04-58-14 lab air inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\bruker\sw\data\2023\040523\_25\_3\2023-04-07 04-58-14 lab air inj 1 - master scaqmd 253 analysis 022822 fg121922.run  
Method File : c:\bruker\sw\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mth  
Sample ID : Lab Air

Injection Date: 2023-04-07 04:58 Calculation Date: 2023-04-12 14:49  
Operator : MPD Detector Type: 4XX-GC (1000 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TGA#1 Sample Rate : 5.00 Hz  
Channel : Front - FID Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BB0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result ppmCarbon	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Carbon Dioxi	424.4	4.922	-1.582	4776113	BB	18.8	M
2	Ethane	9.940	9.940					
Totals:		424.4		-1.582	4776113			

Status Codes:  
M - Missing peak

Total Unidentified Counts : 147711 counts

Detected Peaks: 8 Rejected Peaks: 4 Identified Peaks: 2

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: 0 microVolts LSB: 1 microVolts

Noise (used): 15 microVolts - monitored before this run

Manual injection

\*\*\*\*\*

Title : c:\brukerws\data\2023\040623\_25\_3\2023-04-07\_04-58-14\_lab\_siz\_inj\_1 -- master scaqmd 253 analysis 022822 fg121922.run  
Run File : c:\brukerws\data\2023\040623\_25\_3\2023-04-07\_04-58-14\_lab\_siz\_inj\_1 -- master scaqmd 253 quant 022822 fg121922.mch  
Method File : c:\brukerws\methods\active gc methods 2022\master scaqmd 253 quant 022822 fg121922.mch  
Sample ID : Lab A12

Injection Date: 2023-04-07 04:58 Calculation Date: 2023-04-12 14:56

Operator : MPD Detector Type: 4XX-GC (10 Volts)  
Workstation: Windows Bus Address : 44  
Instrument : Bruker GC/TCA#1 Sample Rate : 5.00 Hz  
Channel : Rear = TCD Run Time : 23.000 min

\*\* MSWS 8.0.1 for SCION Version 8.0.1 \*\* 01187-6211-BE0-455D \*\*

Run Mode : Analysis - Subtract Blank Baseline  
Peak Measurement: Peak Area  
Calculation Type: External Standard

Peak No.	Peak Name	Result (%)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	Helium		2.000					M
2	Hydrogen		2.350					M
3	Oxygen	20.3	3.027	-0.098	7043356	BV	3.1	
4	Nitrogen	76.5	3.470	-0.077	20749584	VE	11.2	M
5	Methane		4.789					M
6	Carbon Monox		7.011					M
Totals:		96.8		-0.175	27792940			

Status Codes:  
M - Missing peak

Total Unidentified Counts : 140706 counts

Detected Peaks: 5 Rejected Peaks: 0 Identified Peaks: 6

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -16909 microVolts LSB: 1 microVolts

Noise (used): 200 microVolts - fixed value

Noise (monitored before this run): 233 microVolts

Manual injection

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# ICAL Data

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ISWS 8.0.1 for SCION - Method Listing Thu Jun 10 10:46:47 2021

Method: C:\BrukerWS\methods\Active GC Methods 2019\Master SCAQMD 253 Quant 052521.mth

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Peak Table Address 44 Channel Front

Reference Peaks Time Windows:Width: 0.10 min. Retention Time 2.0%  
Other Peaks Time Windows :Width: 0.10 min. Retention Time 19.0%

Peak Name : Carbon Dioxide  
Attributes : Ref:N Std:N RRT:N Lock:Y Group:0 Time: 5.051 min  
Uses Standard :  
Level 1 Amount: 1e-005  
Level 2 Amount: 0.907  
Level 3 Amount: 10.27  
Level 4 Amount: 100.9  
Level 5 Amount: 1010  
Level 6 Amount: 10100  
Level 7 Amount: 49940  
Level 8 Amount: 199900  
Level 9 Amount: 1e-005  
Coefficients : +0.0000e+000x^3 +0.0000e+000x^2 +9.8874e+003x +0.0000e+000

Peak Name : Ethane  
Attributes : Ref:N Std:N RRT:N Lock:Y Group:0 Time: 9.904 min  
Uses Standard :  
Level 1 Amount: 1e-005  
Level 2 Amount: 0.996  
Level 3 Amount: 10.43  
Level 4 Amount: 102.56  
Level 5 Amount: 1e-005  
Level 6 Amount: 1e-005  
Level 7 Amount: 1e-005  
Level 8 Amount: 1e-005  
Level 9 Amount: 1e-005  
Coefficients : +0.0000e+000x^3 +0.0000e+000x^2 +9.2554e+003x +0.0000e+000

\*\*\*\*\*

ISWS 8.0.1 for SCION - Method Listing Thu Jun 10 10:47:04 2021

Method: C:\BrukerWS\methods\Active GC Methods 2019\Master SCAQMD 253 Quant 052521.mth

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Peak Table Address 44 Channel Middle

Reference Peaks Time Windows:Width: 0.10 min. Retention Time 2.0%  
Other Peaks Time Windows :Width: 0.10 min. Retention Time 6.8%

Peak Name : Methane  
Attributes : Ref:N Std:N RRT:N Lock:Y Group:0 Time: 4.994 min  
Uses Standard :  
Level 1 Amount: 0.0976  
Level 2 Amount: 0.976  
Level 3 Amount: 5.055  
Level 4 Amount: 104  
Level 5 Amount: 1010  
Level 6 Amount: 10100  
Level 7 Amount: 50350  
Level 8 Amount: 200100  
Level 9 Amount: 1e-005  
Coefficients : +0.0000e+000x^3 +0.0000e+000x^2 +5.8548e+003x +2.1358e+002

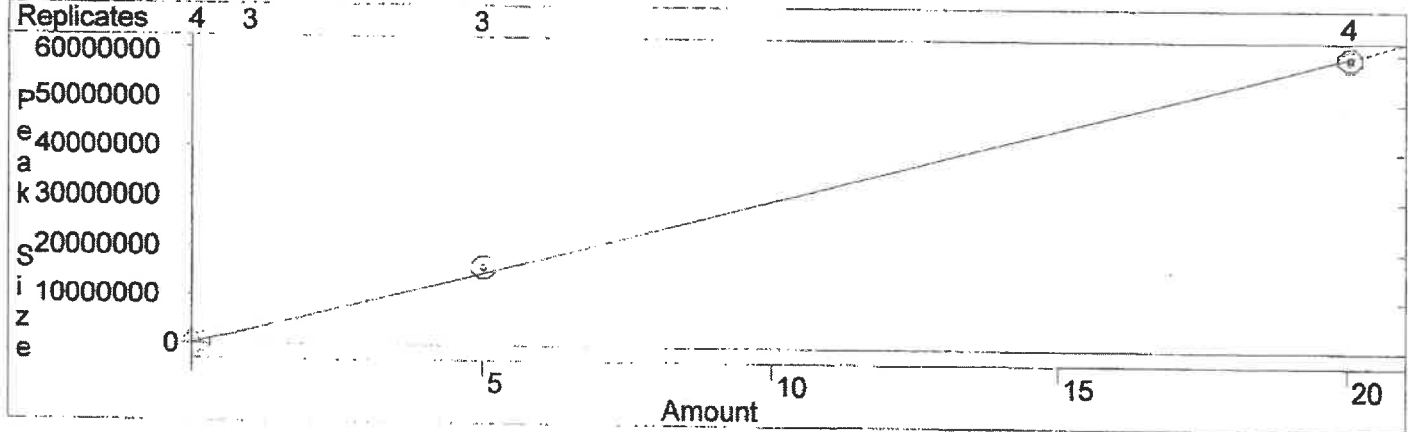
Peak Name : Carbon Monoxide  
Attributes : Ref:N Std:N RRT:N Lock:Y Group:0 Time: 7.172 min  
Uses Standard :  
Level 1 Amount: 0.0993  
Level 2 Amount: 0.993  
Level 3 Amount: 4.9465  
Level 4 Amount: 106.9  
Level 5 Amount: 1000  
Level 6 Amount: 10000  
Level 7 Amount: 50220  
Level 8 Amount: 199600  
Level 9 Amount: 1e-005  
Coefficients : +0.0000e+000x^3 +0.0000e+000x^2 +5.6225e+003x -4.3536e+002

Peak Name : NMNEOC  
Attributes : Ref:N Std:N RRT:N Lock:Y Group:0 Time: 14.271 min  
Uses Standard :  
Level 1 Amount: 0.1014  
Level 2 Amount: 1.014  
Level 3 Amount: 10.377  
Level 4 Amount: 100.11  
Level 5 Amount: 1e-005  
Level 6 Amount: 1e-005  
Level 7 Amount: 1e-005  
Level 8 Amount: 1e-005  
Level 9 Amount: 1e-005  
Coefficients : +0.0000e+000x^3 +0.0000e+000x^2 +2.4953e+004x -8.6199e+001

Hydrogen

External Standard Analysis - Locked  
 Curve Type: Linear  
 Origin: Force  
 $y = +2.969431e+006x$

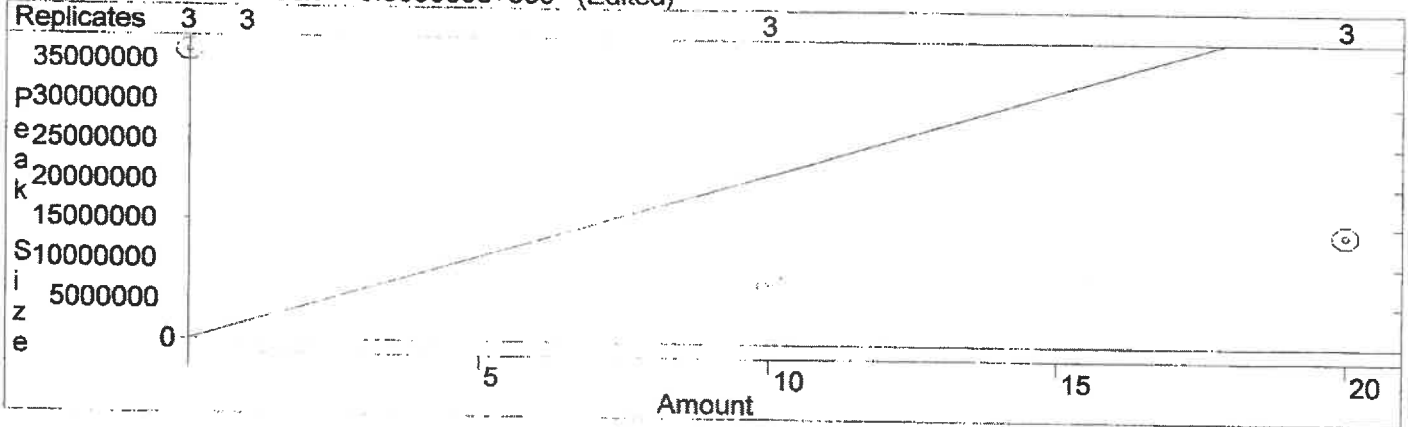
Resp. Fact. RSD: 12.61%  
 Coeff. Det.(r<sup>2</sup>): 0.999553



Helium

External Standard Analysis - Locked  
 Curve Type: Linear  
 Origin: Force  
 $y = +2.123600e+006x + 0.000000e+000$  (Edited)

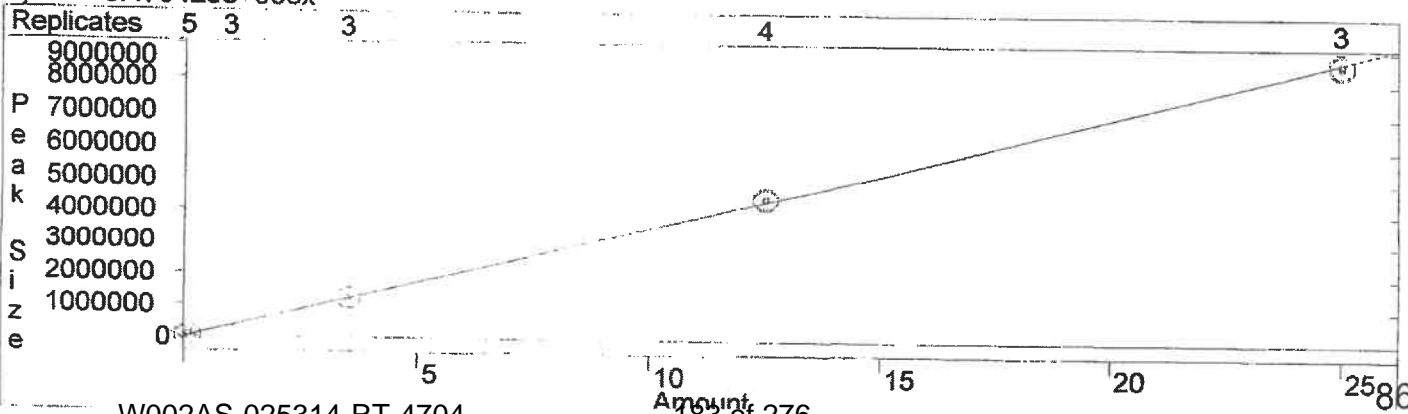
Resp. Fact. RSD: 5.453%  
 Coeff. Det.(r<sup>2</sup>): 0.017086



Oxygen

External Standard Analysis - Locked  
 Curve Type: Linear  
 Origin: Force  
 $y = +3.475425e+005x$

Resp. Fact. RSD: 49.73%  
 Coeff. Det.(r<sup>2</sup>): 0.999581

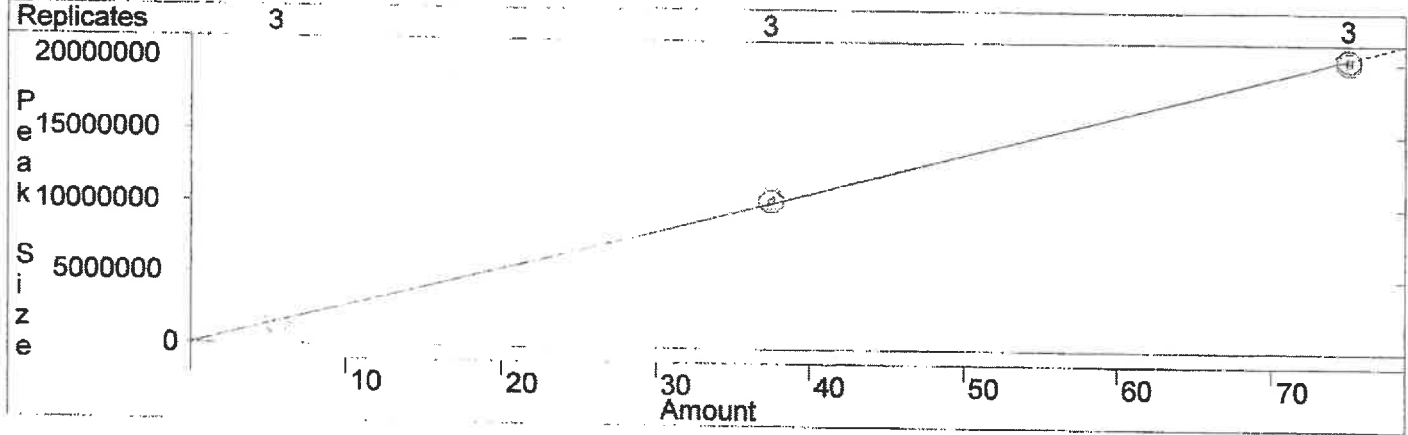




### Nitrogen

External Standard Analysis - Locked  
Curve Type: Linear  
Origin: Force  
 $y = +2.711034e+005x$

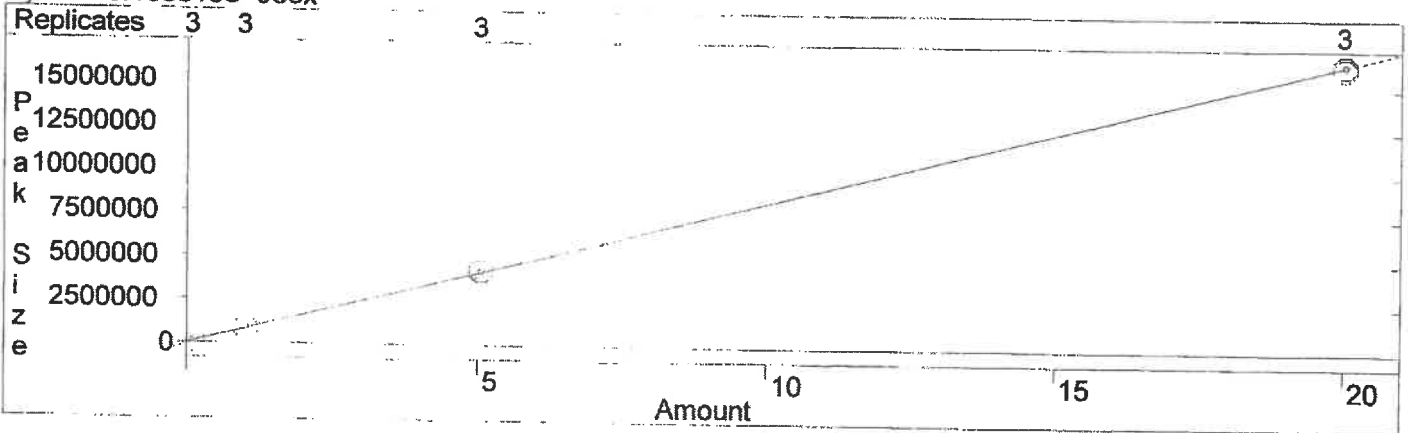
Resp. Fact. RSD: 1.413%  
Coeff. Det.(r<sup>2</sup>): 0.999575



### Methane

External Standard Analysis - Locked  
Curve Type: Linear  
Origin: Force  
 $y = +8.188813e+005x$

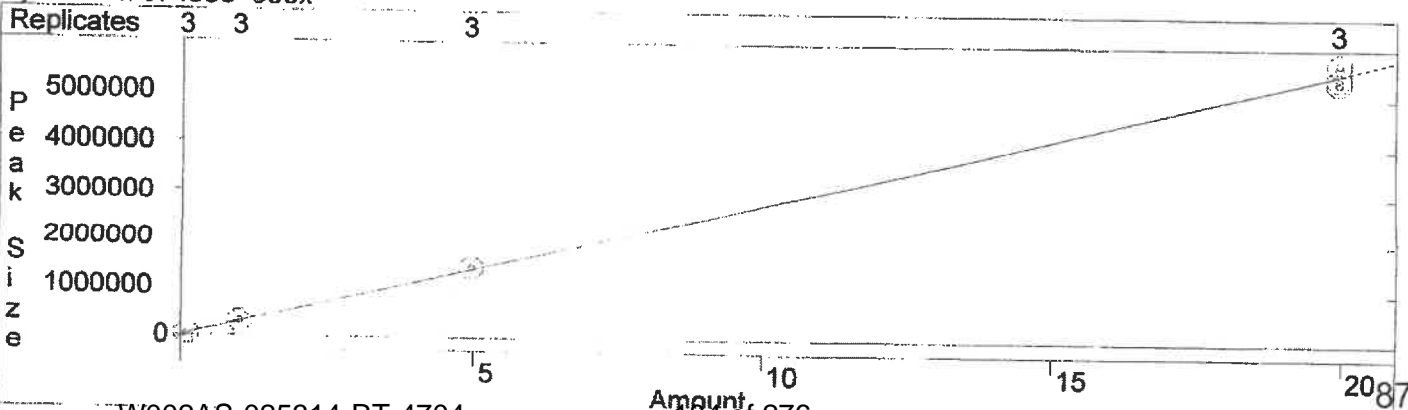
Resp. Fact. RSD: 2.390%  
Coeff. Det.(r<sup>2</sup>): 0.999851



### Carbon Monoxide

External Standard Analysis - Locked  
Curve Type: Linear  
Origin: Force  
 $y = +2.757438e+005x$

Resp. Fact. RSD: 4.238%  
Coeff. Det.(r<sup>2</sup>): 0.998621



**General Info**

Analysis Name 20211018C.adb  
Type TC

**Calibration Info**

R <sup>2</sup> :	0.99921	Correlation	0.99960
A2:	0	Volume	200
A1:	436,753	Curve Order	1st Order Through Zero
A0:	0		

**Single Info:**

Conc. Templ.	Area	Selected
0.00	96,823	Yes
0.00	89,024	Yes
0.00	167,253	No
0.00	99,318	Yes
0.00	147,075	No
0.25	307,045	Yes
0.25	276,733	No
0.25	292,461	Yes
0.25	314,533	Yes
0.50	409,912	Yes
0.50	396,223	No
0.50	624,583	No
0.50	471,247	Yes
0.50	472,851	Yes
1.00	556,142	Yes
1.00	540,967	Yes
1.00	529,042	Yes
5.00	2,422,398	Yes
5.00	2,407,149	Yes
5.00	2,408,231	Yes
10.00	4,750,340	Yes
10.00	4,668,779	Yes
10.00	4,666,354	Yes
20.00	8,813,657	Yes
20.00	8,799,521	Yes
20.00	8,903,520	Yes

**General Info**

Analysis Name 20210913C.adb  
 Type IC

**Calibration Info**

R <sup>2</sup> :	0.99803	Correlation	0.99902
A2:	0	Volume	200
A1:	604,338	Curve Order	1st Order Through Zero
A0:	0		

**Single Info:**

Conc. Templ.	Area	Selected
0.00	80,544	Yes
0.00	66,110	Yes
0.00	75,453	Yes
0.00	45,176	No
0.00	55,464	No
0.25	461,400	Yes
0.25	439,979	Yes
0.25	430,486	Yes
0.50	534,995	Yes
0.50	583,995	No
0.50	506,279	Yes
0.50	511,176	Yes
1.00	896,828	Yes
1.00	1,195,125	No
1.00	992,084	Yes
1.00	885,157	Yes
1.00	784,778	No
5.00	3,419,574	Yes
5.00	3,354,035	Yes
5.00	3,299,889	Yes
10.00	6,454,414	Yes
10.00	6,516,825	Yes
10.00	6,668,626	Yes
20.00	12,673,470	Yes
20.00	12,015,961	Yes
20.00	11,963,576	Yes

## **Appendix A.4.4**

### **SCAQMD Method 307-91 Laboratory Data**

**CLIENT:** MONTROSE  
**CLIENT PROJ NO:** W/M Lancaster  
**LABORATORY NO:** 23-344  
**SAMPLING DATE:** 03/31/23  
**RECEIVING DATE:** 03/31/23  
**ANALYSIS DATE:** 03/31/23  
**REPORT DATE:** 04/07/23

**Laboratory Analysis Report**

Analysis Method	SQAQMD 307-91			
Detection Limits	0.05 PPMV			
Analyte	Client ID	Flare Inlet 1	Flare Inlet 2	Flare Inlet 3
	Sampling Date	3/31/2023	3/31/2023	3/31/2023
	Sampling Time			
	Lab ID	09023-30	09023-31	09023-31
	Units	PPMV	PPMV	PPMV
Hydrogen Sulfide		3.24	2.74	2.84
Carbonyl Sulfide		<0.05	<0.05	<0.05
Methyl Mercaptan		<0.05	<0.05	<0.05
Ethyl Mercaptan		<0.05	<0.05	<0.05
t-Butyl Mercaptan		<0.05	<0.05	<0.05
Tetrahydrothiophene		<0.05	<0.05	<0.05
Un-Identified S Compounds		<0.05	<0.05	<0.05
<b>Total Sulfur as H<sub>2</sub>S</b>		<b>3.24</b>	<b>2.74</b>	<b>2.84</b>



Dr. Andrew Kitto  
President

**CLIENT:** MONTROSE  
**CLIENT PROJ NO:** W/M Lancaster  
**LABORATORY NO:** 23-344  
**SAMPLING DATE:** 03/31/23  
**RECEIVING DATE:** 03/31/23  
**ANALYSIS DATE:** 03/31/23  
**REPORT DATE:** 04/07/23

### Quality Assurance Report

#### Duplicate Analysis

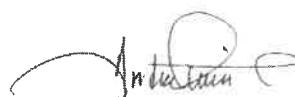
Sample ID: Flare Inlet 3

Lab ID: 09023-31

Analysis Method		SQAQMD 307-91		
Detection Limit		0.05 PPMV		
Analyte	Aver. Conc. PPMV	Dil. Factor Ambient Air	DF*A/CF PPMV	% Sample Recovery*
Hydrogen Sulfide	3.11	1	3.39	108.8
Carbonyl Sulfide	<0.05	1	<0.05	N/A
Methyl Mercaptan	<0.05	1	<0.05	N/A
Ethyl Mercaptan	<0.05	1	<0.05	N/A
t-Butyl Mercaptan	<0.05	1	<0.05	N/A
Tetrahydrothiophene	<0.05	1	<0.05	N/A
Unidentified S Compounds	<0.05	1	<0.05	N/A
<b>Total Sulfur as H2S</b>	<b>3.11</b>	<b>1</b>	<b>3.39</b>	<b>108.8</b>

N/A: Not Applicable

\*Must be ±10%



Dr. Andrew Kitto  
President



No 9589

W002AS-025314-XT-4704

23-344

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1210 E. 223rd Street, Suite #314 • Carson, California 90745

**CHAIN OF CUSTODY**

Email: andrewkfitto.quantum@gmail.com

Page: 1 of 2

Client: <u>Montrose BCS</u>		Project No.: <u>025314</u>		Turnaround Time:	
Contact Person:		Project Name: <u>W/M LANCASTER</u>		<input type="checkbox"/> Same Day <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input checked="" type="checkbox"/> Normal	
tel: <u>626 607 6313</u>		Project Manager: <u>BS</u>		Analysis	
fax:		P.O. Number:			
Client Sample ID	Tag #	Date	Time	Lab ID Number	Remarks
<u>11/1/21</u>	<u>1</u>	<u>3/31/23</u>		<u>6023-30</u>	
<u>2</u>				<u>1-31</u>	
<u>3</u>				<u>1-32</u>	
Relinquished by: (signature)		Date/Time	Received by: (signature)		Date/Time
<u>[Signature]</u>		<u>3/31/23</u>	<u>[Signature]</u>		<u>3/31/23</u>
Relinquished by: (signature)		Date/Time	Received by: (signature)		Date/Time
Relinquished by: (signature)		Date/Time	Received by: (signature)		Date/Time

190 of 276

## **Appendix A.4.5 Fuel Analysis**



**CLIENT:** MONTROSE  
**CLIENT PROJ NO:** W/M Lancaster  
**LABORATORY NO:** 23-344  
**SAMPLING DATE:** 03/31/23  
**RECEIVING DATE:** 03/31/23  
**ANALYSIS DATE:** 03/31/23  
**REPORT DATE:** 04/07/23

**Laboratory Analysis Report**

**Analysis Method: ASTM 1945-03 ; HHV Calculations: ASTM 3588-98**

Analyte, Units	Sample ID	Flare Inlet 1
	Sample Date	03/31/23
	Sample Time	
	Lab ID	09023-30
	Units	Mole %
Methane, %		35.99
Ethane, %		<0.01
Ethylene, %		<0.01
Propane, %		<0.01
Propylene, %		<0.01
i-Butane, %		<0.01
n-Butane, %		<0.01
1-Butene, %		<0.01
i-Butylene, %		<0.01
trans-2-Butene,%		<0.01
cis-2-Butene,%		<0.01
i-Pentane, %		<0.01
n-Pentane, %		<0.01
2,2-Dimethyl Butane, %		<0.01
2,3-Dimethyl Butane, %		<0.01
2-Methyl Pentane, %		<0.01
3-Methyl Pentane, %		<0.01
n-Hexane, %		<0.01
C6+, %		<0.01
CO2, %		35.01
CO, %		<0.01
O2, %		1.19
N2, %		27.81
H2, %		<0.01
H2S, %		<0.01
<b>Average Molecular Weight</b>		<b>29.352</b>
<b>Total Wt.% Adjusted Sp. Gravity</b>		<b>1.0134</b>
<b>Compressibility Factor (14.696 Psi, 60 F)</b>		<b>0.9979</b>
<b>NET BTU/Cub. Ft</b>		<b>327.3</b>
<b>GROSS BTU/Cub. Ft</b>		<b>363.5</b>
<b>CHONS</b>		<b>%</b>
Carbon		29.05
Hydrogen		4.94
Oxygen		39.46
Nitrogen		26.54
Sulfur		<0.01
<b>Dry F Factor (60 F, 1 Atm);</b>		<b>10171</b>
<b>SDCF/MMBTU, ASTM 3588</b>		



Dr. Andrew Kitto  
President



No 9589

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1210 E. 223rd Street, Suite #314 • Carson, California 90745

23-344

### CHAIN OF CUSTODY

Email: andrewkitto.quantum@gmail.com

Page: 1 of 2

Client: <u>MANTRASE DOS</u>		Project No.: <u>025314</u>		Analysis		Turnaround Time:	
Project Name: <u>WIM LANGSTEN</u>		Project Manager: <u>R. S. ...</u>		<input type="checkbox"/> Same Day <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input checked="" type="checkbox"/> Normal		Remarks	
P.O. Number: _____		Lab ID Number: _____					
Contact Person: _____		Date: <u>3/31/23</u>		<u>PLM 30791</u> <u>AKIM 3588</u>			
tel: <u>626 617 6313</u>		Time: _____		<u>AKIM 3588</u> <u>AKIM 3588</u>			
fax: _____		Date: _____		<u>AKIM 3588</u> <u>AKIM 3588</u>			
Client Sample ID		Tag #		Date/Time		Received by: (signature)	
<u>1</u>		<u>1</u>		<u>3/31/23 1600</u>		<u>[Signature]</u>	
<u>2</u>		<u>2</u>		<u>3/31/23 1600</u>		<u>[Signature]</u>	
<u>3</u>		<u>3</u>		<u>3/31/23 1600</u>		<u>[Signature]</u>	
Relinquished by: (signature)		Date/Time		Received by: (signature)		Date/Time	
<u>[Signature]</u>		<u>3/31/23 1600</u>		<u>[Signature]</u>		<u>3/31/23 1600</u>	
Relinquished by: (signature)		Date/Time		Received by: (signature)		Date/Time	
<u>[Signature]</u>		<u>3/31/23 1600</u>		<u>[Signature]</u>		<u>3/31/23 1600</u>	
Relinquished by: (signature)		Date/Time		Received by: (signature)		Date/Time	
<u>[Signature]</u>		<u>3/31/23 1600</u>		<u>[Signature]</u>		<u>3/31/23 1600</u>	

## **Appendix A.5**

### **Quality Assurance Data**

**CEMS PERFORMANCE DATA SHEET**

Client: Waste Management Date: 3/31/2023  
 Location: Flare Performed By: PS, JS  
 CEMS ID#: TV-7

Analyzer:	O <sub>2</sub>	CO <sub>2</sub>	NO <sub>x</sub>	CO		
Manufacturer:	CAI	Sevomex	CAI	TECO		
Serial Number:	U08069	2745	B04012	JC1227100397		
CEMS Probe:	Material:	Inconel	Length:	13'	Gas Temp:	1415 °F
Heated Line	Material:	Teflon	Length:	15'	Gas Temp:	245 °F
Sample Conditioner:			Type:	Universal	Gas Temp:	33 °F
CEMS Line:	Material:	Teflon	Length:	100'		
Bias Line:	Material:	Teflon	Length:	100'		
Upscale Response Time:	25	Downscale Response Time:	25	seconds		
Sample Pressure (psi):	6	Sample Flow Rate:	5	LPM		

### NO<sub>2</sub> to NO Converter Efficiency Test

Analyzer Manufacturer: CAI	NO Cal Gas Value: 22.70
Analyzer Model: 600	NO <sub>2</sub> Cal Gas Value: 17.00
Analyzer Serial Number: B04012	Performed By: PS, JS
Date: 3/31/23	CEMS ID#: TV-7

GAS	ANALYZER MODE	ANALYZER RESPONSE	CAL CORRECTED	LABEL
Zero	NO <sub>x</sub>	0.03	--	--
Zero	NO	0.02	--	--
NO	NO <sub>x</sub>	22.50	--	--
NO	NO	22.48	--	--
NO <sub>2</sub>	NO	0.06	0.0	C <sub>1</sub>
NO <sub>2</sub>	NO <sub>x</sub>	15.57	15.7	C <sub>2</sub>

			Label	Requirement
NO <sub>2</sub> Value C <sub>0</sub> :	17.0		D <sub>1</sub>	--
Abs. Value C <sub>2</sub> -C <sub>1</sub> :	15.7		D <sub>2</sub>	--
C <sub>1</sub> /C <sub>2</sub>	0%		D <sub>3</sub>	< 5%
CE = D <sub>2</sub> /D <sub>1</sub> * 100%:	92%	--		> 90%

	Cylinder #	Exp. Date
NO bottle:	CC755337	7/25/2025
NO <sub>2</sub> bottle:	DT0019728	6/8/2023

**SPAN GAS RECORD AND SCAQMD CALIBRATION ERROR/LINEARITY**

CLIENT/LOCATION: Waste Management Flare  
 TRUCK/CEM I.D.: TV-7

DATE: 3/31/23  
 BY: PS, JS

	Gas	Cylinder #	Value	Exp. Date	Vendor ID	% of Range
ZERO	Low	DT0016284	0.0	1/5/27	F22022	
	O <sub>2</sub>	CC75958	10.24	5/12/30	F22019	51.2%
	O <sub>2</sub>	DT0011959	19.29	11/15/27	F22019	96.5%
	CO <sub>2</sub>	CC75958	10.64	5/12/30	F22019	53.2%
	CO <sub>2</sub>	DT0011959	18.96	11/15/27	F22019	94.8%
	NO <sub>x</sub>	CC755455	11.20	9/8/25	F22022	44.8%
	NO <sub>x</sub>	CC755337	22.70	7/25/25	F22022	90.8%
	NO <sub>2</sub>	DT0019728	17.00	6/8/23	F22022	
	CO	CC755322	44.80	8/29/30	F22022	44.8%
	CO	CC83389	86.70	3/26/30	F22022	86.7%

**PRE-TEST INSTRUMENT CALIBRATION ERROR**

	ANALYZER					STATUS
	O <sub>2</sub>	CO <sub>2</sub>	NO <sub>x</sub>	CO		
<b>Analyzer Range</b>	20	20	25	100		
<b>Zero Gas Value</b>	0.0	0.0	0.0	0.0		--
<b>Analyzer Reads</b>	0.00	-0.02	0.03	0.06		--
<b>Error (% of scale)</b>	0.0%	-0.1%	0.1%	0.1%		PASS
<b>High Gas Value</b>	19.29	18.96	22.70	86.70		--
<b>Analyzer Reads</b>	19.28	18.99	22.48	86.70		--
<b>Error (% of scale)</b>	0.0%	0.1%	-0.9%	0.0%		PASS
<b>Mid Gas Value</b>	10.24	10.64	11.20	44.80		--
<b>Analyzer Reads</b>	10.31	10.59	11.03	45.45		--
<b>Error (% of scale)</b>	0.3%	-0.2%	-0.7%	0.7%		PASS
<b>Linearity at Mid Point</b>	0.4%	-0.3%	-0.3%	0.6%		PASS

**POST-TEST INSTRUMENT CALIBRATION ERROR**

	ANALYZER					STATUS
	O <sub>2</sub>	CO <sub>2</sub>	NO <sub>x</sub>	CO	SO <sub>2</sub>	
<b>Analyzer Range</b>	20	20	25	100		
<b>Zero Gas Value</b>	0.0	0.0	0.0	0.0		--
<b>Analyzer Reads</b>	-0.07	0.01	-0.05	-0.23		--
<b>Error (% of scale)</b>	-0.4%	0.0%	-0.2%	-0.2%		PASS
<b>High Gas Value</b>	19.29	18.96	22.70	86.70		--
<b>Analyzer Reads</b>	19.28	18.98	22.93	86.48		--
<b>Error (% of scale)</b>	0.0%	0.1%	0.9%	-0.2%		PASS
<b>Mid Gas Value</b>	10.24	10.64	11.20	44.80		--
<b>Analyzer Reads</b>	10.30	10.69	11.11	44.99		--
<b>Error (% of scale)</b>	0.3%	0.2%	-0.4%	0.2%		PASS
<b>Linearity at Mid Point</b>	0.5%	0.2%	-0.7%	0.4%		PASS



Making our world  
more productive



Linde Gas & Equipment Inc.  
5700 S. Alameda Street  
Los Angeles, CA 90058  
Tel: 323-585-2154  
Fax: 714-542-6689



Montrose Air Quality Services, LLC  
1631 E. St. Andrew Pl.  
Santa Ana, CA 92705

Linde Order Number: 71937902  
Customer PO Number: 79939357

Certificate Issuance Date: 1/20/2022  
Certification Date: 1/20/2022  
Lot Number: N70086200502  
Part Number: NI 5.5CE-AS  
DocNumber: 480624

### CERTIFICATE OF ANALYSIS

*Nitrogen, 5.5 Continuous Emission Monitoring Zero*

Analytes	Specification	Analytical Results	Analytical Reference	Analytical Uncertainty
Nitrogen	≥ 99.9995 %	≥ 99.9995 %	4	N/A
Carbon Dioxide	≤ 1 ppm	≤ 0.5 ppm	5	± 10%
Carbon Monoxide	≤ 0.5 ppm	≤ 0.1 ppm	5	± 15%
Total Hydrocarbons	≤ 0.1 ppm	≤ 0.1 ppm	3	± 15%
Oxides of Nitrogen	≤ 0.1 ppm	≤ 0.1 ppm	6	± 15%
Oxygen	≤ 0.5 ppm	≤ 0.5 ppm	2	± 15%
Sulfur Dioxide	≤ 0.1 ppm	≤ 0.1 ppm	1	± 15%
Water	≤ 2 ppm	≤ 1.0 ppm	7	± 10%

Cylinder Style: **AS**    Fill Date: **1/5/2022**    Filling Method: **Pressure/Temperature**  
 Cylinder Pressure @ 70 F: **2000 psig**    Analysis Date: **1/19/2022**  
 Cylinder Volume: **142 ft3**  
 Valve Outlet Connection: **CGA 580**  
 Cylinder Number(s): **DT0016284, CC181250, CC28180, CC141392, SA20201, CC90295, DT004172, CC101628, CC85934, ALM-014169, CC265214, EB0059314**  
 Analyzed Cylinder Number(s): **DT0016284**

Analyst: Amalia Real

Approved Signer: Ying Yu

**Key to Analytical Techniques:**

Reference	Analytical Instrument - Analytical Principle
1	Ametek 921CE S/N AW-921-S321 - UV Spectrometry
2	Delta F DF-550 Nanotrace - Electrolytic Cell/Electrochemical
3	Horiba FIA-510, 851135122 - FID Total Hydrocarbon Analyzer
4	N/A - By Difference of Typical Impurities
5	Peak Performer 1 - Gas Chromatography with FID
6	Thermo Electron 42i-LS S/N 1030645077 - Chemiluminescence
7	Tiger Optics MTO-1000 - Cavity Ring-down Spectroscopy

N<sub>2</sub>  
DT0016284

1/23-9-22

This analysis of the product described herein was prepared by Linde Gas & Equipment Inc. using instruments whose calibration is certified using Linde Gas & Equipment Inc. Reference Materials which are traceable to the International System of Units (SI) through either weights traceable to the National Institute of Standards and Technology (NIST) or Measurement Canada, or through NIST Standard Reference Materials or equivalent where available.

Note: All expressions for concentration (e.g., % or ppm) are for gas phase, by mole unless otherwise noted. Analytical uncertainty is expressed as a Relative % unless otherwise noted.

**IMPORTANT**

The information contained herein has been prepared at your request by personnel within Linde Gas & Equipment Inc. While we believe the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall liability of Linde Gas & Equipment Inc. arising out of the use of the information contained herein exceed the fee established for providing such information.



