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TECHNICAL MEMORANDUM

Date: August 9, 2024

To: Washington State Department of Ecology

Copy to: Randy Loveless, City of Everett Public Works

Jeff Gabster, Floyd | Snider

From: Camryn Steiner, Herrera Environmental Consultants, Inc.

Subject: City of Everett Landfill Gas Emission – 2023 Confirmational Sampling Results

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Attachment B Laboratory Report

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Introduction

City of Everett Public Works (the City) requested Herrera Environmental Consultants, Inc. (Herrera) to conduct air sampling pursuant to Section 3.6 of the Compliance Monitoring and Contingency Plan (CMCP) associated with the former Everett Landfill Site Cleanup Action Plan (CAP).

This sampling will be required after Landfill Gas (LFG) collection system modifications are completed. The LFG collection system was expanded as part of the site development, and the modified LFG collection system was activated on October 1, 2023. This technical memorandum summarizes the air quality sampling methods, resulting data, and loading analysis related to the confirmational sampling event of LFG emission points conducted on December 28, 2023.

Background

Beginning in 2004, the Everett Landfill perimeter LFG control system has been constructed in phases. Today, it encompasses nearly the entire landfill site. The construction of an active LFG control system through the interior of the landfill site began with the start of the Riverfront Development project in 2019, and construction is continuing as this development project proceeds. There are now two blower facilities, the north blower facility and south blower facility, which provide vacuum for the LFG collection systems at the site and represent the points of LFG emissions from active LFG collection.

In 2021, the initial phase of the Riverfront Development project on the landfill was completed, including the Riverfront Boulevard and its active LFG collection system. Dedication of Riverfront Boulevard occurred in July of 2021, at which time it became open for public use and the LFG collection system was officially active and under the control and monitoring of the City. A confirmational LFG sampling event was performed at this time and reported to the Washington State Department of Ecology and Puget Sound Clean Air Agency (PSCAA).

On October 1, 2023, the first Riverfront mixed-use building and associated site areas (Phase 1, Zone 1) were completed and opened for occupancy. The collection system beneath the development parking lot and the building that was open to the public were both activated and connected to the existing collection system that routes LFG to the south blower facility.

A second mixed-use building and its associated site areas were also completed in the Spring of 2024 (Phase 1, Zone 2). Although building and site occupancy of this portion of the site occurred several months after the initial occupancy of Phase 1, Zone 1, the entire LFG collection system supporting Phase 1, Zone 2 was also activated on October 1, 2023. That is, the LFG system start-up for all of Phase 1 occurred at the same time (even though the occupancy was staggered). This means a single confirmational sampling event is adequate for all of Phase 1 (Zones 1 and 2).

Confirmational Sampling and Evaluation Plan

As stated in the CMCP, confirmational sampling is required at the LFG emission vent pipes one time after the active gas collection system has reached stable operating conditions, each time a new portion of the active gas collection system becomes operational. Confirmational sampling is to occur no sooner than 30 days after system start-up and no later than 90 days after system start-up. The December 28, 2023 sampling event described in this memo occurred 89 days after the activation of the new portion of the LFG system supporting the buildings and associated parking area, compliant with the CMCP requirements.

Confirmational sampling took place according to the approach described in Section 3.6 of the CMCP. The confirmational sampling and analysis plan for this 2023 Phase 1 sampling event was consistent with the previous 2021 sampling event, which was performed after the Riverfront Boulevard gas collection system was activated. A gas sample was collected at each of the two system emission locations (north and south blower stations). Sample ports located at each of the blower stations allowed collection of a sample of LFG representative of the stack contents prior to mixing with atmospheric air. The process of taking a sample directly from the stack is standard practice for meeting PSCAA Air Permit requirements and is in accordance with the CMCP requirements.

The laboratory results were compared to the Acceptable Source Impact Levels (ASILs), which are the screening concentration limits of toxic air pollutants (TAPs) in the air. TAPs are pollutants that are known or suspected to cause cancer or other serious health effects, or adverse environmental effects. The flow rates through the vents were also measured at the time of sample collection so loading rates could be calculated if needed.

After collection of the sample, the process for determining compliance was based on the following approach, as described in Section 3.6 of the CMCP:

1. The samples are analyzed for the compounds defined in Table 1 of the CMCP, included here as Attachment A.
2. The laboratory reported analyte concentration results are compared to the ASILs. If the analyte concentration is found to be below the corresponding ASIL, the analyte meets emission compliance.
3. Any analytes with concentrations higher than the corresponding ASILs are compared to the regulated loading limits, which are the Small Quantity Emission Rate (SQER) and *De Minimis* rate. The SQER represents the threshold above which dispersion modeling is required to show compliance. The *De Minimis* rate represents the threshold below which emissions are insignificant and do not pose any threat to human health and the environment. Loading rates are calculated by multiplying the measured concentration of the analyte by the gas flow rate at the sample location. Loading rates less than the corresponding SQERs meet emission compliance.

If either (1) all reported analyte concentrations are below the corresponding ASILs or (2) analyte loadings are below the SQERs, then the site meets compliance and Step 4 is not required to determine compliance.

4. For the analytes listed in Table 1 of the CMCP that exceed the SQER criteria, the United States Environmental Protection Agency (EPA) screening-level air dispersion model (AERSCREEN) is used to determine if diluted, ambient concentration levels at any public receptor are below the Model Toxics Control Act (MTCA) cleanup levels (CULs) and ASILs. MTCA CULs are the concentrations of hazardous substances in the environment that are considered sufficiently "protective of human health and the environment under specified exposure conditions." These public receptor points are not located directly at the blower vent stack but rather in the breathing zone within adjacent areas that are publicly accessible. If this analysis determines that MTCA CULs and ASILs are not exceeded in publicly accessible ambient air, then no further action is required. If compliance is not met (i.e., if dispersion modeling determines a potential exceedance), then treatment or a revised stack design would be required.

Relevant Criteria

The confirmational sampling compliance analysis was done according to the CMCP; however, in the time since the CMCP was written, significant regulatory updates that govern acceptable air emissions have been made. To evaluate emission loadings relative to current requirements, the current Washington Administrative Code (WAC) 173-460 Controls for New Sources of TAPs was reviewed—and the ASILs and corresponding SQERs and *De Minimis* rates were updated to reflect the current emission thresholds. Not all TAPs listed as part of WAC 173-460-150 *Table of ASIL, SQER, and De Minimis emission values* are included in Table 1 of the CMCP (Attachment A). Table 1 shows the TAPs that are included in Table 1 of the CMCP (Attachment A) and have current WAC standards for ASILs, SQER, and *De Minimis* rates.

Table 1. TAPs with Current WAC 173-460 Standards.

TAP	CAS No.	M.W. (g/mol)	ASIL ($\mu g/m^3$)	Averaging Period	SQER (lb/averaging period)	*De Minimis* (lb/averaging period)
Chloromethane (Methyl Chloride)	74-87-3	50.49	90	24 hours	6.7	0.33
Vinyl Chloride	75-01-4	62.5	0.11	1 year	18	0.92
Chloroethane (Ethyl Chloride)	75-00-3	64.51	30000	24 hours	2200	110
1,1-Dichloroethene	75-35-4	96.94	200	24 hours	15	0.74
Methylene Chloride (Dichloromethane)	75-09-2	84.94	60	1 year	9800	490
1,1-Dichloroethane	75-34-3	98.96	0.63	1 year	100	5.1
Chloroform	67-66-3	119.39	0.043	1 year	7.1	0.35
1,2-Dichloroethane	107-06-2	98.96	0.038	1 year	6.2	0.31
Benzene	71-43-2	78.11	0.13	1 year	21	1
Toluene	108-88-3	92.13	5000	24 hours	370	19
Tetrachloroethene	127-18-4	165.83	0.16	1 year	27	1.3
Chlorobenzene	108-90-7	112.56	1000	24 hours	74	3.7
Ethylbenzene	100-41-4	106.07	0.4	1 year	65	3.2
m,p-Xylene	179601-23-1	106.16	220	24 hours	16	0.82

Table 1 (continued). TAPs with Current WAC 173-460 Standards.

TAP	CAS No.	M.W. (g/mol)	ASIL (µg/m³)	Averaging Period	SQER (lb/averaging period)	*De Minimis* (lb/averaging period)
Styrene	100-42-5	104.15	870	24 hours	65	3.2
o-Xylene	95-47-6	106.16	220	24 hours	16	0.82
1,1,2,2-Tetrachloroethane	79-34-5	167.85	0.017	1 year	2.8	0.14
1,3,5-Trimethylbenzene	108-67-8	120.19	60	24 hours	4.4	0.22
1,2,4-Trimethylbenzene	95-63-6	120.19	60	24 hours	4.4	0.22
1,4-Dichlorobenzene	106-46-7	147	0.091	1 year	15	0.74
Hexachlorobutadiene	87-68-3	260.76	0.045	1 year	7.4	0.37
Methyl Ethyl Ketone (2-Butanone)	78-93-3	72.11	5000	24 hours	370	19
Hydrogen Sulfide	7783-06-4	34.08	2	24 hours	0.15	0.0074

TAP = Toxic Air Pollutant
CAS = Chemical Abstract Service
M.W. = Molecular Weight
ASIL = Acceptable Source Impact Level
SQER = Small Quantity Emission Rate
WAC = Washington Administrative Code

Gas constituents without current ASILs do not have SQER or *De Minimis* loading rates, because, prior to 2009, TAP-specific SQERs and *De Minimis* loading rates were not reported. To demonstrate compliance for constituents without SQER or *De Minimis* loading rates, the laboratory-reported concentrations were compared to the ASILs listed in Table 1 of the CMCP (Attachment A).

