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Technical Memorandum

DATE:	December 1, 2025
TO:	Ryan Gardiner, Washington State Department of Ecology Jerome Cruz, Public Health – Seattle & King County
FROM:	Laura Lee; Chris Bourgeois, LG; Michael Brady, LG, LHG; Drew Norton, PE
SUBJECT:	Supplemental Gas Probe GP-32S Methane Exceedance
CC:	Mark Jusayan, LG; Min-Soon Yim; and Shannon Straws, Seattle Public Utilities Ashley Piatek, CenterPoint Properties
PROJECT NUMBER:	553-1550-067
PROJECT NAME:	South Park Landfill

This technical memorandum summarizes the investigation, findings, and recommendations associated with methane exceedances at supplemental gas probe GP-32S at the South Park Landfill. The South Park Landfill is a former municipal solid waste landfill in the South Park neighborhood of Seattle, Washington, generally located at 8100 and 8200 2nd Avenue South, in Section 32 of Township 24 North,
Range 4 East (Figure 1).

Introduction

Parametrix is the Site Coordinator for the Settlement Area under the Consent Decree (Ecology 2019) with the Washington State Department of Ecology (Ecology) and potential liable parties (PLPs). Parametrix coordinates the long-term monitoring and reporting required under the Cleanup Action Plan (Ecology 2021) and the Post-Closure Operation, Maintenance, and Monitoring Plan (OMMP; Floyd|Snider and others 2018). As part of the CAP and OMMP, methane concentrations in soil at the landfill boundary must not exceed 5% by volume, which is the lower explosive limit (LEL) for methane, or contingent actions are triggered.

Gas probe monitoring is completed for the Settlement Area on a quarterly basis at 17 perimeter gas probes for landfill gas (LFG) to ensure the safety of buildings surrounding the landfill. Figure 2 displays the location of the 17 perimeter gas probes. The threshold criteria that would trigger off-site building monitoring is 1.25% by volume (25% of the LEL) for all probes unless protectiveness has previously been established (Attachment A). Once protectiveness at adjacent buildings has been established, the criterion for off-site building monitoring is 5% by volume at adjacent perimeter gas probes.

Four of the 17 gas probes at the South Park Landfill have historically been blocked with water, preventing monitoring of LFG in the shallow subsurface and limiting the ability to routinely confirm protectiveness. A work plan was prepared and implemented to install shallow supplemental gas probes at locations GP-11, GP-13, GP-15, and GP-32 (Figure 2). The supplemental gas probes were installed in late July/early August 2025 and monitored for the first time in October 2025. Methane exceeding the LEL was detected at GP-32S. Attachment B includes the construction logs for gas probe GP-32 and supplemental probe GP-32S.

This technical memorandum presents the history of monitoring and site characterization, summarizes the conceptual model and actions implemented in response to the GP-32S methane exceedance, and provides interpretations and recommendations based on the investigation findings.

Background

Landfill Boundary

The Settlement Area, established under Agreed Order No. 6706 between Seattle Public Utilities (SPU), South Park Property Development, LLC (SPPD), and Ecology, encompasses the two primary parcels containing landfill waste mass: the City-owned South Recycling and Disposal Station (SRDS) and the CenterPoint South Park LLC (CPSP) property (formerly owned by SPPD). The Settlement Area also includes portions of adjacent City and State rights-of-way (ROWs) associated with the landfill.

During the Remedial Investigation/Feasibility Study (RI/FS; Floyd|Snider and others 2021), aerial photographs were used to define the approximate extent of solid waste at the landfill. From 1936 through 1960, waste was placed up to the southern edge of South Sullivan Street. Around 1967, South Sullivan Street was realigned approximately one-half block north, resulting in the current roadway overlying the waste footprint. Presently, a portion of the Frank Lenci Corporation parcel (Parcel ID 3224049045) at 426 South Cloverdale Street appears to overlie this waste. The approximate limit of historical waste, as interpreted from the RI/FS aerial imagery, is shown on Figure 3.

Ecology defined the southern boundary of the South Park Landfill Settlement Area at the southern edge of the SPPD parcel, excluding the Frank Lenci Corporation property and the adjacent South Sullivan Street ROW. This decision was based on investigations indicating that these areas did not contain landfill waste with hazardous substances.

As documented in Section 4.2.3.2 of the *Remedial Investigation/Feasibility Study* (RI/FS; Floyd|Snider et al. 2021), soil borings completed along South Sullivan Street and on the Lenci property encountered primarily wood and brick debris with occasional glass or metal fragments. Analytical results showed no exceedances of cleanup levels, and groundwater samples did not indicate contamination. Although aerial photographs and historical records indicate the waste materials were placed south of the original Sullivan Street alignment, the debris was limited in extent and not considered landfill waste of regulatory concern. The *Cleanup Action Plan* (CAP; Ecology 2021) reflects this boundary interpretation, depicting the edge of landfill along the southern edge of the current Sullivan Street ROW.

Historical Investigations

A geotechnical investigation was completed on the Frank Lenci Corporation parcel in 1979, prior to construction of the current building (RZA 1979). Four boreholes were drilled on the parcel to depths of 24 to 31.5 feet below ground surface (bgs). Waste was encountered in boreholes B2, B3, and B4 from approximately 4.5 to 7 feet bgs. The report notes “The fill generally consisted of a loose, gray sand with considerable wood and miscellaneous debris.” The locations of the three boreholes indicate the waste extends beneath a substantial portion of the current building. A copy of the report is included in Attachment C.