Making Gas Work  
More Productive



Linde Gas & Equipment Inc.  
5700 S. Alameda Street  
Los Angeles CA 90058  
Tel: 323-585-2154  
Fax: 714-542-6689  
PGVP ID: F22022

DocNumber: 451722

# CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

**Customer & Order Information**

MONTROSE AIR QUALITY SERVICES  
1631 E ST ANDREWS PLACE  
SANTA ANA CA 92705

Certificate Issuance Date: 05/16/2022

Linde Order Number: 59924698

Part Number: NI CD10.506E-AS

Customer PO Number: LUIS OLIVARES

Fill Date: 04/28/2022

Lot Number: 70086211802

Cylinder Style & Outlet: AS

CGA 590

Cylinder Pressure and Volume: 2000 psig 140 #3

**Certified Concentration**

Expiration Date:	05/12/2030	NIST Traceable
Cylinder Number:	CC75958	Expanded Uncertainty
10.64 %	Carbon dioxide	± 0.05 %
10.24 %	Oxygen	± 0.05 %
Balance	Nitrogen	

**ProSpec EZ Cert**



**Certification Information:**

Certification Date: 05/12/2022

Term: 96 Months

Expiration Date: 05/12/2030

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Uncertainty above is expressed as absolute expanded uncertainty at a level of confidence of approximately 95% with a coverage factor  $k = 2$ . Do Not Use this Standard if Pressure is less than 100 PSIG.

CO2 responses have been corrected for Oxygen IR Broadening effect. O2 responses have been corrected for CO2 interference.

**Analytical Data:**

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

**1. Component:**

**Carbon dioxide**

Requested Concentration: 10.5 %  
Certified Concentration: 10.64 %  
Instrument Used: Horiba VIA-510 S/N 20C194WK  
Analytical Method: NDIR  
Last Multipoint Calibration: 04/18/2022

First Analysis Data:				Date				
Z:	0	R:	14.26	C:	10.64	Conc:	10.64	
R:	14.26	Z:	0	C:	10.64	Conc:	10.64	
Z:	0	C:	10.64	R:	14.27	Conc:	10.64	
UOM:							Mean Test Assay:	10.64 %

**Reference Standard:**

Type / Cylinder #: GMS / CC176580

Concentration / Uncertainty: 14.26 % ± 0.03 %

Expiration Date: 01/21/2030

**Traceable to:** SRM # / Sample # / Cylinder #: NTRM / N/A / CC726055

SRM Concentration / Uncertainty: 19.34 % ± 0.03 %

SRM Expiration Date: 01/12/2027

Second Analysis Data:				Date				
Z:	0	R:	0	C:	0	Conc:	0	
R:	0	Z:	0	C:	0	Conc:	0	
Z:	0	C:	0	R:	0	Conc:	0	
UOM:							Mean Test Assay:	%

**2. Component:**

**Oxygen**

Requested Concentration: 10.5 %  
Certified Concentration: 10.24 %  
Instrument Used: Siemens Oxymat 6E S/N 7MB20211AA00CA1  
Analytical Method: Paramagnetic  
Last Multipoint Calibration: 04/22/2022

First Analysis Data:				Date				
Z:	0	R:	9.675	C:	10.24	Conc:	10.24	
R:	9.678	Z:	0	C:	10.24	Conc:	10.24	
Z:	0	C:	10.24	R:	9.676	Conc:	10.24	
UOM:							Mean Test Assay:	10.24 %

**Reference Standard:**

Type / Cylinder #: NTRM / DT0010262

Concentration / Uncertainty: 9.875 % ± 0.040 %

Expiration Date: 11/18/2022

**Traceable to:** SRM # / Sample # / Cylinder #: NTRM / 170701 / DT0010262

SRM Concentration / Uncertainty: 9.875 % ± 0.040 %

SRM Expiration Date: 11/18/2022

Second Analysis Data:				Date				
Z:	0	R:	0	C:	0	Conc:	0	
R:	0	Z:	0	C:	0	Conc:	0	
Z:	0	C:	0	R:	0	Conc:	0	
UOM:							Mean Test Assay:	%

Analyzed By

Courtney Zeller

Certified By

Amalia Real

O<sub>2</sub> 10.24  
CO<sub>2</sub> 10.64  
CC 75958  
Exp 5-12-30  
F22022  
LO 5-24-22

Information contained herein has been prepared at your request by qualified experts within Linde Gas & Equipment Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Linde Gas & Equipment Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.





DocNumber: 293571



1631 E. St Andrew Pl.  
Santa Ana, CA 92705

**ANALYSIS / EPA PROTOCOL GAS**

Certificate Issuance Date: 11/14/2019  
Praxair Order Number: 90362737  
Part Number: NI CD1902E-AS  
Customer PG Number: VERBAL: MIKE

Fill Date: 11/11/2019  
Lot Number: 70086931505  
Cylinder Style & Outlet: AS CGA 590  
Cylinder Pressure and Volume: 2000 psig 156 ft3

O<sub>2</sub> 19.29  
CO<sub>2</sub> 18.96  
DT0011959

Certified Concentration		
Expiration Date:	11/15/2027	NIST Traceable
Cylinder Number:	DT0011959	Expanded Uncertainty
18.96 %	Carbon dioxide	± 0.5 %
19.29 %	Oxygen	± 0.1 %
Balance	Nitrogen	



**Certification Information:** Certification Date: 11/15/2019 Term: 96 Months Expiration Date: 11/15/2027

This certificate is certified to meet the EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1.  
Do Not use this standard if pressure is less than 100 PSIG.  
CO2 responses have been corrected for Oxygen IR Broadening effect. O2 responses have been corrected for CO2 interference.

**Analytical Data:** (R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. Component: Carbon dioxide  
Requested Concentration: 19 %  
Certified Concentration: 18.96 %  
Instrument Used: Horiba VIA-510 S/N 20C194WK  
Analytical Method: NDIR  
Last Multipoint Calibration: 10/21/2019

Reference Standard: Type / Cylinder #: GMIS / CC149981  
Concentration / Uncertainty: 19.98 % ±0.276%  
Expiration Date: 06/07/2026  
Traceable to: SRM # / Sample # / Cylinder #: RGM#CC28033 / NIA / RGM#CC28033  
SRM Concentration / Uncertainty: 19.67% / ±0.04%  
SRM Expiration Date: 07/15/2021

First Analysis Data:				Date			
Z:	0	R:	19.98	C:	18.96	Conc:	19.98
R:	19.98	Z:	0	C:	18.95	Conc:	18.95
Z:	0	C:	18.97	R:	19.99	Conc:	18.97
UOM:	%		Mean Test Assay:	18.95 %			

Second Analysis Data:				Date			
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	%		Mean Test Assay:				

2. Component: Oxygen  
Requested Concentration: 19 %  
Certified Concentration: 19.29 %  
Instrument Used: OXYMAT 5E  
Analytical Method: Paramagnetic  
Last Multipoint Calibration: 10/21/2019

Reference Standard: Type / Cylinder #: GMIS / CC506521  
Concentration / Uncertainty: 20.87 % ±0.108%  
Expiration Date: 12/14/2026  
Traceable to: SRM # / Sample # / Cylinder #: SRM 2659a / 71-E-19 / FF22331  
SRM Concentration / Uncertainty: 20.863% / ±0.021%  
SRM Expiration Date: 08/23/2021

First Analysis Data:				Date			
Z:	0	R:	20.88	C:	19.3	Conc:	19.28
R:	20.88	Z:	0	C:	19.3	Conc:	19.28
Z:	0	C:	19.32	R:	20.9	Conc:	19.3
UOM:	%		Mean Test Assay:	19.29 %			

Second Analysis Data:				Date			
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	%		Mean Test Assay:				

Analyzed By: Jose Vasquez

Certified By: Jenna Lockman

CR  
12/16/19

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DocNumber: 502282



Linde Gas & Equipment Inc. 5700 S. Alameda Street Los Angeles CA 90058 Tel: 323-585-2154 Fax: 714-542-6689 PGVP ID: F22022

# CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

### Customer & Order Information

MONTRÖSE AIR QUALITY SERVICES  
1631 E ST ANDREWS PLACE  
SANTA ANA CA92705

Certificate Issue Date: 09/08/2022  
Linde Order Number: 72174559  
Part Number: NI NO11ME-AS  
Customer PO Number: 80179225

Fill Date: 08/25/2022  
Lot Number: 70086223702  
Cylinder Style & Outlet: AS CGA 650  
Cylinder Pressure and Volume: 2000 psig 140 ltr

### Certified Concentration

Expiration Date:	09/08/2025	NIST Traceable
Cylinder Number:	CC755455	Expanded Uncertainty
11.18 ppm	Nitric oxide	± 0.06 ppm
Balance	Nitrogen	

### ProSpec EZ Cert



For Reference Only: NOx 11.20 ppm

Certification Information: Certification Date: 09/08/2022 Term: 36 Months Expiration Date: 09/08/2025

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Uncertainty above is expressed as absolute expanded uncertainty at a level of confidence of approximately 95% with a coverage factor k = 2. Do Not Use this Standard if Pressure is less than 100 PSIG.

### Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. Component: Nitric oxide  
 Requested Concentration: 11 ppm  
 Certified Concentration: 11.18 ppm  
 Instrument Used: Thermo Electron 42i-LS S/N 1030645077  
 Analytical Method: Chemiluminescence  
 Last Multipoint Calibration: 08/11/2022

Reference Standard: Type / Cylinder #: GMS / DT0038022  
 Concentration / Uncertainty: 9.42 ppm ± 0.05 ppm  
 Expiration Date: 04/08/2025  
 Traceable to: SRM # / Sample # / Cylinder #: PRM / C1837210.02 / APEX1324301  
 SRM Concentration / Uncertainty: 10.00 ppm / ± 0.05 ppm  
 SRM Expiration Date: 04/17/2022

First Analysis Data:				Date	09/01/2022		
Z:	0	R:	9.42	C:	11.16	Conc:	11.18
R:	9.43	Z:	0	C:	11.18	Conc:	11.18
Z:	0	C:	11.17	R:	9.41	Conc:	11.17
UOM:	ppm		Mean Test Assay:		11.17		ppm

Second Analysis Data:				Date	09/08/2022		
Z:	0	R:	9.42	C:	11.19	Conc:	11.2
R:	9.41	Z:	0	C:	11.18	Conc:	11.19
Z:	0	C:	11.17	R:	9.41	Conc:	11.18
UOM:	ppm		Mean Test Assay:		11.19		ppm

Analyzed By: Henry Koung

Certified By: Lissette Morales

NOx 11.20  
CC755455  
EXP 9-8-25  
F22022

AS12-27-22

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DocNumber: 478355



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# CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

### Customer & Order Information

MONTROSE AIR QUALITY SERVICES  
1631 E ST ANDREWS PLACE  
SANTA ANA CA92705

Certificate Issuance Date: 07/25/2022  
Linde Order Number: 72847783  
Part Number: Ni NO22.5ME-AS  
Customer PO Number: LUIS OLIVARES

Fill Date: 07/06/2022  
Lot Number: 70088218707  
Cylinder Style & Outlet: AS CGA 600  
Cylinder Pressure and Volume: 2000 psig 140 ft3

### Certified Concentration

Expiration Date:	07/25/2025	NIST Traceable
Cylinder Number:	CC755337	Expanded Uncertainty
22.7 ppm	Nitric oxide	± 0.2 ppm
Balance	Nitrogen	

### ProSpec EZ Cert



**For Reference Only:** NOx 22.7 ppm

### Certification Information:

Certification Date: 07/25/2022 Term: 36 Months Expiration Date: 07/25/2025

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Uncertainty above is expressed as absolute expanded uncertainty at a level of confidence of approximately 95% with a coverage factor k = 2. Do Not Use this Standard if Pressure is less than 100 PSIG.

### Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. Component: Nitric oxide  
Requested Concentration: 22.5 ppm  
Certified Concentration: 22.7 ppm  
Instrument Used: Thermo Electron 42i-LS S/N 1030845077  
Analytical Method: Chemiluminescence  
Last Multipoint Calibration: 06/28/2022

Reference Standard: Type / Cylinder #: GM:S / DT0037183  
Concentration / Uncertainty: 19.97 ppm ±0.20 ppm  
Expiration Date: 04/12/2025  
Traceable to: SRM # / Sample # / Cylinder #: 2529a / 50-G-17 / FF3\*691  
SRM Concentration / Uncertainty: 18.99 ppm / ±0.19 ppm  
SRM Expiration Date: 10/21/2023

First Analysis Data:				Date	07/11/2022
Z:	0	R:	30	C:	22.7
Conc:	22.7				
R:	20	Z:	0	C:	22.7
Conc:	22.7				
Z:	0	C:	22.7	R:	20
Conc:	22.7				
UOM:	ppm	Mean Test Assay:	22.7	ppm	

Second Analysis Data:				Date	07/25/2022
Z:	0	R:	20	C:	22.8
Conc:	22.7				
R:	20	Z:	0	C:	22.8
Conc:	22.7				
Z:	0	C:	22.9	R:	20.1
Conc:	22.8				
UOM:	ppm	Mean Test Assay:	22.8	ppm	

Analyzed By

Lissette Morales

Certified By

Henry Koung

NOx 22.7  
CC 755337  
EXP 7-25-25  
F22022

LO 9-29-22

Information contained herein has been prepared at your request by qualified experts within Linde Gas & Equipment Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Linde Gas & Equipment Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.



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5700 S. Alameda Street  
Los Angeles CA 90058  
Tel: 323-585-2154  
Fax: 714-542-6689  
PGVP ID: F22022

DocNumber: 475948

# CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

**Customer & Order Information**

MONTROSE AIR QUALITY SERVICES  
1631 E ST ANDREWS PLACE  
SANTA ANA CA92705

Certificate Issuance Date: 06/08/2022

Linde Order Number: 69436296

Part Number: AI NX17ME-AS

Customer PO Number: LUIS OLIVARES

Fill Date: 05/24/2022

Lot Number: 70086214402

Cylinder Style & Outlet: AS

CGA 660

Cylinder Pressure and Volume: 2000 psig

140 ft3

**Certified Concentration**

Expiration Date:	06/08/2023	NIST Traceable
Cylinder Number:	DT0019728	Expanded Uncertainty
<b>17.0 ppm</b>	<b>Nitrogen dioxide (as NOx)</b>	<b>± 0.3 ppm</b>
<b>Balance</b>	<b>Air</b>	

**ProSpec EZ Cert**



**For Reference Only:** HNO3 0.3 ppm

**Certification Information:** Certification Date: 06/08/2022 Term: 12 Months Expiration Date: 06/08/2023

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Uncertainty above is expressed as absolute expanded uncertainty at a level of confidence of approximately 95% with a coverage factor k = 2. Do Not Use this Standard if Pressure is less than 100 PSIG.

The above certified concentration of Total Oxides of Nitrogen (NOx) excludes HNO3.

**Analytical Data:**

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. Component: Nitrogen dioxide (as NOx)

Requested Concentration: 17 ppm  
 Certified Concentration: 17.0 ppm  
 Instrument Used: MKS 2 MultiGas 2031 FTIR  
 Analytical Method: FTIR  
 Last Multipoint Calibration: 05/27/2022

Reference Standard: Type / Cylinder #: GMIS / ND6829

Concentration / Uncertainty: 25.4 ppm ± 0.5 ppm

Expiration Date: 09/22/2022

Traceable to: SRM # / Sample # / Cylinder #: PRM#D887300 / C2122501.02 / D887300

SRM Concentration / Uncertainty: 30.0 ppm / ± 0.6 ppm

SRM Expiration Date: 05/11/2022

First Analysis Data:		Date	
Z: 0	R: 25.3	C: 16.9	Conc: 16.9
R: 25.5	Z: 0	C: 17.2	Conc: 17.2
Z: 0	C: 17	R: 25.4	Conc: 17
UOM: ppm		Mean Test Assay: 17 ppm	

Second Analysis Data:		Date	
Z: 0	R: 25.6	C: 17.2	Conc: 17.1
R: 25.4	Z: 0	C: 17	Conc: 16.9
Z: 0	C: 17.1	R: 25.5	Conc: 17
UOM: ppm		Mean Test Assay: 17 ppm	

Analyzed By: Henry Koung

Certified By: Lisette Morales

NO<sub>2</sub> 17.0  
 DT0019728  
 EXP 6-8-23  
 F22022

AS 6-21-22

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DocNumber: 502113



Linde Gas & Equipment Inc.  
5700 S. Alameda Street  
Los Angeles CA 90058  
Tel: 323-585-2154  
Fax: 714-542-6689  
PGVP ID: F22022

# CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

### Customer & Order Information

MONTRORF AIR QUALITY SERVICES  
1631 E ST ANDREWS PLACE  
SANTA ANA CA92705

Certificate Issuance Date: 08/31/2022

Linda Order Number: 74895645

Part Number: NI CO45ME-AS

Customer PO Number: LUIS OLIVARES

Fill Date: 08/18/2022

Lot Number: 70088223001

Cylinder Style & Outlet: AS

CGA 350

Cylinder Pressure and Volume: 2000 psig

140 ft3

### Certified Concentration

Expiration Date:	08/29/2030	NIST Traceable
Cylinder Number:	CC755322	Expanded Uncertainty
44.8 ppm	Carbon monoxide	± 0.5 ppm
Balance	Nitrogen	

### ProSpec EZ Cert



### Certification Information:

Certification Date: 08/29/2022

Term: 96 Months

Expiration Date: 08/29/2030

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-603/R-12/531, using Procedure G1. Uncertainty above is expressed as absolute expanded uncertainty at a level of confidence of approximately 95% with a coverage factor k = 2. Do Not Use this Standard if Pressure is less than 100 PSIG.

### Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Certificate)

#### 1. Component:

Carbon monoxide

Requested Concentration: 45 ppm  
Certified Concentration: 44.8 ppm  
Instrument Used: Horiba VIA-510 S/N 576876015  
Analytical Method: NDIR  
Last Multipoint Calibration: 08/30/2022

Reference Standard: Type / Cylinder #: NTRM / CC105919  
Concentration / Uncertainty: 100.1 ppm ±0.8 ppm  
Expiration Date: 07/09/2027

Traceable to: SRM # / Sample # / Cylinder #: NTRM / 190703 / CC3737  
SRM Concentration / Uncertainty: 100.1 ppm / ±0.8 ppm  
SRM Expiration Date: 07/09/2027

First Analysis Data:				Date	
Z:	100.1	C:	44.8	Conc:	44.8
R:	0	Z:	0	C:	44.8
Z:	0	C:	44.8	R:	100.1
UOM: ppm				Mean Test Assay:	44.8 ppm

Second Analysis Data:				Date	
Z:	0	R:	0	C:	0
R:	0	Z:	0	C:	0
Z:	0	C:	0	R:	0
UOM: ppm				Mean Test Assay:	ppm

Analyzed By

Jonathan Gutierrez

Certified By

Courtney Zielke

CO 44.8  
CC755322  
EXP 8-29-30  
F22022

AS 9-12-22

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5700 S. Alameda Street  
Los Angeles CA 90058  
Tel: 323-585-2154  
Fax: 714-542-6689  
PGVP ID: F22022

# CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information



Montrose Air Quality Services, LLC  
1631 E. St. Andrew Pl.  
Santa Ana, CA 92705

Certificate Issuance Date: 03/28/2022  
Linde Order Number: 72007266  
Part Number: Ni COB5ME-AS  
Customer PO Number: 80009705

Fill Date: 03/16/2022  
Lot Number: 70086207507  
Cylinder Style & Outlet: AS CGA 350  
Cylinder Pressure and Volume: 2000 psig 140 ft3

### Certified Concentration

Expiration Date:	03/26/2030	NIST Traceable
Cylinder Number:	CC83389	Expanded Uncertainty
86.7 ppm	Carbon monoxide	± 0.7 ppm
Balance	Nitrogen	

### ProSpec EZ Cert



### Certification Information:

Certification Date: 03/26/2022 Term: 96 Months Expiration Date: 03/26/2030

This cylinder was certified according to the 2012 EPA Traceability Protocol, Document #EPA-600/R-12/531, using Procedure G1. Uncertainty above is expressed as absolute expanded uncertainty at a level of confidence of approximately 95% with a coverage factor k = 2. Do Not Use this Standard if Pressure is less than 100 PSIG.

### Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. Component: Carbon monoxide  
 Requested Concentration: 85 ppm  
 Certified Concentration: 86.7 ppm  
 Instrument Used: Honba VIA-510 S/N 576876015  
 Analytical Method: NDIR  
 Last Multipoint Calibration: 03/21/2022

Reference Standard: Type / Cylinder #: NTRM / CC105919  
 Concentration / Uncertainty: 100.1 ppm ±0.8 ppm  
 Expiration Date: 07/09/2027  
 Traceable to: SRM # / Sample # / Cylinder #: NTRM / 190703 / CC8737  
 SRM Concentration / Uncertainty: 100.1 ppm / ±0.8 ppm  
 SRM Expiration Date: 07/09/2027

First Analysis Data:				Date			
Z:	0	R:	100.1	C:	86.8	Conc:	86.8
R:	100.1	Z:	0	C:	86.7	Conc:	86.7
Z:	0	C:	86.8	R:	100.2	Conc:	86.8
UOM:	ppm	Mean Test Assay:		86.7	ppm		

Second Analysis Data:				Date			
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	ppm	Mean Test Assay:			ppm		

Analyzed By

Jose Vasquez

Certified By

Amalia Real

CO 86.7  
 CC83389  
 EXP 3-26-30  
 F22022

AS 4-11-22

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**Barometric Pressure Determination**

---

Date: 03/31/23

Time: 8:00

Data By: PJ

Reference:

<https://forecast.weather.gov/MapClick.php?lon=-118.33078766>

Reference Barometer Indication, corrected to sea level	30.07
Reference Barometer Reference Elevation	62
Reference Barometer Actual Pressure	30.01
Test Barometer Location/Site	Lancaster Landfill
Location/Site Elevation	2400
Location/Site Barometric Pressure	27.67
Sampling Location Height (above/below site elevation)	45
Sampling Location Barometric Pressure	27.63

SEMI-ANNUAL DRY GAS METER/ORIFICE CALIBRATION

Orifice Method - Triplicate Runs/Four Calibration Points  
 English Meter Box Units, English K' Factor  
 Filename: M:\Santa Ana\Equipment\Test Equipment\Calibrations\Dry Gas Meters\6-WCS\2023\6WCS Semi Annual Cal 1-13-2023.xls\6WCS  
 File Modified From: APEX 522 Series Meter box Calibration  
 Revised: 4/8/2005

Model #: NuTech 2010 Stack Sampler  
 ID #: 6-WCS  
 Date: 1/13/2023  
 Bar. Pressure: 30.09 (in. Hg)  
 Performed By: L.Olivares  
 Reviewed By: M.Chowsaniphon

CRITICAL ORIFICE READINGS														
DRY GAS METER READINGS					CRITICAL ORIFICE READINGS									
dH (in H2O)	Time (min)	Volume		Initial Temps. (deg F)	Outlet (deg F)	Final Temps. (deg F)	Inlet (deg F)	Outlet (deg F)	Orifice Serial# (number)	K Orifice Coefficient (see above)	Actual Vacuum (in Hg)	Initial (deg F)	Final (deg F)	Average (deg F)
		Initial (cu ft)	Final (cu ft)											
0.12	26.00	877.900	883.415	73.0	71.0	73.0	73.0	73.0	14742-33	0.1635	18.0	66.0	66.0	66.0
0.12	26.00	888.925	894.440	73.0	73.0	73.0	73.0	73.0	14742-33	0.1635	18.0	66.0	66.0	66.0
0.58	12.00	860.900	866.370	72.0	69.0	73.0	73.0	70.0	PK-48	0.3491	17.0	65.0	65.0	65.0
0.58	12.00	866.370	871.850	73.0	70.0	73.0	73.0	71.0	PK-48	0.3491	17.0	65.0	65.0	65.0
0.58	12.00	871.850	877.345	73.0	71.0	73.0	73.0	72.0	PK-48	0.3491	17.0	65.0	65.0	65.0
1.70	7.00	844.400	849.650	70.0	67.0	72.0	72.0	68.0	PK-63	0.5729	16.0	65.0	66.0	65.5
1.70	7.00	849.650	854.890	72.0	68.0	73.0	73.0	69.0	PK-63	0.5729	16.0	66.0	66.0	65.5
1.70	7.00	854.890	860.155	73.0	69.0	73.0	73.0	69.0	PK-63	0.5729	16.0	66.0	66.0	65.0
3.30	5.00	826.000	831.220	68.0	65.0	69.0	69.0	66.0	PK-73	0.7978	15.0	65.0	64.0	64.5
3.30	5.00	831.220	836.400	69.0	66.0	71.0	71.0	66.0	PK-73	0.7978	15.0	64.0	64.0	65.0
3.30	5.00	836.400	841.595	71.0	66.0	71.0	71.0	67.0	PK-73	0.7978	15.0	66.0	66.0	66.0

DRY GAS METER													
DRY GAS METER				DRY GAS METER				ORIFICE					
VOLUME CORRECTED Vm(sid) (cu ft)	VOLUME CORRECTED Vr(sid) (cu ft)	VOLUME CORRECTED Vc(sid) (liters)	VOLUME CORRECTED Vcr (cu ft)	CALIBRATION FACTOR		CALIBRATION FACTOR		Individual Run	Individual Orifice	Orifice Average	Orifice Average	Orifice Average	
				Y Value (number)	dH@ Value (in H2O)	Ymax < Y	Ymin < Y						
5.499	5.577	5.577	5.527	1.014	1.464	Pass	0.95 < Y	Pass	0.98 < Y/Yd	Pass	Pass	dH@ - dH@ av < 1.02?	
5.489	5.577	5.577	5.527	1.016	1.461	Pass	< 1.05?	Pass	< 0.010?	Pass	Pass	< 1.02?	
5.494	5.577	5.577	5.527	1.015	1.461	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
			<b>Average</b>	<b>1.015</b>	<b>1.462</b>								
5.476	5.501	5.501	5.441	1.005	1.557	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
5.478	5.501	5.501	5.441	1.004	1.554	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
5.488	5.501	5.501	5.441	1.003	1.551	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
			<b>Average</b>	<b>1.004</b>	<b>1.554</b>								
5.287	5.264	5.264	5.212	0.986	1.702	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
5.265	5.264	5.264	5.212	1.000	1.699	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
5.285	5.266	5.266	5.209	0.997	1.696	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
			<b>Average</b>	<b>0.997</b>	<b>1.699</b>								
5.300	5.241	5.241	5.179	0.989	1.707	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
5.249	5.238	5.238	5.181	0.998	1.707	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
5.257	5.234	5.234	5.186	0.996	1.709	Pass	Pass	Pass	Pass	Pass	Pass	Pass	
			<b>Average</b>	<b>0.994</b>	<b>1.708</b>								
				<b>Average Yd:</b>	<b>1.003</b>	<b>dH@:</b>	<b>1.606</b>						
					<b>Q @ dH = 1:</b>	<b>0.592</b>							

SIGNED: \_\_\_\_\_ Signature on File

Date: 1/13/2023





### DIGITAL TEMPERATURE READOUT CALIBRATION

Digital Temperature Readout ID: 6-WCS  
 Readout Description: Control Box  
 Date: 1/3/2023  
 Performed By: LO, RMo, DA

Calibrated Thermocouple ID: TC-CAL  
 T1 Reference Thermometer ID: 313010  
 T2 Reference Thermometer ID: 242196  
 T3 Reference Thermometer ID: 805002770

T/C I.D.	Readout I.D.	T/C - Readout °F				Reference Thermometer °F				Difference		
		Reading 1	Reading 2	Reading 3	Average	Reading 1	Reading 2	Reading 3	Average	°F	%, (°R)	
TC-CAL												
T3 (OIL)	6-WCS	369	369	369	369	361	361	361	361	8.0	1.0%	Pass
T2 (Boiling H <sub>2</sub> O)	6-WCS	210	210	210	210	212	212	212	212	2.0	0.3%	Pass
T1 (Ice/Water)	6-WCS	37	37	37	37	32	32	32	32	5.0	1.0%	Pass

- 1) Difference % (°R) = Difference (°F) / (Average Tref + 460)
- 2) Pass if all Differences are less than 1.5% (°R)

#### Thermocouple Source Readings

T/C Source S/N	T/C Source S/N	T/C - Readout °F				T/C Source °F				Difference		
		Reading 1	Reading 2	Reading 3	Average	Reading 1	Reading 2	Reading 3	Average	°F	%, (°R)	
T4 (~650 F)	129103	650	650	650	650	650	650	650	650	0.0	0.0%	Pass
T3 (~370 F)	129103	373	373	373	373	370	370	370	370	3.0	0.4%	Pass
T2 (~212 F)	129103	215	215	215	215	212	212	212	212	3.0	0.4%	Pass
T1 (~32 F)	129103	35	35	35	35	32	32	32	32	3.0	0.6%	Pass

- 1) Difference % (°R) = Difference (°F) / (Average Tref + 460)
- 2) Pass if all Differences are less than 1.5% (°R)



**THERMOCOUPLE CALIBRATION**

Thermocouple ID: 67  
 Date: 1/4/2023  
 Performed By: LO, RMo, DA

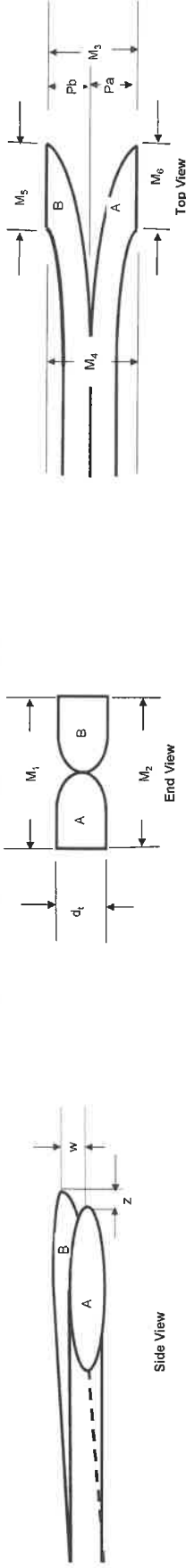
Calibrated Digital Temperature Readout ID: PTC-80  
 T1 Reference Thermometer ID: 313010  
 T2 Reference Thermometer ID: 242196  
 T3 Reference Thermometer ID: 805002770

T/C I.D.	Readout I.D.	T/C - Readout °F				Reference Thermometer °F				Difference			
		Reading 1	Reading 2	Reading 3	Average	Reading 1	Reading 2	Reading 3	Average	°F	%, (°R)		
67													
T3 (OIL)	PTC-80	365	367	367	366	365	365	365	365	1.3	0.2%	Pass	
T2 (Boiling H <sub>2</sub> O)	PTC-80	214	214	215	214	212	212	212	212	2.3	0.3%	Pass	
T1 (Ice/Water)	PTC-80	34	34	33	34	32	32	32	32	1.7	0.3%	Pass	

- 1) Difference % (°R) = Difference (°F) / (Average Tref + 460)
- 2) Pass if all Differences are less than 1.5% (°R)



**S Type Pitot Tube Dimensional Calibration Record**



Pitot ID	Acceptability Criteria		Yes	"3/16" < Dt < 3/8"	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	10 degrees Average Face Opening Plane Angle, offset from perpendicular to transverse axis	5 degrees Average Face Opening Plane Frontal Angle from parallel to Longitudinal Axis	1.05 Dt < P < 1.5 Dt	Status
	Date	Calibrated By															
067	1/3/23	N.G.	Y	Y	Y	0.940	0.937	0.939	0.939	0.415	0.424	0.2	0.0	1.3	Pass		

Notes: Reference "A Type-S Pitot Tube Calibration Study", Robert F. Volaro, October 15, 1975  
 If tube is not visibly deformed it is assumed that Pa = Pb = .5 x avg. of M1 & M2, and that average face opening plane angles represent individual angles to tube axis



**THERMOCOUPLE CALIBRATION**

Thermocouple ID: TC-DB  
 Date: 1/5/2023  
 Performed By: LO, RMo, DA

Calibrated Digital Temperature Readout ID: PTC-80  
 T1 Reference Thermometer ID: 313010  
 T2 Reference Thermometer ID: 242196  
 T3 Reference Thermometer ID: 805002770

T/C I.D.	Readout I.D.	T/C - Readout °F				Reference Thermometer °F				Difference		
		Reading 1	Reading 2	Reading 3	Average	Reading 1	Reading 2	Reading 3	Average	°F	%, (°R)	
T3 (OIL)	PTC-80	361	363	363	362	365	365	365	365	2.7	0.3%	Pass
T2 (Boiling H <sub>2</sub> O)	PTC-80	211	211	210	211	212	212	212	212	1.3	0.2%	Pass
T1 (Ice/Water)	PTC-80	34	34	34	34	32	32	32	32	2.0	0.4%	Pass

- 1) Difference % (°R) = Difference (°F) / (Average Tref + 460)
- 2) Pass if all Differences are less than 1.5% (°R)



**THERMOCOUPLE CALIBRATION**

Thermocouple ID: TC-WB  
 Date: 1/5/2023  
 Performed By: LO, RMo, DA

Calibrated Digital Temperature Readout ID: PTC-80  
 T1 Reference Thermometer ID: 313010  
 T2 Reference Thermometer ID: 242196  
 T3 Reference Thermometer ID: 805002770

T/C I.D.	Readout I.D.	T/C - Readout °F				Reference Thermometer °F				Difference		
		Reading 1	Reading 2	Reading 3	Average	Reading 1	Reading 2	Reading 3	Average	°F	%, (°R)	
TC-WB	PTC-80	362	362	363	362	365	365	365	365	2.7	0.3%	Pass
T3 (OIL)	PTC-80	210	210	210	210	212	212	212	212	2.0	0.3%	Pass
T2 (Boiling H <sub>2</sub> O)	PTC-80	33	33	34	33	32	32	32	32	1.3	0.3%	Pass
T1 (Ice/Water)	PTC-80											

- 1) Difference % (°R) = Difference (°F) / (Average Tref + 460)
- 2) Pass if all Differences are less than 1.5% (°R)



**DIGITAL TEMPERATURE READOUT CALIBRATION**

Digital Temperature Readout ID: PTC-43  
 Readout Description: Handheld  
 Date: 1/3/2023  
 Performed By: LO, RMo, DA

Calibrated Thermocouple ID: TC-CAL  
 T1 Reference Thermometer ID: 313010  
 T2 Reference Thermometer ID: 242196  
 T3 Reference Thermometer ID: 805002770

T/C I.D.	Readout I.D.	T/C - Readout °F				Reference Thermometer °F				Difference			
		Reading 1	Reading 2	Reading 3	Average	Reading 1	Reading 2	Reading 3	Average	°F	%, (°R)		
TC-CAL													
T3 (OIL)	PTC-43	371	371	371	371	361	361	361	361	10.0	1.2%	Pass	
T2 (Boiling H <sub>2</sub> O)	PTC-43	211	211	211	211	212	212	212	212	1.0	0.1%	Pass	
T1 (Ice/Water)	PTC-43	32	32	32	32	32	32	32	32	0.0	0.0%	Pass	

- 1) Difference % (°R) = Difference (°F) / (Average Tref + 460)
- 2) Pass if all Differences are less than 1.5% (°R)

Thermocouple Source Readings

T/C Source S/N	T/C Source S/N	T/C - Readout °F				T/C Source °F				Difference		
		Reading 1	Reading 2	Reading 3	Average	Reading 1	Reading 2	Reading 3	Average	°F	%, (°R)	
T4 (~650 F)	129103	652	652	652	652	650	650	650	650	2.0	0.2%	Pass
T3 (~370 F)	129103	369	369	369	369	370	370	370	370	1.0	0.1%	Pass
T2 (~212 F)	129103	211	211	211	211	212	212	212	212	1.0	0.1%	Pass
T1 (~32 F)	129103	31	31	31	31	32	32	32	32	1.0	0.2%	Pass

- 1) Difference % (°R) = Difference (°F) / (Average Tref + 460)
- 2) Pass if all Differences are less than 1.5% (°R)

# DIFFERENTIAL PRESSURE CALIBRATION

Semi-annual

Display ID: ADM 10  
 Description: Air Data Multimeter (ADM 850)  
 Serial Number: M05569  
 Calibration Date: 1/4/2023

Reference Device ID: Microtector  
 Reference Serial Number: S270  
 Calibrated By: P. Whitman

Calibration Range		Run 1		Individual Run Results		
Scale: 0 - 0.050 inches H <sub>2</sub> O		Measured Value (inches W.C.)	Reference Value (inches W.C.)	Absolute Value	% Difference	Pass/ Fail
Target 20%	0.010	0.010	0.010	0.0000	0.00%	Pass
Target 40%	0.020	0.020	0.020	0.0000	0.00%	Pass
Target 60%	0.030	0.029	0.030	0.0010	3.33%	Pass
Target 80%	0.040	0.040	0.040	0.0000	0.00%	Pass
Target 100%	0.050	0.050	0.050	0.0000	0.00%	Pass

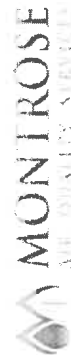
Calibration Range		Run 2		Individual Run Results		
Scale: 0 - 0.050 inches H <sub>2</sub> O		Measured Value (inches W.C.)	Reference Value (inches W.C.)	Absolute Value	% Difference	Pass/ Fail
Target 20%	0.010	0.010	0.010	0.0000	0.00%	Pass
Target 40%	0.020	0.020	0.020	0.0000	0.00%	Pass
Target 60%	0.030	0.029	0.030	0.0010	3.33%	Pass
Target 80%	0.040	0.040	0.040	0.0000	0.00%	Pass
Target 100%	0.050	0.050	0.050	0.0000	0.00%	Pass

Calibration Range		Run 3		Individual Run Results		
Scale: 0 - 0.050 inches H <sub>2</sub> O		Measured Value (inches W.C.)	Reference Value (inches W.C.)	Absolute Value	% Difference	Pass/ Fail
Target 20%	0.010	0.010	0.010	0.0000	0.00%	Pass
Target 40%	0.020	0.020	0.020	0.0000	0.00%	Pass
Target 60%	0.030	0.029	0.030	0.0010	3.33%	Pass
Target 80%	0.040	0.040	0.040	0.0000	0.00%	Pass
Target 100%	0.050	0.050	0.050	0.0000	0.00%	Pass

**Average results for three runs**

% Difference	0.67%	Pass/Fail	Pass
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Criteria: Each individual measured value within + or - 5.0% of reference value.  
 Percent difference of three run average within 5.0 %.



# DIFFERENTIAL PRESSURE CALIBRATION

Semi-annual

Display ID: ADM 10  
 Description: Air Data Multimeter (ADM 850)  
 Serial Number: M05569  
 Calibration Date: 1/4/2023

Reference Device ID: Microrector  
 Reference Serial Number: S270  
 Calibrated By: P. Whitman

Calibration Range		Run 1		Individual Run Results		
Scale:	inches H <sub>2</sub> O	Measured Value (inches W.C.)	Reference Value (inches W.C.)	Absolute Value	% Difference	Pass/ Fail
Target 20%	0.020	0.020	0.020	0.0000	0.00%	Pass
Target 40%	0.040	0.039	0.040	0.0010	2.50%	Pass
Target 60%	0.060	0.061	0.060	0.0010	1.67%	Pass
Target 80%	0.080	0.079	0.080	0.0010	1.25%	Pass
Target 100%	0.100	0.099	0.100	0.0010	1.00%	Pass

Calibration Range		Run 2		Individual Run Results		
Scale:	inches H <sub>2</sub> O	Measured Value (inches W.C.)	Reference Value (inches W.C.)	Absolute Value	% Difference	Pass/ Fail
Target 20%	0.020	0.020	0.020	0.0000	0.00%	Pass
Target 40%	0.040	0.041	0.040	0.0010	2.50%	Pass
Target 60%	0.060	0.061	0.060	0.0010	1.67%	Pass
Target 80%	0.080	0.078	0.080	0.0020	2.50%	Pass
Target 100%	0.100	0.098	0.100	0.0020	2.00%	Pass

Calibration Range		Run 3		Individual Run Results		
Scale:	inches H <sub>2</sub> O	Measured Value (inches W.C.)	Reference Value (inches W.C.)	Absolute Value	% Difference	Pass/ Fail
Target 20%	0.020	0.020	0.020	0.0000	0.00%	Pass
Target 40%	0.040	0.041	0.040	0.0010	2.50%	Pass
Target 60%	0.060	0.059	0.060	0.0010	1.67%	Pass
Target 80%	0.080	0.080	0.080	0.0000	0.00%	Pass
Target 100%	0.100	0.103	0.100	0.0030	3.00%	Pass

**Average results for three runs**

% Difference	Pass/Fail
1.48%	Pass

Criteria: Each individual measured value within + or - 5.0% of reference value.  
 Percent difference of three run average within 5.0 %.