Table 2 shows the TAPs that were originally included in Table 1 of the CMCP (Attachment A) but do not have current WAC 173-460 standards for ASILs, SQERs, and *De Minimis* rates.

Table 2. TAPs without Current WAC 173-460 Standards.

TAP	CAS No.	M.W. (g/mol)	ASIL (ug/m^3)
Dichlorodifluoromethane	75-71-8	120.91	16000
1,2-Dichloro-1,1,2,2-tetrafluorethane(1,2-Dichlorotetrafluoroethane)	76-14-2	170.92	23000
Trichlorofluoromethane	75-69-4	137.38	19000
1,1,2-Trichloro-1,2,2-trifluoroethane (Trichlorotrifluoroethane CFC-113)	76-13-1	187.37	27000
cis-1,2-Dichloroethene	156-59-2	96.94	2600
1,2-Dichlorobenzene	95-50-1	147	1000
1,2,4-Trichlorobenzene	120-82-1	181.45	120

TAP = Toxic Air Pollutant
CAS = Chemical Abstract Service
M.W. = Molecular Weight
ASIL = Acceptable Source Impact Level
WAC = Washington Administrative Code

The analyte of 1,3-Dichlorobenzene does not have an updated ASIL available, nor is an ASIL listed in Table 1 of the CMCP (Attachment A). This analyte was assigned ASIL, SQER, and *De Minimis* rate of the structurally similar analyte 1,4-Dichlorobenzene, as shown in Table 3.

Table 3. TAP without Current or 2000 WAC 173-460 Standards.

TAP	CAS No.	M.W. (g/mol)	ASIL (µg/m^3)	Averaging Period	SQER (lb/averaging period)	*De Minimis* (lb/averaging period)
1,3-Dichlorobenzene	541-73-1	147	0.091	1 year	15	0.74

TAP = Toxic Air Pollutant
CAS = Chemical Abstract Service
M.W. = Molecular Weight
ASIL = Acceptable Source Impact Level
SQER = Small Quantity Emission Rate
WAC = Washington Administrative Code

Field Sampling Methods and Analysis

On December 28, 2023, a Herrera representative, with the assistance of a City representative, collected two air samples from the LFG system emission vents, one from the north blower and one from the south blower (see Figure 1 for location map):

- Sample location 1 – South Blower represents LFG collected from the Phase 1 area (beneath both buildings and parking lot), the south end of Riverfront Boulevard, and the south end of the perimeter system (yellow in Figure 1)
- Sample location 2 – North Blower represents LFG collected from the north end of Riverfront Boulevard and the north end of the perimeter system (blue in Figure 1)

Air samples were collected with 1-liter Summa Canisters connected to sampling ports representative of the stack emissions under normal operating conditions. Summa Canisters were equipped with a flow regulator set to 85 milliliters per minute.

The stack emission flow rate was recorded at each location. At the south blower, a flow meter records the flow via supervisory control and data acquisition (SCADA). At the north blower flow is measured from an Endress+Hauser t-mass 65I flowmeter read at the blower station control panel. Both blower stations are equipped with diffuser valves. Flow measurements and air samples were taken downstream of the diffuser valves and were therefore representative of stack emissions. At the time of sampling, both south blower and north blower diffuser valves were in the closed position as part of normal operations.

The sample collection for the south blower began at 10:00 a.m., and the valve on the canister was fully opened. The initial vacuum was approximately 30 inches of mercury in the canister, and the canister valve was left open until vacuum pressure reached approximately 5 inches of mercury. Figures 2 and 3 show the sampling effort at the south blower before and after the sample was grabbed, respectively.

The sample collection for the north blower began at 10:30 a.m. The initial vacuum was approximately 40 inches of mercury in the canister, and the canister valve was left open until vacuum pressure reached approximately 10 inches of mercury. Figures 4 and 5 show the sampling effort at the north blower before and after the sample was grabbed, respectively.

The final vacuum for each canister was recorded on the chain of custody form. The canisters were hand delivered to the laboratory for analysis.

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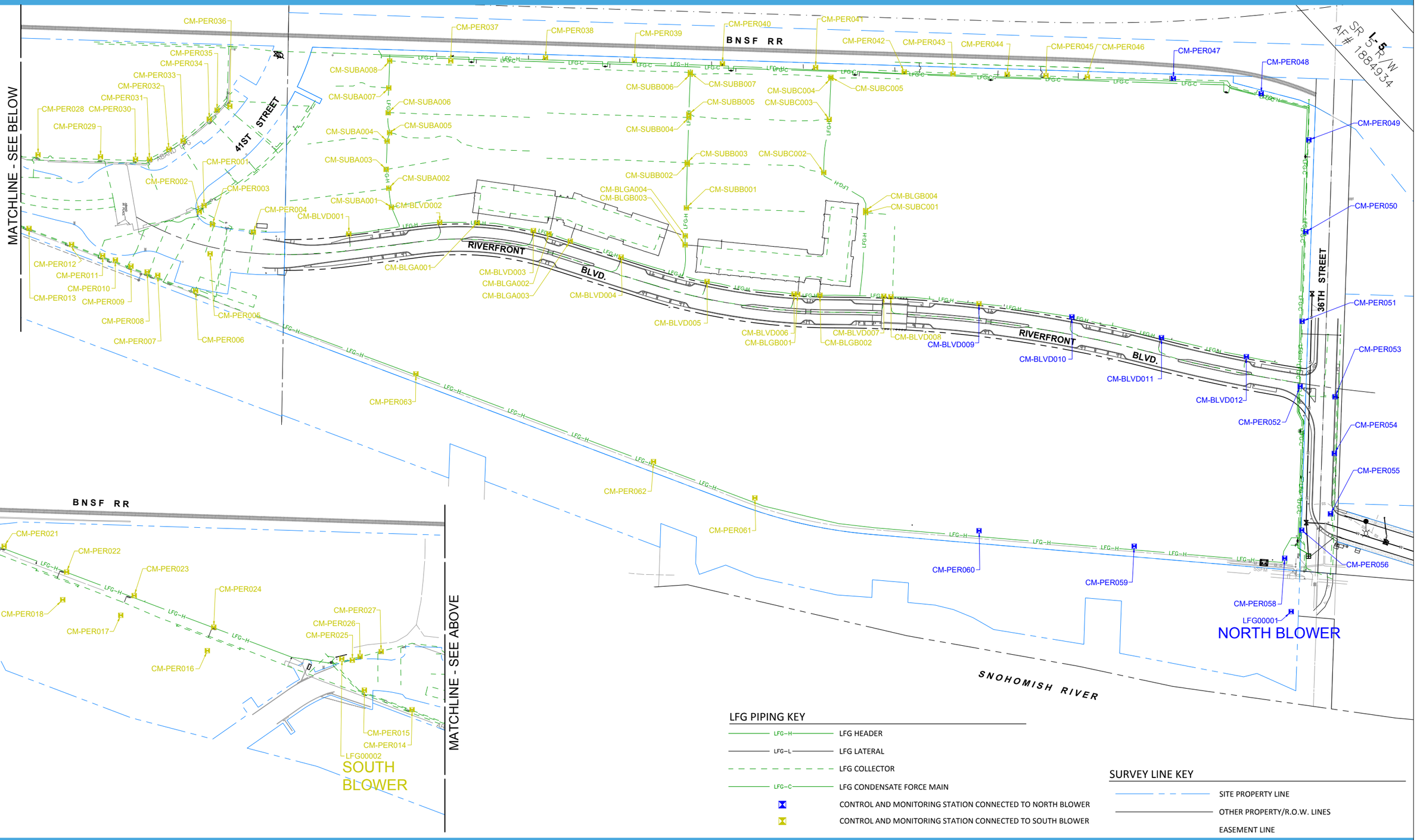
Figure 1.
Vicinity Map of Everett Landfill Sampling Locations.



LFG PIPING KEY

- LFG-H — LFG HEADER
- LFG-L — LFG LATERAL
- LFG COLLECTOR
- LFG-C — LFG CONDENSATE FORCE MAIN
- CONTROL AND MONITORING STATION CONNECTED TO NORTH BLOWER
- CONTROL AND MONITORING STATION CONNECTED TO SOUTH BLOWER

SURVEY LINE KEY

- SITE PROPERTY LINE
- OTHER PROPERTY/R.O.W. LINES
- EASEMENT LINE

0 50 100 200 Feet

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Figure 2. Pressure Gauge for South Blower Sample with Initial Vacuum of 30 Inches of Mercury.

Figure 3. Pressure Gauge for South Blower Sample with Final Vacuum of 5 Inches of Mercury.

Figure 4. Pressure Gauge for North Blower Sampling with Initial Vacuum of Greater than 30 Inches of Mercury.

Figure 5. Pressure Gauge for North Blower Sample with Final Vacuum of 10 Inches of Mercury

The collected samples were submitted to Fremont Analytical of Seattle, Washington, on December 28, 2023, under chain of custody, for analysis of the following:

- Sulfur Compounds by EPA Method TO-15
- Volatile Organic Compounds by EPA Method TO-15

These analyses incorporate the analytes listed in Table 1 of the CMCP (Attachment A). The results of the sampling are shown in the Results section (below) and are also documented in the Fremont Analytical laboratory report included in Attachment B.