# DIFFERENTIAL PRESSURE CALIBRATION

Semi-annual

Display ID: ADM 10  
 Description: Air Data Multimeter (ADM 850)  
 Serial Number: M05569  
 Calibration Date: 1/4/2023

Reference Device ID: Microtector  
 Reference Serial Number: S270  
 Calibrated By: P. Whitman

Calibration Range		Run 1		Individual Run Results		
Scale:	inches H <sub>2</sub> O	Measured Value (inches W.C.)	Reference Value (inches W.C.)	Absolute Value	% Difference	Pass/ Fail
Target 20%	0.200	0.203	0.200	0.0030	1.50%	Pass
Target 40%	0.400	0.399	0.400	0.0010	0.25%	Pass
Target 60%	0.600	0.601	0.600	0.0010	0.17%	Pass
Target 80%	0.800	0.803	0.800	0.0030	0.38%	Pass
Target 100%	1.000	1.030	1.000	0.0300	3.00%	Pass

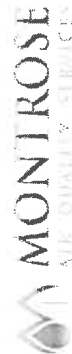
Calibration Range		Run 2		Individual Run Results		
Scale:	inches H <sub>2</sub> O	Measured Value (inches W.C.)	Reference Value (inches W.C.)	Absolute Value	% Difference	Pass/ Fail
Target 20%	0.200	0.202	0.200	0.0020	1.00%	Pass
Target 40%	0.400	0.399	0.400	0.0010	0.25%	Pass
Target 60%	0.600	0.596	0.600	0.0040	0.67%	Pass
Target 80%	0.800	0.799	0.800	0.0010	0.13%	Pass
Target 100%	1.000	1.033	1.000	0.0330	3.30%	Pass

Calibration Range		Run 3		Individual Run Results		
Scale:	inches H <sub>2</sub> O	Measured Value (inches W.C.)	Reference Value (inches W.C.)	Absolute Value	% Difference	Pass/ Fail
Target 20%	0.200	0.202	0.200	0.0020	1.00%	Pass
Target 40%	0.400	0.399	0.400	0.0010	0.25%	Pass
Target 60%	0.600	0.602	0.600	0.0020	0.33%	Pass
Target 80%	0.800	0.793	0.800	0.0070	0.88%	Pass
Target 100%	1.000	0.997	1.000	0.0030	0.30%	Pass

**Average results for three runs**

% Difference	Pass/Fail
0.89%	Pass

Criteria: Each individual measured value within + or - 5.0% of reference value.  
 Percent difference of three run average within 5.0 %.



# DIFFERENTIAL PRESSURE CALIBRATION

Semi-annual

Display ID: ADM 10  
 Description: Air Data Multimeter (ADM 850)  
 Serial Number: M05569  
 Calibration Date: 1/4/2023

Reference Device ID: Dwyer 0 - 10" Manometer  
 Reference Serial Number: CC-2  
 Calibrated By: P. Whitman

Calibration Range		Run 1		Individual Run Results		
Scale:	inches H <sub>2</sub> O	Measured Value (inches W.C.)	Reference Value (inches W.C.)	Absolute Value	% Difference	Pass/ Fail
Target 20%	2.000	2.040	2.000	0.0400	2.00%	Pass
Target 40%	4.000	4.080	4.000	0.0800	2.00%	Pass
Target 60%	6.000	6.030	6.000	0.0300	0.50%	Pass
Target 80%	8.000	8.140	8.000	0.1400	1.75%	Pass
Target 100%	10.000	10.250	10.000	0.2500	2.50%	Pass

Calibration Range		Run 2		Individual Run Results		
Scale:	inches H <sub>2</sub> O	Measured Value (inches W.C.)	Reference Value (inches W.C.)	Absolute Value	% Difference	Pass/ Fail
Target 20%	2.000	2.045	2.000	0.0450	2.25%	Pass
Target 40%	4.000	4.032	4.000	0.0320	0.80%	Pass
Target 60%	6.000	6.085	6.000	0.0850	1.42%	Pass
Target 80%	8.000	8.014	8.000	0.0140	0.17%	Pass
Target 100%	10.000	10.220	10.000	0.2200	2.20%	Pass

Calibration Range		Run 3		Individual Run Results		
Scale:	inches H <sub>2</sub> O	Measured Value (inches W.C.)	Reference Value (inches W.C.)	Absolute Value	% Difference	Pass/ Fail
Target 20%	2.000	2.034	2.000	0.0340	1.70%	Pass
Target 40%	4.000	4.045	4.000	0.0450	1.13%	Pass
Target 60%	6.000	6.086	6.000	0.0860	1.43%	Pass
Target 80%	8.000	8.042	8.000	0.0420	0.52%	Pass
Target 100%	10.000	10.122	10.000	0.1220	1.22%	Pass

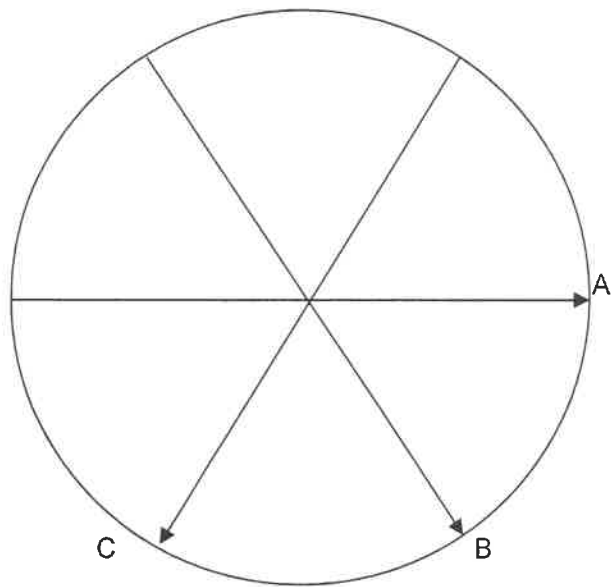
**Average results for three runs**

% Difference	Pass/Fail
1.44%	Pass

Criteria: Each individual measured value within + or - 5.0% of reference value.  
 Percent difference of three run average within 5.0 %.



FACILITY: LAVASTON  
 SOURCE TESTED: FLARE  
 CALIBRATED BY: ST  
 DATE: 3/31/23



NOZZLE ID	READING (INCHES)			AVG DIA.
	A	B	C	
717	0.062	0.061	0.062	0.062

Calibrated by: 

Measuring Device Used : Mitutoyo Digital Calipers  
 Serial Number : 0247955  
 Model Number : CD-6" CS  
 Resolution : 0.01mm or 0.0005"/0.01mm  
 Accuracy :  $\pm 0.02\text{mm}$  or  $\pm 0.001"/\pm 0.02\text{mm}$

## **APPENDIX B FACILITY DATA**

<b>Lancaster Landfill LFG Flare Operating Data</b>				
<b>Time</b>	<b>Temp</b>	<b>Fuel</b>	<b>Condensate Pressure</b>	<b>Condensate Flow</b>
	<b>F<sup>(o)</sup></b>	<b>SCFM</b>	<b>PSI</b>	<b>GPM</b>
1010	1470	937	23.3	1.0
1020	1476	1000	23.4	1.0
1030	1479	1010	23.4	1.0
1040	1467	1001	23.4	1.0
1050	1473	987	23.3	1.0
1100	1480	979	23.4	1.0
1110	1475	967	23.3	1.0
1120	1477	983	23.4	1.0
1130	1475	940	23.4	1.0
1140	1474	985	23.4	1.0
<b>Average</b>	<b>1474.6</b>	<b>979</b>	<b>23.37</b>	<b>1.00</b>

Facility:  
Date:

WM LANCASTER  
3/3/23

Operator:  
Source:

  
FLANZ

Time	TEMP °F	FUEL SLFM	COND. PRESS PSI	COND FLOW GPM
1010	1470	937	23.3	1.0
1020	1476	1000	23.7	
1030	1479	1010	23.4	
1040	1467	1061	23.4	
1050	1473	987	23.3	↓
1100	1480	979	23.4	
1110	1475	967	23.3	
1120	1477	983	23.4	
1130	1475	940	23.4	
1140	1474	935	23.4	

BOTTOM TC CONTROL

CUSTOMER COPY

TAG NAME: FIT-112

KURZ INSTRUMENTS, INC.

KZCOMM VERSION: 3.04  
 KZCOMM DLL VERSION: 3.0.16307.1  
 CONFIGURATION FILENAME: FD36545A\_20180201\_0815-Lancaster.cf  
 FIRMWARE VERSION: MFT-B VER 2.13  
 CONFIGURATION DATE: 02/01/2018 08:16  
 ELECTRONIC BOARD BAR CODE: E20924  
 ELECTRONIC BOARD ASSY: 420348  
 ELECTRONIC BOARD BUILD: 01 M

\*\*\*\*\*FLOW CALIBRATION DATA\*\*\*\*\*

SENSOR S/N: FD36545A

	FACTORY (FSTP)		USER (USTP)	
TEMP:	25.00	DEGC	60.00	DEGF
PRESSURE:	101.325	KPA	14.696	PSIA

KEY GAS CONCENTRATION VIA MANUAL INPUT

USER CONFIGURED KEY GAS CONCENTRATION: 40.00 % CH4 BY VOLUME  
 ASSOCIATED MOLECULAR WEIGHT: 32.82  
 ASSOCIATED VELOCITY RATIO: 1.4071

DATA SET #1 GAS: 15CH4+85CO2

GAS CONCENTRATION: 15.00 % CH4 BY VOLUME

	FACTORY (FSTP)		USER (USTP)	
DENSITY:	1.6283	KG/M3	0.1050	LB/CF
MOL. WT:	39.814			

DATA PT #	Rp POWER (W )	(Vfac) FACTORY VELOCITY (SMPS @FSTP)	(Vuser) USER* VELOCITY (SFPM @USTP)	USER* FLOW RATE (SCFM @USTP)	AO #1 FLOW RATE (mA)
1	1.1105	0.0000	0.0000	0.0000	4.00
2	1.5395	0.2443	38.0506	18.3728	4.13
3	1.6570	0.3586	55.8509	26.9677	4.20
4	1.7981	0.5264	81.9775	39.5830	4.29
5	1.9685	0.7726	120.327	58.1002	4.42
6	2.2299	1.1340	176.616	85.2793	4.62
7	2.5182	1.6645	259.236	125.173	4.91
8	2.8205	2.4431	380.507	183.729	5.34
9	3.1781	3.5860	558.509	269.677	5.96
10	3.6024	5.2635	819.778	395.832	6.88
11	4.1268	7.7258	1203.27	581.002	8.23
12	4.7500	11.3399	1766.16	852.793	10.20
13	5.4876	16.6447	2592.36	1251.73	13.10
14	6.3566	24.4311	3805.07	1837.29	17.36
15	7.3518	35.8600	5585.09	2696.77	20.50

DATA SET #2 GAS: 50CH4+50CO2

GAS CONCENTRATION: 50.00 % CH4 BY VOLUME

	FACTORY (FSTP)		USER (USTP)	
DENSITY:	1.2280	KG/M3	0.0792	LB/CF
MOL. WT:	30.026			

DATA PT #	Rp POWER (W )	(Vfac) FACTORY VELOCITY (SMPS @FSTP)	(Vuser) USER* VELOCITY (SFPM @USTP)	USER* FLOW RATE (SCFM @USTP)	AO #1 FLOW RATE (mA)
1	1.1732	0.0000	0.0000	0.0000	4.00
2	1.5966	0.2443	38.0506	18.3728	4.13
3	1.7237	0.3586	55.8509	26.9677	4.20
4	1.8773	0.5264	81.9775	39.5830	4.29

5	2.0616	0.7726	120.327	58.1002	4.42
6	2.3422	1.1340	176.616	85.2793	4.62
7	2.6526	1.6645	259.236	125.173	4.91
8	2.9787	2.4431	380.507	183.729	5.34
9	3.3629	3.5860	558.509	269.677	5.96
10	3.8174	5.2635	819.778	395.832	6.88
11	4.3765	7.7258	1203.27	581.002	8.23
12	5.0381	11.3399	1766.16	852.793	10.20
13	5.8162	16.6447	2592.36	1251.73	13.10
14	6.7275	24.4311	3805.07	1837.29	17.36
15	7.7629	35.8600	5585.09	2696.77	20.50

DATA SET #3 GAS: 85CH4+15CO2  
 GAS CONCENTRATION: 85.00 % CH4 BY VOLUME

FACTORY (FSTP)                      USER (USTP)  
 DENSITY:            0.8277            KG/M3                      0.0534            LB/CF  
 MOL. WT:            20.237

DATA PT #	Rp POWER (W )	(Vfac) FACTORY VELOCITY (SMPs @FSTP)	(Vuser) USER* VELOCITY (SFPM @USTP)	USER* FLOW RATE (SCFM @USTP)	A0 #1 FLOW RATE (mA)
1	1.2142	0.0000	0.0000	0.0000	4.00
2	1.6388	0.2443	38.0506	18.3728	4.13
3	1.7737	0.3586	55.8509	26.9677	4.20
4	1.9354	0.5264	81.9775	39.5830	4.29
5	2.1298	0.7726	120.327	58.1002	4.42
6	2.4244	1.1340	176.616	85.2793	4.62
7	2.7506	1.6645	259.236	125.173	4.91
8	3.0925	2.4431	380.507	183.729	5.34
9	3.4948	3.5860	558.509	269.677	5.96
10	3.9698	5.2635	819.778	395.832	6.88
11	4.5511	7.7258	1203.27	581.002	8.23
12	5.2365	11.3399	1766.16	852.793	10.20
13	6.0395	16.6447	2592.36	1251.73	13.10
14	6.9748	24.4311	3805.07	1837.29	17.36
15	8.0305	35.8600	5585.09	2696.77	20.50

$$* Vuser = Vfac * FCCF * SBCF * VCF * \frac{(Tuser + Tconv)}{(Tfac + Tconv)} * \frac{Pfac}{Puser}$$

Where Vuser = Velocity at the User's Temperature (Tuser) and Pressure (Puser) defined as USTP.  
 Vfac = Velocity at the Factory's Temperature (Tfac) and Pressure (Pfac) defined as FSTP.  
 Tconv = 273.15 Kelvin or 459.67 Rankine.

If DRY FLOW WATER VAPOR CORRECTION is ENABLED then the above table is the flow reading including water vapor.

\*\*\*\*\*FLOW METER SETUP\*\*\*\*\*

METER ID:                      FIT-112            METER UNIT: SCFM  
 FLOW AREA                      = 0.482852            SQ.FT  
 FIELD CALIBRATION CORRECTION FACTOR (FCCF) = 0.850  
 SENSOR BLOCKAGE CORRECTION FACTOR (SBCF):  
   PROBE SIZE:            0.750 INCH  
   PROBE DEPTH            = 0.417500            FT  
   SBCF                      = 0.961268  
 VARIABLE CORRECTION FACTOR (VCF):  
   NUMBER OF CORRECTION PTS. = 1  
   D1 = 0.0000            SFPM            C.F. #1 = 1.000000  
   R1 = 0.0000            SFPM            AT                      0.0000            SFPM  
 LOW FLOW CUT-OFF STATUS: ON  
 LOW FLOW CUT-OFF AT: 0.0000            SCFM  
   W002AS-025314-RT-4704                      223 of 276



\*\*\*\*\*DRY FLOW WATER VAPOR CORRECTION\*\*\*\*\*

CORRECTION STATUS: ENABLED  
MAX SATURATION TEMPERATURE OF GAS: 100.0000 DEGF  
PROCESS PRESSURE: 14.6959 PSIA  
VELOCITY RATIO OF GAS/AIR 1: 1.2888  
VELOCITY RATIO OF GAS/AIR 2: 1.5075  
VELOCITY RATIO OF GAS/AIR 3: 1.6891

\*\*\*\*\*TEMPERATURE METER SETUP\*\*\*\*\*

METER ID: TEMPERATURE METER UNIT: DEGF

\*\*\*\*\*METER FILTER SETUP\*\*\*\*\*

FLOW METER TIME CONSTANT (TC): 0.500000 SECONDS  
TEMPERATURE METER TIME CONSTANT (TC): 0.500000 SECONDS

\*\*\*\*\*ANALOG OUTPUT SETUP\*\*\*\*\*

ANALOG OUTPUT #1  
LOW SCALE (4.00 mA) AT 0.0000 SCFM  
HIGH SCALE (20.00 mA) AT 2200.0000 SCFM

ANALOG OUTPUT #2  
LOW SCALE (4.00 mA) AT 0.0000 DEGF  
HIGH SCALE (20.00 mA) AT 250.0000 DEGF

NE-43 ALARM AT: LOW OUTPUT

\*\*\*\*\*RELAY ASSIGNMENT SETUP\*\*\*\*\*

RELAY #1  
RELAY ASSIGNED TO: UNASSIGNED

RELAY #2  
RELAY ASSIGNED TO: UNASSIGNED

\*\*\*\*\*ALARM SETUP\*\*\*\*\*

ALARM OUTPUT: DISABLED

\*\*\*\*\*TOTALIZER PULSE OUTPUT SETUP\*\*\*\*\*

PULSE OUTPUT: DISABLED

\*\*\*\*\*PURGE TIMER SETUP\*\*\*\*\*

PURGE TIMER: DISABLED

\*\*\*\*\*RUN MODE DISPLAY SETUP\*\*\*\*\*

RUN MODE DISPLAY TYPE: STATIC  
DISPARED VARIABLES:  
FLOW RATE  
TEMPERATURE

\*\*\*\*\*COMMUNICATION SETUP\*\*\*\*\*

COMMUNICATION CONFIGURATION OPTIONS:  
USB COMMUNICATION PORT  
TERMINAL ECHO: ENABLED (Default)  
COMMUNICATION BAUDRATE: 9600 BAUD  
DATA LOGGING: ENABLED

DATA LOGGING STATUS: OFF  
DATA LOGGING INTERVAL: 300 SECONDS

RS-485 COMMUNICATION PORT  
MODBUS PROTOCOL: ON  
TRANSMISSION MODE: MODBUS RTU  
ADDRESS: 1  
FLOATING POINT NUMBER REGISTER ORDER: BYTE # 1 2 3 4  
COMMUNICATION BAUDRATE: 38400 BAUD

\*\*\*\*\*EXTERNAL INPUT SETUP\*\*\*\*\*

USAGE: Calibration Data Select Switch

\*\*\*\*\*PID SETUP\*\*\*\*\*

PID FUNCTION: DISABLED

\*\*\*\*\*ZERO MID SPAN DRIFT CHECK SETUP\*\*\*\*\*

DRIFT CHECK STATUS: OFF  
ZERO CHECK VALUE: 10.000 Percent Full Scale  
ZERO CHECK DURATION: 60 Seconds  
MID-SPAN CHECK VALUE: 50.000 Percent Full Scale  
MID-SPAN CHECK DURATION: 60 Seconds  
SPAN CHECK VALUE: 90.000 Percent Full Scale  
SPAN CHECK DURATION: 60 Seconds  
CYCLE INTERVAL TIME: 16 Hours

\*\*\*\*\*SENSOR DATA SETUP\*\*\*\*\*

Rp RESISTANCE AT 0 DEGC = 9.1002 OHMS  
Rtc RESISTANCE AT 0 DEGC = 27.0239 OHMS

\*\*\*\*\*END OF MFT B-SERIES CONFIGURATION\*\*\*\*\*

## **APPENDIX C CALCULATIONS**

## **Appendix C.1**

### **General Emissions Calculations**

## GENERAL EMISSIONS CALCULATIONS

### I. Stack Gas Velocity

A. Stack gas molecular weight, lb/lb-mole

$$MW_{dry} = 0.44 * \% CO_2 + 0.32 * \% O_2 + 0.28 * \% N_2$$

$$MW_{wet} = MW_{dry} * (1 - B_{wo}) + 18 * B_{wo}$$

B. Absolute stack pressure, iwg

$$P_s = P_{bar} + \frac{P_{sg}}{13.6}$$

C. Stack gas velocity, ft/sec

$$V_s = 2.9 * C_p * \sqrt{\Delta P} * \sqrt{T_s} * \sqrt{\frac{29.92 * 28.95}{P_s * MW_{wet}}}$$

### II. Moisture

A. Sample gas volume, dscf

$$V_{mstd} = 0.03342 * V_m * \left( P_{bar} + \frac{\Delta H}{13.6} \right) * \frac{T_{ref}}{T_m} * Y_d$$

B. Water vapor volume, scf

$$V_{wstd} = 0.0472 * V_{ic} * \frac{T_{ref}}{528^{\circ}R}$$

C. Moisture content, dimensionless

$$B_{wo} = \frac{V_{wstd}}{(V_{mstd} + V_{wstd})}$$

### III. Stack Gas Volumetric Flow Rate

A. Actual stack gas volumetric flow rate, wacfm

$$Q = V_s * A_s * 60$$

B. Standard stack gas flow rate, dscfm

$$Q_{sd} = Q * (1 - B_{wo}) * \frac{T_{ref}}{T_s} * \frac{P_s}{29.92}$$

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IV. Gaseous Mass Emission Rates, lb/hr

$$M = \frac{\text{ppm} * MW_i * Q_{sd} * 60}{SV * 10^6}$$

V. Emission Rates, lb/MMBtu

$$\frac{\text{lb}}{\text{MMBtu}} = \frac{\text{ppm} * MW_i * F}{SV * 10^6} * \frac{20.9}{20.9 - \% O_2}$$

VI. Percent Isokinetic

$$I = \frac{17.32 * T_s (V_{mstd})}{(1 - B_{wo}) * V_s * P_s * Dn^2} * \frac{520^{\circ}R}{T_{ref}}$$

VII. Particulate Emissions

(a) Grain loading, gr/dscf  
 $C = 0.01543 (M_n / V_{m \text{ std}})$

(b) Grain loading at 12% CO<sub>2</sub>, gr/dscf  
 $C_{12\% \text{ CO}_2} = C (12\% \text{ CO}_2)$

(c) Mass emissions, lb/hr  
 $M = C * Q_{sd} * (60 \text{ min/hr}) / (7000 \text{ gr/lb})$

(d) Particulate emission factor

$$\text{lb}/10^6 \text{ Btu} = Cx \frac{1 \text{ lb}}{7000 \text{ gr}} * F * \frac{20.9}{20.9 - \% O_2}$$

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Nomenclature:

$A_s$	=	stack area, ft <sup>2</sup>
$B_{wo}$	=	flue gas moisture content, dimensionless
$C_{12\%CO_2}$	=	particulate grain loading, gr/dscf corrected to 12% CO <sub>2</sub>
$C$	=	particulate grain loading, gr/dscf
$C_p$	=	pitot calibration factor, dimensionless
$D_n$	=	nozzle diameter, inches
$F$	=	fuel F-Factor, dscf/MMBtu @ 0% O <sub>2</sub>
$H$	=	orifice differential pressure, iwg
$I$	=	% isokinetics
$M_n$	=	mass of collected particulate, mg
$M_i$	=	mass emission rate of specie i, lb/hr
$MW$	=	molecular weight of flue gas, lb/lb-mole
$M_{wi}$	=	molecular weight of specie i:
		SO <sub>2</sub> : 64
		NO <sub>x</sub> : 46
		CO: 28
		HC: 16
$t$	=	sample time, minutes
$\Delta P$	=	average velocity head, iwg = $(\sqrt{\Delta P})^2$
$P_{bar}$	=	barometric pressure, inches Hg
$P_s$	=	stack absolute pressure, inches Hg
$P_{sg}$	=	stack static pressure, iwg
$Q$	=	wet stack flow rate at actual conditions, wacfm
$Q_{sd}$	=	dry standard stack flow rate, dscfm
$SV$	=	specific molar volume of an ideal gas at standard conditions, ft <sup>3</sup> /lb-mole
$T_m$	=	meter temperature, °R
$T_{ref}$	=	reference temperature, °R
$T_s$	=	stack temperature, °R
$V_s$	=	stack gas velocity, ft/sec
$V_{lc}$	=	volume of liquid collected in impingers, ml
$V_m$	=	uncorrected dry meter volume, dcf
$V_{mstd}$	=	dry meter volume at standard conditions, dscf
$V_{wstd}$	=	volume of water vapor at standard conditions, scf
$Y_d$	=	meter calibration coefficient

## **Appendix C.2**

### **Spreadsheet Summaries**



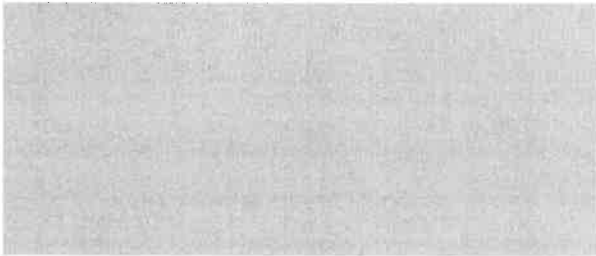
**DATA AND WORKSHEET  
RUN NUMBER 1**

TEST CONSTANTS					TEST VARIABLES				
Station: Lancaster Landfill Unit: Flare Performed By: PS, JS Cp: 0.84 T <sub>ref</sub> : 60 °F Stack Area: 64.80 ft <sup>2</sup> Meter Y <sub>d</sub> : 1.003					Start Date: 3/31/23 Start/End Time: 10:17 11:33 Test Condition: 1475 degrees F Barom. Pressure: 27.63 Pstack: -0.06 iwg Pstack: 27.63 "Hg MW: 28.62 lb/lb-mole				
METHOD 2.1 DATA					METHOD 100.1 DATA				
Point	dP (in. H <sub>2</sub> O)	Temp sqrt(dP)	Temp °F	Vel. (fps)	O <sub>2</sub>	CO <sub>2</sub>	NO <sub>x</sub>	CO	
					Analyzer Range	20	20	25	100
					Cal Gas Value	10.24	10.64	11.20	44.80
					Pre-Test Direct Zero	0.00	-0.02	0.03	0.06
					Pre-Test Direct Span	10.31	10.59	11.03	45.45
					Pre-Test System Zero	0.00	-0.10	-0.07	-0.03
					Pre-Test System Span	10.30	10.54	11.11	45.03
					Post-Test System Zero	-0.01	-0.02	-0.06	-0.01
					Post-Test System Span	10.26	10.60	11.24	44.75
					Post-Test Direct Zero	-0.07	0.01	-0.05	-0.23
					Post-Test Direct Span	10.30	10.69	11.11	44.99
					Raw Test Average	12.42	7.46	13.36	36.06
					Cal Corrected Average	12.37	7.52	13.37	35.99
					Pre-test zero bias	0.0%	-0.4%	-0.4%	-0.1%
					Pre-test span bias	0.0%	-0.3%	0.4%	-0.4%
					Post-test zero bias	0.3%	-0.1%	-0.1%	0.2%
					Post-test span bias	-0.2%	-0.4%	0.5%	-0.2%
					Zero drift	0.0%	0.4%	0.0%	0.0%
					Span drift	-0.2%	0.3%	0.5%	-0.3%
Average	0.0139	0.1178	1415.3	13.01					
Stack Flow Rate:	50,591	wacfm							
Stack Flow Rate:	11,755	dscfm							
METHOD 4.1 DATA									
Time	Dry Gas Meter			Impingers					
	Vol.	T <sub>m</sub> (in)	T <sub>m</sub> (out)	#/Matl.	End	Start	Diff.		
Start				H <sub>2</sub> O			0.0	Meter Pressure:	2.2 iwg
				H <sub>2</sub> O			0.0	Sample Volume:	44.948 dscf
End				Empty			0.0	H <sub>2</sub> O Volume :	4.579 scf
				SG			0.0	Moisture Content:	9.2 %
Total	48.588		63.7	Total			98.5		
RESULTS									
Ref. Meth									
	O <sub>2</sub> %				12.37				
	NO <sub>x</sub> ppm				13.37				
	NO <sub>x</sub> @ 3% O <sub>2</sub>				28.06				
	NO <sub>x</sub> lb/hr				1.14				
	NO <sub>x</sub> lb/day				27.43				
	NO <sub>x</sub> lb/MMBtu				0.040				
	NO <sub>x</sub> lb/MMCF				14.68				
	CO ppm				35.99				
	CO @ 3% O <sub>2</sub>				75.54				
	CO lb/hr				1.87				
	CO lb/day				44.95				
	CO lb/MMBtu				0.066				
	CO lb/MMScf				24.06				
	*Oxides of Sulfur (as SO <sub>2</sub> )								
	lb/hr				0.029				
	lb/day				0.69				
	lb/month				21.0				
	tons/year				0.13				
					Sulfur Data				
					1		2		3
					Analyte	ppm	ppm	ppm	
					Hydrogen Sulfide	3.24	2.74	2.84	
					Carbonyl Sulfide	<0.05	<0.05	<0.05	
					Methyl Mercaptan	<0.05	<0.05	<0.05	
					Ethyl Mercaptan	<0.05	<0.05	<0.05	
					Ethyl Methyl Mercaptan	<0.05	<0.05	<0.05	
					Carbon Disulfide	<0.05	<0.05	<0.05	
					Unidentified S Compounds	<0.05	<0.05	<0.05	
					Total Reduced Sulfur as H <sub>2</sub> S	3.24	2.74	2.84	
					Average			2.94	

\* Values calculated based on inlet TRS.

Note: Moisture and Flow data is from the PM run

REFERENCE METHOD 1-MINUTE AVERAGE DATA

RUN NUMBER 1						
Date	Time	O <sub>2</sub>	CO <sub>2</sub>	NO <sub>x</sub>	CO	
3/31/2023	10:18:00 AM	12.072	7.984	13.386	18.569	12
3/31/2023	10:19:00 AM	12.472	7.588	12.802	18.324	12
3/31/2023	10:20:00 AM	12.468	7.617	12.804	58.708	12,11
3/31/2023	10:21:00 AM	12.161	7.876	13.682	21.469	11
3/31/2023	10:22:00 AM	12.492	7.571	12.407	18.89	11
3/31/2023	10:23:00 AM	12.034	7.964	13.533	26.976	10
3/31/2023	10:24:00 AM	12.03	7.905	13.804	14.612	10
3/31/2023	10:25:00 AM	12.543	7.515	12.521	65.473	10,9
3/31/2023	10:26:00 AM	12.081	7.95	12.88	75.06	9
3/31/2023	10:27:00 AM	12.05	7.952	13.239	13.975	9
3/31/2023	10:28:00 AM	12.376	7.644	12.587	16.014	8
3/31/2023	10:29:00 AM	12.455	7.561	12.085	66.462	8
3/31/2023	10:30:00 AM	12.705	7.299	12.023	65.356	8,7
3/31/2023	10:31:00 AM	11.921	8.018	14.095	59.827	7
3/31/2023	10:32:00 AM	12.353	7.687	12.971	30.223	7
3/31/2023	10:33:00 AM	12.252	7.741	13.345	16.143	6
3/31/2023	10:34:00 AM	12.536	7.508	13.977	19.919	6
3/31/2023	10:35:00 AM	12.627	7.404	13.009	39.082	6,5
3/31/2023	10:36:00 AM	12.6	7.424	13.317	27.357	5
3/31/2023	10:37:00 AM	12.66	7.252	12.517	48.909	5
3/31/2023	10:38:00 AM	12.698	7.348	13.484	98.292	4
3/31/2023	10:39:00 AM	13.005	7.022	13.503	49.908	4
3/31/2023	10:40:00 AM	12.839	7.143	13.675	88.915	4,3
3/31/2023	10:41:00 AM	12.731	7.194	12.922	93.343	3
3/31/2023	10:42:00 AM	12.763	7.176	13.598	76.344	3
3/31/2023	10:43:00 AM	12.76	7.214	13.393	55.089	2
3/31/2023	10:44:00 AM	13.114	6.945	13.711	15.963	2
3/31/2023	10:45:00 AM	12.972	6.987	13.546	6.834	2,1
3/31/2023	10:46:00 AM	13.015	6.987	14.113	12.688	1
3/31/2023	10:47:00 AM	13.232	6.811	13.681	13.011	1
3/31/2023	11:04:00 AM	11.987	7.753	12.405	0.796	12
3/31/2023	11:05:00 AM	12.143	7.605	12.046	1.16	12
3/31/2023	11:06:00 AM	12.104	7.669	12.341	1.382	12,11
3/31/2023	11:07:00 AM	12.134	7.64	12.917	1.744	11
3/31/2023	11:08:00 AM	12.396	7.395	11.42	15.14	11
3/31/2023	11:09:00 AM	12.244	7.487	11.996	14.046	10
3/31/2023	11:10:00 AM	12.246	7.524	11.781	13.659	10
3/31/2023	11:11:00 AM	12.091	7.651	12.486	9.936	10,9
3/31/2023	11:12:00 AM	12.19	7.563	11.753	16.237	9
3/31/2023	11:13:00 AM	11.965	7.795	12.567	14.717	9
3/31/2023	11:14:00 AM	12.032	7.711	12.154	7.887	8
3/31/2023	11:15:00 AM	12.196	7.562	11.678	11.05	8
3/31/2023	11:16:00 AM	12.183	7.569	12.027	10.67	8,7
3/31/2023	11:17:00 AM	12.052	7.668	12.117	7.712	7
3/31/2023	11:18:00 AM	12.079	7.653	12.455	8.126	7
3/31/2023	11:19:00 AM	12.126	7.641	12.516	10.531	6
3/31/2023	11:20:00 AM	12.64	7.145	13.537	61.861	6
3/31/2023	11:21:00 AM	12.198	7.531	14.771	50.268	6,5
3/31/2023	11:22:00 AM	12.077	7.646	15.055	23.773	5
3/31/2023	11:23:00 AM	12.038	7.709	14.825	23.354	5
3/31/2023	11:24:00 AM	12.22	7.48	14.752	22.702	4
3/31/2023	11:25:00 AM	12.655	7.108	15.566	71.686	4
3/31/2023	11:26:00 AM	12.555	7.171	15.874	47.682	4,3
3/31/2023	11:27:00 AM	12.618	7.109	15.367	66.275	3
3/31/2023	11:28:00 AM	12.674	7.096	15.322	68.94	3
3/31/2023	11:29:00 AM	12.669	7.044	15.356	44.144	2
3/31/2023	11:30:00 AM	12.602	7.108	14.904	66.033	2
3/31/2023	11:31:00 AM	12.927	6.813	14.538	82.011	2,1
3/31/2023	11:32:00 AM	12.659	7.115	15.166	72.925	1
3/31/2023	11:33:00 AM	12.575	7.141	15.079	85.163	1
						
Average		12.42	7.46	13.36	36.06	

**PARTICULATE DATA AND CALCULATIONS**

Client/Location.....	Waste Management	Reference Temp (F).....	60
Unit.....	Flare	Fuel.....	Landfill gas
Sample Location.....	Stack	Data By.....	PS, JS
Operating Condition, degrees F.....	1475		
<b>Test No.....</b>	<b>1-PM-FL</b>		
Date.....	3/31/2023		
Test Method.....	SCAQMD 5.1		
Sample Train.....	6-WCS		
Pitot Factor .....	0.84		
Meter Cal Factor.....	1.003		
Stack Area (ft <sup>2</sup> ).....	64.80		
Sample Time (Minutes).....	60		
Bar Press ("Hg).....	27.63		
Nozzle Diam (inches).....	0.862		
Heating Value (Btu/Scf).....	364	From Fuel Analysis	
F-Factor (dscf/MMBtu).....	10,171	From Fuel Analysis	
Start/Stop Time.....	1017-1136		
Stack Press (iwg).....	-0.06		
Stack Temp (°F).....	1415.3		
Velocity Head (iwg).....	0.0139		
Stack O <sub>2</sub> (%).....	12.37		
Stack CO <sub>2</sub> (%).....	7.52		
Meter Vol (acf).....	48.588		
Meter Temp (°F).....	63.7		
Meter Press (iwg).....	2.2		
Liquid Vol (ml).....	98.5		
Std Sample Vol (SCF).....	44.948		
Std Sample Vol (Nm <sup>3</sup> ).....	1.186		
Moisture Fraction.....	0.092		
Stack Gas Mol Wt.....	28.62		
Stack Gas Velocity (ft/sec).....	13.01		
Stack Flow Rate (wacfm).....	50,591		
Stack Flow Rate (dscfm).....	11,755		
Isokinetic Ratio (%).....	101.9		
			Limit
Particulate Catch, mg.....	<b>0.6</b>		
Grain Loading, gr/dscf.....	<b>0.0002</b>		<b>0.0</b>
Grain Loading @ 3% O <sub>2</sub> .....	<b>0.0004</b>		--
Grain Loading @ 12% CO <sub>2</sub> .....	<b>0.0003</b>		--
Mass Emissions, lb/hr.....	<b>0.021</b>		<b>1.02</b>
Emission rate, lb/day.....	<b>0.50</b>		<b>24.48</b>
Emission factor, lb/MMBtu.....	<b>0.000733</b>		--
Emission factor, lb/MMScf.....	<b>0.266</b>		--

Test 1

	Vm	Ts	dP	dP <sup>0.5</sup>	dH	Tmi	Tmo
1	144.100	1421	0.025	0.1581	3.79	64	60
2		1422	0.022	0.1483	3.33	63	62
3		1419	0.023	0.1517	3.48	63	62
4		1420	0.018	0.1342	2.73	63	61
5		1418	0.017	0.1304	2.58	64	61
6		1419	0.016	0.1265	2.42	65	61
7		1416	0.017	0.1304	2.58	65	62
8		1414	0.013	0.1140	1.97	66	62
9		1412	0.008	0.0894	1.21	68	62
10		1413	0.009	0.0949	1.36	68	62
11		1411	0.008	0.0894	1.21	69	61
12		1409	0.007	0.0837	1.06	69	61
13		1419	0.022	0.1483	3.33	71	66
14		1420	0.020	0.1414	3.03	68	63
15		1418	0.022	0.1483	3.33	66	61
16		1418	0.019	0.1378	2.88	66	60
17		1417	0.017	0.1304	2.58	66	60
18		1415	0.016	0.1265	2.42	65	60
19		1414	0.015	0.1225	2.27	66	61
20		1415	0.009	0.0949	1.36	66	60
21		1413	0.008	0.0894	1.21	66	60
22		1411	0.008	0.0894	1.21	66	61
23		1408	0.006	0.0775	0.91	67	61
24	192.688	1405	0.005	0.0707	0.76	66	60
	48.588	1415.3	0.0139	0.1178	2.21		63.7

Impingers

Post	Pre	Diff
927.6	753	174.6
744.2	739.8	4.4
630.3	627.5	2.8
904.1	887.4	16.7
-100	0	-100
3106.2	3007.7	98.5

## SCAQMD 5.1 EXAMPLE CALCULATION TEST NUMBER: 1-PM-FL

Identifier	Description	Units	Equation	Value
A	Stack O2	%	--	12.37195619
B	Stack CO2	%	--	7.522639453
C	Meter Volume	acf	--	48.588
D	Barometric Pressure	" Hg	--	27.63
E	Delta H	" H <sub>2</sub> O	--	2.2
F	Reference Temperature	R	--	520
G	Meter Temperature	R	--	523.7
H	Y <sub>d</sub>	--	--	1.003
I	Meter Volume (standard)	dscf	$0.03342 * C * (D + E/13.6) * F/G * H$	44.948
J	Liquid Collected	grams	--	98.5
K	Water vapor volume	scf	$0.0472 * J * F/528$	4.579
L	Moisture Content	--	$T/(T + R)$	0.092
M	Molecular weight, dry	lb/lb-mole	$0.44 * B + 0.32 * A + 0.28 * (100 - A - B)$	29.70
N	Molecular weight, wet	lb/lb-mole	$M * (1 - L) + 18 * L$	28.62
O	Static Pressure	" H <sub>2</sub> O	--	-0.06
P	Stack Pressure	" Hg	$D + O/13.6$	27.63
Q	Average Velocity Differential Pressure	" H <sub>2</sub> O	square of the average of the square roots	0.0139
R	Stack Temperature	R	--	1875.291667
S	Pitot Tube Coefficient	--	--	0.84
T	Stack Velocity	fps	$2.9 * S * \text{sqrt}(Q * R * 29.92 * 28.95 / P / N)$	13.01
U	Stack Area	ft <sup>2</sup>	--	64.80
V	Stack Flow Rate	acfm	$T * U * 60$	50,591
W	Stack Flow Rate	dscfm	$V * (1 - L) * F * P / R / 29.92$	11,755
X	Sample Time	minutes	--	60.0
Y	Nozzle Diameter	inches	--	0.862
Z	Isokinetic Sampling Rate	%	$14,128 * 528 / F * R * I / X / T / 60 / (D * 13.6 + O) / Y^2$	101.9
AA	Particulate Catch	mg	--	0.6
AB	Particulate Catch	lbs	$AA / 454,000$	1.32E-06
AC	Particulate Catch	grains	$AB * 7,000$	0.009
AD	Particulate Emissions	gr/dscf	$AC / I$	0.000206
AE	Particulate Emissions	gr/dscf @ 3% O <sub>2</sub>	$AD * 17.9 / (20.9 - A)$	0.000432
AF	Particulate Emissions	gr/dscf @ 12% CO <sub>2</sub>	$AD * 12 / B$	0.000328
AG	Particulate Emissions	lb/hr	$AD * 60 / 7,000 * V$	0.0207
AH	Fuel HHV	Btu/SCF	--	364
AI	Fuel F-Factor	dscf/MMBtu	--	10,171
AJ	Particulate Emissions	lb/MMBtu	$AD / 7,000 * AI * 20.9 / (20.9 - A)$	0.00073
AK	Particulate Emissions	lb/MMSCF	$AJ * AH$	0.266

**Note:**

(1) Some values may be slightly different from those shown on the run sheets due to round off errors. This page is intended to show the calculation methodology only.