The normal operating stack emission flow rate at each of the blower stations was recorded at the time of sampling and used to calculate the emission loading based on gas concentrations at each blower station. The loading at each blower station was added for a combined total site loading.

Results

As per the compliance determination process outlined in the Confirmational Sampling and Evaluation Plan section above, the laboratory results were first compared to the ASILs (Step 2). Where there were exceedances of ASILs, loading calculations were done to compare emissions to the SQERs (Step 3). As discussed in this section, all results were either less than ASILs or associated loadings were less than SQERs, precluding the need to conduct air dispersion modeling to assess expected concentrations in publicly accessible areas near the discharge points (Step 4).

Analytical Results

The analytical results for samples from each blower station were compared to the corresponding ASILs, as per Step 2 of the compliance determination process. These results are shown in Table 4a for the south blower and in Table 5a for the north blower.

The south blower sample had 11 analytes with reported concentrations that exceeded their corresponding ASILs. The north blower sample had 10 analytes for which results exceeded ASILs. Exceedances of the ASILs are depicted by the yellow highlighted "NO" boxes listed under the "Concentration < ASIL?" column in Tables 4a and 5a. A "NO" highlighted box means that compliance could not be confirmed by comparison to ASIL and that the loading rate of the emitted analyte needed to be compared to the regulated limits for SQER and *De Minimis* rates to determine compliance. The remaining 20 (south blower) and 21 (north blower) analytes complied with the ASILs, as depicted by the green highlighted "YES" boxes in this column. A "YES" highlighted box means the analyte meets emission compliance.

Loading Results

For the 11 ASIL exceedances in the south blower sample and 10 ASIL exceedances in the north blower sample, compliance was next evaluated by comparing the loading rate for each analyte to the SQER and

De Minimis rates according to Step 3 of the compliance determination process. This data is summarized in Tables 4b and 5b. The column titled "Loading Rates (lb/averaging period)" shows the loading rates, which are calculated by multiplying the laboratory-reported pollutant concentration by the averaging period (WAC 173-460-150), by the emission flow rates measured at the time of sampling. The loading rates for each blower station were calculated individually in Tables 4b and 5b and then were combined in Table 6 to determine the loading of TAPs for the entire landfill site.

In Table 6, the calculated loading rates for the entire landfill were compared to SQERs and, as a further check, *De Minimis* rates set by the WAC. The SQER represents the threshold above which dispersion modeling is required to show compliance. The *De Minimis* rate represents the threshold below which emissions are insignificant and do not pose any threat to human health and the environment. Results from comparing the actual stack emission loading rates to the SQERs showed no exceedance of any analyte for the combined loading from the landfill. Additionally, all analytes had combined loadings below corresponding *De Minimis* rates.

Because all the loading rates were lower than the corresponding SQERs, by definition, the analytes and total emissions have been determined to be in compliance and do not require further analysis or system modifications.

Table 4a. Everett Landfill: Step 2 Confirmational Sampling Results and Analysis—South Blower Station.

TAP	CAS Number	Molecular Weight (g/mol)	ASIL (µg/m³)	Reported Concentration on December 28th, 2023 Sample (µg/m³)		Standard Comparison Check	
						Concentration < ASIL?	Complies with...
Dichlorodifluoromethane (CFC-12)[c]	75-71-8	120.91	16000		71.2	YES	ASIL
Chloromethane (Methyl Chloride)	74-87-3	50.49	90	<	1.24	YES	ASIL
1,2-Dichloro-1,1,2,2-tetrafluorethane(1,2-Dichlorotetrafluoroethane CFC-114)[c]	76-14-2	170.92	23000		144	YES	ASIL
Vinyl Chloride	75-01-4	62.5	0.11		5.67	NO	See Step 3
Chloroethane (Ethyl Chloride)	75-00-3	64.51	30000		4.31	YES	ASIL
Trichlorofluoromethane (CFC-11)[c]	75-69-4	137.38	19000		6.08	YES	ASIL
1,1-Dichloroethene	75-35-4	96.94	200		0.178	YES	ASIL
Methylene Chloride (Dichloromethane)	75-09-2	84.94	60	<	6.95	YES	ASIL
1,1,2-Trichloro-1,2,2-trifluoroethane(Trichlorotrifluoroethane CFC-113)[c]	76-13-1	187.37	27000	<	1.53	YES	ASIL
1,1-Dichloroethane	75-34-3	98.96	0.63	<	0.162	YES	ASIL
cis-1,2-Dichloroethene[c]	156-59-2	96.94	2600		1.4	YES	ASIL
Chloroform	67-66-3	119.39	0.043		0.409	NO	See Step 3
1,2-Dichloroethane	107-06-2	98.96	0.038		0.0835	NO	See Step 3
Benzene	71-43-2	78.11	0.13		28.6	NO	See Step 3
Toluene	108-88-3	92.13	5000		9.11	YES	ASIL
Tetrachloroethene	127-18-4	165.83	0.16	<	0.271	NO	See Step 3
Chlorobenzene	108-90-7	112.56	1000		28.2	YES	ASIL
Ethylbenzene	100-41-4	106.07	0.4		10.9	NO	See Step 3
m,p-Xylene	179601-23-1	106.16	220		24.7	YES	ASIL
Styrene	100-42-5	104.15	870	<	0.852	YES	ASIL
o-Xylene	95-47-6	106.16	220		4.59	YES	ASIL
1,1,2,2-Tetrachloroethane	79-34-5	167.85	0.017	<	0.0499	NO	See Step 3
1,3,5-Trimethylbenzene	108-67-8	120.19	60	<	1.97	YES	ASIL
1,2,4-Trimethylbenzene	95-63-6	120.19	60		9.99	YES	ASIL
1,3-Dichlorobenzene[d]	541-73-1	147	0.091	<	0.241	NO	See Step 3
1,4-Dichlorobenzene	106-46-7	147	0.091		1.28	NO	See Step 3
1,2-Dichlorobenzene[c]	95-50-1	147	1000	<	0.24	YES	ASIL
1,2,4-Trichlorobenzene[c]	120-82-1	181.45	120	<	5.94	YES	ASIL
Hexachlorobutadiene	87-68-3	260.76	0.045	<	0.251	NO	See Step 3
Methyl Ethyl Ketone (2-Butanone)	78-93-3	72.11	5000		21.3	YES	ASIL
Hydrogen Sulfide	7783-06-4	34.08	2		117	NO	See Step 3

Table 4b. Everett Landfill: Step 3 Confirmational Sampling Results and Analysis—South Blower Station.

TAP	CAS Number	Molecular Weight (g/mol)	ASIL (µg/m³)	Reported Concentration on December 28th, 2023 Sample (µg/m³)		Averaging Period	Flow Volume per Averaging Period (scf)	SQER[a] (lbs/averaging period)	*De Minimis* Rate[b] (lbs/averaging period)	Loading Rates (lbs/averaging period)	Standard Comparison Check			
											Concentration < ASIL?	Loading < SQER?	Loading < *De Minimis*?	Complies with...
Vinyl Chloride	75-01-4	62.5	0.11		5.67	year	147168000	18	0.92	0.0520924	NO	YES	YES	SQER/*De Minimis*
Chloroform	67-66-3	119.39	0.043		0.409	year	147168000	7.1	0.35	0.0037576	NO	YES	YES	SQER/*De Minimis*
1,2-Dichloroethane	107-06-2	98.96	0.038		0.0835	year	147168000	6.2	0.31	0.0007671	NO	YES	YES	SQER/*De Minimis*
Benzene	71-43-2	78.11	0.13		28.6	year	147168000	21	1	0.2627590	NO	YES	YES	SQER/*De Minimis*
Tetrachloroethene	127-18-4	165.83	0.16	<	0.271	year	147168000	27	1.3	0.0024898	NO	YES	YES	SQER/*De Minimis*
Ethylbenzene	100-41-4	106.07	0.4		10.9	year	147168000	65	3.2	0.1001424	NO	YES	YES	SQER/*De Minimis*
1,1,2,2-Tetrachloroethane	79-34-5	167.85	0.017	<	0.0499	year	147168000	2.8	0.14	0.0004585	NO	YES	YES	SQER/*De Minimis*
1,3-Dichlorobenzene[d]	541-73-1	147	0.091	<	0.241	year	147168000	15	0.74	0.0022142	NO	YES	YES	SQER/*De Minimis*
1,4-Dichlorobenzene	106-46-7	147	0.091		1.28	year	147168000	15	0.74	0.0117598	NO	YES	YES	SQER/*De Minimis*
Hexachlorobutadiene	87-68-3	260.76	0.045	<	0.251	year	147168000	7.4	0.37	0.0023060	NO	YES	YES	SQER/*De Minimis*
Hydrogen Sulfide	7783-06-4	34.08	2		117	24-hr	403200	0.15	0.0074	0.0029450	NO	YES	YES	SQER/*De Minimis*

Notes:

Analytes included are those listed in Table 1 of the March 2001 Everett Landfill Compliance Monitoring and Contingency Plan by Floyd|Snider.

Reported concentrations for TAPs are from TO-15 analysis.

ASIL, SQER and *De Minimis* rate are from WAC 173-460-150 Table for ASIL, SQER, and *De Minimis* values.

[a] The SQER is a level of emissions below which dispersion modeling is not required to demonstrate compliance.