## GASEOUS EXAMPLE CALCULATION RUN NUMBER 1

Identifier	Description	Units	Equation	Value
<b>Using Data from Run 1:</b>				
A	NO <sub>x</sub> Pre-Test Zero Bias Response	ppm	--	-0.07
B	NO <sub>x</sub> Post-Test Zero Bias Response	ppm	--	-0.06
C	NO <sub>x</sub> Pre-Test Span Bias Response	ppm	--	11.11
D	NO <sub>x</sub> Post-Test Span Bias Response	ppm	--	11.24
E	Avg. Pre-Test Zero Bias Response	ppm	(A+B)/2	-0.07
F	Avg. Post-Test Span Bias Response	ppm	(C+D)/2	11.18
G	NO <sub>x</sub> Span Gas Value	ppm	--	11.20
H	NO <sub>x</sub> Average (raw)	ppm	--	13.36
I	Drift/Bias Corrected NO <sub>x</sub> :	ppm	(H-E)/(F-E)*G	13.37
J	Drift/Bias Corrected O <sub>2</sub> :	%	--	12.37
K	Drift/Bias Corrected CO <sub>2</sub> :	%	--	7.52
L	Meter Volume	acf	--	
M	Barometric Pressure	" Hg	--	27.63
N	Delta H	" H <sub>2</sub> O	--	
O	Reference Temperature	R	--	520
P	Meter Temperature	R	--	
Q	Y <sub>g</sub>	--	--	
R	Meter Volume (standard)	dscf	0.03342 * L * (M + N/13.6) * O/P * Q	
S	Liquid Collected	grams	--	
T	Water vapor volume	scf	0.0472 * S * O/528	
U	Moisture Content	--	T/(T + R)	
V	Molecular weight, dry	lb/lb-mole	0.44 * K + 0.32 * J + 0.28 * (100 - J - K)	
W	Molecular weight, wet	lb/lb-mole	V * (1 - U) + 18 * U	
X	Static Pressure	" H <sub>2</sub> O	--	
Y	Stack Pressure	" Hg	M + X/13.6	
Z	Average Velocity Differential Pressure	" H <sub>2</sub> O	square of the average of the square roots	
AA	Stack Temperature	R	--	
AB	Pitot Tube Coefficient	--	--	
AC	Stack Velocity	fps	2.9 * AB * sqrt(Z * AA * 29.92 * 28.95 / Y / W)	
AD	Stack Area	ft <sup>2</sup>	--	
AE	Stack Flow Rate	acfm	From PM Run	50591
AF	Stack Flow Rate	dscfm	From PM Run	11755
AG	Specific Molar Volume	SCF/lb-mole	385.3 * O / 528	379.5
AH	NO <sub>x</sub> emission rate	lb/hr	I * 46 * AF * 60 / AG / 10 <sup>9</sup>	1.14
AI	NO <sub>x</sub> concentration corrected to 3% O <sub>2</sub>	ppmc	I * 17.9/(20.9-J)	28.06
AJ	MW of NO <sub>x</sub> as NO <sub>2</sub>	lb/lb-mole	--	46.00
AK	Fuel Fd Factor	dscf/MMBtu	From Fuel Analysis	10,171
AL	Fuel Heating Value	Btu/Scf	From Fuel Analysis	363.5
AM	NO <sub>x</sub> emission rate	lb/MMBtu	(I * AJ * AM)/(379.5 * 10 <sup>6</sup> ) * 20.9/(20.9 - J)	0.04
AN	NO <sub>x</sub> emission rate	lb/MMScf	AM X AL	14.68

**Note:**

(1) Some values may be slightly different from those shown on the run sheets due to round off errors. This page is intended to show the calculation methodology only.

## VOC DATA AND CALCULATIONS

### METHOD 25.3 DATA

Client/Location.....	Waste Management	Reference Temp (F).....	60	
Unit.....	Flare	Fuel.....	Landfill Gas	
Sample Location.....	Stack	Data By.....	PS, JS	
Operating Condition (°F).....	1,475			
Test No.....			<b>Average</b>	<b>Limit</b>
Date.....	3/31/2023	3/31/2023		
Test Method.....	SCAQMD 25.3	SCAQMD 25.3		
Stack Area (ft <sup>2</sup> ).....	64.80	64.80		
Sample Time (Minutes).....	60	60		
Bar. Press (in. Hg.).....	27.63	27.63		
Start/Stop Time.....	1A-Flare1-25.3	1B-Flare1-25.3		
Stack O <sub>2</sub> (%).....	13.7	13.8	(from canister analysis)	
O <sub>2</sub> Correction Factor.....	3	3		
Stack Flow Rate (dscfm).....	11,755	11,755	(from PM)	
Methane (ppm).....	< 1.80	< 1.90	< 1.85	
Methane (lb/hr).....	< 0.054	< 0.057	< 0.06	
Canister VOC (ppm).....	0.36	0.38	0.37	
Water Vial VOC (ppm).....	1.15	1.34	1.25	
Total VOC (ppm).....	1.51	1.72	1.62	
Method 25.3 Multiplier.....	1.086	1.086		
VOC as Methane (ppm).....	1.64	1.87	1.75	
VOC as Methane (ppm @ 3% O <sub>2</sub> ).....	4.08	4.71	4.39	
VOC as Methane (lb/hr).....	0.05	0.06	0.05	
VOC as Hexane (ppm).....	0.27	0.31	0.29	
VOC as Hexane (ppm @ 3% O <sub>2</sub> ).....	0.68	0.78	0.73	
VOC as Hexane (lb/hr).....	0.04	0.05	0.05	

## INLET- VOC TEST RESULTS

Test Number	1-VOC-1	
Reference Temperature, F	60	
Test Date	3/31/2023	
Test Method	SCAQMD 25.1	
Inlet O <sub>2</sub> (%)	1.40	1.70
Inlet Flow Rate, dscfm	967	
O <sub>2</sub> Correction Factor (%)	3	
F-Factor	10,171	

TGNMOC, ppm as Methane	Run 1 A	Run 1 B	AVERAGE
ppm	273	444.00	358.70
ppm, Corr.@3%O <sub>2</sub>	250.97	483.31	367.14
lb/hr	0.67	1.09	0.88

TGNMOC, ppm as Hexane	Run 1 A	Run 1 B	AVERAGE
ppm	45.6	74.0	59.78
ppm, Corr.@3%O <sub>2</sub>	41.83	80.55	61.19
lb/hr	0.60	0.97	0.79

Methane	Run 1A	Run 1B	AVERAGE
ppm	359000	354000	356,500
ppm, Corr.@3%O <sub>2</sub>	329544	385344	357,444
lb/hr	878.40	866.17	872.28



**SUMMARY OF TRACE ORGANIC SPECIES DESTRUCTION EFFICIENCY RESULTS**  
**Lancaster Landfill**  
**Flare**  
**March 31, 2023**

Sample Location:	INLET		EXHAUST		Destruction Efficiency
Test No.:	VOC - AVG 1, 2 & 3		VOC - AVG 1, 2 & 3		
Flow Rate, dscfm:	967		11,755		
Species	ppb	lb/hr	ppb	lb/hr	%
Benzene:	6.67	7.96E-05	ND< 0.30	< 4.35E-05	> 45.31%
Benzyl Chloride:	ND< 1.50	< 2.90E-05	ND< 0.30	< 7.06E-05	NA
Chlorobenzene:	1.50	2.58E-05	ND< 0.30	< 6.28E-05	> -143.06%
1,2-Dichlorobenzene:	ND< 1.5	< 3.37E-05	ND< 0.30	< 8.20E-05	NA
1,4-Dichlorobenzene:	2.07	4.65E-05	ND< 0.30	< 8.20E-05	> -76.42%
1,1-Dichloroethane:	ND< 1.50	< 2.27E-05	ND< 0.30	< 5.52E-05	NA
1,2-Dichloroethane:	ND< 1.50	< 2.27E-05	ND< 0.30	< 5.52E-05	NA
1,1-Dichloroethylene:	ND< 1.50	< 2.22E-05	ND< 0.30	< 5.40E-05	NA
Dichloromethane:	ND< 1.50	< 1.95E-05	ND< 0.30	< 4.74E-05	NA
1,2-dibromomethane:	ND< 1.50	< 4.31E-05	ND< 0.30	< 1.05E-04	NA
Perchloroethene:	2.03	5.16E-05	ND< 0.30	< 9.25E-05	> -79.31%
Carbon Tetrachloride:	ND< 1.50	< 3.53E-05	ND< 0.30	< 8.58E-05	NA
Toluene:	66.67	9.39E-04	ND< 0.30	< 5.14E-05	> 94.53%
1,1,1-Trichloroethane:	ND< 1.50	< 3.06E-05	ND< 0.30	< 7.44E-05	NA
Trichloroethene:	ND< 1.50	< 3.01E-05	ND< 0.30	< 7.33E-05	NA
Chloroform:	ND< 1.50	< 2.74E-05	ND< 0.30	< 6.66E-05	NA
Vinyl Chloride:	ND< 1.50	< 1.43E-05	ND< 0.30	< 3.48E-05	NA
m,p-Xylene:	33.33	5.41E-04	ND< 0.60	< 1.18E-04	> 78.1%
o-Xylene:	11.00	1.71E-04	ND< 0.30	< 5.92E-05	> 65.48%
<b>Total Trace Organics:</b>		< 2.19E-03		< 1.31E-03	> 39.91%

ND< - indicates that the species was not detected in the sample above the analytical detection limit for this species.

The values reported in this table are below the detection limit for this species and the actual concentration is lower.

NA - indicates that the destruction efficiency cannot be calculated because the inlet concentration is below the detection limit.

Lancaster Landfill  
 Flare  
 3/31/2023  
 TO-15

	Mol Wt.	Inlet				Outlet			
		Run 1	Run 2	Run 3	Avg	Run 1	Run 2	Run 3	Avg
Benzene:	78.11	6.50	6.80	6.70	6.67	0.30	0.30	0.30	0.3
Benzyl Chloride:	126.58	1.50	1.50	1.50	1.50	0.30	0.30	0.30	0.3
Chlorobenzene:	112.56	1.50	1.50	1.50	1.50	0.30	0.30	0.30	0.3
1,2-Dichlorobenzene:	147.01	1.50	1.50	1.50	1.50	0.30	0.30	0.30	0.3
1,4-Dichlorobenzene:	147.00	1.90	2.10	2.20	2.07	0.30	0.30	0.30	0.3
1,1-Dichloroethane:	98.96	1.50	1.50	1.50	1.50	0.30	0.30	0.30	0.3
1,2-Dichloroethane:	98.96	1.50	1.50	1.50	1.50	0.30	0.30	0.30	0.3
1,1-Dichloroethylene:	96.94	1.50	1.50	1.50	1.50	0.30	0.30	0.30	0.3
Dichloromethane:	84.93	1.50	1.50	1.50	1.50	0.30	0.30	0.30	0.3
1,2-dibromomethane:	187.86	1.50	1.50	1.50	1.50	0.30	0.30	0.30	0.3
Perchloroethene:	165.83	2.00	2.10	2.00	2.03	0.30	0.30	0.30	0.3
Carbon Tetrachloride:	153.82	1.50	1.50	1.50	1.50	0.30	0.30	0.30	0.3
Toluene:	92.13	66.00	67.00	67.00	66.67	0.30	0.30	0.30	0.3
1,1,1-Trichloroethane:	133.42	1.50	1.50	1.50	1.50	0.30	0.30	0.30	0.3
Trichloroethene:	131.4	1.50	1.50	1.50	1.50	0.30	0.30	0.30	0.3
Chloroform:	119.38	1.50	1.50	1.50	1.50	0.30	0.30	0.30	0.3
Vinyl Chloride:	62.5	1.50	1.50	1.50	1.50	0.30	0.30	0.30	0.3
m,p-Xylene:	106.16	33.00	34.00	33.00	33.33	0.60	0.60	0.60	0.6
o-Xylene:	106.16	11.00	11.00	11.00	11.00	0.30	0.30	0.30	0.3

**DATA AND WORKSHEET  
RUN NUMBER 1**

<b>TEST CONSTANTS</b>				
Station: Lancaster Landfill				
Unit: Flare				
Performed By: PS, JS				
Cp: 0.84				
T <sub>ref</sub> : 60 °F				
Stack Area: 0.55 ft <sup>2</sup>				
<b>TEST VARIABLES</b>				
Start Date: 3/31/23				
Start/End Time: 10:17 11:33				
Test Condition: 1475 degrees F				
Barom. Pressure: 27.63				
P <sub>stack</sub> : 3.35 iwg				
P <sub>stack</sub> : 27.88 "Hg				
MW Wet: 29.18 lb/lb-mole				
MW Dry: 29.33 lb/lb-mole				
<b>Moisture</b>				
Moisture Content: 1.32 % From WbDb				
<b>Fuel Gas Composition Data</b>				
O <sub>2</sub> : 1.19 % From Inlet Fuel				
CO <sub>2</sub> : 35.01 % From Inlet Fuel				
N <sub>2</sub> : 27.81 % From Inlet Fuel				
CH <sub>4</sub> : 35.99 % From Inlet Fuel				
<b>METHOD 2.1 DATA</b>				
Point	dP (in. H <sub>2</sub> O)	sqrt(dP)	Temp °F	Vel. (fps)
	0.430	0.6557	93	38.76
	0.460	0.6782	93	40.09
	0.500	0.7071	93	41.80
	0.420	0.6481	93	38.31
	0.400	0.6325	93	37.39
	0.410	0.6403	93	37.85
	0.370	0.6083	93	35.96
	0.360	0.6000	93	35.47
Average	0.4177	0.6463	93.0	38.20
Measured				
Fuel Flow Rate: 1,250 wacfm				
Fuel Flow Rate: 1,095 scfm				
Fuel Flow Rate: 1,081 dscfm				
Facility Meter Rate: 979 scfm				
967 dscfm				

**MONTROSE AQS**  
**Duct Moisture by Wet bulb/Dry bulb Measurements**

Facility: Lancaster Landfill  
 CEM I.D. : TV-7

TEST DATE: March 31, 2023

BY: SJ

$$B_{ws} = \frac{e''}{P_a}$$

$$e_a = e'' - \frac{(P_a - e'') [T_{dry} - T_{wet}]}{2800 - 1.3 \times T_{wet}}$$

	P <sub>bar</sub>	Static Pressure (in. of H <sub>2</sub> O)	P <sub>a</sub>	T <sub>dry</sub>	T <sub>wet</sub>	e <sub>a</sub>	B <sub>ws</sub>	e''
Run 1:	27.63	3.35	27.8763	93	65	0.3686	1.32	0.649347

**Waste Management  
Flare**

**March 31, 2023**

**SUMMARY OF EPA M-19 SOURCE TEST DATA AND CALCULATIONS**

PARAMETER	UNITS	RUN 1	
DATE		3/31/2023	
FUEL FLOW	SCFM	967	from facility meter
CALORIFIC VALUE	BTU/CF	363.5	from fuel analysis
F FACTOR (Fd)	DSCF/MMBTU	10,171	from fuel analysis
EXHAUST O2 CONCENTRATION	%VD	12.37	
HEAT INPUT - LANDFILL GAS	MMBTU/MIN	0.3516	
EXHAUST VOLUME FLOW RATE	DSCFM	8,764	

Values stated based on a standard temperature of: 60 °F

## **APPENDIX D QUALITY ASSURANCE**

## **Appendix D.1**

# **Sampling and Analytical Procedures**

## **SAMPLING AND ANALYTICAL PROCEDURES**

### SCAQMD METHOD 1.1 - SAMPLING AND VELOCITY TRAVERSE FOR STATIONARY SOURCES

A preliminary source test site assessment was performed prior to the source test in order to determine applicable testing port locations and sample point traverse locations. The stack diameter, and the distance from sample ports to disturbances, i.e. bends, flanges, etc., both upstream and downstream, were measured. This information was utilized to determine the minimum number of sampling points per traverse, and the distance from the inner stack wall to each sample point location. Additionally, this method takes into account cyclonic flow patterns and in-situ stratified pollutant concentrations.

### SCAQMD METHOD 2.1 - VELOCITY AND VOLUMETRIC FLOW RATE

The velocity of the gas stream was determined using SCAQMD Method 2.1 in conjunction with SCAQMD Method 5.1 particulate testing. The velocity was measured by using an "S" type pitot tube parallel to the stack axis and recording the differential pressure indicated on electronic manometer and type "K" thermocouple with a digital temperature measuring device. The calibrated pitot tube was connected to the digital manometer and leak checked. A temperature and delta P measurements were obtained at each traverse point, and a duct static pressure was measured and recorded. The dry volumetric flow rate was determined from the gas velocity data, stack pressure, stack gas moisture content, stack gas molecular weight, and cross-sectional area of duct.

### SCAQMD METHOD 4.1 - DETERMINATION OF MOISTURE CONTENT IN STACK GASES

Stack gas moisture content was measured in conjunction with SCAQMD Method 5.1 particulate sample train using SCAQMD Method 4.1 procedure.

Inlet moisture was determined by wet bulb/dry bulb temperature measurements and calculated using a psychrometric chart.

After sampling at the exhaust, the final weights of each impinger were determined and recorded. Percent moisture content was calculated from the weight of water collected and the dry gas volume sampled.

### CALCULATIONS

$$\text{Moisture (B}_w) = \frac{V_{wstd}}{V_{mstd} + V_{wstd}} \times 100$$

Where:

$$V_{wstd} = \frac{0.0464 \text{ ft}^3}{\text{ml}} * \text{Vol H}_2\text{O Collected (ml)}$$

$$V_{mstd} = Y \text{ Meter} * \frac{520^\circ\text{R}}{29.92 \text{ in Hg}} * \frac{\text{Vol Metered}}{\text{Temp. Meter}} * \text{Pres. Meter}$$



### SCAQMD METHOD 5.1 - PARTICULATE EMISSIONS

A series of preliminary measurements were made prior to conducting the particulate test. SCAQMD Methods 1.1, 2.1, and 3.1 were performed to determine location and number of traverse points, average gas velocity, and gas molecular weight, respectively. Percent moisture content was estimated using a psychometric chart or combustion analysis of the fixed gases. The results of these measurements were used to determine the appropriate nozzle size for isokinetic sampling.

The Method 5.1 apparatus was prepared in-house laboratory in the secure area. The absorption train was charged with freshly prepared chemicals (see Field Data Sheets for actual contents), weighed on a calibrated electronic balance to the nearest 0.1 grams, and assembled. The probe was brushed out and rinsed with acetone and distilled water, finally a tared filter was placed in the filter holder. The sampling apparatus was sealed and transported to the sampling site where it was assembled and leak tested at 15 inches of mercury vacuum. The probe was positioned into the duct at the first traverse point with the nozzle out of the flow.

The nozzle was positioned into the gas flow and the vacuum pump was started immediately and adjusted to obtain an isokinetic sample rate. A complete traverse was performed while sampling at a minimum of two minutes per sample point (see Field Data Sheets for actual duration). Upon completion of the traverse the vacuum pump was turned off and the probe was transferred into the next sample port where an identical traverse was performed. Duct conditions (temperature, delta-P) and sampling conditions (meter temperature, meter volume, meter pressure, filter temperature where applicable, sample line temperature where applicable, impinger temperature, and absorption train vacuum) were monitored and recorded regularly for each sample point.

Upon completion of sampling, the apparatus was leak checked at a vacuum greater than the highest observed vacuum. Any leak was recorded and the apparatus was sealed and transported to the mobile laboratory. The filter-to-impinger line was rinsed with a known amount of distilled water into the first impinger.

### ANALYSIS

The nozzle and probe were washed as per Method 5.1 and quantitatively transferred to a clean labeled nalgene bottle.

The filter and any loose particulate was carefully removed from the filter holder with tweezers. The filter was then placed into a labeled petri dish and transported to the Montrose AQS laboratory. The nozzle and probe were rinsed and brushed three times with distilled water. The sample fractions were combined, bottled, labeled, and fluid levels marked for transportation to Montrose AQS laboratory for analysis. Aliquots of the distilled water were similarly treated for blank analysis.

The absorption train was inspected for abnormalities and disassembled. The impingers were weighed on an electronic balance for a percent moisture determination. The contents of the impingers were quantitatively transferred into separate bottles, sealed, labeled, and fluid level marked for transportation to the Montrose AQS laboratory for analysis, if required. Aliquots of the reagent grade impinger contents were saved for blank analysis.

The filter was transferred to an oven and heated at 105 degrees C for 2-3 hours and then placed in a desiccator for 24 hours. The filter was then weighed on a digital balance to the nearest 0.01 mg or one percent of the total filtrate weight (weighed to a constant weight).

The nozzle and probe wash and impinger sample were transferred to a separation funnel. An organic extraction was performed. The organic and inorganic fractions were transferred to separate evaporative dishes. The inorganic sample was then evaporated at an elevated temperature - below the boiling point of the wash - with occasional stirring. The organic fraction was allowed to dry at ambient conditions. The dishes and wash residues were then desiccated and weighed to a constant weight.

The net weight of particulate was calculated from the three fractions. Concentrations (gr/dscf) and emissions (lb/hr) or other applicable units were then calculated and reported.

#### SCAQMD METHOD 10.1 - GAS ANALYSIS FOR DRY MOLECULAR WEIGHT CALCULATION

Oxygen, carbon dioxide and nitrogen concentrations were determined at the exhaust utilizing the continuous emissions monitoring system in accordance with SCAQMD Method 100.1. The inlet concentrations of the species are determined by using GC/TCD analysis on grab samples following SCAQMD Method 10.1. Nitrogen concentration was determined by difference.

#### SCAQMD METHOD 25.3 & 25.1 – TOTAL GASEOUS NON-METHANE ORGANIC EMISSIONS

##### Introduction

The Method 25.3 sampling apparatus was used to collect low concentration (outlet samples) volatile organic compounds (VOCs) in a six (6) liter evacuated canister and ice-water trap. The moisture trap collects VOCs condensable to 32°F. Enthalpy Analytical, in Orange, California, performed the analysis.

##### Sampling Procedure

The sample was collected through a stainless steel probe connected by Teflon or stainless steel line to the ice-water or dry-ice trap regulated by a stainless steel critical orifice flow controller with vacuum/pressure gauge and drawn by an evacuated summa canister. Sampling begins with the canister at 30 in. Hg. vacuum and is complete when vacuum drops to 10 in. Hg, approximately 60 minutes. Duplicate samples were performed.

The sample is collected and analyzed in two parts; condensable (ice-water or dry-ice trap) and gaseous (summa canister). The condensable fraction was analyzed utilizing a Total Organic Carbon analyzer (Method 25.3) and gaseous fractions are analyzed by GC/TCA. Both fractions are reported as TGNMO as methane.

### Calculations

$$\text{NMHC lb/hr} = \text{NMHC ppmv} * \text{DSCFM} * \text{M.W.} * 1.581 \times 10^{-7}$$

Where:

NMHC PPMv = Total Gaseous Non-Methane Organics in Parts per Million (Volume)

DSCFM = Dry Standard Cubic Feet Per Minute

M.W. = Molecular Weight (lb/lb mole)

C.F. = Conversion Factor =  $1.581 \times 10^{-7}$  @ 60°F Std.

### SCAQMD METHOD 100.1

### CONTINUOUS GASEOUS EMISSIONS SAMPLING

Ref: South Coast Air Quality Management District (SCAQMD), Office of Operations Technical Services Division, March 1989, Method 100.1.

A continuous sample is extracted from the stack through a stainless-steel probe, heated Teflon line, filter, sample conditioner (moisture removal system), sample pump and then delivered to the analyzers through an unheated Teflon line, sample manifold and dedicated flow meters.

Prior to beginning the test, a system leak check is performed. The leak check is accomplished by plugging the probe tip and drawing >25" Hg vacuum on the entire sampling system. When all flow meters indicate 0.000 scfh flow, the system is proven to be free of all leaks.

An analyzer calibration error (CE) check is performed at the beginning of each sampling day. The CE is performed as follows: After zeroing all analyzers with nitrogen, EPA Protocol 1 gases are used to calibrate each analyzer within 80-95% full scale of the selected range. Each analyzer, individually, is then spanned within 40-60% of the selected range by introducing a second EPA Protocol I gas.

A system bias check is performed before and after each sampling run by delivering zero and calibration gases to the three-way valve, located between the probe and sample line, and drawing the gases through the sampling system. The bias for each analyzer will not exceed 5% of the high spanned calibration gas value or the sampling run will be repeated.

All concentrations from the NO<sub>x</sub>, O<sub>2</sub>, CO<sub>2</sub>, and CO analyzers are recorded on a Yokogawa Model DR240 recorder. The data is continuously recorded by a strip chart and an on-site data acquisition system (DAS). The DAS is reduced by computer in the Montrose AQS Laboratory.

CEMS probe was traversed across the stack in conjunction with particulate testing. A total of 24 points were sampled with 12 points per port by utilizing two test ports.

EQUATIONS:

$$\text{CO ppm} = (\text{CO}\%_{\text{FS}} - \text{Average CO Zero}) \times \frac{\text{CO Cal Gas Value}}{\text{Average CO Span} - \text{Average CO Zero}}$$

$$\text{ppm @ 3\% O}_2 = \text{ppm obsv.} \times 17.9 / (20.9 - \% \text{O}_2 \text{ obsv.})$$

$$\text{ppm @ 15\% O}_2 = \text{ppm obsv.} \times 5.9 / (20.9 - \% \text{O}_2 \text{ obsv.})$$

$$\text{lb/hr (NO}_x\text{/CO/NMHC)} = \text{ppm obsv.} \times 1.581 \times 10^{-7} \times \text{DSCFM calc.} \times \text{MW (@ 60}^\circ\text{F)}$$

$$\text{lb/MMbtu} = (\text{ppm} \times \text{MW} \times \text{Fd Factor/SV} \times 10^6 \times 20.9 / (20.9 - \% \text{O}_2))$$

Molecular Weight (MW)

NO<sub>x</sub> = 46

CO = 28

NMHC as CH<sub>4</sub> = 16

SV = 379.5 @ 60°F

Fd factor = From fuel analysis

SPECIATED VOCs IN SUMMA CANISTERS BY EPA TO-15

Triplicate summa canisters were collected at the inlet and outlet. The samples were analyzed by EPA TO-15 for volatile organics listed in Rule 1150.1 Table 1 list.

Sampling Procedure:

Three summa cans were filled with sample gas using an evacuated cylinder. The sampling probe was connected to the can with Teflon tubing. The samples were drawn over approximately 30-minute periods from a single point. Enthalpy Analytical in Orange, California performed these analyses by GC/MS.

Equations:

$$\text{lb/hr} = \text{Cpbv} \times \text{DSCFM} \times \text{M.W.} \times \text{CF}$$

Where:

Cpbv = Concentrations of trace organics in Parts per Billion (Volume)

DSCFM = Dry Standard Cubic Feet Per Minute

M.W. = Molecular Weight (lb/lb mole)

C.F. = Conversion Factor =  $1.581 \times 10^{-10}$  @ 60°F Std.

## **Appendix D.2**

### **Quality Assurance Program Summary**

## QUALITY ASSURANCE PROGRAM SUMMARY

As part of Montrose Air Quality Services, LLC (Montrose) ASTM D7036-04 certification, Montrose is committed to providing emission related data which is complete, precise, accurate, representative, and comparable. Montrose quality assurance program and procedures are designed to ensure that the data meet or exceed the requirements of each test method for each of these items. The quality assurance program consists of the following items:

- Assignment of an Internal QA Officer
- Development and use of an internal QA Manual
- Personnel training
- Equipment maintenance and calibration
- Knowledge of current test methods
- Chain-of-custody
- QA reviews of test programs

Assignment of an Internal QA Officer: Montrose has assigned an internal QA Officer who is responsible for administering all aspects of the QA program.

Internal Quality Assurance Manual: Montrose has prepared a QA Manual according to the requirements of ASTM D7036-04 and guidelines issued by EPA. The manual documents and formalizes all of Montrose's QA efforts. The manual is revised upon periodic review and as Montrose adds capabilities. The QA manual provides details on the items provided in this summary.

Personnel Testing and Training: Personnel testing and training is essential to the production of high quality test results. Montrose training programs include:

- A requirement for all technical personnel to read and understand the test methods performed
- A requirement for all technical personnel to read and understand the Montrose QA manual
- In-house testing and training
- Quality Assurance meetings
- Third party testing where available
- Maintenance of training records.

Equipment Maintenance and Calibration: All laboratory and field equipment used as a part of Montrose's emission measurement programs is maintained according to manufacturer's recommendations. A summary of the major equipment maintenance schedules is summarized in Table 1. In addition to routine maintenance, calibrations are performed on all sampling equipment according to the procedures outlined in the applicable test method. The calibration intervals and techniques for major equipment components is summarized in Table 2. The calibration technique may vary to meet regulatory agency requirements.

Knowledge of Current Test Methods: Montrose maintains current copies of EPA, ARB, and SCAQMD Source Test Manuals and Rules and Regulations.

Chain-of-Custody: Montrose maintains chain-of-custody documentation on all data sheets and samples. Samples are stored in a locked area accessible only to Montrose source test personnel. Data sheets are kept in the custody of the originator, program manager, or in locked storage until return to Montrose office. Electronic field data is duplicated for backup on secure storage media. The original data sheets are used for report preparation and any additions are initialed and dated.

QA Reviews: Periodic field, laboratory, and report reviews are performed by the in-house QA coordinator. Periodically, test plans are reviewed to ensure proper test methods are selected and reports are reviewed to ensure that the methods were followed and any deviations from the methods are justified and documented.

## **ASTM D7036-04 Required Information**

### Uncertainty Statement

Montrose is qualified to conduct this test program and has established a quality management system that led to accreditation with ASTM Standard D7036-04 (Standard Practice for Competence of Air Emission Testing Bodies). Montrose participates in annual functional assessments for conformance with D7036-04 which are conducted by the American Association for Laboratory Accreditation (A2LA). All testing performed by Montrose is supervised on site by at least one Qualified Individual (QI) as defined in D7036-04 Section 8.3.2. Data quality objectives for estimating measurement uncertainty within the documented limits in the test methods are met by using approved test protocols for each project as defined in D7036-04 Sections 7.2.1 and 12.10. Additional quality assurance information is presented in the report appendices.

### Performance Data

Performance data are available for review.

### Qualified Personnel

A qualified individual (QI), defined by performance on a third party or internal test on the test methods, is present on each test event.

### Plant Entry and Safety Requirements

#### **Plant Entry**

All test personnel are required to check in with the guard at the entrance gate or other designated area. Specific details are provided by the facility and project manager.

## **Safety Requirements**

All personnel shall have the following personal protective equipment (PPE) and wear them where designated:

- Hard Hat
- Safety Glasses
- Steel Toe Boots
- Hearing Protection
- Gloves
- High Temperature Gloves (if required)
- Flame Resistant Clothing (if required)

The following safety measures are followed:

- Good housekeeping
- SDS for all on-site hazardous materials
- Confine selves to necessary areas (stack platform, mobile laboratory, CEMS data acquisition system, control room, administrative areas)
- Knowledge of evacuation procedures

Each facility will provide plant specific safety training.



**TABLE 1  
 EQUIPMENT MAINTENANCE SCHEDULE**

<b>Equipment</b>	<b>Acceptance Limits</b>	<b>Frequency of Service</b>	<b>Methods of Service</b>
Pumps	<ol style="list-style-type: none"> <li>1. Absence of leaks</li> <li>2. Ability to draw manufacturers required vacuum and flow</li> </ol>	As recommended by manufacturer	<ol style="list-style-type: none"> <li>1. Visual inspection</li> <li>2. Clean</li> <li>3. Replace parts</li> <li>4. Leak check</li> </ol>
Flow Meters	<ol style="list-style-type: none"> <li>1. Free mechanical movement</li> </ol>	As recommended by manufacturer	<ol style="list-style-type: none"> <li>1. Visual inspection</li> <li>2. Clean</li> <li>3. Calibrate</li> </ol>
Sampling Instruments	<ol style="list-style-type: none"> <li>1. Absence of malfunction</li> <li>2. Proper response to zero span gas</li> </ol>	As recommended by manufacturer	As recommended by manufacturer
Integrated Sampling Tanks	<ol style="list-style-type: none"> <li>1. Absence of leaks</li> </ol>	Depends on nature of use	<ol style="list-style-type: none"> <li>1. Steam clean</li> <li>2. Leak check</li> </ol>
Mobile Van Sampling System	<ol style="list-style-type: none"> <li>1. Absence of leaks</li> </ol>	Depends on nature of use	<ol style="list-style-type: none"> <li>1. Change filters</li> <li>2. Change gas dryer</li> <li>3. Leak check</li> <li>4. Check for system contamination</li> </ol>
Sampling Lines	<ol style="list-style-type: none"> <li>1. Sample degradation less than 2%</li> </ol>	After each test series	<ol style="list-style-type: none"> <li>1. Blow dry, inert gas through line until dry</li> </ol>

**TABLE 2  
MAJOR SAMPLING EQUIPMENT CALIBRATION REQUIREMENTS**

Sampling Equipment	Calibration Frequency	Calibration Procedure	Acceptable Calibration Criteria
Continuous Analyzers	Before and After Each Test Day	3-point calibration error test	< 2% of analyzer range
Continuous Analyzers	Before and After Each Test Run	2-point sample system bias check	< 5% of analyzer range
Continuous Analyzers	After Each Test Run	2-point analyzer drift determination	< 3% of analyzer range
CEMS System	Beginning of Each Day	leak check	< 1 in. Hg decrease in 5 min. at > 20 in. Hg
Continuous Analyzers	Semi-Annually	3-point linearity	< 1% of analyzer range
NO <sub>x</sub> Analyzer	Daily	NO <sub>2</sub> -> NO converter efficiency	> 90%
Differential Pressure Gauges (except for manometers)	Semi-Annually	Correction factor based on 5-point comparison to standard	± 5%
Differential Pressure Gauges (except for manometers)	Bi-Monthly	3-point comparison to standard, no correction factor	± 5%
Barometer	Semi-Annually	Adjusted to mercury-in-glass or National Weather Service Station	± 0.1 inches Hg
Dry Gas Meter	Semi-Annually	Calibration check at 4 flow rates using a NIST traceable standard	± 2%
Dry Gas Meter	Bi-Monthly	Calibration check at 2 flow rates using a NIST traceable standard	± 2% of semi-annual factor
Dry Gas Meter Orifice	Annually	4-point calibration for ΔH@	--
Temperature Sensors	Semi-Annually	3-point calibration vs. NIST traceable standard	± 1.5%

Note: Calibration requirements that meet applicable regulatory agency requirements are used.

## **Appendix D.3**

### **SCAQMD, CARB, and STAC Certifications**

Waste Management – Lancaster Landfill and Recycling Center  
2023 Landfill Gas Flare Source Test



September 1, 2022

Mr. John Peterson  
Montrose Air Quality Services, LLC  
1631 E. Saint Andrew Place  
Santa Ana, CA 92705

Subject: LAP Approval Notice  
Reference # 96LA1220

Dear Mr. Peterson:

We have reviewed your renewal letter under the South Coast Air Quality Management District's Laboratory Approval Program (LAP). We are pleased to inform you that your firm is approved for the period beginning September 30, 2022, and ending September 30, 2023, for the following methods, subject to the requirements in the LAP Conditions For Approval Agreement and conditions listed in the attachment to this letter:

South Coast AQMD Methods 1-4	South Coast AQMD Methods 5.1, 5.2, 5.3, 6.1
South Coast AQMD Methods 10.1 and 100.1	South Coast AQMD Methods 25.1 and 25.3 (Sampling)
USEPA CTM-030 and ASTM D6522-00	Rule 1121/ 1146.2 Protocol
Rule 1420/1420.1/1420.2 – (Lead) Source and Ambient Sampling	

Your LAP approval to perform nitrogen oxide emissions compliance testing for Rule 1121/ 1146.2 Protocols includes satellite facilities located at:

McKenna Boiler 1510 North Spring Street Los Angeles, CA 90012	Noritz America Corp. 11160 Grace Avenue Fountain Valley, CA 92708	Ajax Boiler, Inc. 2701 S. Harbor Blvd. Santa Ana, CA 92704
VA Laundry Bldg., Greater LA Healthcare Sys. 508 Constitution Avenue Los Angeles, CA 90049	So Cal Gas – Engr Analysis Ctr, Bldg H 8101 Rosemead Blvd Pico Rivera, CA 90660	

Thank you for participating in the LAP. Your cooperation helps us to achieve the goal of the LAP: to maintain high standards of quality in the sampling and analysis of source emissions. You may direct any questions or information to LAP Coordinator, Colin Eckerle. He may be reached by telephone at (909) 396-2476, or via e-mail at [ceckerle@aqmd.gov](mailto:ceckerle@aqmd.gov).

Sincerely,

*D. Sarkar*

Dipankar Sarkar  
Program Supervisor  
Source Test Engineering

DS:CE  
Attachment

220901 LapRenewal.doc

Waste Management – Lancaster Landfill and Recycling Center  
2023 Landfill Gas Flare Source Test



Gavin Newsom, Governor  
Jared Blumenfeld, CalEPA Secretary  
Liane M. Randolph, Chair

June 30, 2022

Mr. Matt McCune  
Montrose Air Quality Services , LLC  
1631 East Saint Andrew Place  
Santa Ana, California 92705  
[mmccune@montrose-env.com](mailto:mmccune@montrose-env.com)

Dear Mr. McCune:

I am pleased to inform you that the California Air Resources Board (CARB) has renewed Montrose Air Quality Services , LLC as an Independent Contractor, by means of the enclosed Executive Order I-22-003. This approval will allow Montrose Air Quality Services , LLC to perform CARB Test Methods 1, 2, 3, 4, 5, 6, 8, 17, 20, and 100 (CO, CO<sub>2</sub>, NO<sub>x</sub>, O<sub>2</sub>, SO<sub>2</sub>, THC), Visible Emission Evaluation (VEE), and U.S. Environmental Protection Agency (U.S. EPA) Test Methods 201A, 202, and 205. The approval is valid through June 30, 2024, during which time additional audits of Montrose Air Quality Services , LLC's testing ability may be performed.

If you have questions or need further assistance, please contact Kathryn Gugeler at [kathryn.gugeler@arb.ca.gov](mailto:kathryn.gugeler@arb.ca.gov) or Daniel Moore at [Daniel.Moore@arb.ca.gov](mailto:Daniel.Moore@arb.ca.gov).

Sincerely,

Catherine  
Dunwoody

Digitally signed by Catherine  
Dunwoody  
Date: 2022.06.30 14:05:25 -0700

Catherine Dunwoody, Chief, Monitoring and Laboratory Division

Enclosure

cc: (via email)

Kathryn M. Gugeler, Monitoring and Laboratory Division

Daniel Moore, Monitoring and Laboratory Division



American Association for Laboratory Accreditation

# Accredited Air Emission Testing Body

A2LA has accredited

## MONTROSE AIR QUALITY SERVICES

In recognition of the successful completion of the joint A2LA and Stack Testing Accreditation Council (STAC) evaluation process, this laboratory is accredited to perform testing activities in compliance with ASTM D7036:2004 - Standard Practice for Competence of Air Emission Testing Bodies.

Presented this 4<sup>th</sup> day of February 2022.



Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 3925.01  
Valid to February 29, 2024

*This accreditation program is not included under the A2LA ILAC Mutual Recognition Arrangement.*

## **Appendix D.4 Individual QI Certificates**

**CERTIFICATE OF COMPLETION**

---

**Pedro SanJuan**

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

**SCAQMD Methods 1.1, 1.2, 2.1, 2.2, 2.3, 3.1, & 4.1**

**Certificate Number:** 002-2022-50

*Tate Strickler*  
Tate Strickler, VP – Quality Systems

DATE OF ISSUE: 02/28/2022

DATE OF EXPIRATION: 02/27/2027

  
**MONTROSE**  
ENVIRONMENTAL



**CERTIFICATE OF COMPLETION**

---

**Pedro SanJuan**

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

**SCAQMD Methods 5.1, 5.2, 5.3, 5.4, & 6.1**

**Certificate Number:** 002-2022-51

*Tate Strickler*  
Tate Strickler, VP – Quality Systems

DATE OF ISSUE: 02/28/2022

DATE OF EXPIRATION: 02/27/2027



**MONTROSE**  
ENVIRONMENTAL

**CERTIFICATE OF COMPLETION**

---

**Pedro SanJuan**

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

**SCAQMD Methods 25.1, 25.3 & 307-91**

**Certificate Number:** 002-2022-52

*Tate Strickler*  
Tate Strickler, VP – Quality Systems

DATE OF ISSUE: 02/28/2022

DATE OF EXPIRATION: 02/27/2027



**MONTROSE**  
ENVIRONMENTAL

**CERTIFICATE OF COMPLETION**

**Pedro SanJuan**

This document certifies that this individual has passed a comprehensive examination and is now a Qualified Individual (QI) as defined in Section 8.3 of ASTM D7036-04 for the following method(s):

**SCAQMD Method 100.1**

**Certificate Number:** 002-2022-55

*Tate Strickler*  
Tate Strickler, VP – Quality Systems

DATE OF ISSUE: 03/07/2022

DATE OF EXPIRATION: 03/06/2027

**MONTROSE**  
ENVIRONMENTAL

## **Appendix D.5**

### **Statement of No Conflict of Interest**

**STATEMENT OF NO CONFLICT OF INTEREST AS AN INDEPENDENT TESTING LABORATORY**

*(To be completed by authorized source testing firm representative and included in source test report)*

The following facility and equipment were tested by my source testing firm and are the subjects of this statement:

<b>Facility ID:</b>	<b>2129</b>
<b>Date(s) Tested:</b>	<b>March 31, 2023</b>
<b>Facility Name:</b>	<b>LANCASTER LANDFILL AND RECYCLING CENTER</b>
<b>Equipment Address:</b>	<b>600 E Avenue F Lancaster, California 93535</b>
<b>Equipment Tested:</b>	<b>Landfill Gas Flare</b>
<b>Device ID, A/N, P/N:</b>	

I state, as its legally authorized representative, that the source testing firm of:

**Source Test Firm:** Montrose Air Quality Services, LLC  
**Business Address:** 1631 E. St. Andrew Pl.  
Santa Ana, California 92705

is an "Independent Testing Laboratory" as defined in **District Rule 304(k)**:

*For the purposes of this Rule, when an independent testing laboratory is used for the purposes of establishing compliance with District rules or to obtain a District permit to operate, it must meet all of the following criteria:*

- (1) The testing laboratory shall have no financial interest in the company or facility being tested, or in the parent company, or any subsidiary thereof -*
- (2) The company or facility being tested, or parent company or any subsidiary thereof, shall have no financial interest in the testing laboratory;*
- (3) Any company or facility responsible for the emission of significant quantities of pollutants to the atmosphere, or parent company or any subsidiary thereof shall have no financial interest in the testing laboratory; and*
- (4) The testing laboratory shall not be in partnership with, own or be owned by, in part or in full, the contractor who has provided or installed equipment (basic or control), or monitoring systems, or is providing maintenance for installed equipment or monitoring systems, for the company being tested.*

Furthermore, I state that any contracts or agreements entered into by my source testing firm and the facility referenced above, or its designated contractor(s), either verbal or written, are not contingent upon the outcome of the source testing, or the source testing information provided to the SCAQMD.

**Signature:** \_\_\_\_\_

**Date:** 5/30/2023

**Pete SanJuan**

**Field Project Manager**

**(714) 279-6777**

**5/30/2023**

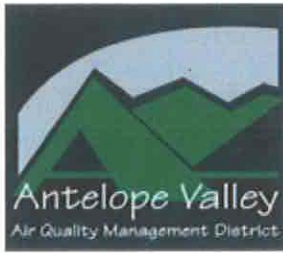
(Name)

(Title)

(Phone)

(Date)

## **APPENDIX E PERMIT TO OPERATE**



**ANTELOPE VALLEY AIR QUALITY MANAGEMENT DISTRICT**

2551 West Avenue H, Suite 102, CA 93536

**PERMIT TO OPERATE**

C012559

Operation under this permit must be conducted in compliance with all information included with the initial application, initial permit condition, and conditions contained herein. The equipment must be maintained and kept in good operating condition at all times. This Permit to Operate or copy must be posted on or within 8 meters of equipment. If a copy is posted, the original must be maintained on site, available for inspection at all times.

**EXPIRES LAST DAY OF: FEBRUARY 2024**

**OWNER OR OPERATOR (Co. #1228)**

Antelope Valley Recycling & Disposal Facility Inc  
1200 West City Ranch Road  
Palmdale, CA 93551

**EQUIPMENT LOCATION (Fac. #2129)**

Lancaster Landfill, Waste Mngmt of Cal, Inc  
600 E Avenue F  
Lancaster, CA 93535

**Descriptions:**

LANDFILL GAS FLARING SYSTEM consisting of: Equipment Elevation is 2314 feet above sea level.

**EQUIPMENT**

Capacity	Equipment Description
0	One (1) Enclosed Flare, LFG Specialties, 60.72 MMBTU/hr., Model EF945I10, 9.0' dia. x 45.0' H, with multiple burners, propane gas pilot and electric igniter
0	UV flame scanner, thermocouple with temperature indicator and recorder
0	Automatic shutdown and alarm system
0	Automatic combustion air regulating system and temperature controller
0	Flame arrestor
0	Landfill gas flow meter and recorder
0	Moisture separator
0	Condensate injection pump and flow indicating and recording device.

**CONDITIONS**

1. Operation of this equipment shall be conducted in accordance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below. This equipment shall be properly maintained and kept in good operating condition at all times, and this equipment shall be operated and maintained by personnel properly trained in its operation.

Fee Schedule: C ()

Rating: 1 device

NAICS: 562212

SCC: 50300601

Location/Coordinates:  
+34.74650, -118.12049

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

Antelope Valley Recycling & Disposal Facility Inc  
1200 West City Ranch Rd.  
Palmdale, CA 93551

By:

**Bret Banks**

Deputy Director Antelope Valley Operations

Permit: C012559

Issue Date: 02/23/2023

[District Rule 1150.1]

2. All collected landfill gas shall be directed to the flare for combustion.

[District Rule 1150.1]

3. The o/o shall provide and maintain, with adequate and safe access upon District request, the following:

- a. Sufficient sight glass windows in the flare to allow visual inspection of the flame within the flare at all times.
- b. Not less than four sampling ports in the flare shroud, not less than two feet above the flame zone and four feet below the top of the flare shroud. Each port shall be installed 90 degrees apart, and shall consist of four inch couplings with plugs.
- c. A sampling port at the inlet gas line to the flare.

[District Rule 1150.1]

4. Whenever the flare is in operation, a temperature of not less than 50 degrees F below the average combustion temperature during the most recent source test at which compliance was determined shall be maintained in the flare stack for all 3-hour block periods of operation, except during flare start-up and shut down for a time period not to exceed 30 minutes in length. Compliance with this condition shall be demonstrated with a temperature indicator and recorder which measures and records the gas temperature in the flare stack whenever the flare is in operation. The sensor used to measure the flare temperature shall be above the flame and at least 4 feet below the top of the flare shroud and at least 0.6 seconds downstream of the burner.

[District Rule 1150.1]

5. The flare shall be equipped with a failure alarm which shuts down the landfill gas blower, associated landfill gas supply valve, and the condensate injection pump in order to isolate the flare from the landfill gas supply line and condensate supply line, and to notify a responsible party of shutdown in the even of flare failure. This safety system shall be tested annually for proper operation.

[District Rule 1150.1]

6. The total heat input limit from the flare shall not exceed 60.72 Million British Thermal Units per hour (MMBTU/hr). In addition, the total volume of condensate burned in the flare shall not exceed 4 gallons per minute.

[District Rule 1302]

7. Emissions from the flare shall not exceed the following:

- a. NOX (as NO<sub>2</sub>) - 3.64 lbs per hr (pph), 87.36 lbs per day (ppd) and 0.06 lb/MMBtu of heat input;
- b. SOX (as SO<sub>2</sub>) - 3643 lb/month, and 21.86 ton/yr, based on 250 ppmv (inlet concentration);
- c. CO - 12.14 pph, 292 ppd, based on 0.20 lb/MMBtu of heat input;
- d. PM - 1.02 pph, 24.48 ppd (17 lb/MMft<sup>3</sup> as methane), and
- e. NMHC - 3.68 pph, 88.32 ppd (98% destruction efficiency or 20 ppmv as hexane @ 3% oxygen).

[District Rule 1302]

8. Pursuant to Rule 431.1 "Sulfur Content of Gaseous Fuels" and the site's approved Rule 431.1 Alternative Monitoring Plan, this equipment shall not burn any gaseous fuel containing sulfur compounds, calculated as ppmv hydrogen sulfide, with an average concentration in excess of 250 ppmv.

[District Rule 1302]

9. Any breakdown or malfunction of this equipment resulting in the emission of raw landfill gas shall be reported to the District within one hour of detection, and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions into the atmosphere.

[District Rule 430]

10. This equipment shall be performance tested within 180 days of startup and biennially thereafter. The landfill company shall conduct performance tests in accordance with the District test procedures and furnish the District with written results of such performance tests within sixty (60) days after the tests are conducted. Written notice of the performance tests shall be provided to the District seven (7) days prior to the tests so that an observer may be present. All source testing and analytical methods shall be submitted to the District for approval at least thirty (30) days prior to the start of the tests. The performance tests shall be conducted at the maximum achievable flow rates allowed by this permit and shall include, but shall not be limited to, a test of the inlet landfill gas flare, and the flare exhaust for:

- a. Methane
- b. Total Non-Methane Organics
- c. Oxides of Nitrogen (exhaust only)
- d. Carbon Monoxide (exhaust only)



- e. Total Particulates (exhaust only)
  - f. Hydrogen Sulfide (inlet only)
  - g. C1 and C3 Sulfur Compounds (speciated, inlet only)
  - h. Carbon Dioxide
  - i. SCAQMD Rule 1150.1 Table 1 Core Group List of Carcinogenic and Toxic Air Contaminants
  - j. Oxygen
  - k. Nitrogen (inlet only)
  - l. Moisture Content (exhaust only)
  - m. Temperature (exhaust only)
  - n. Flow Rate
- [District Rule 1150.1]

11. In addition to the performance test and pursuant to this facility's District approved Rule 431.1 Alternative Monitoring Plan, this facility shall conduct the following in accordance with District approved test procedures;

- a. Quarterly colorimetric (Drager tube) analysis of the fuel for hydrogen sulfide.
  - b. Annual laboratory analyses of collected LFG samples for total sulfur (as H<sub>2</sub>S). Notification and results shall be made to the District in the manner described in condition 9. All samples shall be collected at the inlet to the flare. When the sulfur level is suspected to be at or above the permit limits for the site as determined by the colorimetric method, the sampling frequency shall be increased to monthly. This frequency shall be maintained until it is determined through three consecutive monthly samples that the fuel sulfur limits are observed. Following this observation, quarterly sampling may continue.
- [District Rule 431.1]

12. This equipment and the associated landfill shall be operated in compliance with Rule 431.1, 1150.1, and 40 CFR 60 Subpart WWW - Standards of Performance for Municipal Solid Waste Landfills.

[District Rule 1302]

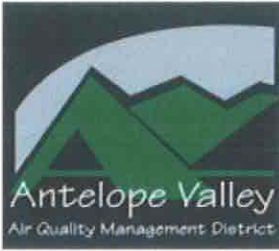
13. The o/o shall maintain a current, on-site operations log for this system for at least two (2) years, and the log shall be provided to District, State or Federal personnel upon request. The log shall include, at a minimum, the following information:

- a. Flare temperature;
- b. Flare failure system test date and test result;
- c. Landfill gas flowrate;
- d. Condensate flowrate, and
- e. Hours of operation.

[District Rule 1150.1]

14. A facility wide Comprehensive Emission Inventory (CEI) for all emitted criteria and toxic air pollutants must be submitted to the District, in a format approved by the District, upon District request.

[District Rule 107(b); H&S Code 39607 & 44341-44342; and 40 CFR 51, Subpart A]



ANTELOPE VALLEY AIR QUALITY MANAGEMENT DISTRICT
2551 West Avenue H, Suite 102, CA 93536

PERMIT TO OPERATE

C006904

Operation under this permit must be conducted in compliance with all information included with the initial application, initial permit condition, and conditions contained herein. The equipment must be maintained and kept in good operating condition at all times. This Permit to Operate or copy must be posted on or within 8 meters of equipment. If a copy is posted, the original must be maintained on site, available for inspection at all times.

EXPIRES LAST DAY OF: FEBRUARY 2024

OWNER OR OPERATOR (Co. #1228)

Antelope Valley Recycling & Disposal Facility Inc
1200 West City Ranch Road
Palmdale, CA 93551

EQUIPMENT LOCATION (Fac. #2129)

Lancaster Landfill, Waste Mngmt of Cal, Inc
600 E Avenue F
Lancaster, CA 93535

Descriptions:

- LANDFILL GAS COLLECTION SYSTEM consisting of: 1) Blower, 20 hp., 890 CFM venting gas collection wells.
2) 60 maximum landfill gas collection wells, each 3'-0" dia. min. x 75'-0" deep max., all connected to a main header by a lateral.
3) Sulfur Adsorption Media consisting of multiple cylindrical containers filled with DARCO H2S GRANULAR ACTIVATED CARBON

CONDITIONS

- 1. Operation of this equipment shall be conducted in compliance with all data and specifications submitted with the application under which this permit to operate is issued unless otherwise noted below, and this equipment shall be properly maintained and kept in good operating conditions at all times. This equipment shall be operated and maintained by personnel properly trained in its operation.
2. Well drilling, driving and/or trenching shall not be conducted when the wind speed is greater than 15 m.p.h. average (over 15 minutes) or instantaneously exceeds 25 m.p.h.
3. All work areas, drilling or trenching spoils and unpaved roadways actively in use shall be watered down until the surface is moist and then maintained in a moist condition to minimize dust.
4. If a distinct odor level (Level III or greater) resulting from the construction is detected at or beyond the property line, all work shall cease until the odor sources are determined and eliminated. Odor levels shall be determined by District personnel or on-

Fee Schedule: B ( ) Rating: 1 device NAICS: 562212 SCC: 50100431 Location/UTM(Km): 395E/3840N

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

Antelope Valley Recycling & Disposal Facility Inc
1200 West City Ranch Rd.
Palmdale, CA 93551

By: [Signature]
Bret Banks

Deputy Director Antelope Valley Operations

Permit: C006904 Issue Date: 02/23/2023

site coordinator in the absence of District personnel.

5. All construction spoils shall be transported to the working face of the landfill within one hour of generation or as deemed necessary by District personnel. During transport of the construction spoils, no material shall extend above the sides or rear of the vehicle hauling the material. The exterior of the vehicle hauling the construction spoils to the working face shall be cleaned off prior to leaving the working site for the working face. Construction spoils are landfill trash, material that is mixed with landfill trash, material that has been in contact with landfill trash, or odorous material that is removed from well holes or trenches.

6. Each vertical or horizontal well head shall be equipped with a shut-off/pressure regulating valve and a sampling port. Each well shall be securely sealed to prevent any emissions of landfill gas from around the well casing.

7. All gases collected by this system shall be vented to a combustion or processing facility which is in full use, can adequately process the volume of gas collected, and has been issued a valid permit to construct or operate by the District.

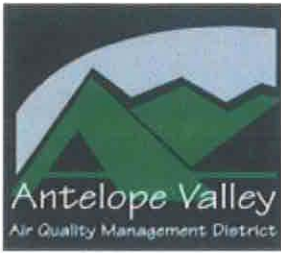
8. Any breakdown or malfunction of the system resulting in the emission of raw landfill gas shall be reported to the District within one hour after occurrence and immediate remedial measures shall be undertaken to correct the problem and prevent further emissions into the atmosphere.

9. All records shall be kept for at least two years and made available to District, State, and Federal personnel upon request. [Rule 204]

10. The sulfur removal system shall be operated per manufacturer's recommended operating specifications and shall be monitored on a quarterly basis at the flare inlet for hydrogen sulfide concentration using colorimetric H<sub>2</sub>S detector tubes (Dräger). Quarterly lab samples shall be taken at the flare inlet for hydrogen sulfide concentration and total reduced sulfur as hydrogen sulfide using SCAQMD Method 307-91 or other EPA or District approved methods. Results of these samples shall be logged pursuant to Condition 9. [Rule 204, Rule 1150.1]

11. Owner/operator shall construct and operate a sulfur removal system for treatment of landfill gas prior to combustion. The sulfur removal system shall include, but not be limited to, treatment vessel(s), treatment media, and piping connecting the system to the landfill gas collection system. The sulfur removal system shall be closed loop and not allow free venting of untreated landfill gas. [Rule 204]

12. This equipment and the associated landfill shall be operated in compliance with Rule 1150 and NSPS Subpart WWW - Standards of Performance for Municipal Solid Waste Landfills (40 CFR 60.750).



**ANTELOPE VALLEY AIR QUALITY MANAGEMENT DISTRICT**

2551 West Avenue H, Suite 102, CA 93536

**PERMIT TO OPERATE**

C006907

Operation under this permit must be conducted in compliance with all information included with the initial application, initial permit condition, and conditions contained herein. The equipment must be maintained and kept in good operating condition at all times. This Permit to Operate or copy must be posted on or within 8 meters of equipment. If a copy is posted, the original must be maintained on site, available for inspection at all times.

**EXPIRES LAST DAY OF: FEBRUARY 2024**

**OWNER OR OPERATOR (Co. #1228)**

Antelope Valley Recycling & Disposal Facility Inc  
1200 West City Ranch Road  
Palmdale, CA 93551

**EQUIPMENT LOCATION (Fac. #2129)**

Lancaster Landfill, Waste Mngmt of Cal, Inc  
600 E Avenue F  
Lancaster, CA 93535

**Descriptions:**

- GAS CONDENSATE COLLECTION SYSTEM consisting of: 1) Four (4) condensate pumps , for condensate level control in the condensate drip legs.
- 2) Condensate holding tank, 8'-0" dia. x 21'-0" S/S, 10,000 gallon capacity, with gas blanket system or under vacuum.

**CONDITIONS**

1. Operation of this equipment shall be conducted in accordance with all data and specifications submitted with the application under which this permit is issued unless otherwise noted below.
2. This equipment shall be properly maintained and kept in good operating condition at all times.
3. This equipment shall be operated by personnel properly trained in it's operation.
4. This equipment shall be equipped with solid covers with all openings sealed to prevent vapors from being released into the atmosphere. Any gauging, sampling, and leak detection device shall be covered and sealed at all times except when the device is in actual use.

Fee Schedule: B ()

Rating: 1 device

NAICS: 562212

SCC: 99999999

Location/UTM(Km):  
395E/3840N

This permit does not authorize the emission of air contaminants in excess of those allowed by law, including Division 26 of the Health and Safety Code of the State of California and the Rules and Regulations of the District. This permit cannot be construed as permission to violate existing laws, ordinances, statutes or regulations of this or other governmental agencies. This permit must be renewed by the expiration date above. If billing for renewal fee required by Rule 301(c) is not received by expiration date above, please contact the District.

Antelope Valley Recycling & Disposal Facility Inc  
1200 West City Ranch Rd.  
Palmdale, CA 93551

By:

**Bret Banks**

Deputy Director Antelope Valley Operations

Permit: C006907

Issue Date: 02/23/2023

## **THIS IS THE LAST PAGE OF THIS DOCUMENT**

If you have any questions, please contact one of the following individuals by email or phone.

Name: Mr. Pete San Juan  
Title: Field Project Manager  
Region: West  
Email: [PSanjuan@montrose-env.com](mailto:PSanjuan@montrose-env.com)  
Phone: (714) 279-6777

Name: Mr. Matt McCune  
Title: Regional Vice President  
Region: West  
Email: [MMccune@montrose-env.com](mailto:MMccune@montrose-env.com)  
Phone: (714) 279-6777

# **ATTACHMENT G**

Period of Report: 11/2022
Facility Name: Lancaster Landfill
Facility SWIS No.: 19-AA-0050
Facility Address: 600 East Avenue F
Line 2:
City: Lancaster
CBoE Total Tonnage: 9,091.04 tons
Estimated In-Place Density: 0.00 lbs/cubic yards
Waste-To-Cover Ratio:

Facility Contact:
Phone Number:
Frequency of Survey: Other
If other, please specify: Annual Flyover
Method Used to Determine
Jurisdiction of Origin: Haulers at Gatehouse
If other, please specify: Origin reports received from Haulers

Airspace Utilization Factor: .75 Or

Table with columns: Jur. Type, Name of Jurisdiction, Soil Received (Tons), Total Received (Tons), and Breakdown of Solid Waste Quantities (Tons) categorized by On-Site Use (Separated for Beneficial Use/Salvage, Alternative Daily Cover, Alternative Intermediate Cover) and Off-Site Use (Recycled/Reused, Composted, Other, MSW, Landfilled). Rows list various jurisdictions like ACTON, AGOURA HILLS, AGUA DULCE, etc.

















Period of Report: 03/2023
Facility Name: Lancaster Landfill
Facility SWIS No.: 19-AA-0050
Facility Address: 600 East Avenue F
Line 2:
City: Lancaster
CBoE Total Tonnage: 10,579.79 tons
Estimated In-Place Density: 0.00 lbs/cubic yards
Waste-To-Cover Ratio:

Facility Contact:
Phone Number:
Frequency of Survey: Other
If other, please specify:
Method Used to Determine
Jurisdiction of Origin: Other
If other, please specify:

Or
Airspace Utilization Factor: 0.75

Table with columns: Jur. Type, Name of Jurisdiction, Soil Received (Tons), Total Received (Tons), and Breakdown of Solid Waste Quantities (Tons). The breakdown includes On-Site Use (Separated for Beneficial Use/Salvage, Alternative Daily Cover, Alternative Intermediate Cover) and Off-Site Use (Recycled/Reused, Composted, Other, MSW, Landfilled - Inert Waste, Disaster, Designated). Rows list various jurisdictions like ACTON, ADELANTO, AGOURA HILLS, etc., with their respective waste tonnage.





Period of Report: 04/2023
Facility Name: Lancaster Landfill
Facility SWIS No.: 19-AA-0050
Facility Address: 600 East Avenue F
Line 2:
City: Lancaster
CBoE Total Tonnage: 9,481.07 tons
Estimated In-Place Density: 0.00 lbs/cubic yards
Waste-To-Cover Ratio:

Facility Contact:
Phone Number:
Frequency of Survey: Other
If other, please specify:
Method Used to Determine
Jurisdiction of Origin: Other
If other, please specify:

Or
Airspace Utilization Factor: 0.75

Table with columns: Jur. Type, Name of Jurisdiction, Soil Received (Tons), Total Received (Tons), and Breakdown of Solid Waste Quantities (Tons) categorized by On-Site Use (Separated for Beneficial Use/Salvage, Alternative Daily Cover, Alternative Intermediate Cover) and Off-Site Use (Recycled/Reused, Composted, Other, MSW, Inert Waste, Landfilled). Includes a 'Concrete' entry for Lancaster with 536.46 tons.







Period of Report: 06/2023
Facility Name: Lancaster Landfill
Facility SWIS No.: 19-AA-0050
Facility Address: 600 East Avenue F
Line 2:
City: Lancaster
CBoE Total Tonnage: 12,126.97 tons
Estimated In-Place Density: 0.00 lbs/cubic yards
Waste-To-Cover Ratio:

Facility Contact:
Phone Number:
Frequency of Survey: Other
If other, please specify: annual fly over
Method Used to Determine
Jurisdiction of Origin: Other
If other, please specify: Haulers at gatehouse. Origin reports received from haulers.

Or
Airspace Utilization Factor: 0.75

Table with columns: Jur. Type, Name of Jurisdiction, Soil Received (Tons), Total Received (Tons), and a detailed breakdown of waste quantities (On-Site Use, Alternative Daily Cover, Alternative Intermediate Cover, Off-Site Use, Landfilled) across various categories like Green Waste, Auto Shred, C & D, etc.



Period of Report: 07/2023
Facility Name: Lancaster Landfill
Facility SWIS No.: 19-AA-0050
Facility Address: 600 East Avenue F
Line 2:
City: Lancaster
CBoE Total Tonnage: 9,165.03 tons
Estimated In-Place Density: 0.00 lbs/cubic yards
Waste-To-Cover Ratio:

Facility Contact:
Phone Number:
Frequency of Survey: Other
If other, please specify: Annual flyover
Method Used to Determine
Jurisdiction of Origin: Other
If other, please specify: Haulers at gatehouse. Origin reports received from haulers.

Or
Airspace Utilization Factor: 0.83

Table with columns: Jur. Type, Name of Jurisdiction, Soil Received (Tons), Total Received (Tons), Breakdown of Solid Waste Quantities (Tons) categorized by On-Site Use (Separated for Beneficial Use/Salvage, Alternative Daily Cover, Alternative Intermediate Cover) and Off-Site Use (Recycled/Reused, Composted, Other, MSW, Inert Waste, Other). Includes data for various jurisdictions like ACTON, AGOURA HILLS, etc.

















Lancaster Landfill and Recycling Center

Flare Monthly Heat Input Rate                      2022                      LFG Specialties Flare

Date	Monthly Runtime Total (Hours)	Average CH <sub>4</sub> (%)*	Average Flow (scfm)	Total LFG Volume (mscf)	Heating Value of CH <sub>4</sub> (BTU/scf)	Monthly Heat Input Total (MMBTU/month)**	Maximum Hourly Heat Input (MMBTU/hr)
January-22	713.40	33.5	1,047.3	44,828.5	1,012.0	15,211.4	21.3
February-22	656.20	34.2	1,052.6	41,444.5	1,012.0	14,344.1	21.9
March-22	742.30	35.6	1,026.9	45,734.4	1,012.0	16,476.8	22.2
April-22	718.70	32.0	974.0	42,000.2	1,012.0	13,601.3	18.9
May-22	738.70	34.4	960.7	42,580.8	1,012.0	14,823.6	20.1
June-22	642.30	36.1	997.8	38,452.9	1,012.0	14,048.1	21.9
July-22	743.30	35.6	933.1	41,614.3	1,012.0	14,992.5	20.2
August-22	741.80	36.8	939.4	41,809.6	1,012.0	15,570.6	21.0
September-22	636.00	37.0	797.0	30,412.4	1,012.0	11,387.6	17.9
October-22	711.30	34.1	870.6	37,156.2	1,012.0	12,822.3	18.0
November-22	712.60	36.1	938.9	40,145.6	1,012.0	14,666.5	20.6
December-22	744.00	36.7	954.4	42,605.2	1,012.0	15,815.1	21.3
<b>Annual Data:</b>	<b>8500.60</b>			<b>488,784.6</b>		<b>173,759.8</b>	

Notes: \*From monthly flare GHG reads  
 \*\*PTO/ATC Limit: 60.72 MMBTU/hr  
 Conversion: 1012 BTU/SCF

Lancaster Landfill and Recycling Center

Flare Monthly Heat Input Rate                      2023                      LFG Specialties Flare

Date	Monthly Runtime Total (Hours)	Average CH <sub>4</sub> (%)*	Average Flow (scfm)	Total LFG Volume (mscf)	Heating Value of CH <sub>4</sub> (BTU/scf)	Monthly Heat Input Total (MMBTU/month)**	Maximum Hourly Heat Input (MMBTU/hr)
January-23	715.80	36.6	967.7	41,560.3	1,012.0	15,393.6	21.5
February-23	639.10	37.1	992.1	38,043.2	1,012.0	14,283.4	22.3
March-23	735.20	35.7	982.0	43,317.5	1,012.0	15,649.9	21.3
April-23	712.50	39.7	960.2	41,049.7	1,012.0	16,492.3	23.1
May-23	736.40	36.1	971.3	42,917.4	1,012.0	15,679.1	21.3
June-23	720.00	36.8	964.6	41,671.2	1,012.0	15,519.0	21.6
July-23	740.80	36.9	925.4	41,131.1	1,012.0	15,359.5	20.7
August-23	738.40	36.9	890.7	39,460.5	1,012.0	14,735.7	20.0
September-23	719.58	39.4	872.6	37,675.0	1,012.0	15,022.1	20.9
October-23	742.33	40.4	868.4	38,678.3	1,012.0	15,813.5	21.3
November-23	711.58	40.1	867.9	37,054.2	1,012.0	15,037.0	21.1
December-23	737.10	44.2	874.5	38,674.4	1,012.0	17,299.2	23.5
<b>Annual Data:</b>	<b>8648.79</b>			<b>481,232.8</b>		<b>186,284.4</b>	

Notes: \*From monthly flare GHG reads  
 \*\*PTO/ATC Limit: 60.72 MMBTU/hr  
 Conversion: 1012 BTU/SCF



# **ATTACHMENT H**

**Lancaster Landfill & Recycling Center  
Rejected Loads Reporting  
November 2022**

			Waste Identification							
Date	Location	Source	Batteries	Paint (Gal.)	Tires	Oil (Gal.)	Antifreeze	Electronic Waste	Other (specify)	Disposition
11/1/2022	Lancaster	Residential							1-refrigerator	Temp stored in appliance area.
11/2/2022	Lancaster	Residential			4			2-TV	2-refrigerators	Generator
11/3/2022	Lancaster	Residential						1-microwave, 1-TV	1-mini fridge, 1-propane tank	Propane tank returned to generator. TV and microwave temp stored in univ waste area. Mini fridge stored in appliance area.
11/4/2022	Lancaster	Residential	1		1					Stored in temp holding area.
11/5/2022	Lancaster	Residential							1-refrigerator, 1-washing machine	Stored in temp holding area.
11/6/2022	Sunday									
11/7/2022	Lancaster	Nothing to report								
11/8/2022	Lancaster	Residential						2-microwaves, 1-keyboard	1-refrigerator	Generator
11/9/2022	Lancaster	Residential, Commercial			10				2-helium tanks	Returned tires to generator. Helium tanks stored in hazwaste area.
11/10/2022	Lancaster	Nothing to report								
11/11/2022	Lancaster	Nothing to report								
11/12/2022	Lancaster	Residential						2-TV, 1-speaker	1-washer, 1-dryer	Generator
11/13/2022	Sunday									
11/14/2022	Lancaster	Residential	4					1-TV		Batteries stored in universal waste area. TV returned to generator.
11/15/2022	Lancaster	Residential	1					1-TV		Stored in universal waste area.
11/16/2022	Lancaster	Nothing to report								
11/17/2022	Lancaster	Residential			2					Generator
11/18/2022	Lancaster	Nothing to report								
11/19/2022	Lancaster	Residential						1-TV, speakers, small electronics	1-refrigerator	Generator
11/20/2022	Sunday									
11/21/2022	Lancaster	Residential			3			4-TV	1-refrigerator	TVs stored in universal waste area. Tires temp stored in holding area. Fridge returned to generator.
11/22/2022	Lancaster	Nothing to report								
11/23/2022	Lancaster	Nothing to report								
11/24/2022	Holiday									
11/25/2022	Lancaster	Nothing to report								
11/26/2022	Lancaster	Residential			5					Generator
11/27/2022	Sunday									
11/28/2022	Lancaster	Commercial			1					Generator
11/29/2022	Lancaster	Nothing to report								
11/30/2022	Lancaster	Industrial							3-gas containers	Temp stored in hazwaste area

# Lancaster Landfill & Recycling Center

## Rejected Loads Reporting

### December 2022

			<u>Waste Identification</u>							
Date	Location	Source	Batteries	Paint (Gal.)	Tires	Oil (Gal.)	Antifreeze	Electronic Waste	Other (specify)	Disposition
12/1/2022	Lancaster	Residential							3-gas containers	Generator
12/2/2022	Lancaster	Nothing to report								
12/3/2022	Lancaster	Residential		1					32 gal plant chemicals	Temp stored in hazwaste area
12/4/2022	Sunday									
12/5/2022	Lancaster	Residential						1-TV		Temp stored in universal waste area
12/6/2022	Lancaster	Nothing to report								
12/7/2022	Lancaster	Nothing to report								
12/8/2022	Lancaster	Nothing to report								
12/9/2022	Lancaster	Nothing to report								
12/10/2022	Lancaster	Residential							10 gal mixed chemicals	Generator
12/11/2022	Sunday									
12/12/2022	Lancaster	Nothing to report								
12/13/2022	Lancaster	Nothing to report								
12/14/2022	Lancaster	Nothing to report								
12/15/2022	Lancaster	Nothing to report								
12/16/2022	Lancaster	Nothing to report								
12/17/2022	Lancaster	Residential			2			Speakers	1-radiator	Generator
12/18/2022	Sunday									
12/19/2022	Lancaster	Nothing to report								
12/20/2022	Lancaster	Residential							1-mini fridge	Temp stored in appliance area
12/21/2022	Lancaster	Residential							1-water cooler	Temp stored in appliance area
12/22/2022	Lancaster	Nothing to report								
12/23/2022	Lancaster	Nothing to report								
12/24/2022	Lancaster	Residential						2-TVs		Generator
12/25/2022	Sunday									
12/26/2022	Lancaster	Commercial						2-TVs, 1-microwave		Generator
12/27/2022	Lancaster	Nothing to report								
12/28/2022	Lancaster	Residential						1-printer		Temp stored in universal waste area
12/29/2022	Lancaster	Residential	1	35						Generator
12/30/2022	Lancaster	Residential		2.5						Generator
12/31/2022	Lancaster	Residential			4					Generator
<b>TOTAL</b>			1.0	37.5	6.0	0.0	0.0			

**Lancaster Landfill & Recycling Center  
Rejected Loads Reporting  
January 2023**

			<b>Waste Identification</b>							
<b>Date</b>	<b>Location</b>	<b>Source</b>	<b>Batteries</b>	<b>Paint (Gal.)</b>	<b>Tires</b>	<b>Oil (Gal.)</b>	<b>Antifreeze</b>	<b>Electronic Waste</b>	<b>Other (specify)</b>	<b>Disposition</b>
1/1/2023	Holiday									
1/2/2023	Lancaster	Residential		35						Generator
1/3/2023	Lancaster	Residential			3			4-DVD players, 2-TVs		Tires returned to generator. DVD players and TV stored in e-waste area
1/4/2023	Lancaster	Nothing to report								
1/5/2023	Lancaster	Nothing to report								
1/6/2023	Lancaster	Residential							1-refrigerator	Temp stored in appliance area
1/7/2023	Lancaster	Nothing to report								
1/8/2023	Sunday									
1/9/2023	Lancaster	Nothing to report								
1/10/2023	Lancaster	Residential							1-water heater	Temp stored in appliance area
1/11/2023	Lancaster	Nothing to report								
1/12/2023	Lancaster	Nothing to report								
1/13/2023	Lancaster	Nothing to report								
1/14/2023	Lancaster	Nothing to report								
1/15/2023	Sunday									
1/16/2023	Lancaster	Nothing to report								
1/17/2023	Lancaster	Nothing to report								
1/18/2023	Lancaster	Residential						2-microwaves	1-refrigerator	Generator
1/19/2023	Lancaster	Nothing to report								
1/20/2023	Lancaster	Nothing to report								
1/21/2023	Lancaster	Residential		7	1				5-flourescent lamps	Generator
1/22/2023	Sunday									
1/23/2023	Lancaster	Residential		25				1-TV		Generator
1/24/2023	Lancaster	Nothing to report								
1/25/2023	Lancaster	Residential		6					1-compressed CO2 tank	Generator
1/26/2023	Lancaster	Nothing to report								
1/27/2023	Lancaster	Residential				3				Generator
1/28/2023	Lancaster	Residential						1-TV		Generator
1/29/2023	Sunday									
1/30/2023	Lancaster	Nothing to report								
1/31/2023	Lancaster	Nothing to report								
<b>TOTAL</b>			0.0	38.0	4.0	3.0	0.0			

## Lancaster Landfill & Recycling Center Rejected Loads Reporting February 2023

			Waste Identification							
Date	Location	Source	Batteries	Paint (Gal.)	Tires	Oil (Gal.)	Antifreeze	Electronic Waste	Other (specify)	Disposition
2/1/2023	Lancaster	Residential						1-TV	1-toaster oven	Generator
2/2/2023	Lancaster	Residential				1		1-microwave		Oil returned to generator. Microwave temp stored in universal waste area
2/3/2023	Lancaster	Residential						1-microwave	1-propane tank, 1 box of mixed batteries	Generator
2/4/2023	Lancaster	Residential		9						Generator
2/5/2023	Sunday									
2/6/2023	Lancaster	Residential		3						Generator
2/7/2023	Lancaster	Nothing to report								
2/8/2023	Lancaster	Nothing to report								
2/9/2023	Lancaster	Residential		6						Generator
2/10/2023	Lancaster	Nothing to report								
2/11/2023	Lancaster	Nothing to report								
2/12/2023	Sunday									
2/13/2023	Lancaster	Nothing to report								
2/14/2023	Lancaster	Residential		2	5				1-washing machine	Paint returned to generator. Tires stored in tire area. Washer stored in appliance area.
2/15/2023	Lancaster	Residential		2	7				1-refrigerator, 30 flourescent light bulbs	6 tires temp stored in holding area. All others returned to generator.
2/16/2023	Lancaster	Residential		6					4-washing machines	Paint returned to generator. Washing machines temp stored in appliance area
2/17/2023	Lancaster	Residential		1						Generator
2/18/2023	Lancaster	Residential	3					1-TV, 1-microwave	4-flourescent light bulbs, 1-refrigerant container	Generator
2/19/2023	Sunday									
2/20/2023	Lancaster	Nothing to report								
2/21/2023	Lancaster	Residential						1-TV, 1-copy machine	3-gas containers, 1-water heater	TV and copy machine stored in universal waste area. All others returned to generator.
2/22/2023	Lancaster	Nothing to report								
2/23/2023	Lancaster	Industrial			2					Temp stored in holding area
2/24/2023	Lancaster	Residential		5					1-electric heater	Generator
2/25/2023	Lancaster	Nothing to report								
2/26/2023	Sunday									
2/27/2023	Lancaster	Residential		2				4-TVs, 1-VCR		Generator
2/28/2023	Lancaster	Residential							2-flourescent light bulbs	Generator
<b>TOTAL</b>			3.0	36.0	14.0	1.0	0.0			

# Lancaster Landfill & Recycling Center

## Rejected Loads Reporting

### March 2023

			<b>Waste Identification</b>							
Date	Location	Source	Batteries	Paint (Gal.)	Tires	Oil (Gal.)	Antifreeze	Electronic Waste	Other (specify)	Disposition
3/1/2023	Lancaster	Nothing to report								
3/2/2023	Lancaster	Residential							Light bulbs, Lava Lamp	Generator
3/3/2023	Lancaster	Residential	1			0.25			Tires	Generator
3/4/2023	Lancaster	Residential							1-refrigerator	Temp stored in hazwaste area
3/5/2023	Sunday									
3/6/2023	Lancaster	Residential / Industrial		3	35					Generator
3/7/2023	Lancaster	Residential							2-gal mixed chemicals	Generator
3/8/2023	Lancaster	Residential		20					1-refrigerator	Paint returned to generator. Refrigerator stored in temp holding area.
3/9/2023	Lancaster	Residential							1-refrigerator	Generator
3/10/2023	Lancaster	Residential		25						Generator
3/11/2023	Lancaster	Residential	2	2				1-TV, 1-computer, 2-DVD players	3-gal cleaning products	Generator
3/12/2023	Sunday									
3/13/2023	Lancaster	Residential			1					Generator
3/14/2023	Lancaster	Nothing to report								
3/15/2023	Lancaster	Nothing to report								
3/16/2023	Lancaster	Residential		1					1-refrigerator	Generator
3/17/2023	Lancaster	Residential				1				Generator
3/18/2023	Lancaster	Residential	20		4	10		2-TVs, 1-computer		Generator
3/19/2023	Sunday									
3/20/2023	Lancaster	Residential		8						Generator
3/21/2023	Lancaster	Commercial						2-TV, 1-stereo	1-refrigerator	Temp stored in holding area
3/22/2023	Lancaster	Industrial		25	2					Tires stored in holding area. Paint returned to generator.
3/23/2023	Lancaster	Nothing to report								
3/24/2023	Lancaster	Residential	2	2						Generator
3/25/2023	Lancaster	Residential							4-appliances	Temp stored in holding area
3/26/2023	Sunday									
3/27/2023	Lancaster	Residential		5						Generator
3/28/2023	Lancaster	Nothing to report								
3/29/2023	Lancaster	Residential			1	21			4-gallons mixed chemicals	Generator
3/30/2023	Lancaster	Nothing to report								
3/31/2023	Lancaster	Nothing to report								
<b>TOTAL</b>			25.0	91.0	43.0	32.3	0.0			