[b] The *De Minimis* rate is a level of emissions below which loading does not pose a threat to human health or the environment.

[c] Analyte is not included on the current WAC-173-460-150 Table for ASIL, SQER and *De Minimis* emission values. ASIL values were pulled from the March 2001 Compliance Monitoring and Contingency Plan.

[d] Analyte is not included on the current or 2001 WAC List. ASIL, SQER, and *De Minimis* assumed to be the same as structurally-similar 1,4-Dichlorobenzene.

Analyte has concentration less than ASIL.

Analyte has concentration greater than ASIL.

The Chemical Abstracts Service (CAS) number is a unique and unambiguous identified for a specific substance.

< means the concentration is less than the reporting limits of the laboratory, and the value reported is the laboratory reporting limit.

The flow rate at the South Blower Station on December 28th, 2023 was 280 scfm.

ASIL = Acceptable Source Impact Level

SQER = Small Quantity Emission Rate

TAP = Toxic Air Pollutant

scf = standard cubic feet

Table 5a. Everett Landfill: Step 2 Confirmational Sampling Results and Analysis—North Blower Station.

TAP	CAS Number	Molecular Weight (g/mol)	ASIL (µg/m³)	Reported Concentration on December 28th, 2023 Sample (µg/m³)		Standard Comparison Check	
						Concentration < ASIL?	Complies with...
Dichlorodifluoromethane (CFC-12)[c]	75-71-8	120.91	16000		49.5	YES	ASIL
Chloromethane (Methyl Chloride)	74-87-3	50.49	90	<	1.24	YES	ASIL
1,2-Dichloro-1,1,2,2-tetrafluorethane(1,2-Dichlorotetrafluoroethane CFC-114)[c]	76-14-2	170.92	23000		29.5	YES	ASIL
Vinyl Chloride	75-01-4	62.5	0.11		0.683	NO	See Step 3
Chloroethane (Ethyl Chloride)	75-00-3	64.51	30000	<	1.58	YES	ASIL
Trichlorofluoromethane (CFC-11)[c]	75-69-4	137.38	19000		9.15	YES	ASIL
1,1-Dichloroethene	75-35-4	96.94	200	<	0.159	YES	ASIL
Methylene Chloride (Dichloromethane)	75-09-2	84.94	60		7.98	YES	ASIL
1,1,2-Trichloro-1,2,2-trifluoroethane(Trichlorotrifluoroethane CFC-113)[c]	76-13-1	187.37	27000	<	1.53	YES	ASIL
1,1-Dichloroethane	75-34-3	98.96	0.63	<	0.162	YES	ASIL
cis-1,2-Dichloroethene[c]	156-59-2	96.94	2600	<	0.793	YES	ASIL
Chloroform	67-66-3	119.39	0.043		0.316	NO	See Step 3
1,2-Dichloroethane	107-06-2	98.96	0.038	<	0.00304	YES	ASIL
Benzene	71-43-2	78.11	0.13		15	NO	See Step 3
Toluene	108-88-3	92.13	5000		5.16	YES	ASIL
Tetrachloroethene	127-18-4	165.83	0.16		0.678	NO	See Step 3
Chlorobenzene	108-90-7	112.56	1000		12.2	YES	ASIL
Ethylbenzene	100-41-4	106.07	0.4		4.5	NO	See Step 3
m,p-Xylene	179601-23-1	106.16	220		10.4	YES	ASIL
Styrene	100-42-5	104.15	870	<	0.852	YES	ASIL
o-Xylene	95-47-6	106.16	220		2.04	YES	ASIL
1,1,2,2-Tetrachloroethane	79-34-5	167.85	0.017	<	0.0499	NO	See Step 3
1,3,5-Trimethylbenzene	108-67-8	120.19	60	<	1.97	YES	ASIL
1,2,4-Trimethylbenzene	95-63-6	120.19	60		4.71	YES	ASIL
1,3-Dichlorobenzene[d]	541-73-1	147	0.091	<	0.241	NO	See Step 3
1,4-Dichlorobenzene	106-46-7	147	0.091		0.678	NO	See Step 3
1,2-Dichlorobenzene[c]	95-50-1	147	1000	<	0.24	YES	ASIL
1,2,4-Trichlorobenzene[c]	120-82-1	181.45	120	<	5.94	YES	ASIL
Hexachlorobutadiene	87-68-3	260.76	0.045	<	0.251	NO	See Step 3
Methyl Ethyl Ketone (2-Butanone)	78-93-3	72.11	5000		10.9	YES	ASIL
Hydrogen Sulfide	7783-06-4	34.08	2		15.4	NO	See Step 3

Table 5b. Everett Landfill: Step 3 Confirmational Sampling Results and Analysis—North Blower Station.

TAP	CAS Number	Molecular Weight (g/mol)	ASIL (µg/m³)	Reported Concentration on December 28th, 2023 Sample (µg/m³)		Averaging Period	Flow Volume per Averaging Period (scf)	SQER[a] (lbs/averaging period)	*De Minimis* Rate[b] (lbs/averaging period)	Loading Rates (lbs/averaging period)	Standard Comparison Check			
											Concentration < ASIL?	Loading < SQER?	Loading < *De Minimis*?	Complies with...
Vinyl Chloride	75-01-4	62.5	0.11		0.683	year	44676000	18	0.92	0.0019049	NO	YES	YES	SQER/*De Minimis*
Chloroform	67-66-3	119.39	0.043		0.316	year	44676000	7.1	0.35	0.0008813	NO	YES	YES	SQER/*De Minimis*
Benzene	71-43-2	78.11	0.13		15	year	44676000	21	1	0.0418354	NO	YES	YES	SQER/*De Minimis*
Tetrachloroethene	127-18-4	165.83	0.16		0.678	year	44676000	27	1.3	0.0018910	NO	YES	YES	SQER/*De Minimis*
Ethylbenzene	100-41-4	106.07	0.4		4.5	year	44676000	65	3.2	0.0125506	NO	YES	YES	SQER/*De Minimis*
1,1,2,2-Tetrachloroethane	79-34-5	167.85	0.017	<	0.0499	year	44676000	2.8	0.14	0.0001392	NO	YES	YES	SQER/*De Minimis*
1,3-Dichlorobenzene[d]	541-73-1	147	0.091	<	0.241	year	44676000	15	0.74	0.0006722	NO	YES	YES	SQER/*De Minimis*
1,4-Dichlorobenzene	106-46-7	147	0.091		0.678	year	44676000	15	0.74	0.0018910	NO	YES	YES	SQER/*De Minimis*
Hexachlorobutadiene	87-68-3	260.76	0.045	<	0.251	year	44676000	7.4	0.37	0.0007000	NO	YES	YES	SQER/*De Minimis*
Hydrogen Sulfide	7783-06-4	34.08	2		15.4	24-hr	122400	0.15	0.0074	0.0001177	NO	YES	YES	SQER/*De Minimis*

Notes:

Analytes included are those listed in Table 1 of the March 2001 Everett Landfill Compliance Monitoring and Contingency Plan by Floyd|Snider.

Reported concentrations for TAPs are from TO-15 analysis.

ASIL, SQER and *De Minimis* rate are from WAC 173-460-150 Table for ASIL, SQER, and *De Minimis* values.

[a] The SQER is a level of emissions below which dispersion modeling is not required to demonstrate compliance.

[b] The *De Minimis* rate is a level of emissions below which loading does not pose a threat to human health or the environment.

[c] Analyte is not included on the current WAC-173-460-150 Table for ASIL, SQER and *De Minimis* emission values. ASIL values were pulled from the March 2001 Compliance Monitoring and Contingency Plan.

[d] Analyte is not included on the current or 2001 WAC List. ASIL, SQER, and *De Minimis* assumed to be the same as structurally-similar 1,4-Dichlorobenzene.

Analyte has concentration less than ASIL.

Analyte has concentration greater than ASIL.

The Chemical Abstracts Service (CAS) number is a unique and unambiguous identified for a specific substance.

< means the concentration is less than the reporting limits of the laboratory, and the value reported is the laboratory reporting limit.

The flow rate at the North Blower Station on December 28th, 2023 was 85 scfm.

ASIL = Acceptable Source Impact Level

SQER = Small Quantity Emission Rate

TAP = Toxic Air Pollutant

scf = standard cubic feet

Table 6. Everett Landfill: Confirmational Sampling Results and Analysis - Combined Loading Comparison to SQER and *De Minimis*.

TAP	South Blower Loading Rates from Table 4b (lbs/averaging period)	North Blower Loading Rates from Table 5b (lbs/averaging period)	Combined Loading Rates (lbs/averaging period)	SQER[a] (lbs/averaging period)	*De Minimis* Rate[b] (lbs/averaging period)	Standard Comparison Check		
						Loading < SQER?	Loading < *De Minimis*?	Complies with...
Vinyl Chloride	0.0520924	0.0019049	0.0539973	18	0.92	YES	YES	SQER/*De Minimis*
Chloroform	0.0037576	0.0008813	0.0046390	7.1	0.35	YES	YES	SQER/*De Minimis*
1,2-Dichloroethane	0.0007671	0.0000085	0.0007756	6.2	0.31	YES	YES	SQER/*De Minimis*
Benzene	0.2627590	0.0418354	0.3045944	21	1	YES	YES	SQER/*De Minimis*
Tetrachloroethene	0.0024898	0.0018910	0.0043807	27	1.3	YES	YES	SQER/*De Minimis*
Ethylbenzene	0.1001424	0.0125506	0.1126930	65	3.2	YES	YES	SQER/*De Minimis*
1,1,2,2-Tetrachloroethane	0.0004585	0.0001392	0.0005976	2.8	0.14	YES	YES	SQER/*De Minimis*
1,3-Dichlorobenzene[d]	0.0022142	0.0006722	0.0028863	15	0.74	YES	YES	SQER/*De Minimis*
1,4-Dichlorobenzene	0.0117598	0.0018910	0.0136508	15	0.74	YES	YES	SQER/*De Minimis*
Hexachlorobutadiene	0.0023060	0.0007000	0.0030061	7.4	0.37	YES	YES	SQER/*De Minimis*
Hydrogen Sulfide	0.0029450	0.0001177	0.0030627	0.15	0.0074	YES	YES	SQER/*De Minimis*

Notes:

Analytes included are those listed in Table 1 of the Everett Landfill March 2001 Compliance Monitoring and Contingency Plan by Floyd|Snider.

Reported concentrations for TAPs are from TO-15 analysis.

ASIL, SQER and *De Minimis* rate are from WAC 173-460-150 Table for ASIL, SQER, and *De Minimis* values.

[a] The SQER is a level of emissions below which dispersion modeling is not required to demonstrate compliance.

[b] The *De Minimis* rate is a level of emissions below which loading does not pose a threat to human health or the environment.

[d] Analyte is not included on the current or 2001 WAC List. ASIL, SQER, and De Minimis assumed to be the same as structurally-similar 1,4-Dichlorobenzene.

ASIL = Acceptable Source Impact Level

SQER = Small Quantity Emission Rate

TAP = Toxic Air Pollutant

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Compliance Evaluation

The air quality sampling data analysis presented in this technical memorandum demonstrates that the Everett Landfill collection system discharges remain in compliance with emission requirements.

As a recap, to determine compliance, analytical results for the compounds defined in Table 1 of the CMCP (Attachment A) were first compared to ASILs per Step 2 of the Confirmational Sampling and Evaluation Plan. Results showed that out of the 31 analytes tested, 11 analytes in the south blower sample and 10 analytes in the north blower sample exceeded the corresponding ASILs. Results that do not exceed the ASILs are in compliance.

To verify compliance of the analytes that exceeded ASILs, the stack emission loading rates of the analytes were calculated and compared to SQER and *De Minimis* rates per Step 3 of the Confirmational Sampling and Evaluation Plan. If the loading rates were lower than the corresponding SQERs, by definition, the analytes' total emissions are in compliance. All analytes that exceeded their ASILs at either blower station had combined emission loading rates from both blower stations that were below the SQERs, confirming that the LFG emitted from both blowers met compliance for the regulated compounds.

Of the 31 analytes that were tested, 7 analytes did not have current ASILs, SQERs, or *De Minimis* rates defined in WAC 173-460-150. The concentrations of these analytes were compared to the ASILs identified in the CMCP. All 7 of these analytes had concentrations lower than the CMCP ASILs demonstrating that these 7 analytes met emission compliance with the CMCP.

Conclusion

The analysis of the sampling results demonstrates the LFG collection system discharges remain in compliance with emission requirements, and no further air dispersion modeling or treatment is required. When future modifications to the LFG collection system are made, additional confirmational sampling will be performed, as required by the CMCP.

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Attachment A

Table 1 of the Compliance Monitoring and Contingency Plan

HERRERA
Science + Planning + Design

Table 1
Air Quality Modeling Results

CAS	Compound	M.W.	Ambient Standards & Modeled Ambient Air Concentrations						Undiluted Subsurface Landfill Gas Averages[1]		
			ASIL Type	ASIL (ug/m^3)	MTCA Cleanup Standard (ug/m^3)	Modeled Contribution for Developed Conditions[2] with H2S Treatment (ug/m^3)	Modeled Contribution for Developed Conditions[3] without H2S Treatment (ug/m^3)	Modeled Contribution for Existing Conditions[4] (ug/m^3)	Overall Average (ug/m^3)	FSI Average (ug/m^3)	B&V Average (ug/m^3)
75-71-8	Dichlorodifluoromethane	121.0	B	16,000.0	80.0	0.017	0.006	0.007	402.6		402.6
74-87-3	Chloromethane	50.5	B	340.0	1.7	0.001	0.000	0.000	25.8		25.8
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	171.0	B	23,000.0	None	0.052	0.019	0.020	1,205.9		1,205.9
75-01-4	Vinyl chloride	62.5	A	0.012	1.0	0.001	0.000	0.001	189.5	219.4	159.7
75-00-3	Chloroethane	64.5	B	1,000.0	4,600.0	0.011	0.004	0.004	263.2	337.6	188.7
75-69-4	Trichlorofluoromethane	137.0	B	19,000.0	320.0	0.002	0.001	0.001	51.4	48.8	54.0
75-35-4	1,1-Dichloroethene	97.0	B	67.0	None	0.002	0.001	0.001	35.7		35.7
75-09-2	Methylene chloride	84.9	A	0.56	1.1	0.000	0.000	0.000	59.3		59.3
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	187.0	B	27,000.0	13,700.0	0.003	0.001	0.001	69.1		69.1
75-34-3	1,1-Dichloroethane	99.0	B	2,700.0	1.0	0.002	0.001	0.001	40.8	38.2	43.4
156-59-2	cis-1,2-Dichloroethene	96.0	B	2,600.0	1.0	0.002	0.001	0.001	39.4	37.6	41.1
67-66-3	Chloroform	119.0	A	0.043	1.0	0.000	0.000	0.000	44.1		44.1
107-06-2	1,2-Dichloroethane	99.0	A	0.038	1.0	0.000	0.000	0.000	37.3		37.3
71-43-2	Benzene	78.1	A	0.12	5.9	0.003	0.001	0.007	865.3	854.0	876.5
108-88-3	Toluene	92.1	B	400.0	183.0	0.020	0.007	0.008	456.6	230.0	683.1
127-18-4	Tetrachloroethene	166.0	A	1.1	5.4	0.000	0.000	0.000	61.4		61.4
108-90-7	Chlorobenzene	113.0	B	150.0	8.0	0.024	0.009	0.009	552.1	616.0	488.2
100-41-4	Ethylbenzene	106.0	B	1,000.0	457.0	0.042	0.016	0.016	982.5	731.0	1,234.0
1330-20-7	m,p-Xylene	106.0	B	1,500.0	320.0	0.093	0.034	0.036	2,160.7	1,156.0	3,165.4
100-42-5	Styrene	104.0	B	1,000.0	32.5	0.002	0.001	0.001	56.6		56.6
95-47-6	o-Xylene	106.0	B	1,500.0	320.0	0.008	0.003	0.003	184.2	150.0	218.4
79-34-5	1,1,2,2-Tetrachloroethane	167.9	B	23.0	None	0.003	0.001	0.001	72.8		72.8
108-67-8	1,3,5-Trimethylbenzene	120.0		None	None	0.016	0.006	0.006	362.6		362.6
95-63-6	1,2,4-Trimethylbenzene	120.0		None	None	0.053	0.020	0.021	1,244.4		1,244.4
541-73-1	1,3-Dichlorobenzene	147.0		None	None	0.003	0.001	0.001	73.1		73.1
106-46-7	1,4-Dichlorobenzene	147.0	A	1.5	366.0	0.001	0.000	0.002	192.7	181.0	204.4
95-50-1	1,2-Dichlorobenzene	147.0	B	1,000.0	64.0	0.005	0.002	0.002	112.6		112.6
120-82-1	1,2,4-Trichlorobenzene	181.0	B	120.0	4.8	0.010	0.004	0.004	233.8		233.8
87-68-3	Hexachlorobutadiene	261.0	B	0.7	1.0	0.005	0.002	0.002	119.3		119.3
78-93-3	2-Butanone	72.1	B	1,000.0	460.0	0.002	0.001	0.001	42.0	84.0	0.0
78-93-3	Hydrogen sulfide	34.1	B	0.9	0.4	0.202	0.375	0.394	23,501.0		23,501.0

Notes:

1 See Appendix H for data sheets used to calculate averages.

2 Developed conditions: three emission release stacks 35 feet high.

3 Developed conditions: one emission release stack 30 feet high.

4 Existing conditions: emissions are assumed to emanate uniformly from a series of area sources covering the entire surface of the landfill.

Attachment B

Laboratory Report

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3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Herrera Environmental
Tyson Wright
2200 Sixth Ave, Ste 1100
Seattle, WA 98121

RE: Everett RiverFront
Work Order Number: 2312578

January 05, 2024

Attention Tyson Wright:

Fremont Analytical, Inc. received 2 sample(s) on 12/28/2023 for the analyses presented in the following report.

Major Gases by EPA Method 3C
Sulfur Compounds by EPA Method TO-15
Volatile Organic Compounds by EPA Method TO-15

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

CC:
Camryn Steiner

Date: *01/05/2024*

CLIENT: Herrera Environmental
Project: Everett RiverFront
Work Order: 2312578

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2312578-001	South	12/28/2023 10:07 AM	12/28/2023 1:10 PM
2312578-002	North	12/28/2023 10:32 AM	12/28/2023 1:10 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **2312578**

Date: **1/5/2024**

CLIENT: Herrera Environmental
Project: Everett RiverFront

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Air samples are reported in ppbv and ug/m3. Major gases are reported as % ratio of the Major Gases analyzed (Carbon dioxide, Carbon Monoxide, Methane, Nitrogen, Oxygen and Hydrogen).