**Lancaster Landfill & Recycling Center  
Rejected Loads Reporting  
April 2023**

Date	Location	Source	Waste Identification						Disposition	
			Batteries	Paint (Gal.)	Tires	Oil (Gal.)	Antifreeze	Electronic Waste		Other (specify)
4/1/2023	Lancaster	Residential			2	15.75		1-microwave	5-flourescent light bulbs, 5- 8gal liquid fertilizer	Generator
4/2/2023	Sunday									
4/3/2023	Lancaster	Residential							5-flourescent light bulbs, 1 gas container	Generator
4/4/2023	Lancaster	Nothing to report								
4/5/2023	Lancaster	Nothing to report								
4/6/2023	Lancaster	Nothing to report								
4/7/2023	Lancaster	Nothing to report								
4/8/2023	Lancaster	Nothing to report								
4/9/2023	Sunday									
4/10/2023	Lancaster	Nothing to report								
4/11/2023	Lancaster	Residential			2					Generator
4/12/2023	Lancaster	Nothing to report								
4/13/2023	Lancaster	Residential		10						Generator
4/14/2023	Lancaster	Commerical		5	17	4				Generator
4/15/2023	Lancaster	Residential		10						Generator
4/16/2023	Sunday									
4/17/2023	Lancaster	Residential		5.5		0.5			1 gal of gas	Generator
4/18/2023	Lancaster	Residential		1						Generator
4/19/2023	Lancaster	Residential		1	1	2				Generator
4/20/2023	Lancaster	Residential		2		2				Generator
4/21/2023	Lancaster	Residential	2						2-flourescent light bulbs	Generator
4/22/2023	Lancaster	Residential			2			1-refrigerator	1-propane tank	Generator
4/23/2023	Sunday									
4/24/2023	Lancaster	Residential			1				12-flourescent light bulbs	Generator
4/25/2023	Lancaster	Nothing to report								
4/26/2023	Lancaster	Residential		4				1-TV	2-flourescent light bulbs	Generator (light bulbs + paint), Storage (tv)
4/27/2023	Lancaster	Nothing to report								
4/28/2023	Lancaster	Nothing to report								
4/29/2023	Lancaster	Nothing to report								
4/30/2023	Sunday									
<b>TOTAL</b>			2.0	38.5	25.0	24.3	0.0			

# Lancaster Landfill & Recycling Center Rejected Loads Reporting May 2023

			<u>Waste Identification</u>							
Date	Location	Source	Batteries	Paint (Gal.)	Tires	Oil (Gal.)	Antifreeze	Electronic Waste	Other (specify)	Disposition
5/1/2023	Lancaster	Industrial		8		1				Generator
5/2/2023	Lancaster	Commercial		3.75						Generator
5/3/2023	Lancaster	Commercial Residential						1-Computer, 1-TV, 1- Conventional Oven		Generator
5/4/2023	Lancaster	Residential						1-microwarve, 1-TV		Generator
5/5/2023	Lancaster	Residential				2.5		1-AC Unit	1-Oxygen tank	Generator
5/6/2023	Lancaster	Nothing to report								
5/7/2023	Sunday									
5/8/2023	Lancaster	Nothing to report								
5/9/2023	Lancaster	Residential						1-TV		Temporarily stored in holding area
5/10/2023	Lancaster	Residential						1-Generator		Generator
5/11/2023	Lancaster	Residential		2					0.25gal pesticides	Generator
5/12/2023	Lancaster	Nothing to report								
5/13/2023	Lancaster	Nothing to report								
5/14/2023	Sunday									
5/15/2023	Lancaster	Residential	1					1-computer, 1-TV	8 flourescent light bulbs	Generator
5/16/2023	Lancaster	Residential						microwave		Generator
5/17/2023	Lancaster	Nothing to report								
5/18/2023	Lancaster	Nothing to report								
5/19/2023	Lancaster	Residential	1							Generator
5/20/2023	Lancaster	Nothing to report								
5/21/2023	Sunday									
5/22/2023	Lancaster	Nothing to report								
5/23/2023	Lancaster	Nothing to report								
5/24/2023	Lancaster	Residential						1-AC unit		Generator
5/25/2023	Lancaster	Residential						1-AC unit	1-Refrigerator	Generator
5/26/2023	Lancaster	Residential				1			2 flourescent light bulbs	Generator
5/27/2023	Lancaster	Nothing to report								
5/28/2023	Sunday									
5/29/2023	Holiday									
5/30/2023	Lancaster	Residential						3-TVs	1-BBQ Grill	Generator
5/31/2023	Lancaster	Nothing to report					Page 1 of 1			
<b>TOTAL</b>			2.0	13.75	0.0	4.75	0.0			



# Lancaster Landfill & Recycling Center Rejected Loads Reporting June 2023

			<u>Waste Identification</u>							
Date	Location	Source	Batteries	Paint (Gal.)	Tires	Oil (Gal.)	Antifreeze (Gal.)	Electronic Waste	Other (specify)	Disposition
6/1/2023	Lancaster	Nothing to report								
6/2/2023	Lancaster	Nothing to report								
6/3/2023	Lancaster	Nothing to report								
6/4/2023	Sunday									
6/5/2023	Lancaster	Nothing to report								
6/6/2023	Lancaster	Residential		0.5					1-Dishwasher, 1-Radiator	Generator
6/7/2023	Lancaster	Residential	1					3-TVs	1-Refrigerator	Generator
6/8/2023	Lancaster	Residential						1-Computer, 2-Monitor		
6/9/2023	Lancaster	Residential							1-Refrigerator, 1-Microwave	
6/10/2023	Lancaster	Nothing to report								
6/11/2023	Sunday									
6/12/2023	Lancaster	Residential							1-Swamp Cooler	Generator
6/13/2023	Lancaster	Residential							1-Washer, 2-Radiators	Generator
6/14/2023	Lancaster	Residential	2						1-Microwave	Generator
6/15/2023	Lancaster	Residential							1-Washer, 1-Dryer	Temporarily stored in holding area
6/16/2023	Lancaster	Nothing to report								
6/17/2023	Lancaster	Residential							1 Bottle of Weed Killer	Generator
6/18/2023	Sunday									
6/19/2023	Lancaster	Residential		13						Generator
6/20/2023	Lancaster	Nothing to report								
6/21/2023	Lancaster	Residential		25						Generator
6/22/2023	Lancaster	Nothing to report								
6/23/2023	Lancaster	Residential				1				Temporarily stored in holding area
6/24/2023	Lancaster	Nothing to report								
6/25/2023	Sunday									
6/26/2023	Lancaster	Nothing to report								
6/27/2023	Lancaster	Residential			5				1-Refrigerator	Generator
6/28/2023	Lancaster	Residential							1-Refrigerator	Generator
6/29/2023	Lancaster	Residential			4					Generator
6/30/2023	Lancaster	Residential		4						Generator
<b>TOTAL</b>	0.0	0.0	3.0	42.5	9.0	0.5	0.0	0.0		

**Lancaster Landfill & Recycling Center  
Rejected Loads Reporting  
July 2023**

			<u>Waste Identification</u>							
Date	Location	Source	Batteries	Paint (Gal.)	Tires	Oil (Gal.)	Antifreeze	Electronic Waste	Other (specify)	Disposition
7/1/2023	Lancaster	Nothing to Report								
7/2/2023	Sunday									
7/3/2023	Lancaster	Commercial			1					Temp stored
7/4/2023	Holiday									
7/5/2023	Lancaster	Residential						1-TV		Temp stored
7/6/2023	Lancaster	Residential							5- Flourescent Light Bulbs	Generator
7/7/2023	Lancaster	Residential						1-TV	1-Refrigerator, 2-Water Heaters	Generator
7/8/2023	Lancaster	Residential							1- Dryer	Generator
7/9/2023	Sunday									
7/10/2023	Lancaster	Residential	1							Generator
7/11/2023	Lancaster	Residential		2						Generator
7/12/2023	Lancaster	Nothing to Report								
7/13/2023	Lancaster	Residential						3-TV, 1-Radio		Generator
7/14/2023	Lancaster	Commercial	1							Generator
7/15/2023	Lancaster	Residential	2	12						Generator
7/16/2023	Sunday									
7/17/2023	Lancaster	Nothing to Report								
7/18/2023	Lancaster	Industrial	1	20						Generator
7/19/2023	Lancaster	Residential		2					2- Cylinder Tanks,2- Flourscenet Light Bulbs	Generator
7/20/2023	Lancaster	Nothing to Report								
7/21/2023	Lancaster	Nothing to Report								
7/22/2023	Lancaster	Commercial		2						Generator
7/23/2023	Sunday									
7/24/2023	Lancaster	Commercial		5						Generator
7/25/2023	Lancaster	Commercial		10						Generator
7/26/2023	Lancaster	Nothing to Report								
7/27/2023	Lancaster	Nothing to Report								
7/28/2023	Lancaster	Commercial		3			1	1-TV		Generator
7/29/2023	Lancaster	Residential							Lighter Fluid	Generator
7/30/2023	Sunday									
7/31/2023	Lancaster	Nothing to Report								

**Lancaster Landfill & Recycling Center  
Rejected Loads Reporting  
August 2023**

			<b>Waste Identification</b>							
<b>Date</b>	<b>Location</b>	<b>Source</b>	<b>Batteries</b>	<b>Paint (Gal.)</b>	<b>Tires</b>	<b>Oil (Gal.)</b>	<b>Antifreeze</b>	<b>Electronic Waste</b>	<b>Other (specify)</b>	<b>Disposition</b>
8/1/2023	Lancaster	Residential	1	2	1			2-TV's	7 bottles mixed liquids (unknown)	Generator
8/2/2023	Lancaster	Nothing to report								
8/3/2023	Lancaster	Nothing to report								
8/4/2023	Lancaster	Nothing to report								
8/5/2023	Lancaster	Residential		5	4	5		1-TV		Generator
8/6/2023	<b>Sunday</b>									
8/7/2023	Lancaster	Residential		2					1-Fire Extinguisher	Generator
8/8/2023	Lancaster	Residential						1-TV		Temporarily Stored
8/9/2023	Lancaster	Residential/Commercial		10				3-Computers, 1-Radio, 3-TV's		Generator
8/10/2023	Lancaster	Nothing to report								
8/11/2023	Lancaster	Residential		8						Generator
8/12/2023	Lancaster	Nothing to report								
8/13/2023	<b>Sunday</b>									
8/14/2023	Lancaster	Residential						2-TV's		Temporarily Stored
8/15/2023	Lancaster	Residential						1-TV, 1-Mircowave		Temporarily Stored
8/16/2023	Lancaster	Nothing to report								
8/17/2023	Lancaster	Nothing to report								
8/18/2023	Lancaster	Residential		15	4	6				Generator
8/19/2023	Lancaster	Residential			4					Generator
8/20/2023	<b>Sunday</b>									
8/21/2023	Lancaster	Residential							1-Dryer, 1-Fridge	Temporarily Stored
8/22/2023	Lancaster	Commercial		2						Generator
8/23/2023	Lancaster	Residential							6-Flourescent Light Bulbs	Temporarily Stored
8/24/2023	Lancaster	Nothing to report						3-Printers		Temporarily Stored
8/25/2023	Lancaster	Nothing to report								
8/26/2023	Lancaster	Nothing to report								
8/27/2023	<b>Sunday</b>									
8/28/2023	Lancaster	Nothing to report								
8/29/2023	Lancaster	Nothing to report								
8/30/2023	Lancaster	Nothing to report								
8/31/2023	Lancaster	Nothing to report								

**Lancaster Landfill & Recycling Center  
Rejected Loads Reporting  
September 2023**

			<b>Waste Identification</b>							
<b>Date</b>	<b>Location</b>	<b>Source</b>	<b>Batteries</b>	<b>Paint (Gal.)</b>	<b>Tires</b>	<b>Oil (Gal.)</b>	<b>Antifreeze</b>	<b>Electronic Waste</b>	<b>Other (specify)</b>	<b>Disposition</b>
9/1/2023	Lancaster	Nothing to report								
9/2/2023	Lancaster	Residential							1 - Refrigerator	Temporarily Stored
9/3/2023	Sunday									
9/4/2023	Holiday									
9/5/2023	Lancaster	Residential			2			1 - TV		Generator
9/6/2023	Lancaster	Residential		2		1		6 - Fax Machines, 8 - Monitors		Temporarily Stored
9/7/2023	Lancaster	Residential								Generator
9/8/2023	Lancaster	Nothing to report								
9/9/2023	Lancaster	Commercial			4					
9/10/2023	Sunday									
9/11/2023	Lancaster	Residential							1 -Refrigerator	Temporarily Stored
9/12/2023	Lancaster	Residential						1 - TV, 1 - Microwave	1 - Keyboard	Temporarily Stored
9/13/2023	Lancaster	Residential						1 - Popcorn Machine		Temporarily Stored
9/14/2023	Lancaster	Residential			1					Temporarily Stored
9/15/2023	Lancaster	Residential						1 -Microwave	1 -Refrigerator, 1 -Washer	Temporarily Stored
9/16/2023	Lancaster	Nothing to report							1 -Refrigerator	Temporarily Stored
9/17/2023	Sunday									
9/18/2023	Lancaster	Residential							1 -Refrigerator	Temporarily Stored
9/19/2023	Lancaster	Residential			2			1 -TV		Temporarily Stored
9/20/2023	Lancaster	Residential						1 -Microwave		Temporarily Stored
9/21/2023	Lancaster	Nothing to report								
9/22/2023	Lancaster	Nothing to report								
9/23/2023	Lancaster	Nothing to report								
9/24/2023	Sunday									
9/25/2023	Lancaster	Residential						1 - TV	1 - Washer, 1- Dryer, 2- Stoves	Generator
9/26/2023	Lancaster	Residential	1							Temporarily Stored
9/27/2023	Lancaster	Residential						1 - TV	1 - Washer	Temporarily Stored
9/28/2023	Lancaster	Residential			1					Temporarily Stored
9/29/2023	Lancaster	Nothing to report								
9/30/2023	Lancaster	Residential						1 - TV, 1 - Microwave		
<b>TOTAL</b>			1.0	2.0	10.0	1.0	0.0	25.0	12	

## Lancaster Landfill & Recycling Center Rejected Loads Reporting October 2023

			<u>Waste Identification</u>							
Date	Location	Source	Batteries	Paint (Gal.)	Tires	Oil (Gal.)	Antifreeze	Electronic Waste	Other (specify)	Disposition
10/1/2023	Sunday									
10/2/2023	Lancaster	Residential	1						2-Flourescent Light Bulbs	Temporarily Stored
10/3/2023	Lancaster	Residential						2-Refrigerators, 1-TV	1-Water Cooler	Temporarily Stored
10/4/2023	Lancaster	Nothing to report								
10/5/2023	Lancaster	Nothing to report								
10/6/2023	Lancaster	Residential							1-Lawn Mower	Returned to Generator
10/7/2023	Lancaster	Residential						1-Refrigerator		Temporarily Stored
10/8/2023	Sunday									
10/9/2023	Lancaster	Nothing to report								
10/10/2023	Lancaster	Nothing to report								
10/11/2023	Lancaster	Residential						1-TV	2-Propane Tanks	Temporarily Stored
10/12/2023	Lancaster	Residential						2-TV's		Temporarily Stored
10/13/2023	Lancaster	Residential							1-Stove	Temporarily Stored
10/14/2023	Lancaster	Residential							1-Stove	Temporarily Stored
10/15/2023	Sunday									
10/16/2023	Lancaster	Nothing to report								
10/17/2023	Lancaster	Nothing to report								
10/18/2023	Lancaster	Nothing to report								
10/19/2023	Lancaster	Nothing to report								
10/20/2023	Lancaster	Residential	1							Returned to Generator
10/21/2023	Lancaster	Residential							1-Refrigerator, 1-Washer, 1-Dryer	Returned to Generator
10/22/2023	Sunday									
10/23/2023	Lancaster	Nothing to report								
10/24/2023	Lancaster	Nothing to report								
10/25/2023	Lancaster	Nothing to report								
10/26/2023	Lancaster	Residential			3					Returned to Generator
10/27/2023	Lancaster	Residential						1-Refrigerator	1-Stove	Temporarily Stored
10/28/2023	Lancaster	Residential						1-Refrigerator	1-AC Unit, 1-Swamp Cooler	Temporarily Stored
10/29/2023	Sunday									
10/30/2023	Lancaster	Nothing to report								
10/31/2023	Lancaster	Nothing to report								

# **ATTACHMENT I**

## MONTHLY WATER USAGE LOG

**60 acre feet = 19,551,086 gallons**

**1 acre foot= 325,851 gallons**

DATE OF READING	INITIAL READING (IN GALLONS X 100)	MONTHLY USAGE (GAL)	MONTHLY USAGE (ACRE FT)
11/1/22	308949	3605	1.10633388
12/1/22	312998	4049	1.24259247
1/10/23	315324	2326	0.71382319
2/2/23	316348	1024	0.31425406
3/3/23	318706	2358	0.72364363
4/6/23	319726	1020	0.31302651
5/2/23	323744	4018	1.23307892
6/1/23	335620	11876	3.64461057
7/6/23	346252	10632	3.26284099
8/5/23	355245	8993	2.75985036
9/8/23	362590	7345	2.25409773
10/5/23	370640	8050	2.47045429
Total	65,296		
Total * 100	6,529,600	Gallons used from	
		November 2022 to	
		October 2023, equates to	
		20 acre feet per year (afy)	


# **ATTACHMENT J**



## Complete for every time litter is picked from outside

Litter Collection Log Lancaster November 1, 2022 - October 31, 2023			
DATE	# OF STAFF	LITTER WASTE STREAM	LITTER PICKED FROM (List Specific Streets if Outside)
11/17/22	4	GENERIC WINDBLOWN WASTE FROM FILL AREA (I.E. PAPER, LIGHT PLASTIC, LIGHT CARDBOARD)	INTERIOR/IMMEDIATE EXTERIOR OF PROPERTY BORDER FENCELINE, AVENUE F
11/18/22	4	GENERIC WINDBLOWN WASTE FROM FILL AREA (I.E. PAPER, LIGHT PLASTIC, LIGHT CARDBOARD)	INTERIOR/IMMEDIATE EXTERIOR OF PROPERTY BORDER FENCELINE, AVENUE F AND DIVISION
1/11/23	7	GENERIC WINDBLOWN WASTE FROM FILL AREA (I.E. PAPER, LIGHT PLASTIC, LIGHT CARDBOARD)	INTERIOR/IMMEDIATE EXTERIOR OF PROPERTY BORDER FENCELINE, AVENUE F
1/12/23	5	GENERIC WINDBLOWN WASTE FROM FILL AREA (I.E. PAPER, LIGHT PLASTIC, LIGHT CARDBOARD)	INTERIOR/IMMEDIATE EXTERIOR OF PROPERTY BORDER FENCELINE, AVENUE F
1/13/23	5	GENERIC WINDBLOWN WASTE FROM FILL AREA (I.E. PAPER, LIGHT PLASTIC, LIGHT CARDBOARD)	INTERIOR/IMMEDIATE EXTERIOR OF PROPERTY BORDER FENCELINE, AVENUE F
1/16/23	4	GENERIC WINDBLOWN WASTE FROM FILL AREA (I.E. PAPER, LIGHT PLASTIC, LIGHT CARDBOARD)	INTERIOR/IMMEDIATE EXTERIOR OF PROPERTY BORDER FENCELINE, AVENUE F
1/17/23	6	GENERIC WINDBLOWN WASTE FROM FILL AREA (I.E. PAPER, LIGHT PLASTIC, LIGHT CARDBOARD)	INTERIOR/IMMEDIATE EXTERIOR OF PROPERTY BORDER FENCELINE, AVENUE F
1/18/23	4	GENERIC WINDBLOWN WASTE FROM FILL AREA (I.E. PAPER, LIGHT PLASTIC, LIGHT CARDBOARD)	INTERIOR/IMMEDIATE EXTERIOR OF PROPERTY BORDER FENCELINE, DIVISION STREET
1/19/23	7	GENERIC WINDBLOWN WASTE FROM FILL AREA (I.E. PAPER, LIGHT PLASTIC, LIGHT CARDBOARD)	INTERIOR/IMMEDIATE EXTERIOR OF PROPERTY BORDER FENCELINE, DIVISION STREET
2/8/23	4	GENERIC WINDBLOWN WASTE FROM FILL AREA (I.E. PAPER, LIGHT PLASTIC, LIGHT CARDBOARD)	INTERIOR/IMMEDIATE EXTERIOR OF PROPERTY BORDER FENCELINE, CHALLENGER WAY

# **ATTACHMENT K**

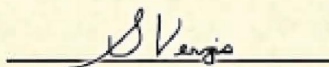


California Environmental Protection Agency  
**Air Resources Board**

March 1, 2023

**CERTIFICATE OF REPORTED COMPLIANCE  
IN-USE OFF-ROAD DIESEL-FUELED FLEETS  
REGULATION is issued to  
LANCASTER LANDFILL**

This certificate indicates that the fleet listed above has reported off-road diesel vehicles to the California Air Resources Board and has certified they are in compliance with title 13 CCR, section 2449. All applicable vehicles owned by the individual, company, or agency must be reported and labeled, as specified in Section 2449, with all possible completeness, else this certificate is null and void. **Certificate expires 2/29/2024**



Sydney Vergis  
Chief, Mobile Source Control Division  
California Air Resources Board

Off-road Diesel Fleet Identification

**1843**

To verify the authenticity of this certificate, enter this number at  
[http://www.arb.ca.gov/doors/compliance\\_cert1.html](http://www.arb.ca.gov/doors/compliance_cert1.html)

# **ATTACHMENT L**



## *ArchaeoPaleo Resource Management, Inc.*

A full-service Archaeology and Paleontology company

SBE/WBE/WOSB/EBE/DBE/UDBE/LBE/LSBE/CBE/VSBE/MicroBE Certified

# **Archaeological and Paleontological Negative Findings Report for the Lancaster Landfill and Recycling Center Phase 2B, City of Lancaster, Los Angeles County, California**

### **Prepared for:**

Waste Management, Inc.  
Lancaster Landfill & Recycling Center  
600 East Avenue F  
Lancaster, California 93535

### **Authors:**

Don F. Ricketts, M.A.  
Robin D. Turner, M.A.

### **Edited by:**

Robin D. Turner, M.A.  
John Flynn, B.A.

**Date: January 2023**

**Keywords:** Lancaster Landfill, City of Lancaster, Recycling Center, CEQA, Archaeological Resource Construction Monitoring, Paleontological Resource Construction Monitoring

**CONFIDENTIALITY NOTE: This document contains sensitive or confidential information regarding the location of archaeological and paleontologic sites that should not be disclosed to the general public or other unauthorized persons. Archaeological, paleontologic, and other heritage resources can be damaged or destroyed through uncontrolled public disclosure or information regarding their location. Therefore, information regarding the location, character, or ownership of archaeological or other heritage resources is exempt from the Freedom of Information Act pursuant to 16 USC 470w-3 (National Historic Preservation Act) and 16 USC Section 470(h) (Archaeological Resources Protections Act). This report and records that relate to archaeological and paleontologic site information are exempt from the California Public Records Act (Government Code Section 6250 et seq., Government Code Section 6254.19). Government Code Section 6254 explicitly authorizes public agencies to withhold information from the public relating to Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission.**

## EXECUTIVE SUMMARY

Waste Management, Inc. (WM) initiated the Lancaster Landfill and Recycling Center Phase 2B Project in September of 2022 to develop a new landfill use location “cell” for this facility. The Project required the excavation of approximately 6 acres within the Western Expansion Area (WEA) of the Lancaster Landfill and Recycling Center, in unincorporated Los Angeles County, approximately 2 miles north of the eastern portion of the City of Lancaster. Construction excavation activities primarily consisted of the mechanical excavation of native soils, exposing the alluvial and lacustrine deposits of the East Antelope Basin and the Lake Thompson Beds Formation.

Since the Project had been previously determined to be highly sensitive for the presence of archaeological and paleontological resources, ArchaeoPaleo Resource Management, Inc. was contracted by WM to conduct on-site construction monitoring services. These services were conducted between September 14, 2022, through October 21, 2022. This report documents the methods and results of the monitoring services of landfill-operation-related mechanical excavation, which started at existing surface grade to approximately 25 feet deep on the West side, to approximately 35 feet below surface grade on the East side of the cell.

No significant archaeological or paleontological resources were found during Project monitoring. However, two petrified wood/bone fossil fragments, four root cast trace fossils, and shell/leaf trace fossils were recovered from native soil but not deemed to be significant. A potential handmade metal nail and a small brown glass fragment was recovered approximately 20 feet below the exposed topsoil but were not deemed to be significant archaeological finds. Even though no significant finds were uncovered during monitoring services, there is, however, a possibility that significant paleontological and archaeological materials may be exposed in other cell development locations in the future.

## ACRONYMS

APRMI	ArchaeoPaleo Resource Management, Inc.
Asml	Above mean sea level
BP	Before Present
CEQA	California Environmental Quality Act
CRM	Cultural Resource Management
EIC	Eastern Information Center
EIR	Environmental Impact Report
GIS	Geographic Information Systems
GPS	Global Positioning System
HSC	California Health and Safety Code
LLRC	Lancaster Landfill and Recycling Center
MLD	Most Likely Descendant
mya	Million Years Ago
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PBDB	Paleobiology Database
PPE	Personal protective equipment
Qal	Quaternary Alluvium
Qop	Quaternary-age old paralic deposits
Qpl	Quaternary playa deposits
Qsc	Stream channel deposits
SVP	Society for Vertebrate Paleontology
SCCIC	South Central Coastal Information Center
USGS	United States Geologic Service
WEA	Western Expansion Area
WEAP	Workers' Environmental Awareness Program
WSC	Western Science Center
YR	Year



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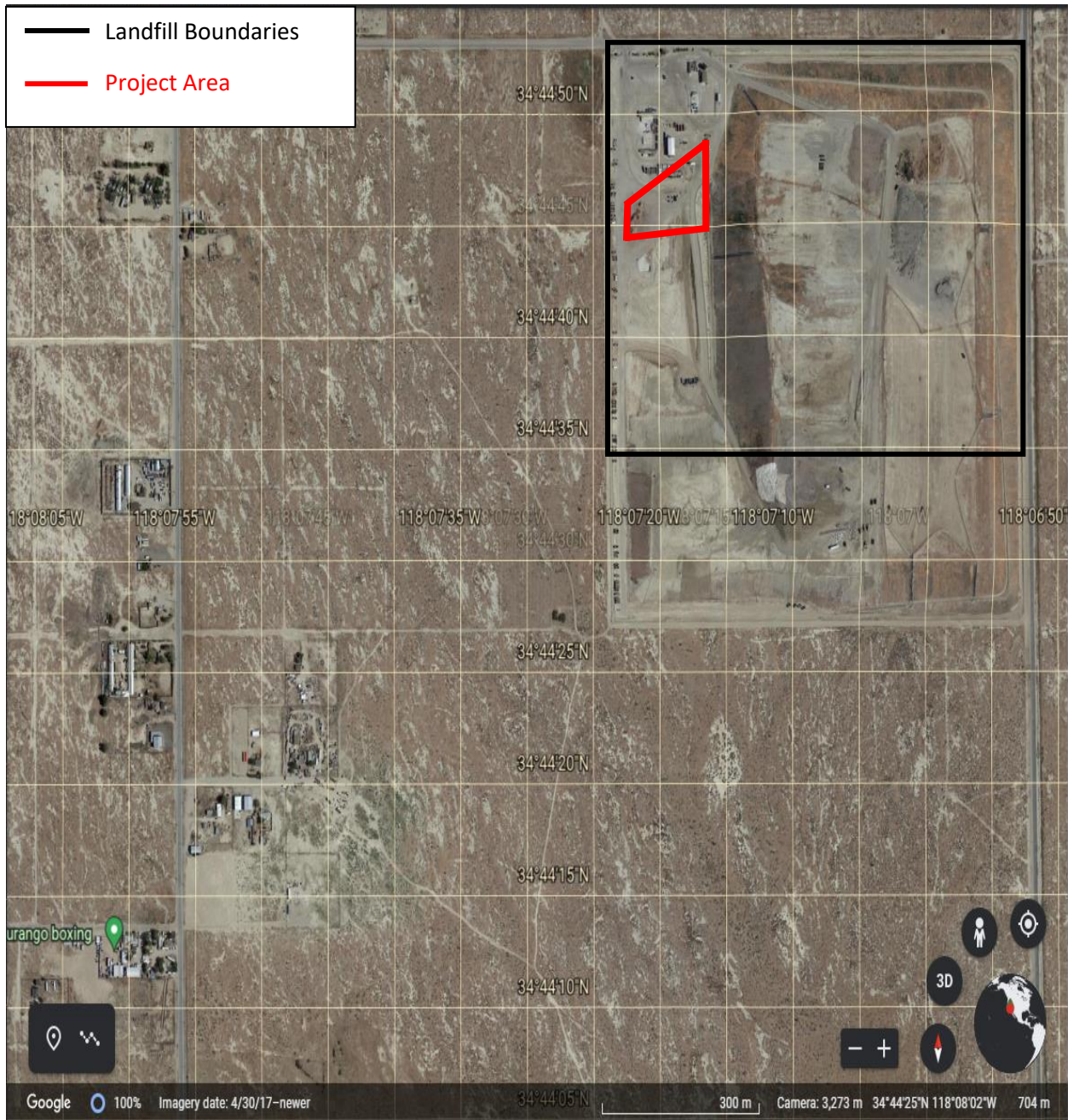
# 1. INTRODUCTION

## 1.1 Project Description

Waste Management, Inc. (WM) operates the Lancaster Landfill and Recycling Center (LLRC) which is situated within an unincorporated portion of northern Los Angeles County, California (Figure 1). The 276-acre LLRC is located approximately 2 miles north of the City of Lancaster, within two grided sections East of Longitude 34 Degrees 44' 40" North resting on Latitude 118 Degrees 7' 20" West (Figure 2). The Western Expansion Project 2B (Project) that is subject to the present report entailed the use of mechanical excavation of the native soil between 25 to 35 feet below original surface grade of approximately a 6-acre area in the WEA of the LLRC, which is located south of Avenue F. The native soil was moved to a stockpile area located toward the center of the LLRC and used to cap the active landfill on the southwest of the LLRC. Approximately 2/3 of the Project area had been excavated without monitoring services over the last couple of years, with the remaining 1/3 of the Project area being excavated to approximately 25 feet below surface grade to the West down to approximately 35 feet below surface grade to the East. The surface grade around the Project is recorded and remains at approximately 2310 feet above mean sea level (amsl) on the west and north edges of the cell. This report focuses solely on the archaeological and paleontological resources monitoring services of Project-related mechanical excavation of the area that still required excavation.



Figure 1. Topographic regional overview of Lancaster Landfill and Recycling Center Phase 2B, marked by red star



**Figure 2. Project location in blue within LLRC (in black) on Google Earth map of the Lancaster area.**

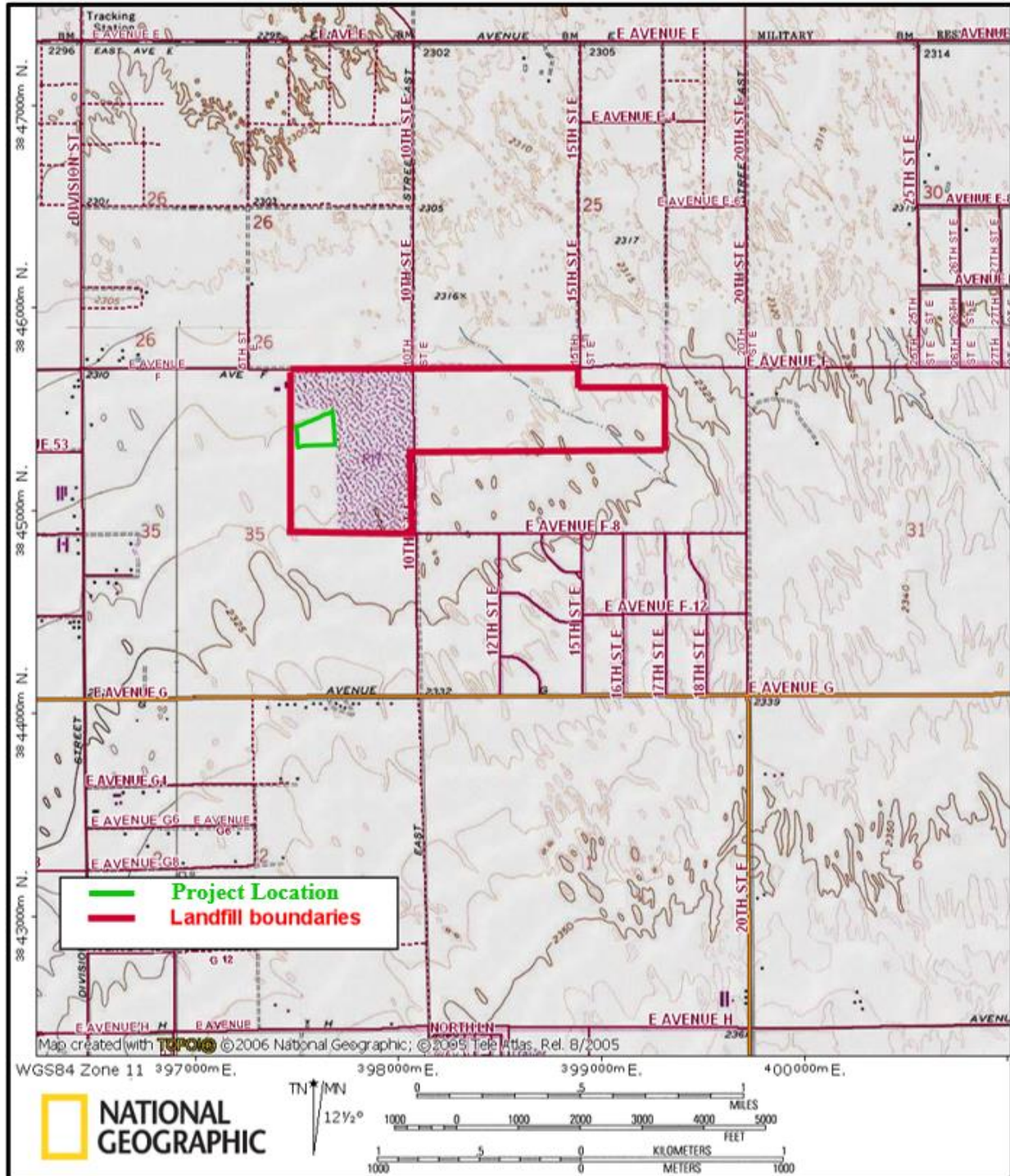


Figure 3. Project location in green within National Geographic Topographic map of the Lancaster area

## 2. CULTURAL SETTING

The Project area is located northeast of the City of Lancaster in the Antelope Valley at the western edge of the Mojave Desert, 80 miles (130 km) North of the City of Los Angeles and separated from it by the San Gabriel Mountains. Kroeber states that the prehistoric cultural history of this region is poorly documented and/or understood (Kroeber 1925; Hanks 1971; King 1994; Moratto 1984; Sutton 1996). At the time of the arrival of the Spanish, the Native American people, referred to as the Tataviam, included the southern Antelope Valley as part of their homeland (Figure 5). The Kitanemuk inhabited the land to north, more specifically the Tehachapi Mountains and further northward. However, various Native American culture groups including the Chumash, the Serrano/Vanyume, and the Tongva may have included this area as part of their homeland as well. According to Sutton (1988; 1996), archaeological evidence of regional trade suggests that, on a limited basis, other Western Mojave culture groups, such as the Mojave or the Chemehuevi, and others from Arizona, may have utilized and/or passed through this area. Ethnographically, little data exists describing the life way of the Tataviam or the Kitanemuk; the former a remnant Takic language group, and the latter a Serrano group, also a derivative of the Takic linguistic base, and both ethnographically identified as Serrano divisions of the Shoshonean (Kroeber 1925). Within the past few years, new construction projects in the southwestern section of Antelope Valley have uncovered new archaeological sites that have contributed greatly to the earlier data that is known about the Native American population. With the help of their descendants, a greater understanding is beginning to occur regarding the lifeways of the original Antelope Valley residents. Originally, the anthropological literature referenced these groups as using the name that the Hokan speaking Chumash people used: Alliklik or I'alliklik (Kroeber 1925). Early 20<sup>th</sup> Century ethnography Alfred Kroeber (1925) states that at some later point in their history, the name Alliklik was changed to the name of Kitanemuk (Takic origin), Tataviam, to describe their neighbors to the south. The Kitanemuk were known by several names, including Mayaintalap (Yokut), Witanghatal (Tübatulabal), Chemheuevis, Nawiyat Mohave, Kuvahaivima, Cuabajai (the Spanish Explorer Garcs' identification), the "Tejon Indians" by the Americans, and the Haminant by their modern-day immediate neighbors.

### *Tataviam-Ethnographic History*

At the time of European contact Tataviam territory may have ranged east of Piru, within the entire upper Santa Clara River region, northwards to Pastoria Creek and east to Mt. Gleason (Figure 5). It appears that the Tataviam lived in close contact with their eastern Chumash and Tongva neighbors to the south (Hanks 1971; King and Blackburn 1978; Moratto 1984) as hunter and gatherers. Like many California cultural groups known as hunter/gatherers, the Tataviam lived in small villages and satellite camps near water sources originating in the local mountains, foothills, and adjacent desert areas. Evidence suggests that during the later periods many of these groups displayed a chiefdom level of social complexity. Their subsistence consisted primarily of plants and animals found in the foothills, such as acorns, seeds, berries, deer and rabbit. Many other plants were also utilized, such as yucca, cactus, and screw beans (King 1974; Moratto 1984; Robinson 1987; Sutton 1996). Seasonal settlement and resource exploitation rounds may have included the lake beds of the Antelope Valley (Lake Rosamond and Lake Rogers), and natural spring areas as well as the foothill creeks that drain into Soledad Canyon, and onto the Antelope Valley floor.

These hunter/gatherer groups were prolific lithic tool manufacturers and basket makers, as evinced in the archaeological record. The Tataviam people were a socially complex hunter/gatherer group that occupied the area. Culturally, they were very similar to their Chumash and Tongva neighbors. Unfortunately, most of the culturally significant information, such as religious beliefs, traditions, oral histories, and folklore of the Tataviam and Gabrielino/Tongva people was lost during the Mission Period. This was the result of forced cultural assimilation by the Spanish, and the decline of population due to the introduction of European diseases to the region.

### ***Kitanemuk-Ethnographic History***

The Kitanemuk, like the Tataviam, are a prehistoric cultural mystery. The Kitanemuk are considered a Serrano division of the Shoshonean group, yet the term Serrano (Spanish for mountain people) or perhaps even Vanyume is somewhat of a misnomer for the “Kitanemuk do not know themselves as Serranos, but extend the epithet to their neighbors the Kawaiisu, quite correctly in an etymological sense, since these people happen to live higher in the mountains than they” (Kroeber 1925). As with much of the Antelope Valley, little written archaeological or ethnographic data exists (Blackburn and Bean, 1978; Harrington 1917 as cited; Kroeber, 1925). The Kitanemuk are known to have occupied the western Antelope Valley (a contentious sharing of territory with their southerly neighbors the Tataviam), as well as the Tehachapi Mountains, and eastern High Sierras. The Kitanemuk were “primarily mountain dwellers, although during [the] cooler season of the year they did range into the arid lowlands to the south [Antelope Valley]” (Blackburn and Bean 1978). Spanish Explorer Francisco Garcés is believed to have visited a Kitanemuk village in 1776 (Coues 1900; as cited in Blackburn and Bean 1978), although this is of debate given conflicting accounts in the early 20<sup>th</sup> Century ethnographer John P. Harrington’s notes of 1917. Further, the Kitanemuk are believed to have been forcibly relocated to San Fernando, San Gabriel and San Buenaventura (Ventura) missions during the Spanish colonization and missionization efforts of the mid-18<sup>th</sup> Century. Later in the mid-century, they were documented as residing at Fort Tejon and the Tule River Reservation (Blackburn and Bean 1978).