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Standard temperature and pressure assumes 24.45 = (25C and 1 atm).

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

CLIENT: Herrera Environmental
Project: Everett RiverFront

Lab ID: 2312578-001 **Collection Date:** 12/28/2023 10:07:00 AM
Client Sample ID: **South** **Matrix:** Landfill gas

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Major Gases by EPA Method 3C				Batch ID: R88793		Analyst: LB
Carbon Dioxide	5.55	0.0500		%	1	1/5/2024 2:55:00 PM
Carbon Monoxide	ND	0.0500		%	1	1/5/2024 2:55:00 PM
Methane	4.35	0.0500		%	1	1/5/2024 2:55:00 PM
Nitrogen	72.0	0.0500		%	1	1/5/2024 2:55:00 PM
Oxygen	18.1	0.0500		%	1	1/5/2024 2:55:00 PM
Hydrogen	ND	0.0500		%	1	1/5/2024 2:55:00 PM
BTU	44.0			BTU/ft^3	1	1/5/2024 2:55:00 PM

Lab ID: 2312578-002 **Collection Date:** 12/28/2023 10:32:00 AM
Client Sample ID: **North** **Matrix:** Landfill gas

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Major Gases by EPA Method 3C				Batch ID: R88793		Analyst: LB
Carbon Dioxide	1.44	0.0500		%	1	1/5/2024 3:08:00 PM
Carbon Monoxide	ND	0.0500		%	1	1/5/2024 3:08:00 PM
Methane	1.20	0.0500		%	1	1/5/2024 3:08:00 PM
Nitrogen	76.6	0.0500		%	1	1/5/2024 3:08:00 PM
Oxygen	20.7	0.0500		%	1	1/5/2024 3:08:00 PM
Hydrogen	ND	0.0500		%	1	1/5/2024 3:08:00 PM
BTU	12.1			BTU/ft^3	1	1/5/2024 3:08:00 PM

Client: **Herrera Environmental**
WorkOrder: 2312578
Project: Everett RiverFront

Client Sample ID: South
Lab ID: 2312578-001A
Sample Type: Summa Canister

Date Sampled: 12/28/2023
Date Received: 12/28/2023

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst	
Sulfur Compounds by EPA Method TO-15	**(ppbv)**	**(ug/m³)**	**(ppbv)**	**(ug/m³)**				
Hydrogen Sulfide	83.9	117	10.0	13.9		EPA-TO-15	12/28/2023	LB
Surr: 4-Bromofluorobenzene	179 %Rec	--	70-130	--	S	EPA-TO-15	12/28/2023	LB

NOTES:
S - Outlying surrogate recovery observed due to matrix effect.

Volatile Organic Compounds by EPA Method TO-15	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)				
1,1,2,2-Tetrachloroethane	<0.00727	<0.0499	0.00727	0.0499	MDL	EPA-TO-15	01/02/2024	LB
CFC-113	<0.200	<1.53	0.200	1.53		EPA-TO-15	01/02/2024	LB
1,1-Dichloroethane	<0.0400	<0.162	0.0400	0.162		EPA-TO-15	01/02/2024	LB
1,1-Dichloroethene (DCE)	0.0450	0.178	0.0400	0.159		EPA-TO-15	01/02/2024	LB
1,2,4-Trichlorobenzene	<0.800	<5.94	0.800	5.94		EPA-TO-15	01/02/2024	LB
1,2,4-Trimethylbenzene	2.03	9.99	0.600	2.95		EPA-TO-15	01/02/2024	LB
1,2-Dichlorobenzene	<0.0400	<0.240	0.0400	0.240		EPA-TO-15	01/02/2024	LB
1,2-Dichloroethane	0.0206	0.0835	0.000751	0.00304	MDL	EPA-TO-15	01/02/2024	LB
1,3,5-Trimethylbenzene	<0.400	<1.97	0.400	1.97		EPA-TO-15	01/02/2024	LB
1,3-Dichlorobenzene	<0.0400	<0.241	0.0400	0.241		EPA-TO-15	01/02/2024	LB
1,4-Dichlorobenzene	0.212	1.28	0.0400	0.241		EPA-TO-15	01/02/2024	LB
(MEK) 2-Butanone	7.23	21.3	0.600	1.77		EPA-TO-15	01/02/2024	LB
Benzene	8.96	28.6	0.0129	0.0413	MDL	EPA-TO-15	01/02/2024	LB
Chlorobenzene	6.12	28.2	0.0400	0.184		EPA-TO-15	01/02/2024	LB
Chloroethane	1.63	4.31	0.600	1.58		EPA-TO-15	01/02/2024	LB
Chloroform	0.0838	0.409	0.00216	0.0105	MDL	EPA-TO-15	01/02/2024	LB
Chloromethane	<0.600	<1.24	0.600	1.24		EPA-TO-15	01/02/2024	LB
cis-1,2-Dichloroethene	0.353	1.40	0.200	0.793		EPA-TO-15	01/02/2024	LB
Dichlorodifluoromethane (CFC-12)	14.4	71.2	0.200	0.989		EPA-TO-15	01/02/2024	LB
Dichlorotetrafluoroethane (CFC-114)	20.6	144	0.200	1.40		EPA-TO-15	01/02/2024	LB
Ethylbenzene	2.50	10.9	0.600	2.61		EPA-TO-15	01/02/2024	LB
Hexachlorobutadiene	<0.0236	<0.251	0.0236	0.251	MDL	EPA-TO-15	01/02/2024	LB
m,p-Xylene	5.69	24.7	1.20	5.21		EPA-TO-15	01/02/2024	LB
Methylene chloride	<2.00	<6.95	2.00	6.95		EPA-TO-15	01/02/2024	LB
o-Xylene	1.06	4.59	0.400	1.74		EPA-TO-15	01/02/2024	LB

Client: **Herrera Environmental**
WorkOrder: 2312578
Project: Everett RiverFront

Client Sample ID: South
Lab ID: 2312578-001A
Sample Type: Summa Canister

Date Sampled: 12/28/2023
Date Received: 12/28/2023

Volatile Organic Compounds by EPA Method TO-15

Analyte	Concentration (ppbv)	Concentration (ug/m³)	Reporting Limit (ppbv)	Reporting Limit (ug/m³)	Qual	Method	Date/Analyst	
Styrene	<0.200	<0.852	0.200	0.852		EPA-TO-15	01/02/2024	LB
Tetrachloroethene (PCE)	<0.0400	<0.271	0.0400	0.271		EPA-TO-15	01/02/2024	LB
Toluene	2.42	9.11	0.800	3.01		EPA-TO-15	01/02/2024	LB
Trichlorofluoromethane (CFC-11)	1.08	6.08	0.200	1.12		EPA-TO-15	01/02/2024	LB
Vinyl chloride	2.22	5.67	0.0400	0.102		EPA-TO-15	01/02/2024	LB
Surr: 4-Bromofluorobenzene	109 %Rec	--	70-130	--		EPA-TO-15	01/02/2024	LB

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Client: Herrera Environmental
WorkOrder: 2312578
Project: Everett RiverFront

Client Sample ID: North
Lab ID: 2312578-002A
Sample Type: Summa Canister

Date Sampled: 12/28/2023
Date Received: 12/28/2023

Analyte	Concentration		Reporting Limit		Qual	Method	Date/Analyst	
Sulfur Compounds by EPA Method TO-15	**(ppbv)**	**(ug/m³)**	**(ppbv)**	**(ug/m³)**				
Hydrogen Sulfide	11.1	15.4	10.0	13.9		EPA-TO-15	12/28/2023	LB
Surr: 4-Bromofluorobenzene	137 %Rec	--	70-130	--	S	EPA-TO-15	12/28/2023	LB

NOTES:
S - Outlying surrogate recovery observed due to matrix effect.

Volatile Organic Compounds by EPA Method TO-15	(ppbv)	(ug/m³)	(ppbv)	(ug/m³)				
1,1,2,2-Tetrachloroethane	<0.00727	<0.0499	0.00727	0.0499	MDL	EPA-TO-15	01/02/2024	LB
CFC-113	<0.200	<1.53	0.200	1.53		EPA-TO-15	01/02/2024	LB
1,1-Dichloroethane	<0.0400	<0.162	0.0400	0.162		EPA-TO-15	01/02/2024	LB
1,1-Dichloroethene (DCE)	<0.0400	<0.159	0.0400	0.159		EPA-TO-15	01/02/2024	LB
1,2,4-Trichlorobenzene	<0.800	<5.94	0.800	5.94		EPA-TO-15	01/02/2024	LB
1,2,4-Trimethylbenzene	0.957	4.71	0.600	2.95		EPA-TO-15	01/02/2024	LB
1,2-Dichlorobenzene	<0.0400	<0.240	0.0400	0.240		EPA-TO-15	01/02/2024	LB
1,2-Dichloroethane	<0.000751	<0.00304	0.000751	0.00304	MDL	EPA-TO-15	01/02/2024	LB
1,3,5-Trimethylbenzene	<0.400	<1.97	0.400	1.97		EPA-TO-15	01/02/2024	LB
1,3-Dichlorobenzene	<0.0400	<0.241	0.0400	0.241		EPA-TO-15	01/02/2024	LB
1,4-Dichlorobenzene	0.113	0.678	0.0400	0.241		EPA-TO-15	01/02/2024	LB
(MEK) 2-Butanone	3.69	10.9	0.600	1.77		EPA-TO-15	01/02/2024	LB
Benzene	4.70	15.0	0.0129	0.0413	MDL	EPA-TO-15	01/02/2024	LB
Chlorobenzene	2.65	12.2	0.0400	0.184		EPA-TO-15	01/02/2024	LB
Chloroethane	<0.600	<1.58	0.600	1.58		EPA-TO-15	01/02/2024	LB
Chloroform	0.0646	0.316	0.00216	0.0105	MDL	EPA-TO-15	01/02/2024	LB
Chloromethane	<0.600	<1.24	0.600	1.24		EPA-TO-15	01/02/2024	LB
cis-1,2-Dichloroethene	<0.200	<0.793	0.200	0.793		EPA-TO-15	01/02/2024	LB
Dichlorodifluoromethane (CFC-12)	10.0	49.5	0.200	0.989		EPA-TO-15	01/02/2024	LB
Dichlorotetrafluoroethane (CFC-114)	4.22	29.5	0.200	1.40		EPA-TO-15	01/02/2024	LB
Ethylbenzene	1.04	4.50	0.600	2.61		EPA-TO-15	01/02/2024	LB
Hexachlorobutadiene	<0.0236	<0.251	0.0236	0.251	MDL	EPA-TO-15	01/02/2024	LB
m,p-Xylene	2.41	10.4	1.20	5.21		EPA-TO-15	01/02/2024	LB
Methylene chloride	2.30	7.98	2.00	6.95		EPA-TO-15	01/02/2024	LB
o-Xylene	0.469	2.04	0.400	1.74		EPA-TO-15	01/02/2024	LB

Client: **Herrera Environmental**
WorkOrder: 2312578
Project: Everett RiverFront

Client Sample ID: North
Lab ID: 2312578-002A
Sample Type: Summa Canister

Date Sampled: 12/28/2023
Date Received: 12/28/2023

Volatile Organic Compounds by EPA Method TO-15

Analyte	Concentration (ppbv)	Concentration (ug/m³)	Reporting Limit (ppbv)	Reporting Limit (ug/m³)	Qual	Method	Date/Analyst	
Styrene	<0.200	<0.852	0.200	0.852		EPA-TO-15	01/02/2024	LB
Tetrachloroethene (PCE)	0.100	0.678	0.0400	0.271		EPA-TO-15	01/02/2024	LB
Toluene	1.37	5.16	0.800	3.01		EPA-TO-15	01/02/2024	LB
Trichlorofluoromethane (CFC-11)	1.63	9.15	0.200	1.12		EPA-TO-15	01/02/2024	LB
Vinyl chloride	0.267	0.683	0.0400	0.102		EPA-TO-15	01/02/2024	LB
Surr: 4-Bromofluorobenzene	110 %Rec	--	70-130	--		EPA-TO-15	01/02/2024	LB

NOTES:
MDL - Analyte reported to Method Detection Limit (MDL)

Work Order: 2312578
CLIENT: Herrera Environmental
Project: Everett RiverFront

QC SUMMARY REPORT

Major Gases by EPA Method 3C

Sample ID: **LCS-R88793** SampType: **LCS** Units: **%** Prep Date: **1/5/2024** RunNo: **88793**
Client ID: **LCSW** Batch ID: **R88793** Analysis Date: **1/5/2024** SeqNo: **1855137**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon Dioxide	101	0.0500	100.0	0	101	90	110				
Carbon Monoxide	101	0.0500	100.0	0	101	90	110				
Methane	101	0.0500	100.0	0	101	90	110				
Nitrogen	101	0.0500	100.0	0	101	90	110				
Oxygen	101	0.0500	100.0	0	101	90	110				
Hydrogen	102	0.0500	100.0	0	102	90	110				

Work Order: 2312578
CLIENT: Herrera Environmental
Project: Everett RiverFront

QC SUMMARY REPORT

Sulfur Compounds by EPA Method TO-15

Sample ID: **LCS-R88643** SampType: **LCS** Units: **ppbv** Prep Date: **12/28/2023** RunNo: **88643**
Client ID: **LCSW** Batch ID: **R88643** Analysis Date: **12/28/2023** SeqNo: **1851448**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hydrogen Sulfide	103	10.0	100.0	0	103	70	130				
Surr: 4-Bromofluorobenzene	3.81		4.000		95.2	70	130				

Sample ID: **MB-R88643** SampType: **MBLK** Units: **ppbv** Prep Date: **12/28/2023** RunNo: **88643**
Client ID: **MBLKW** Batch ID: **R88643** Analysis Date: **12/28/2023** SeqNo: **1851449**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hydrogen Sulfide	ND	10.0									
Surr: 4-Bromofluorobenzene	3.73		4.000		93.2	70	130				

Sample ID: **2312578-002AREP** SampType: **REP** Units: **ppbv** Prep Date: **12/28/2023** RunNo: **88643**
Client ID: **North** Batch ID: **R88643** Analysis Date: **12/28/2023** SeqNo: **1851452**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hydrogen Sulfide	10.5	10.0						11.09	5.42	25	
Surr: 4-Bromofluorobenzene	5.36		4.000		134	70	130		0		S

NOTES:
S - Outlying surrogate recovery(ies) observed. A duplicate analysis was performed with similar results indicating a possible matrix effect.

Work Order: 2312578
CLIENT: Herrera Environmental
Project: Everett RiverFront

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID: **LCS-R88702** SampType: **LCS** Units: **ppbv** Prep Date: **1/2/2024** RunNo: **88702**
Client ID: **LCSW** Batch ID: **R88702** Analysis Date: **1/2/2024** SeqNo: **1853173**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	1.76	0.0500	2.000	0	88.1	70	130				
Chloromethane	1.89	0.150	2.000	0	94.7	70	130				
Dichlorotetrafluoroethane (CFC-114)	1.82	0.0500	2.000	0	90.8	70	130				
Vinyl chloride	1.94	0.0100	2.000	0	96.8	70	130				
Trichlorofluoromethane (CFC-11)	1.72	0.0500	2.000	0	86.0	70	130				
Chloroethane	1.93	0.150	2.000	0	96.7	70	130				
1,1-Dichloroethene (DCE)	1.90	0.0100	2.000	0	94.8	70	130				
Methylene chloride	2.39	0.500	2.000	0	119	70	130				
1,1-Dichloroethane	1.91	0.0100	2.000	0	95.5	70	130				
cis-1,2-Dichloroethene	1.90	0.0500	2.000	0	94.9	70	130				
(MEK) 2-Butanone	1.96	0.150	2.000	0	97.9	70	130				
Chloroform	1.95	0.0100	2.000	0	97.3	70	130				
1,2-Dichloroethane	1.83	0.0100	2.000	0	91.7	70	130				
Benzene	1.95	0.0100	2.000	0	97.7	70	130				
Toluene	1.99	0.200	2.000	0	99.3	70	130				
Tetrachloroethene (PCE)	1.86	0.0100	2.000	0	93.2	70	130				
Chlorobenzene	1.84	0.0100	2.000	0	91.9	70	130				
Ethylbenzene	2.22	0.150	2.000	0	111	70	130				
m,p-Xylene	5.13	0.300	4.000	0	128	70	130				
o-Xylene	2.55	0.100	2.000	0	127	70	130				
Styrene	1.94	0.0500	2.000	0	97.1	70	130				
1,1,2,2-Tetrachloroethane	1.83	0.0200	2.000	0	91.6	70	130				
1,3,5-Trimethylbenzene	1.88	0.100	2.000	0	94.1	70	130				
1,2,4-Trimethylbenzene	2.02	0.150	2.000	0	101	70	130				
1,3-Dichlorobenzene	2.01	0.0100	2.000	0	100	70	130				
1,4-Dichlorobenzene	2.03	0.0100	2.000	0	101	70	130				
1,2-Dichlorobenzene	2.08	0.0100	2.000	0	104	70	130				
1,2,4-Trichlorobenzene	2.00	0.200	2.000	0	100	70	130				
Hexachlorobutadiene	1.75	0.0500	2.000	0	87.6	70	130				
CFC-113	1.68	0.0500	2.000	0	84.2	70	130				
Surr: 4-Bromofluorobenzene	4.17		4.000		104	70	130				

Work Order: 2312578
CLIENT: Herrera Environmental
Project: Everett RiverFront

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID: **MB-R88702** SampType: **MBLK** Units: **ppbv** Prep Date: **1/2/2024** RunNo: **88702**
Client ID: **MBLKW** Batch ID: **R88702** Analysis Date: **1/2/2024** SeqNo: **1853174**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0500									
Chloromethane	ND	0.150									
Dichlorotetrafluoroethane (CFC-114)	ND	0.0500									
Vinyl chloride	ND	0.0100									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.150									
1,1-Dichloroethene (DCE)	ND	0.0100									
Methylene chloride	ND	0.500									
1,1-Dichloroethane	ND	0.0100									
cis-1,2-Dichloroethene	ND	0.0500									
(MEK) 2-Butanone	ND	0.150									
Chloroform	ND	0.000540									
1,2-Dichloroethane	ND	0.000188									
Benzene	ND	0.00323									
Toluene	ND	0.200									
Tetrachloroethene (PCE)	ND	0.0100									
Chlorobenzene	ND	0.0100									
Ethylbenzene	ND	0.150									
m,p-Xylene	ND	0.300									
o-Xylene	ND	0.100									
Styrene	ND	0.0500									
1,1,2,2-Tetrachloroethane	ND	0.0200									
1,3,5-Trimethylbenzene	ND	0.100									
1,2,4-Trimethylbenzene	ND	0.150									
1,3-Dichlorobenzene	ND	0.0100									
1,4-Dichlorobenzene	ND	0.0100									
1,2-Dichlorobenzene	ND	0.0100									
1,2,4-Trichlorobenzene	ND	0.200									
Hexachlorobutadiene	ND	0.00589									
CFC-113	ND	0.0500									
Surr: 4-Bromofluorobenzene	3.91		4.000		97.7	70	130				