In 1917, Harrington indicated that the cultural affiliation of the Kitanemuk was one of amicable trade and ceremony between them and the Chumash and Tubatulabal as well as the Mohave and Quechan tribes, but they had a relationship of enmity with the Yokut and the Tataviam tribes. The Kitanemuk, like other Takic groups, were hunter/gatherers, socially and culturally complex. The groups observed a patrilineal system of familial organization, exogamous marriage, practiced a chief system of tribal organization, possessed shamanism and ceremonial or religious leadership, and complex cosmology and belief systems, including gender moieties pertaining to puberty and marriage as well as practiced hunting magic and birth and death formalities (Blackburn and Bean 1978).

Akin to their Tataviam neighbors to the south, the Kitanemuk likely practiced a seasonal rounds-based system of subsistence. Their primary base camps and villages were probably mostly centered in the Tehachapi Mountains and foothills, as well as further north, thus allowing expected winter/spring exploitation of the Antelope Valley floor. As with other hunter and gatherer groups, the Kitanemuk excelled at lithic tool manufacture, and were likely skilled basket makers as evidenced by the occurrence of basket-mortar hoppers cited in the archaeological record.

## *Modern History*

At the beginning of the American period, little notice was paid to colonizing the Antelope Valley. In fact, most of the late 19<sup>th</sup> Century can be described as a time when people were mostly passing through to other destinations (Norwood 1992). Preceding the arrival of homesteaders, the Southern Pacific Railroad was conducting a transcontinental survey, and passed through the Antelope Valley in the late 1850s. However, sparsely dispersed ranches were established in the Antelope Valley in the 1860's (Norwood 1992).

Contributing to the settlement of the Antelope Valley was the Homestead Act of 1862 and the Desert Land Act of 1877. The Homestead Act of 1862 was enacted by President Lincoln shortly after the southern states seceded from the Union, thus initiating the Civil War. The Act opened public land to citizens for settlement with few criteria; a person must be 21 years of age, live on the land, build a home upon the land, and improve upon the land for a period of five years. The fee to file for a homestead was \$18.00, and within five years the homesteader had to present two witnesses who could support the claims of having “proved up” the homesteaded land. The Desert Land Act of 1877 was designed to “encourage and promote the economic development of arid and semi-arid public lands of the western United States. Through this Act, individuals may apply for a desert-land entry to reclaim, irrigate, and cultivate arid and semi-arid public lands” (BLM 2008). The Antelope Valley experienced an influx of agricultural oriented homesteaders in the 1880s: alfalfa, barley, wheat, fruits, and nuts. The Homestead Act of 1862 and Desert Land Act of 1877 with respect to the Antelope Valley were coincidentally aided by relative “wet years” in the 1880s (NPS 2021). Success was short-lived as serious drought during the following decade nearly broke the spirit of the homesteader. However, continued, and renewed interest in mining spawned by the California Gold Rush of 1849 and success in the southwest Antelope Valley between 1850 and 1870 (Soledad Canyon and Fremont's Pass), including the period of the Civil War, with extraction of gold, silver and copper ore continued the trickling in of settlers.

The early 1900s was a period of innovation; mechanical irrigation and electricity, and an avid pursuit of alfalfa cultivation, “which by 1920 was the Antelope Valley's major crop” Contributing to this period of agricultural pursuit was the Enlarged Homestead Act of 1909 whereby homesteaders were permitted to file for additional 320-acre plots (NPS n.d. retrieved 2021).

Land transportation in the 1800s from Los Angeles to the Antelope Valley was facilitated by stage and wagon routes as well as railroad and road networks. The Butterfield Stage Overland Mail route (1858), the Los Angeles & Independence Railroad, Southern Pacific Railroad (1876), Antelope Valley Line, Union Pacific Lone Pine Branch, the Santa Fe Railroad Branch, the Pacific Electric Railway, the Los Angeles-to-San Francisco telegraph line (1860), Sierra Highway, Angeles Crest Highway, Angeles Forest Highway, and the birth of modern freeways systems resulted in urbanization and development of the Antelope Valley and Los Angeles metropolitan area. The towns of Lancaster, Palmdale, and Rosamond were established along the Southern Pacific rail line. Three stations were present within the Antelope Valley, one in Lancaster, and two in the vicinity of present-day Palmdale; one named Harold and the other Alpine (McKenna et al. 1993). With the construction of the Southern Pacific Railroad through the Antelope Valley in 1876, farming



became popular in the region. The towns of Lancaster and Rosamond sprang from the introduction of the Southern Pacific rail line in the Antelope Valley.

The Lancaster area started as a Scottish settlement organized in 1884 by M.L. Wicks, who may have named it for his hometown in Pennsylvania (though the origins of the city's name are somewhat in doubt). Both borax (still locally mined and economically significant) and gold were discovered in the foothills near the city in 1898. The Antelope Valley largely supported cattle ranching until the early 1900s, when water, pumped by gasoline engines, transformed it into an agricultural area (Encyclopædia Britannica, retrieved 2023). The City of Lancaster was eventually incorporated in 1977.

### **3. GEOLOGICAL SETTING**

The landfill is located on what had once been covered by Lake Thompson, which was a Late Pleistocene/Early Holocene pluvial (mostly fed by rain) lake that may have also been fed by numerous creeks that surrounded it (Orme 2004, 2008:264). In the Great Basin, levels of large pluvial lakes fluctuated in response to climatic cycles and glaciation. Rosamond Lake (approximately 2 miles north of the Project area, shown in Figure 4) and Rodgers Dry Lake (approximately 6 miles east of Rosamond Lake) – both located within Edwards Air Force Base – are modern manifestations/remnants of the desiccating Lake Thompson system. The area where the Piute Ponds complex is located, on Rosamond Lake's southwest margin, was also part of Lake Thompson. Piute Ponds are constructed wetlands made of a series of interconnected basins built in 1961 to evaporate the outflow from the Lancaster Water Reclamation Plant (Alderman 2009; Edwards Air Force Base 2008). The Ponds receive treated wastewater from the reclamation plant and water from occasional flooding of the Amargosa and Littlerock washes (Edwards Air Force Base 2008). They support a myriad flora and fauna and are identified as a Significant Ecological Area by the County of Los Angeles (Alderman 2009). Piute Ponds may replicate the characteristics of Lake Thompson and its vicinity during the Late Pleistocene/Early Holocene, although many species of plants and animals that inhabit or frequent Piute Ponds today may not have been present during the Late Pleistocene. Pluvial lakes of the Early Holocene, such as Lake Thompson, provided fundamental resources for the local Native Americans and often attracted permanent or semi-permanent settlement close to their changing shorelines.

The 1997 Draft Environmental Impact Report (EIR) (County of Los Angeles Department of Regional Planning 1997) states that Lake Thompson once covered about 200 square miles (518 square kilometers) of the Antelope Valley in the Late Pleistocene about 13,000 years ago. Later studies documented by Orme (2008) indicate that Lake Thompson covered up to 367 square miles (950 square kilometers) and rose to at least 710 meters above sea level. Accelerator mass spectrometry carbon 14 dating of organic sediment indicates the presence of a deep perennial lake from before 36,000 years ago to at least 34,000 years ago, “a shallow but variable perennial lake” from before 26,000 years ago to 21,000 years ago, and then a “partial exposure of the lake floor” (Orme 2008:261). “A shallow perennial lake returned during the terminal Pleistocene, from around 16.2 ka [16,200 years ago] to at least 12.6 ka, forming distinctive beach ridges beyond the margins

of the present dry lakes, and it may have reappeared in the early Holocene” (Orme 2008:261). This appears to be the period to which the Draft EIR refers.

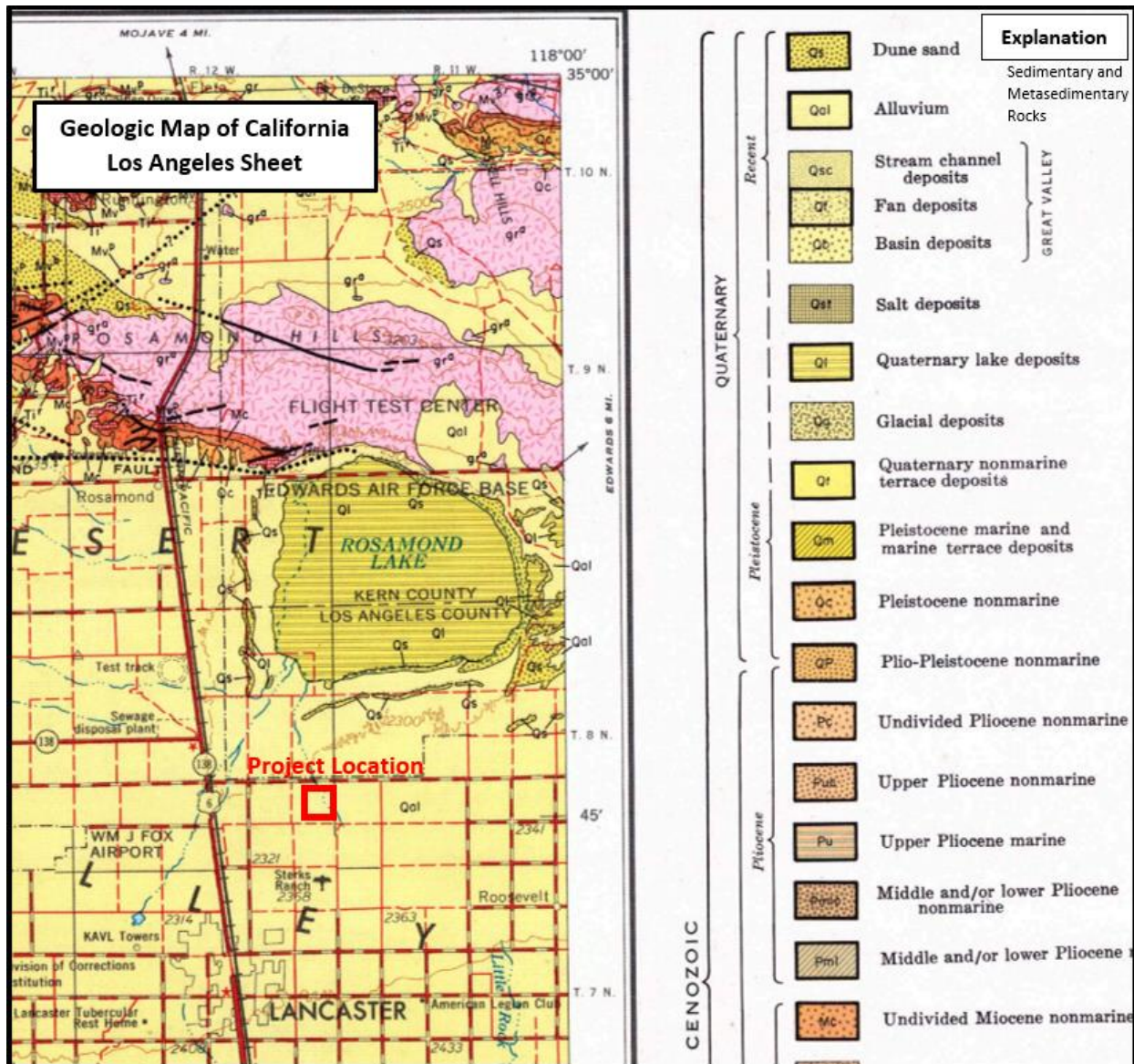


Figure 4. Project location in red within Geological Map of California, Olaf P. Jenkins Edition, Los Angeles Sheet, Lancaster area (Jennings and Strand 1969[1981])

The Project area has been mapped as underlain by Quaternary playa deposits (*Qpl*), described as “compact lacustrine silt and clay with minor loose well-sorted sand and fine gravel deposited in the shallow-water margins of the last pluvial lake [Lake Thompson] that filled the lowland parts of Antelope Valley up until about 12,000 years ago” (State of California Department of Conservation California Geological Survey 2005:7). Most recently, the area has been mapped as Quaternary-age old paralic deposits (*Qop*), or older Holocene to late Pleistocene plays deposits, described as “moderate to well consolidated, clay, silt, and silty fine sand with occasional fine gravels. Soils generally light-grayish-brown to brown when moist (10YR 5/3), to 10Yr 6/4 – 6/6 when dry, with upper soil profile showing a faint pedogenic blocky structure with few clay films

on the pedogenic faces. Lacustrine deposits associated with pluvial Lake Thompson that filled the lowland parts of Antelope Valley prior to desiccation occurred about 17,000 years ago.

Deposits are locally dissected by surface flow, deflated, and eroded by eolian, or may be covered with a veneer alluvial fan and eolian sediment composed of sand and silt.” (Lancaster 2011). Orme (2008:261) also shows the Project area as underlain by lacustrine facies. Geological borings in the region suggest that the stratigraphy present under the current surface or Rosamond Lake (close to the Project area): are Holocene playa deposits from the surface of the lakebed (approx. 2280 feet amsl) to approximately 2230 feet amsl, and Pleistocene Lake clays from approximately 2230 feet amsl to approximately 2050 feet amsl, with a concave lens of Pleistocene fluvial sand beneath these clays (Orme 2008:265). The State of California Department of Conservation California Geological Survey (2005), Orme (2008) , and Lancaster (2011) all interpret the surface footprint of the Project area to be underlain by Lake Thompson playa deposits.

Dibblee (2008), as cited in Lander (2011:1), has indicated that the Project area is underlain by “unconsolidated and undissected surficial alluvial sediments comprising clay and silt of mud flats that were covered with numerous small mounds of windblown sand (*Q<sub>sc</sub>*).” Jennings and Strand (1969 [1991]) indicate that surface sediments of the Project area are Quaternary recent (Holocene) alluvium (*Q<sub>al</sub>*) (Figure 4). The latter soil type often contains archaeological deposits, especially in a place like the Project area, which is located along a receding shoreline of a pluvial lake that may have reappeared during the early Holocene and was likely an important resource-procurement/settlement area for people during prehistoric times (see Orme 2008; Sutton 1996; Sutton et al. 2007).

During the first phase of paleontological resources monitoring of the Project area in 2010, Lander (2011:2,13) in 2010 encountered light tan to gray clayey sandstone underlying playa dune deposits, from the surface of the footprint of the Project area to 5 feet below the surrounding surface grade. In a subsequent study in 2011, Lander (2012:4) concluded that the original surface of the Project area was “underlain by the late Quaternary younger alluvium (Dibblee 2008), which comprises up to about 3 feet of windblown dune or aeolian sand and at least 10 feet of fluvial and lacustrine strata that . . . underlie the dune sand . . . The dune sand extends from the surface downward to depths around 1.5 to 3.0 feet, whereas fluvial and lacustrine strata extend from about 1.5 to at least 11.5 feet below the surface.” To summarize, Lander (2012:7) identifies unconsolidated wind-blown Holocene dune sand (stabilized by vegetation) from the surface of the footprint of the Project area to approx. 1.5 feet below the surrounding surface grade. He describes the deposits from approx. 1.5 feet to 11.5 feet below the original surface of the Project area as Late Pleistocene Lake Thompson Beds that are grayish-tan, tan, and mottled red and dark grayish brown, poorly consolidated, calichified, silty sandstone to silty claystone of lacustrine origin with northwest-to-west-northwest-trending channels containing unconsolidated, gray, fine-to-coarse-grained sand.” (Lander 2012:7)

The State of California Department of Conservation California Geological Survey’s (2005:7) and Lancaster’s (2011) soil identification, as well as Orme’s (2004, 2008) studies have indicated that the landfill’s location is highly sensitive for Pleistocene fossil deposits. Recent paleontological studies (Lander 2011, 2012) have confirmed the presence of these deposits.

## 4. REGULATORY SETTING

### *State Laws*

The California Environmental Quality Act (CEQA) requires mitigation when significant archaeological resources or paleontological resources cannot be avoided by a project that may cause adverse impacts to those resources.

Chapter 1, Section 21002 of CEQA states that:

Public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.

CEQA Guidelines (Article 1, Section 15002(a)(3)) state that CEQA is intended to “Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.” Under CEQA, mitigation may include data recovery through archaeological-resource monitoring.

Paleontological resources are protected by Appendix G (Part V) of CEQA, which indicated that the destruction of unique, non-renewable paleontological resources is a significant impact on the environment that requires mitigation of the impact. It specifically asks whether a project would “directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.” Construction excavation in paleontologically sensitive deposits that underlie a project area is a significant impact that can be mitigated via data collection through paleontological-resource monitoring.

California Public Resources Code, Section 30244 requires the mitigation of adverse environmental impacts that affect palaeontologic resources.

### *County Policy*

The County of Los Angeles current General Plan Update (County of Los Angeles 2012: 157 Policy C/NR 14.1) notes that County policy is to “mitigate all impacts from new development on or adjacent to historic, cultural, and paleontological resources to the greatest extent feasible” and to “ensure proper notification and recovery processes are carried out for development on or near historic, cultural, and paleontological resources.” Because the Project is located within an unincorporated section of Los Angeles County, city laws are not applicable to this setting.

### *Project Policy Requirements per Conditional Use Permit (CUP) 03-170-(5)*

Part VII – Archaeological/Paleontological Monitoring. The permittee shall implement the monitoring program described in this part VII to conserve archaeological and paleontological resources as required by condition No. 75 of this grant.

- A. Before commencing grading activities in previously undisturbed areas, the permittee shall nominate to the director of the department, both a certified archaeologist and a qualified paleontologist from the Society of Professional Archaeologists which the permittee intends to retain not perform the monitoring and conservation work required by this part VII and condition No. 75 of this grant. If approved by the director of the department, the archaeologist and paleontologist shall both submit a letter to the director stating that he/she has been retained to perform or supervise the work described herein, and that he/she agrees to report any failure of compliance with this grant or this part VII to the director.
- B. The archaeologist and paleontologist shall each submit a written report to the permittee to be included in the permittee's annual monitoring report required by part X of this IMP for as long as on-site excavation activity continues at the facility, or upon the respective expert's termination of employment, in which case the report shall be submitted to the director of the department.
- C. If either the archaeologist or the paleontologist terminates employment before completion of the excavation work associated with the facility, a replacement expert shall be selected, approved, retained and certified as described in this part VII.

Condition #81: The Permittee shall develop and implement a program to identify and conserve all significant archaeological and paleontological materials found at the facility pursuant to Part VII of the IMP. If the permittee finds any evidence of aboriginal habitation or fossils during earthmoving activities, landfill operations shall immediately cease in that immediate area, and the evidence and area shall be preserved until a qualified archaeologist or paleontologist, as appropriate, makes a determination as to the significance of the evidence. The department will review and approve this program, if the determination indicates that the archaeological or paleontological resources are significant, the resources shall be recovered to the extent practicable prior to resuming landfill operations in that immediate area of the landfill.

### ***Society of Vertebrate Paleontology (SVP) guidelines***

The Society of Vertebrate Paleontology (SVP), an international scientific organization of professional paleontologists, has issued guidelines and policy statements entitled: *Assessment and mitigation of adverse impacts to nonrenewable paleontologic resources – standard guidelines (SVP 1995)*, *Conditions of receivership for paleontologic salvage collections (SVP 1996)*, *Guidelines from the ethics education committee for collecting, documenting and curating fossils (SVP 2009a)*, and *Article 12: Member bylaw on ethics statement (SVP 2009b)*. These statements outline acceptable professional practices in paleontologic resource assessments and surveys; monitoring and mitigation; data and fossil recovery; sampling procedures; specimen preparation, identification, analysis; and curation.

According to SVP guidelines (2009a: Article 12.1-4) and SVP (2009b), vertebrate paleontologists must ensure that vertebrate fossils are collected in a professional manner, “which includes the detailed recording of pertinent contextual data, such as geographic, stratigraphic, sedimentologic and taphonomic information” (SVP, 2009a: Article 12.1). The ethics bylaw also states that fossil “vertebrate specimens should be prepared by, or under the supervision of, trained personnel” (SVP,

2009a: Article 12.3) and that “significant fossil vertebrate specimens, along with ancillary data, should be curated and accessioned in the collections of repositories charged in perpetuity with conserving fossil vertebrates for scientific study and education (e.g., accredited museums, universities, colleges and other educational institutions).” (SVP, 2009a: Article 12.4; see also SVP, 2006).

The SVP (1995) standard guidelines state that vertebrate fossils are significant, nonrenewable paleontologic resources and that “protection of paleontological resources includes: (a) assessment of the potential property to contain significant nonrenewable paleontological resources which might be directly or indirectly impacted, damaged or destroyed by development, and (b) formulation and implementation of measures to mitigate adverse impacts, including permanent preservation of the site and/or permanent preservation of salvaged materials in established institutions (SVP, 1995; Lines 1-5).

## **5. ARCHAEOLOGICAL SENSITIVITY AND MITIGATION MEASURES**

The Project area is considered as highly sensitive for the presence of archaeological deposits. The Draft Environmental Impact Report (DEIR) for the expansion of the Lancaster Landfill and Recycling Facility, as the LLRC was called at the time, summarized the 1994 cultural resources archival records search at the South Central Coastal Information Center [SCCIC] and a corresponding cultural resources surface survey (County of Los Angeles Department of Regional Planning 1997:5.8-1 – 5.8-7; Tartaglia 1994) stating the high sensitivity for the presence of archaeological finds. The SCCIC is the State Office of Preservation’s California Historical Resources Information System repository that holds cultural resources records and reports for Los Angeles County.

A more recent document, the supplemental EIR (County of Los Angeles Department of Regional Planning 2006:5-3, Appendix E:9), did not reflect a new cultural resources study but briefly summarized the results of the 1997 EIR. The cultural resources study and the Draft EIR noted that archaeological deposits could be buried under parts of the landfill that had not been excavated at that time, and that any archaeological deposits that may be encountered within the landfill boundaries thus would be impacted by excavation.

No known archaeological or built-environment resources were identified within landfill boundaries or within a half mile of the landfill during the records search conducted by the SCCIC. The 1994 study (summarized in the 1997 EIR) did not encounter archaeological or built-environment resources within landfill boundaries during the cultural resources survey. The 1994 study encountered one historical archaeological site, located within one mile of the landfill, during the records search for that survey.

The 1994 study and the Draft EIR (County of Los Angeles Department of Regional Planning 1997:5.8-1 – 5.8-7) stressed that encountering buried archaeological remains within landfill boundaries is possible and that impacts to archaeological resources must be mitigated.

Due to the nature of this type of surface survey, it is impossible to assess any buried cultural remains and/or resources; it must be stressed that . . . unknown archaeological and/or

historical materials could be buried beneath the present land surface (County of Los Angeles Department of Regional Planning 1997:5.8-1 – 5.8-7).

The area is highly subject to aeolian and alluvial forces that may have buried archaeological resources (see Geological setting). The Draft EIR included the following impact-mitigation measures (County of Los Angeles Department of Regional Planning 1997:5.8-1 – 5.8-7):

In the event that cultural resources are encountered during any phase of construction, construction will cease in these areas until the cultural resources are properly assessed and subsequent recommendations are determined by a qualified archaeologist.

If at any time during development Indian burials (any aboriginal human remains-bones) are encountered, then a Native American advisor for the local Native American Indian tribe as well as the County Coroner must be contacted immediately and construction in that restricted area must be stopped until the human remains are legally and ethically dealt with by the appropriate parties.

In currently accepted protocols, the second mitigation measure mentioned above is replaced by a more detailed, yet similar, procedure: if human remains are discovered during Project construction, compliance with State of California Health and Safety Code Section 7050.5 is required. “There shall be no further excavation or disturbance of the site, or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered” has examined the remains and determined the origin of the remains and the cause of death (State of California 2011). If the human remains are determined to be those of a Native American(s), the coroner will notify the Native American Heritage Commission (under Section 7050.5 of the Health and Safety Code and Sections 5097.94, 5097.98, and 5097.99 of the Public Resources Code). The NAHC will determine and notify a Most Likely Descendant (MLD), and the MLD shall complete the inspection of the site within 48 hours of notification. The MLD may determine that the burial(s) shall remain in place or may recommend another treatment plan. In the case that burials are to be removed, the MLD will determine the protocols of the removal, storage, analysis, and eventual reburial of any and all Native American remains and associated artifacts.

Lander (2011, 2012) conducted paleontological resources monitoring of soil levels above the levels monitored for the project in 2010 and 2011. Data collected from the 2010 monitoring is interpreted to be contemporaneous with human occupation of the region of the project area. Lander’s 2011 study from the 2010 monitoring revealed faunal deposits from 1,710 years ago, which were found within Holocene dune deposits. The modern faunal locality was given the Natural History Museum of Los Angeles County [LACM] fossil site number: LACM7853. Lander proposed that fish vertebrae collected during paleontological resource monitoring of those dune deposits may have been “transported by Native Americans to the Antelope Valley from the California Coast no farther south than Long Beach” (see also Gobalet 2011).

## **6. PALEONTOLOGICAL SENSITIVITY AND MITIGATION MEASURES**

The Project area is highly sensitive for paleontological resources, as revealed in the Draft EIR for the LLRC (County of Los Angeles Department of Regional Planning 1997). This high sensitivity

has been confirmed by paleontological resources monitoring (Lander 2011, 2012) for the years of 2010 and 2011, and during mechanical excavation of levels to a depth of 11.5 feet below original surface grade of the current Project footprint.

According to the 1997 Draft EIR, in order to predict impacts to paleontological resources, one must expect that there is “the potential for the discovery of fossils. Potential for discovery is a measure of the likelihood that fossils will be discovered during excavations into a given rock unit. This potential is based on the past discovery of fossils from that rock unit” (County of Los Angeles Department of Regional Planning 1997:5.8-8).

During the last ice age, several lakes, like Lake Thompson, were present in the Mojave Desert. These lakes supported a large and diverse assemblage of animals. At the end of the last ice age, as these lakes shrank, the fauna surrounding them disappeared. This mass extinction of large animals is one of major question in science today. Many ideas ranging from unfavorable climate to the appearance of man in North America have been proposed as the cause of these extinctions. Fossils from these deposits may hold some of the clues needed to explain those events.

The alluvial deposits have a high potential for the discovery of fossils during grading operations, based on the proximity of fossil localities in similar deposits and the possible presence of lake deposits in the study area. A high potential indicates that grading operations are likely to expose fossils during development. These activities will destroy the fossils. The destruction of these fossils would be a potentially significant adverse impact on the region’s paleontological resources (County of Los Angeles Department of Regional Planning 1997:5.8-8).

The Draft EIR (County of Los Angeles Department of Regional Planning 1997:5.8-9 – 5.8-10) presented the following mitigation measures for impacts to paleontological resources:

1. A qualified paleontologist shall be retained to perform periodic inspections of excavations and, if necessary, salvage exposed fossils. The frequency of inspections will depend on the rate of excavation, the materials being excavated, and the abundance of fossils. Monitoring will initially need to be on a full-time basis during grading.
2. The paleontologist shall be allowed to divert or direct grading in the area of an exposed fossil to facilitate evaluation and, if necessary, salvage.
3. Because some of the fossils within the alluvial deposits are small, it will be necessary to collect samples of promising horizons for processing through fine mesh screens.
4. Fossils shall be prepared to the point of identification and catalogued before they are donated to their final repository.
5. All fossils collected should be donated to a public, non-profit institution with a research interest in the materials, such as the San Bernardino County Museum.
6. A report detailing the results of these efforts, listing the fossils collected, and naming the repository shall be submitted to the lead agency at the completion of the project.

Implementation of these mitigation resources would reduce potential impacts to paleontologic resources to a less than significant level.



The Supplemental EIR (County of Los Angeles Department of Regional Planning 2006:5-3, Appendix E:10) did not reflect a new paleontological resources study and briefly summarized the results of the 1997 EIR.

Many significant fossil localities are known within the region and near the Project area in particular. One fossil locality was identified in the Lander 2011 study that documented finds in the original top 5 feet of sediments near the Project footprint, and six separate fossil localities were identified in the Lander 2012 study that documents fossil remains from 5 feet below the original surface to 11.5 feet below the surface, near the Project footprint. In addition, at least 775 fossilized nonhuman vertebrate and plant remains have been observed on Edwards Air Force Base, which is located 1.5 km north of the Project area; the number of localities within the Base is likely greater (Edwards Air Force Base 2008). In 2006, approx. 13 km north-northwest of the Project area, paleontological resources data recovery during construction excavation collected specimens of Pleistocene Epoch and Rancholabrean North American Land Mammal age *Mammuthus columbi* (Columbian mammoth), *Paramylodon* (Harlan ground sloth), *Equus* (horse), *Bison Antiquus* (bison), and *Camelops* (camel) (Wilkerson et al. 2006). The discoveries were found 5 miles west of Rosamond Lake, within the western portion of the footprint of Lake Thompson.

As documented in Lander's 2011 monitoring report, excavation reached depths of 5 feet below the existing ground surface and encountered Holocene dune sand, which yielded the remains of extant, later-Holocene, continental vertebrate species. The remains collected were recovered by processing a 1,500-pound sediment sample from 3 feet below the previous surface grade. The remains included the vertebrae of a marine fish species and bones and teeth that represented 16 species of small continental vertebrates, including lizards, snakes, rodents, and rabbits. All terrestrial species recovered still live within the WEA vicinity today. Carbon-14 radiometric dating of bone indicated that the fossil remains are approx. 1,710 years in age (from the later Holocene), not normally considered fossils remains. While the original definition of fossils is considered to be anything that is buried, it is generally accepted that fossils are bone, plant, and organic materials that are over ten thousand years old.

In Gobalet (2011), he interpreted the fish species as the *Spirinchus starksi* (night smelt). However, he noted that the fish may have represented *Hypomesus pretiosus* (Pacific surf smelt), since they are the species closest in geographic distance to the Antelope Valley. Lander (2011) proposed that the Pacific surf smelt had been "transported by Native Americans to the Antelope Valley from the California Coast no farther south than Long Beach" (See also Gobalet 2011).

Lander (2012) also documented the results of the paleontological resource impact mitigation program for the 2011 mechanical excavation in the WEA. Landfill-operations-related mechanical excavation for the second phase (Lander 2012) was conducted within the same area as the first phase that was documented in Lander's 2011 monitoring study (except in a smaller footprint, as the walls of the excavation were now sloped inward). Mechanical excavation removed sediments from 5 feet below the previous ground surface to 11.5 feet below the previous ground surface and encountered Late Pleistocene Lake Thompson beds. Land mammal bone fragments (unidentifiable) were recovered from a channel deposit at a depth about 7.5 feet below the previous ground surface. Lander (2012) describes Fossils Localities 1 (Natural History Museum of Los

Angeles County [LACM] fossil site number 7853), 2 (LACM 7853), 4 (no LACM number), and 5 (LACM 7853) – all from the Lake Thompson Beds formation – similarly: as grayish-brown sandy silty sandstone; and light grayish-tan, fine- to medium-grained, silty sandstone. Fossil Locality 1 yielded a partial distal metacarpal of the Pliocene/Pleistocene camel *Camelops*; Fossil Locality 2 yielded an *Elgaria* (alligator lizard) scute (external plate), a *Microtinae* (subfamily of the family Muridae of the order Rodentia) lower cheek tooth fragment, and a Rodentia (rodent order) tooth. Fossil Locality 4 yielded a *Plestiodon* (skink) palatine fragment, *Perognathinae* (pocket mouse) upper incisor, *Thomomys bottae* (pocket gopher) distal calcaneum, and unidentified large-mammal bone. Fossil Locality 5 yielded a Rodentia upper left incisor fragment and a *Camelops* left acetabulum and proximal ilium.

Lander states that at Locality 3 (no LACM number), also from the Lake Thompson Beds Formation, it contained deposits of brick-red and dark grayish-brown to brownish-gray mottled clayey-to-sandy siltstone, and yielded a *Lacertilia* (lizard suborder) skull fragment, a *Microtinae* lower cheek tooth, and a Rodentia upper incisor. Lander's 2012 fossil site records identify Fossil Localities 1, 2, and 5 as part of LACM7853. Fossil Localities 3 and 4 are not labeled with "LACM 7853" or any other museum fossil site designation, but Lander's 2012 study includes their data in his interpretation.

Parts of the pelvic and forefoot bones of the Pliocene/Pleistocene camel *Camelops* were recovered from lacustrine strata at depths approximately 11.0 to 11.25 feet below the original surface grade. The pelvic bones from Locality 5 were encountered approximately 100 meters north/20 meters east of the forefoot bones that were found in Locality 1; it was not stated whether they were interpreted to be part of the same animal. Additional mammals were identified at similar depths:

The bones, teeth, and scales of the alligator lizard *Elgaria* and the skink *Plestiodon* were recovered from the lacustrine strata approximately 8.25 to 11.5 feet below the previous ground surface as a result of processing sediment samples, as were the bones and teeth of the pocket gopher *Thomomys bottae* and pocket mice and voles.

*Thomomys bottae* and the vole *Microtus* had been recorded in another study in the area of Piute Ponds, approximately 1 mile north of the Project area (Lander 2012). The occurrence of *Camelops* suggested that the continental vertebrate assemblage is no younger than Pleistocene and Rancholabrean, i.e., is at least 9,500 years old (Lander 2012). The Piute Ponds fauna that had been recorded prior to the Lander (2012) study had also been considered late Pleistocene in age. Therefore, Lander (2012) interpreted the assemblage from Phase 2 to be late Pleistocene, Rancholabrean, and at least 9,500 years in age.

The environmental preferences of lizards and the microtine rodent/vole allowed Lander (2012:1) to reconstruct what the environment of the landfill and its vicinity was like during the late Pleistocene Epoch and Rancholabrean North American Land Mammal Age (NALMA).

The two lizards, *Plestiodon* and *Elgaria*, are strongly associated with coastal sage scrub, chaparral, and oak savannah habitats found throughout southern California. Such habitats are not found in the Mojave Desert today. Voles prefer relatively lush, grass-covered habitats, which also do not occur in the Mojave Desert today. Modern records of these taxa are found at higher elevations in the San Gabriel and San Bernardino Mountains and on the southern

California coastal plain. These modern occurrences and the presence of the same taxa in the Phase 2 vertebrate assemblage indicate that the EEA and vicinity during the late Pleistocene Epoch was cooler and moister than today, the region probably once supporting a relatively dry, scrub or chaparral habitat, with woodlands possibly occurring along nearby riparian corridors.

Lander’s interpretation suggests that during the Late Pleistocene Epoch (and perhaps the Early Holocene), the environment of the Project area was akin to that of the constructed wetlands of Piute Ponds, home to a range of marshland flora and fauna. APRMI agrees with this interpretation.

Lander’s (2011, 2012) studies show that previous paleontological resources monitoring of the Project area yielded new geological and paleontological information about the region that would not have been discovered had mechanical excavation not been monitored. The paleontological resources retrieved during Lander’s studies are significant fossil remains that have added to geological and paleontological data and have aided in reconstructing past environments of the region.

## 7. MONITORING METHODS

Monitoring for archaeological and paleontological resources for this Project occurred on various dates between September 14, 2022 and October 21, 2022 (Table 1). On the first day of excavation, Robin Turner, APRMI Principal Investigator, provided the Sharma contractor staff members a Workers’ Environmental Awareness Program (W.E.A.P.) training class on September 14, 2022. This was one of the mitigation measures for the Project. The WEAP explained what types of archaeological and paleontological resources might be discovered during monitoring, and the protocol for each member of the excavation crew to adhere to if they find archaeological and/or fossil materials. Table 1 below states the days that APRMI was on site to monitor the Project.

**Table 1. Dates of Monitoring Services**

Month and Year	Days
September 2022	14, 15, 16, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30
October 2022	3,4,5,6,7,10,11,12,13,14,17,18,19,20,21

Sharma used four mechanical scrapers, one excavator, two dozers, and two mini-excavators to remove native soil from the Project area, which was transported to a stockpile location toward the center of the landfill to be used to cap the active landfill south of the new cell. Other equipment present included a grader to scrape the cell floor and access road, two bobcats to scrape the slopes and floor of the cell, and a water truck to spray the excavation areas and access roads for dust control.

APRMI construction monitor Don Ricketts strictly adhered to OSHA safety protocols and standards and attended all contractor safety meetings that were held on site. OSHA-compliant personal protective equipment (PPE) was worn at all times within construction areas. PPE for the Project included a high-visibility reflective vest, a hard hat, steel-toed boots, dust mask, eye and ear protection, and COVID protective mask. The monitor was cognizant of mechanical equipment

locations and maintained a safe distance from active equipment. He communicated with equipment operators with predetermined standard arm signals and eye contact.

During cell area excavation, the weather was hot and sunny with light winds most afternoons. The wind agitated a large amount of dust and demonstrated the Aeolian forces present within the Project area. The monitor followed OSHA protocols to avoid heat exhaustion and avoided slip-and-fall injuries by avoiding newly watered areas.

The monitor observed the LLRC cell-area mechanical excavation from the edges of the excavation and from inside the excavation area, following all OSHA protocols for entry into excavated areas. Earth-moving activities and soil types revealed were noted and photographed. The stratigraphy revealed was drawn as a profile, described in narrative form, and photographed. Widths, lengths, and depths of excavations were measured. The monitor examined the excavated areas and spoils piles for archaeological and paleontological resources, documented the field observation with field summary forms, notes, maps, trench profiles, trench plans, a Global Positioning System (GPS) receiver/recorder, and photographs. Field notes and photographs are stored at APRMI offices.

Archaeological and Paleontological resources were collected, recorded, and retained by the Project monitor pending disposition in the APRMI Laboratory.

## **8. MONITORING RESULTS**

### **8.1 Soils and Stratigraphy**

Approximate 1/3 of this 2022 excavation of the WEA began at the surface grade on the West and North edge of the new cell consisting of approximately 2 – 3 feet of contaminated topsoil containing road grade base rock, old rebar and trash mixed within the existing native soil with previously undisturbed native soil resting below. The previously undisturbed native soil consisted of multiple layers of laminated flood plain bedded soils with many deposits running along an East-West axis through the excavation area (Figure 5). The soil beds contained white to reddish-brown sands and silts with various grains of water-worn pebbles ranging from fine to medium size, with various exposed layers of black ash and gray clay deposits becoming more abundant at lower elevations.

The remaining approximate 2/3 of this 2022 excavation of the WEA began in exposed native soil starting at approximately 20 – 30 feet below the initial surface grade noted on the West and North edge of the new cell, reaching down approximately 25 feet below the surface grade level to the South/West corner, down to approximately 35 feet below the surface grade level to the North/East corner. The native soil observed at these lower levels continued to consist of multiple layers of laminated bedded soils with many deposits running along an East/West axis through the excavation area. The soil beds also contained white to reddish-brown sands and silts with various grains of water-worn pebbles ranging from fine to medium size, with various exposed layers of black ash and gray clay deposits becoming more abundant at lower elevations (Figure 6).

These observations are consistent with the alluvial and lacustrine deposits located here within the East Antelope Basin and may represent the Pleistocene Lake clays described by Orme (2008:265). The lower deposits observed could also be interpreted as representing the deeper depths of the channel that had been noted earlier by Lander (2012).

The reddish sediments observed was flanked by dark gray sandy clay, which in turn was surrounded by tan sandy silt that dominated the excavation. Minute flecks of gold-colored mica were observed in many of the beds. The stratigraphy was otherwise uniform with no discernible vertical strata throughout the excavation area except for isolated pockets of worn volcanic stone, fire agate chips and nodules, as well as manganese precipitation (Figure 7).

While some of the soil was intact at surface grade, some of the stratigraphy/soil in the first 20 feet of excavation in some areas, in which Lander discussed in the last section, was already removed before we were called out to the site. This decreased the probability of finding fossils in those areas. We did, however, find some unexpected geologic materials including volcanic rock and fire agate that may have originated from Red Rock Canyon State Park.



**Figure 5. West side Project area, view to west; Cross section of bedded native soil deposit running east-west; Deposit between two dunes in the center of photograph (091422-4), September 14, 2022.**



Figure 6. West side Project area, view to west; Bedded native soil approximately 5 ft. above the floor of the Project area; Various layers of bedded native soil deposits toward the base of the photograph (092922-9), September 29, 2022.