Work Order: 2312578
CLIENT: Herrera Environmental
Project: Everett RiverFront

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID: **2312578-001AREP** SampType: **REP** Units: **ppbv** Prep Date: **1/2/2024** RunNo: **88702**
Client ID: **South** Batch ID: **R88702** Analysis Date: **1/2/2024** SeqNo: **1853176**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	13.7	0.200						14.39	4.70	25	
Chloromethane	ND	0.600						0		25	
Dichlorotetrafluoroethane (CFC-114)	20.1	0.200						20.57	2.08	25	
Vinyl chloride	2.13	0.0400						2.219	4.18	25	
Trichlorofluoromethane (CFC-11)	1.02	0.200						1.082	5.51	25	
Chloroethane	1.61	0.600						1.633	1.64	25	
1,1-Dichloroethene (DCE)	0.0440	0.0400						0.04500	2.34	25	
Methylene chloride	ND	2.00						0		25	
1,1-Dichloroethane	ND	0.0400						0		25	
cis-1,2-Dichloroethene	0.315	0.200						0.3533	11.4	25	
(MEK) 2-Butanone	7.60	0.600						7.227	4.99	25	
Chloroform	0.0742	0.0400						0.08376	12.2	25	
1,2-Dichloroethane	ND	0.0400						0		25	
Benzene	8.85	0.0400						8.957	1.20	25	
Toluene	2.28	0.800						2.419	5.80	25	
Tetrachloroethene (PCE)	ND	0.0400						0		25	
Chlorobenzene	5.93	0.0400						6.124	3.29	25	I
Ethylbenzene	2.41	0.600						2.501	3.59	25	I
m,p-Xylene	5.39	1.20						5.693	5.49	25	I
o-Xylene	0.976	0.400						1.058	8.00	25	I
Styrene	ND	0.200						0		25	I
1,1,2,2-Tetrachloroethane	ND	0.0800						0		25	I
1,3,5-Trimethylbenzene	ND	0.400						0		25	I
1,2,4-Trimethylbenzene	1.95	0.600						2.033	4.11	25	I
1,3-Dichlorobenzene	ND	0.0400						0		25	I
1,4-Dichlorobenzene	0.215	0.0400						0.2125	1.03	25	I
1,2-Dichlorobenzene	ND	0.0400						0		25	I
1,2,4-Trichlorobenzene	ND	0.800						0		25	I
Hexachlorobutadiene	ND	0.200						0		25	I
CFC-113	ND	0.200						0		25	I
Surr: 4-Bromofluorobenzene	17.1		16.00		107	70	130		0		I

Work Order: 2312578
CLIENT: Herrera Environmental
Project: Everett RiverFront

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method TO-15

Sample ID: **2312578-001AREP** SampType: **REP** Units: **ppbv** Prep Date: **1/2/2024** RunNo: **88702**
Client ID: **South** Batch ID: **R88702** Analysis Date: **1/2/2024** SeqNo: **1853176**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

NOTES:
I - Internal standards were outside of acceptance criteria. Result is an estimate.

Fremont Analytical
An Alliance Technical Group Company

Sample Log-In Check List

Client Name:	HERRE	Work Order Number:	2312578
Logged by:	Clare Griggs	Date Received:	12/28/2023 1:10:00 PM

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes ☐	No ☐	Not Present ☑
4.	Was an attempt made to cool the samples?	Yes ☐	No ☐	NA ☑
5.	Were all items received at a temperature of >2°C to 6°C *	Yes ☐	No ☐	NA ☑
6.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
7.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8.	Are samples properly preserved?	Yes ☑	No ☐	
9.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10.	Is there headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
11.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
12.	Does paperwork match bottle labels?	Yes ☑	No ☐	
13.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
14.	Is it clear what analyses were requested?	Yes ☑	No ☐	
15.	Were all hold times (except field parameters, pH e.g.) able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☑ No ☐ NA ☐

Person Notified:	Tyson Wright / Camryn St	Date:	12/29/2023
By Whom:	Clare Griggs	Via:	☑ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:	Confirming COC/analyses		
Client Instructions:	See revised COC; test for select VOCs, select Sulfur, & Major Gases.		

17. Additional remarks:

Item Information

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

Air Chain of Custody Record & Laboratory Services Agreement

Fremont Analytical
3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Date: 12/28/2023 Page: 1 of: 1

Laboratory Project No (Internal): 2312578

Project Name: Everett Riverfront

Special Remarks:

Client: HERRERA

Project No: 22-07824-100

Address: 2200 6th Ave

Location: Everett

City, State, Zip: Seattle, WA 98121

Collected by: Camryn Stelter

Telephone: 206 854 7302

Reports to (PM): Tyson Wright

Air samples are disposed of one week after report is submitted to client unless otherwise requested. ☐ OK to Dispose ☐ Hold (fees may apply)

Fax:

Email (PM): cstelter@herrerainc.com

	Sample Name	Canister / Flow Reg Serial #	Sample Type (Matrix) *	Container Type **	Expected Fill Time / Flow Rate	Sample Start Date & Time	Field Initial Sample Pressure (" Hg)	Sample End Date & Time	Field Final Sample Pressure (" Hg)	Analysis: Full list VOCs TO15	Select VOCs TO15 ***	APH TO15	Siloxanes TO15	Sulfur TO15	Major Gases 3C	Helium 3C Mod	VOCs 8260	GX/BTEX 8260		Comments	Internal: Final Pressure ("Hg)
1	South	~~4905~~ ~~4689~~ FC-1819	L	1L	150CC/MIN	12/28/23 10:07	-30	12/28/23 10:19	-5											See table provided to email	4
2	north	~~4689~~ 4905 FC-~~19~~ 18	L	1L	150CC/MIN	12/28/23 10:32	-40	12/28/23 10:45	-10											See table provided to email	10
3																					
4																					
5																					

* Matrix Codes: AA = Ambient Air OA = Outdoor Air IA = Indoor Air S = Subslab / Soil Gas SVE = SVE L = Landfill D = Digester

** Container Codes: BV = 1 Liter Bottle Vac 6L = 6L Canister 1L = 1L Canister CYL = High Pressure Cylinder F = Filter S = Sorbent Tube TB = Tedlar Bag

*** Select one: ☐ BTEXN & APH ☐ PCE & Breakdown ☒ Other, specify in comments See table provided for analysis

Turn-Around Time: ☒ Standard ☐ Next Day ☐ 3 Day ☐ Same Day ☐ 2 Day ____ specify

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x	Camryn Stelter	12/28/23 1310	x		12/28/23 1310
Relinquished (Signature)	Print Name	Date/Time	Received (Signature)	Print Name	Date/Time
x			x		

Fremont Analytical

3600 Fremont Ave N.
Seattle, WA 98103
Tel: 206-352-3790
Fax: 206-352-7178

Air Chain of Custody Record & Laboratory Services Agreement

Date: 12/28/2023 Page: 1 of: 1

Laboratory Project No (Internal): 2312578

Project Name: Everett Riverfront

Special Remarks:
select lists per email, report to MDL for select compounds, edit 12/28/23 -cg

Client: HERRERA

Project No: 22-07824-100

Address: 2200 6th Ave

Location: Everett

City, State, Zip: Seattle, WA 98121

Collected by: Camryn Stelter

Telephone: 206 854 7302

Reports to (PM): Tyson Wright

Air samples are disposed of one week after report is submitted to client unless otherwise requested. ☐ OK to Dispose ☐ Hold (fees may apply)

Fax:

Email (PM): cstelter@herrerainc.com

	Sample Name	Canister / Flow Reg Serial #	Sample Type (Matrix) *	Container Type **	Expected Fill Time / Flow Rate	Sample Start Date & Time	Field Initial Sample Pressure (" Hg)	Sample End Date & Time	Field Final Sample Pressure (" Hg)	Analysis: Full list VOCs TO15	Select VOCs TO15 ***	APH TO15	Siloxanes TO15	Sulfur TO15	Major Gases 3C	Helium 3C Mod	VOCs 8260	GX/BTEX 8260		Comments	Internal: Final Pressure ("Hg)
1	South	~~4905~~ ~~4689~~ FC-1819	L	1L	150CC/MIN	12/28/23 10:07	-30	12/28/23 10:19	-5		X			X	X					See table provided to email	4
2	north	~~4689~~ ~~4905~~ FC-~~19~~ 18	L	1L	150CC/MIN	12/28/23 10:32	-40	12/28/23 10:45	-10		X			X	X					See table provided to email	10
3																					
4																					
5																					

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x	Camryn Stelter	12/28/23 1310	x		12/28/23 1310
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x			x		