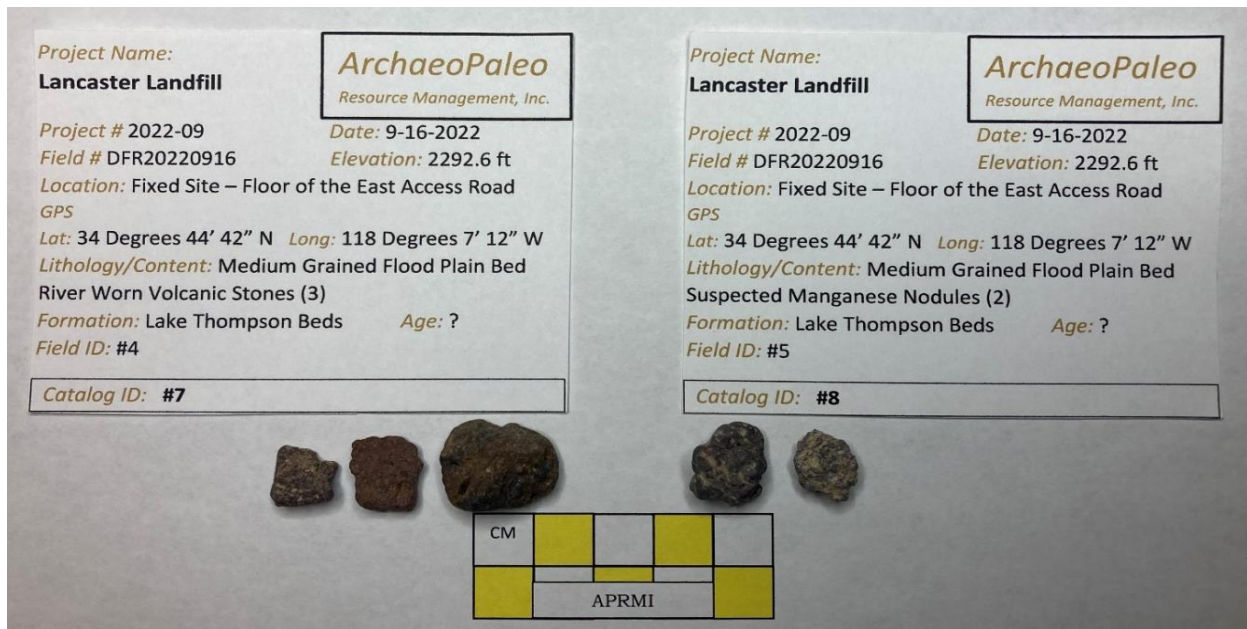


Figure 7. Worn Volcanic Stone (DFR20220916 #4) and Manganese Nodules (DFR20220916 #5) from the Project area.

## 9. ARCHAEOLOGICAL RESOURCES RECOVERED

Archaeological resources recovered include one potentially handmade metal nail (Figure 8; DFR20220915 #1) and one small brown glass fragment (Figure 9; DFR20220916 #1) but they are not considered significant in and of themselves but are an indication that there is the possibility of locating significant archaeological resources in the surrounding native soil area during future excavation. These findings support the existence that homesteaders and/or mining operations could have been present at the time these soil layers had surface exposure.

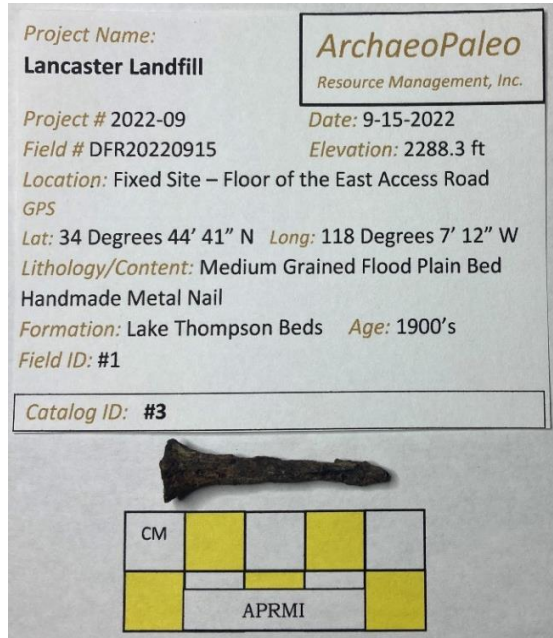


Figure 8. Handmade Metal Nail (DFR20220915 #1).

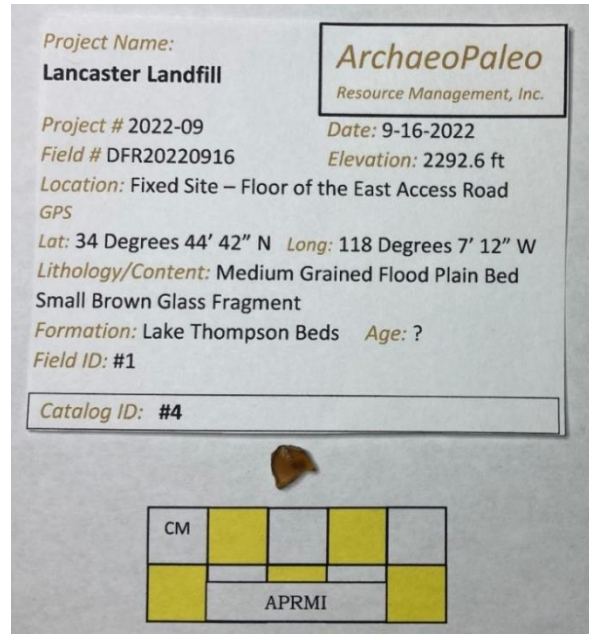


Figure 9. Brown Glass Fragment – Man Made (DFR20220916 #1).

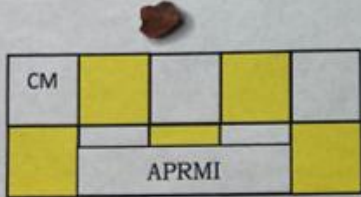
Additional potential archaeological resources that were recovered include one small red clay fragment (Figure 10; DFR20220916 #2), one small brown volcanic stone (Figure 11; DFR20220919 #1), and six different small pieces of fire agate – a semi-precious stone known to be used by Native Americans for ornamentation (Figures 12 and 13; DFR20220916 #3, #6 and #7; DFR20220921 #1; DFR20220922 #1; DFR20220927 #1). Although the clay fragment (DFR20220916 #2) and the volcanic stone (DFR20220919 #1) were originally identified in the field as cultural artifacts, lab analysis revealed this to be unlikely. Although the cultural relevance of these finds is speculative, their presence is an indication that there is a probability of locating significant archaeological resources in the surrounding native soil during future excavation. These findings support the potential that the existence of Native Americans could have been present at the time these native soil layers had surface exposure. Both volcanic stone (pumice and lava flow) and fire agate can be found at Red Rock Canyon State Park, just Northeast of the Lancaster Landfill near California City. This implies the possibility that artifacts were transported South by Native Americans as opposed to naturally by water flow.

**Project Name:**  
Lancaster Landfill

**ArchaeoPaleo**  
Resource Management, Inc.

**Project #** 2022-09      **Date:** 9-16-2022  
**Field #** DFR20220916      **Elevation:** 2292.6 ft  
**Location:** Fixed Site – Floor of the East Access Road  
 GPS  
**Lat:** 34 Degrees 44' 42" N    **Long:** 118 Degrees 7' 12" W  
**Lithology/Content:** Medium Grained Flood Plain Bed  
 Small Red Stained Pottery Fragment  
**Formation:** Lake Thompson Beds    **Age:** ?  
**Field ID:** #2

**Catalog ID:** #5



**Project Name:**  
Lancaster Landfill

**ArchaeoPaleo**  
Resource Management, Inc.

**Project #** 2022-09      **Date:** 9-16-2022  
**Field #** DFR20220916      **Elevation:** 2292.6 ft  
**Location:** Fixed Site – Floor of the East Access Road  
 GPS  
**Lat:** 34 Degrees 44' 42" N    **Long:** 118 Degrees 7' 12" W  
**Lithology/Content:** Medium Grained Flood Plain Bed  
 Small Red Stained Pottery Fragment  
**Formation:** Lake Thompson Beds    **Age:** ?  
**Field ID:** #2

**Catalog ID:** #5

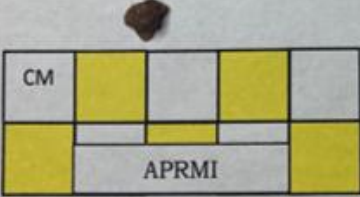



figure 10. Red Clay Fragment (DFR20220916 #2) from the Project area.

**Project Name:**  
Lancaster Landfill

**ArchaeoPaleo**  
Resource Management, Inc.

**Project #** 2022-09      **Date:** 9-19-2022  
**Field #** DFR20220919      **Elevation:** 2294.1 ft  
**Location:** Fixed Site – Floor of the East Access Road  
 GPS  
**Lat:** 34 Degrees 44' 43" N    **Long:** 118 Degrees 7' 12" W  
**Lithology/Content:** Medium Grained Flood Plain Bed  
 Small Brown Volcanic Worked Stone, 1.2 Cubed  
**Formation:** Lake Thompson Beds    **Age:** ?  
**Field ID:** #1

**Catalog ID:** #11



**Project Name:**  
Lancaster Landfill

**ArchaeoPaleo**  
Resource Management, Inc.

**Project #** 2022-09      **Date:** 9-19-2022  
**Field #** DFR20220919      **Elevation:** 2294.1 ft  
**Location:** Fixed Site – Floor of the East Access Road  
 GPS  
**Lat:** 34 Degrees 44' 43" N    **Long:** 118 Degrees 7' 12" W  
**Lithology/Content:** Medium Grained Flood Plain Bed  
 Small Brown Volcanic Worked Stone, 1.2 Cubed  
**Formation:** Lake Thompson Beds    **Age:** ?  
**Field ID:** #1

**Catalog ID:** #11

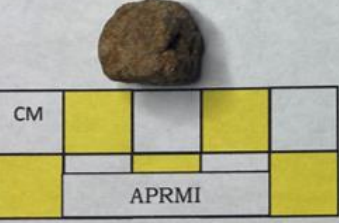


Figure 11. Small Brown Volcanic Stone (DFR20220919 #1) from the Project area.



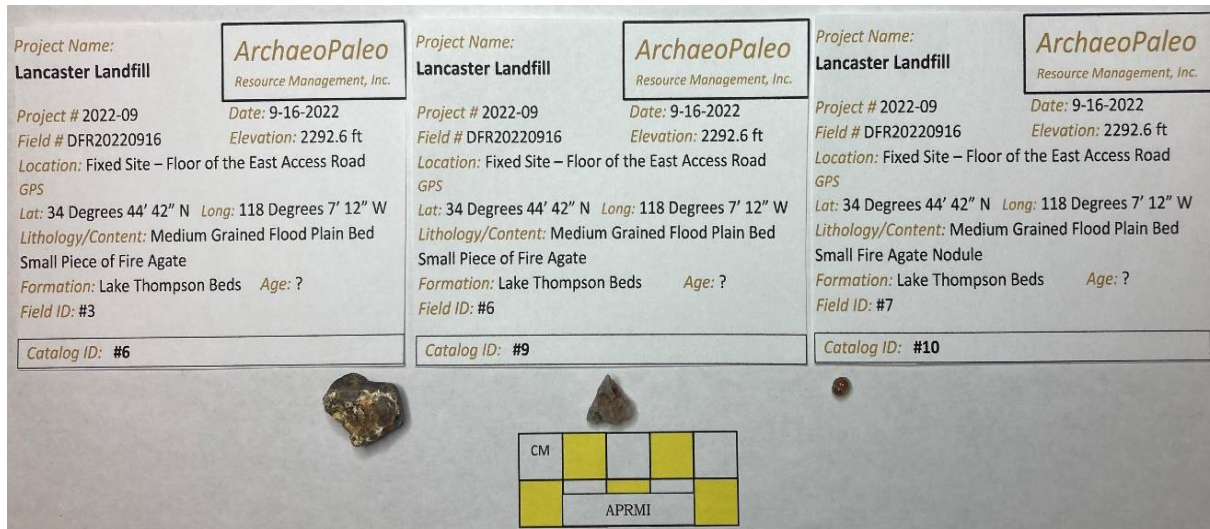


Figure 12. Three Small Pieces of Fire Agate (DFR20220916 #3, #6 and #7) from the Project area.

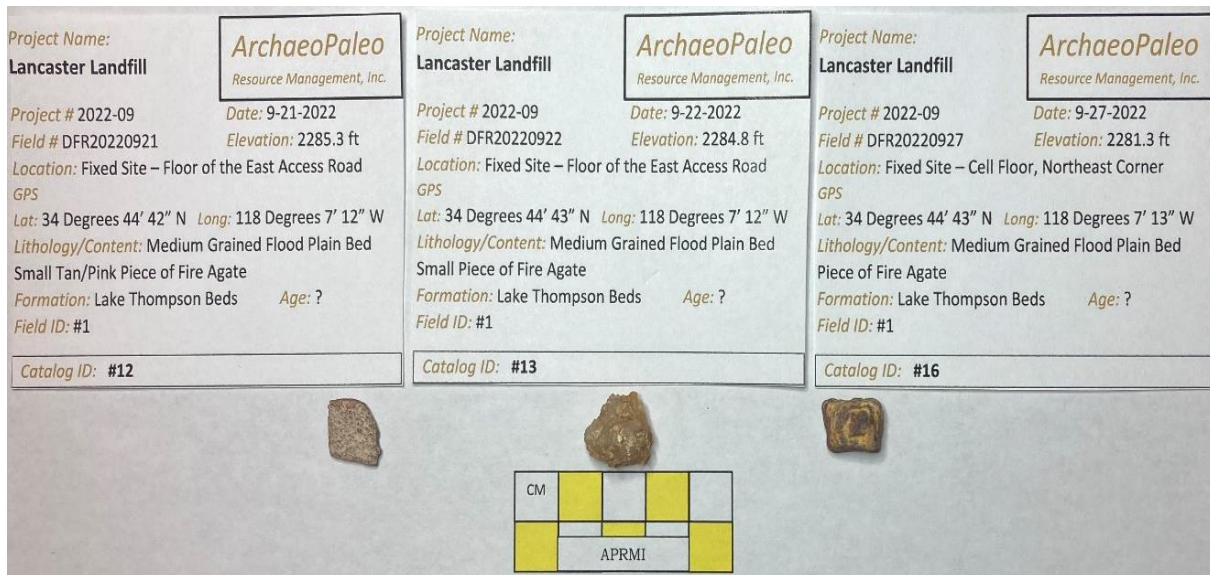


Figure 13. Three Small Pieces of Fire Agate (DFR20220921 #1, DFR20220922 #1 and DFR20220927 #1) from the Project area.

## 10. PALEONTOLOGICAL RESOURCES RECOVERED

Paleontological resources recovered included two unidentifiable weathered fragments of petrified wood or fossilized bone fragments (Figure 14; DFR20220914 #1 and #2), four partial and fragile root cast trace fossils (Figures 15 and 16; DFR20220923 #1 and #2; DFR20221020 #1 and #2), and one piece of clay and silt matrix displaying four shell or leaf trace fossil impressions (Figure 17; DFR20220930 #1). While all the resources recovered were not species identifiable and not determined significant, they are indication along with prior fossils recovered in and around the Project area, that the probability of locating significant paleontological resources in the surrounding native soil area during future excavations is likely.

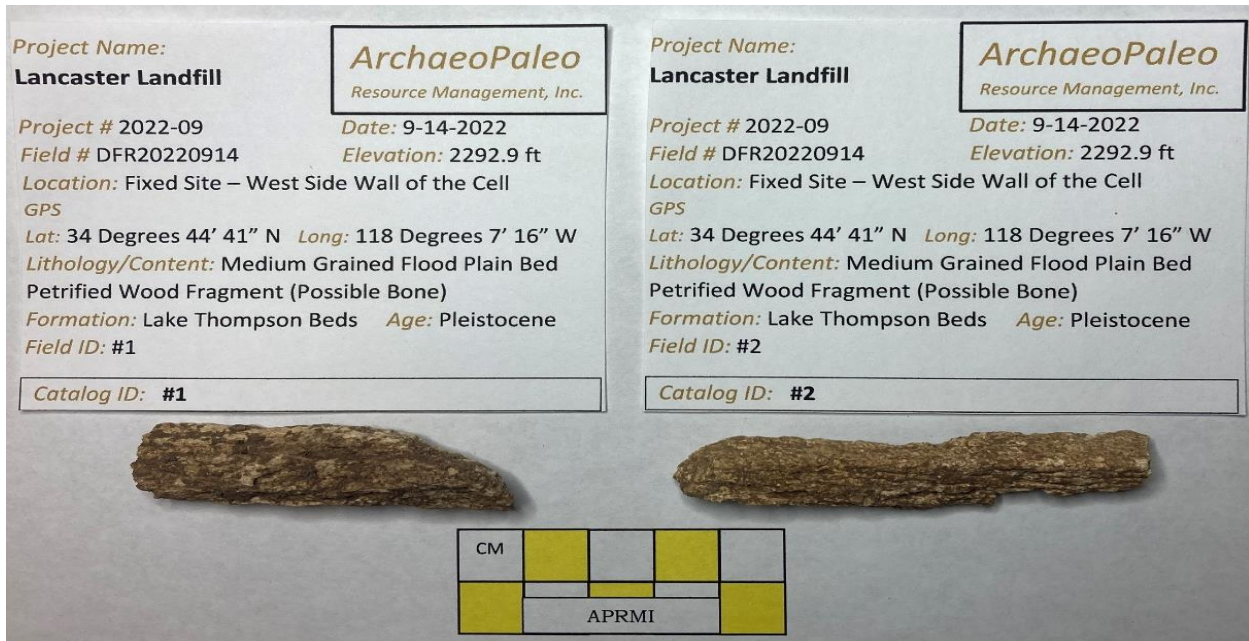


Figure 14. Worn Fragments of Petrified Wood or Fossilized Bone Fragments (DFR20220914 #1 and #2) from the Project area.

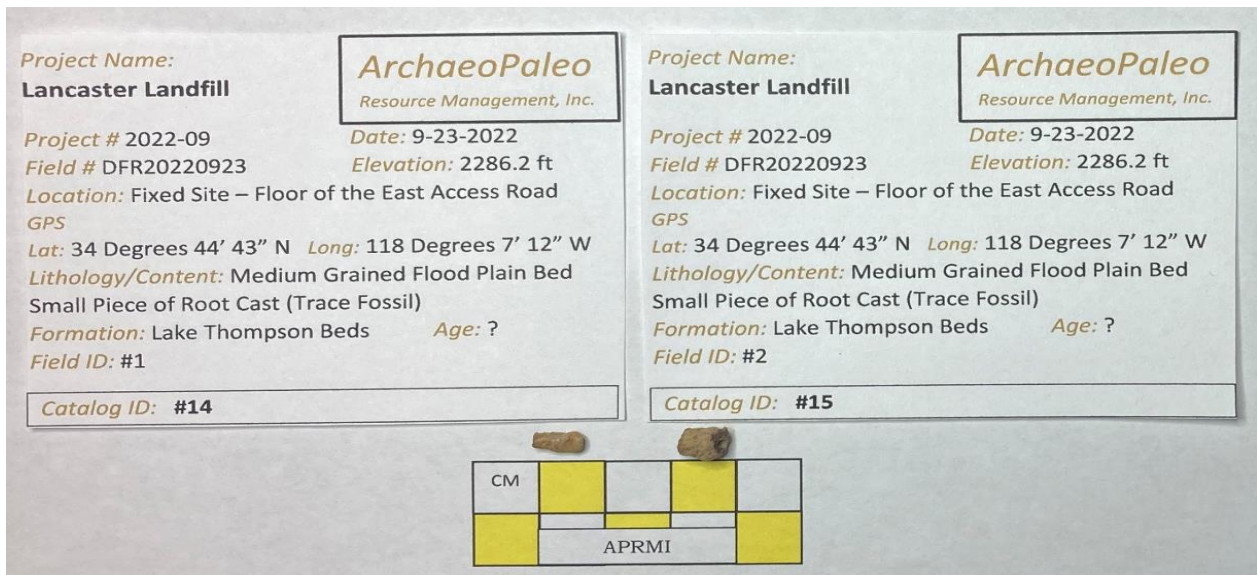


Figure 15. Two Fragile Root Cast Trace Fossils (DFR20220923 #1 and #2) from the Project area.

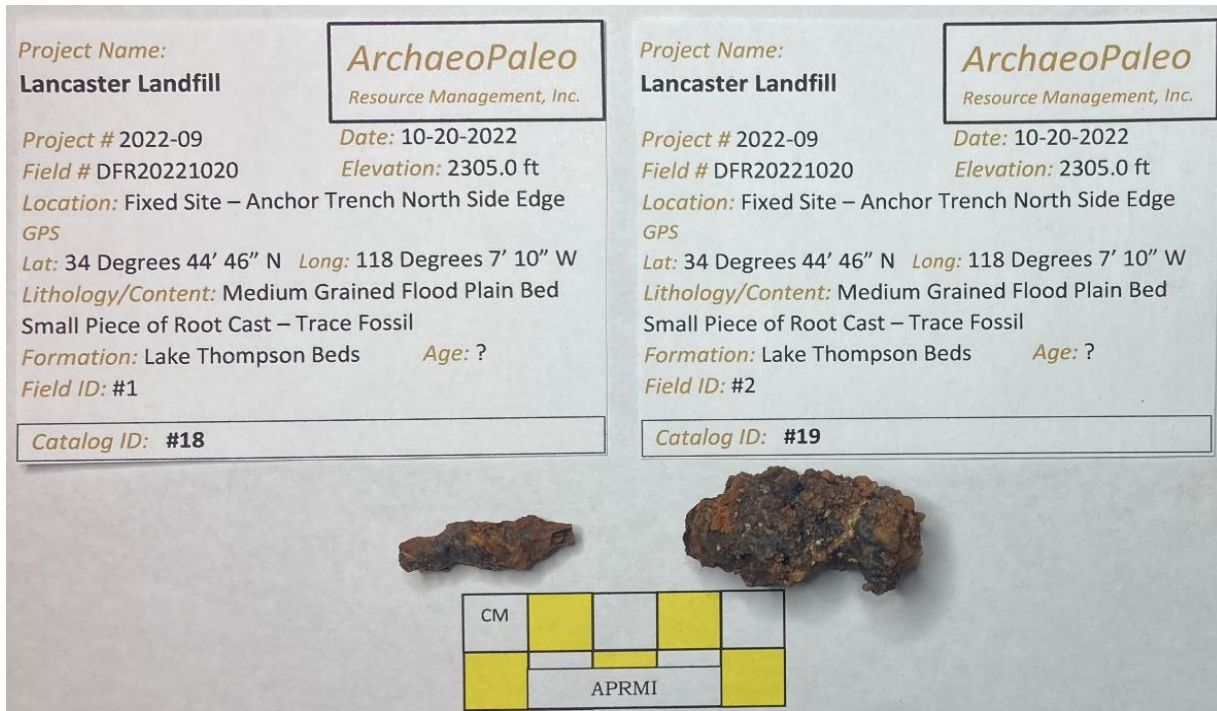


Figure 16. Two Fragile Root Cast Trace Fossils (DFR20221020 #1 and #2) from the Project area.

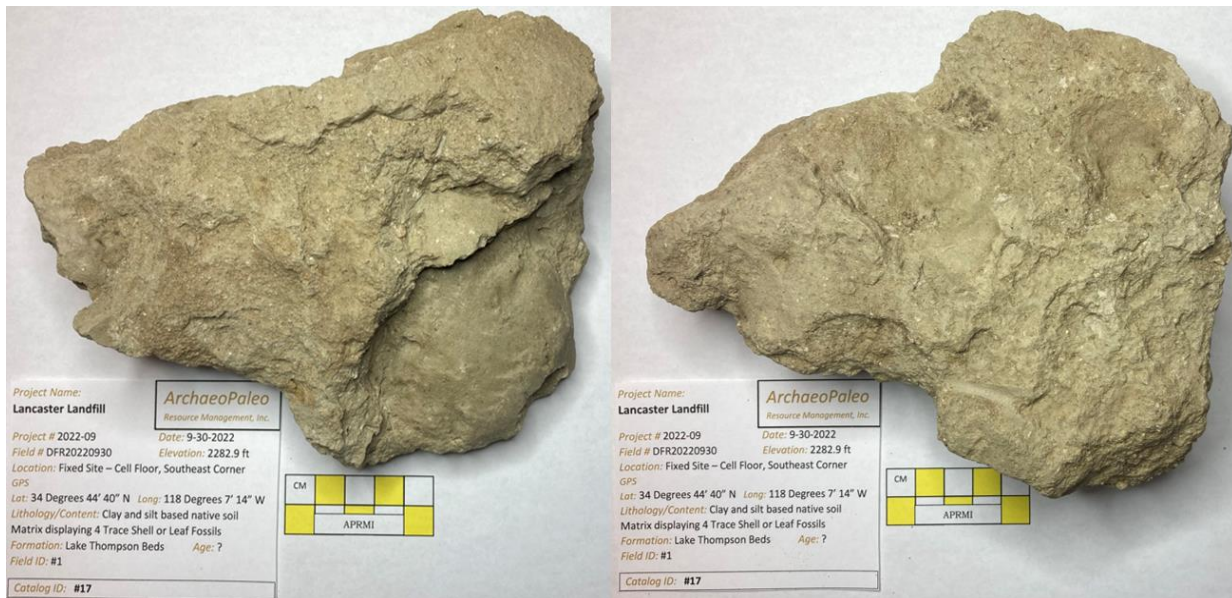


Figure 17. Clay and Silt Matrix displaying four Shell or Leaf trace Fossil Impressions (DFR20220930 #1) from the Project area.

## 11. RECOVERED RESOURCES AND THEIR ASSOCIATED LOCATIONS

The recovered Archaeological resources and Paleontological resources along with their associated locations were noted on a section of the Project Engineering Map (Figure 18), followed by a table of each documented recovery location (Table 2). A chart detailing a Stratigraphic Column of the Project area with recovered resource locations has been generated (Figure 19), followed by a complete catalog of all items recovered during monitoring of this Project (Table 3).

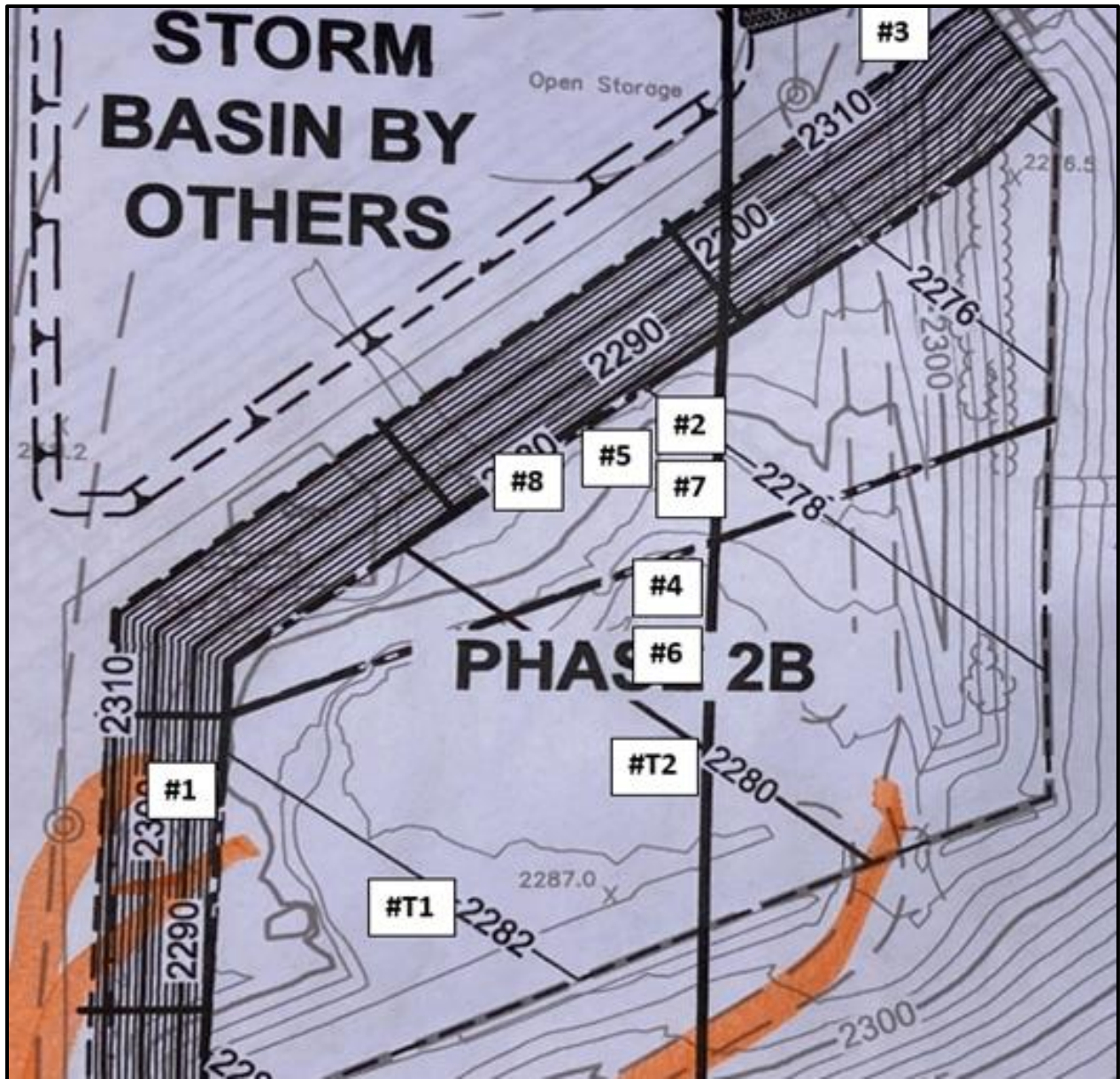


Figure 18. Recovered Archaeological and Paleontological Resources with their associated locations, noted on a section of the Project Engineering Map provided by Sharma Construction.

Table 2. Resource Recovery Locations

Recovery Location	Field Number	Field I.D. Number	GPS Location	Elevation
Fixed Site #1	DFR20220914	#1 and #2	N 34, 44' 41", W 118, 7' 16"	2292.9 ft.
Fixed Site #2	DFR20220923	#1 and #2	N 34, 44' 43", W 118, 7' 12"	2286.2 ft.
Tailings Pile #T1	DFR20220930	#1	N 34, 44' 40", W 118, 7' 14"	2282.9 ft.
Fixed Site #3	DFR20221020	#1 and #2	N 34, 44' 46", W 118, 7' 10"	2305.0 ft.
Tailings Pile #T2	DFR20220915	#1	N 34, 44' 41", W 118, 7' 12"	2288.3 ft.
Fixed Site #4	DFR20220916	#1 thru #7	N 34, 44' 42", W 118, 7' 12"	2292.6 ft.
Fixed Site #5	DFR20220919	#1	N 34, 44' 43", W 118, 7' 12"	2294.1 ft.
Fixed Site #6	DFR20220921	#1	N 34, 44' 42", W 118, 7' 12"	2285.3 ft.
Fixed Site #7	DFR20220922	#1	N 34, 44' 43", W 118, 7' 12"	2284.8 ft.
Fixed Site #8	DFR20220927	#1	N 34, 44' 43", W 118, 7' 13"	2281.3 ft.

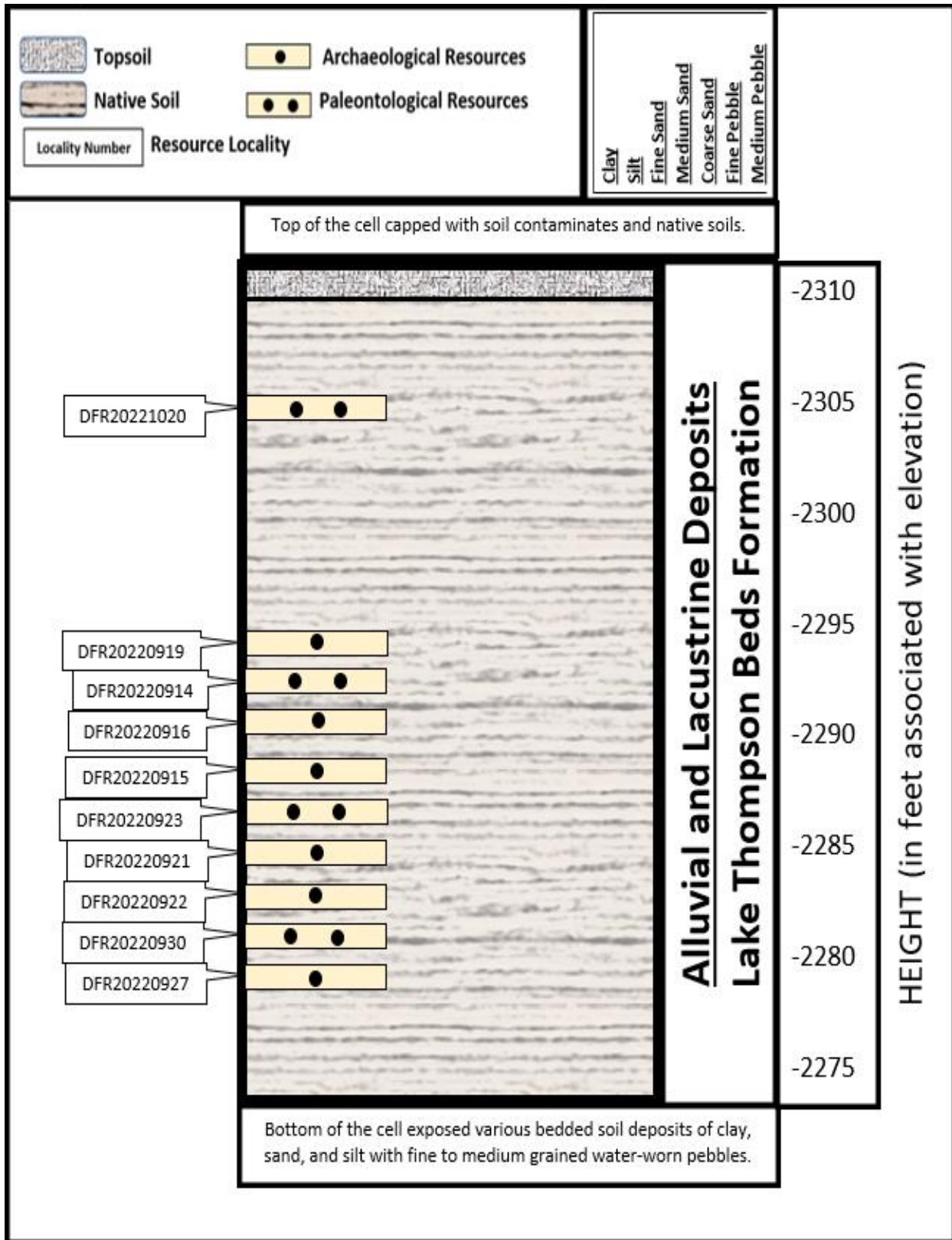


Figure 19. Stratigraphic Column with the Resources Recovered in the New Cell Area.

**Table 3. Complete Catalog of Recovered Items**

Cat. #	Field/I.D. Number	Item Description	Dia.	Length	Width	Thickness
1	DFR20220914 #1	Petrified Wood/Fossilized Bone		5.7 cm	1.4 cm	1.2 cm
2	DFR20220914 #2	Petrified Wood/Fossilized Bone		7.2 cm	1.1 cm	.8 cm
3	DFR20220915 #1	Metal Nail – Made by Hand	.7 cm	3.7 cm	1 cm Head	
4	DFR20220916 #1	Brown Glass Fragment – Man Made		.75 cm	.6 cm	.15 cm
5	DFR20220916 #2	Red clay fragment		.6 cm	.5 cm	.3 cm
6	DFR20220916 #3	Small Piece of Fire Agate		1.8 cm	1.4 cm	
7	DFR20220916 #4	3 Small Pieces of Worn Volcanic Stone		--	--	--
8	DFR20220916 #5	2 Small Pieces of Manganese Nodules		--	--	--
9	DFR20220916 #6	Small Piece of Fire Agate		1.1 cm	.9 cm	
10	DFR20220916 #7	Small Fire Agate Nodule		.4 cm	.3 cm	
11	DFR20220919 #1	Brown Volcanic Stone	“Cube”	1.2 cm	1.2 cm	1.2 cm
12	DFR20220921 #1	Piece of Fire Agate		1.2 cm	1.1 cm	.2 cm
13	DFR20220922 #1	Piece of Fire Agate		1.6 cm	1.3 cm	.8 cm
14	DFR20220923 #1	Root Cast Trace Fossil – Unidentified	.3 cm	.8 cm		
15	DFR20220923 #2	Root Cast Trace Fossil – Unidentified	.6 cm	.8 cm		
16	DFR20220927 #1	Piece of Fire Agate		1.2 cm	1 cm	.6 cm
17	DFR20220930 #1(a)	Trace Shell/Leaf Fossil – Unidentified		7 cm	6 cm	
18	DFR20220930 #1(b)	Trace Shell/Leaf Fossil – Unidentified		3 cm	2.1 cm	
19	DFR20220930 #1(c)	Trace Shell/Leaf Fossil – Unidentified		5.7 cm	3.1 cm	
20	DFR20220930 #1(d)	Trace Shell/Leaf Fossil – Unidentified		3.2 cm	2.3 cm	
21	DFR20221020 #1	Root Cast Trace Fossil – Unidentified	.9 cm	2.6 cm		
22	DFR20221020 #2	Root Cast Trace Fossil – Unidentified	2.2 cm	3.7 cm		

## **12. RESULTS & CONCLUSIONS**

During the Lancaster Landfill Phase 2B Project implementation, the archaeological and paleontological resources monitor observed excavations that ranged from the surrounding grade level and reached approximately 25 feet below the surrounding grade level in the Southwest corner of the cell, to 35 feet below the surrounding grade level in the northeast corner of the cell. These observations were based solely on the exposed topsoil and previously undisturbed native soils excavated during the time the monitor was present. However, there is a gap in data associated with the approximately 2/3 of soils excavated that was moved from this location without the presence of a monitor prior to the beginning of this Project.

Archaeological resources recovered include one potentially handmade metal nail, and one small brown glass fragment. Additional potential archaeological resources that were recovered include one small red clay fragment, one small brown volcanic stone, and six different small pieces of fire agate that looked worked into the field. Paleontological resources recovered included two unidentifiable weathered fragments of petrified wood or fossilized bone, four partial and fragile root cast trace fossils, and one piece of clay and silt matrix displaying four shell or leaf trace fossil impressions.

The archaeological resources recovered were not deemed significant because there was no direct evidence of their use as utilitarian or ornamental objects by homesteaders, miners, or Native Americans. Nor was there an archaeological site that has been studied in association with these artifacts. The paleontological resources recovered were too degraded for species identification and not deemed significant in and of themselves.

However, the archaeological and paleontological resources recovered are an indication that the probability of locating significant archaeological and/or paleontological resources in the surrounding native soil during future excavation is high. The metal nail and glass fragment support the hypothesis that homesteaders and/or mining operations could have been present at the time these soil layers had surface exposure, implying that there may be more historically significant artifacts nearby. The presence of volcanic stone and fire agate suggest the possibility of prehistoric Native American activity in this area, including but not limited to travel, trade, and subsistence. Although definite floral species were not identifiable through the degraded trace fossils, they are an indication along with prior fossils recovered in and around the Project area, that the probability of locating significant paleontological resources in the surrounding native soil area during future excavations is likely. This is vital in understanding and interpreting what prehistoric ecology and climate may have looked like and has numerous applications in modern environmental studies.

Excavation of the Project (Storm Basin) noted on the new cell construction plans for Phase 2B, and verified by Sharma Construction, that is subject of the present report requires paleontological resources monitoring, due to its proximity to a fossil locality that has provided significant data that has contributed to our understanding of past environments (Lander 2011, 2012). APRMI was not notified about this work and was not able to properly conduct monitoring services for this area.

Archaeological and paleontological resources monitoring services for the mechanical excavation of the new cell, was provided from September 14, 2022 through October 21, 2022, and mostly

satisfied the archaeological and paleontological resource impact-mitigation requirements for the Project (New Cell Construction Phase 2B).

The LLRC occupies an area that is highly likely to contain archaeological and paleontological resources. Therefore, any excavation in other areas of the LLRC will require archaeological and paleontological monitoring.



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