Gas probe GP-32 (construction log included in Attachment B) was installed on the Frank Lenci Corporation parcel in 2010. Gray sand was encountered below the asphalt to a depth of 3.5 feet bgs, then waste intermixed with silt was encountered from 3.5 feet bgs down to 7 feet bgs. Wood debris with white and black layered material having a rotten egg odor was encountered from 7 to 8.5 feet bgs, and photoionization detector (PID) readings were measured up to 50.3 ppm. Clayey silt with organics typical of native material was encountered below this interval to the bottom of the borehole at 10 feet bgs. The native deposits had PID readings of approximately 15 ppm. GP-32 was screened from 5 to 10 feet bgs; however, the screen has been blocked with water since installation. The water

level at the time of completion was approximately 2 feet bgs, well above the top of the screened interval.

A barhole investigation was completed near GP-32 as part of the RI/FS (Floyd|Snider and others 2021). Barhole location BH-32 (Figure 2) was investigated seven times in 2011 and was found to contain up to 0.1% methane with a mean concentration of 0.02%. As shown on Figure 2, this location is situated slightly farther west, near the margin of the landfill.

Appendix L of the RI/FS contains a copy of the Phase 2 Environmental Site Assessment (ESA) completed on the Frank Lenci Corporation parcel (EAI 2017). The investigation was conducted at the request of Ecology to determine the presence of landfill-related contaminants. Environmental Associates, Inc. (EAI) completed the assessment on behalf of the Frank Lenci Corporation.

Three boreholes were advanced within the northern parking lot near the area of suspected waste to depths ranging from 12 to 22 feet bgs. Groundwater was encountered at approximately 5 feet bgs in all three boreholes. Waste with a rotting wood odor was observed from 4 to 6.5 feet bgs in borehole B1, from 3 to 10 feet bgs in B2, and from 3 to 4 feet bgs in B3. Soil samples collected from two of the boreholes were analyzed for petroleum hydrocarbons, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). EAI concluded that although waste was found in each borehole, analytical results indicated “a very low risk to the public/environment by these materials at the subject.” No LFG or vapor analysis was completed during this investigation.

Gas Probe Monitoring

As discussed above, the supplemental gas probes were installed in late July/early August 2025 and monitored for the first time on October 28, 2025. Within 24 hours, Parametrix notified the PLPs, Ecology and Public Health – Seattle & King County (Public Health) of the methane exceedance at supplemental probe GP-32S, where LFG was measured at up to 66.4% by volume. Table 1 provides the initial readings from October 28 through November 13, 2025. GP-32S was the only supplemental probe found with elevated concentrations of methane above the LFG trigger values.

Initial Response

The exceedance of 5% methane triggered an immediate response by the Site Coordinator, as required by the CAP and OMMP (Attachment A). SPU initiated daily monitoring of GP-32S the following day, excluding Saturdays due to restricted access, and began implementing additional actions to evaluate the extent of methane at the GP-32S location. These activities, coordinated with the Site Coordinator, are described in the following sections. Table 1 summarizes the daily monitoring results for gas probe GP-32S.

Additional Investigations

Sample Collection and Laboratory Analysis

Parametrix mobilized to the Lenci property on October 28, 2025, and collected air samples from GP-32S using Tedlar bags and a peristaltic pump. The samples were submitted for laboratory analysis using EPA Method 3C for major gases under rush turnaround. The analytical results (Attachment D) confirmed the presence of methane at a concentration of 68.2%. At SPU’s request, the laboratory also analyzed the sample for volatile organic compounds (VOCs) using EPA Method TO-17. The laboratory results (Attachment D) indicated the presence of sulfurous acid, which the analyst suspected could be related to weathered mercaptan. Puget Sound Energy (PSE) was subsequently contacted to verify whether a natural gas leak was present near the property (see below).

Surface Emission and Indoor Air Monitoring

Based on the exceedance at GP-32S, the property manager of the Frank Lenci Corporation building was contacted to notify them of the methane exceedance and to coordinate surface emission and indoor air monitoring (see Attachment A). SPU advised the property manager that permanent indoor methane monitors would be appropriate due to the close proximity to the landfill.

The monitoring was conducted on October 29, 2025, using a calibrated Landtec SEM 5000 portable methane detector. The SEM was used to screen the asphalt parking lot, the exterior of the building, and the interior of the northwest, northeast, and southeast portions of the Frank Lenci building. The southwest portion of the building, which includes two separate tenants, was not accessible at the time. Indoor methane concentrations ranged from 2 to 3.5 parts per million (ppm), generally consistent with background concentrations of 2 to 2.5 ppm. The highest concentration recorded with the SEM was approximately 5 ppm in the parking lot near the northwest corner of the building. The highest indoor measurement was 3.5 ppm, along the southern wall of the northwest tenant space (Full Circle, LLC). These results confirmed protectiveness of the occupied Frank Lenci building during the period when methane was measured at 68.2% at GP-32S on October 30.

At the request of building tenant Full Circle LLC, surface emission monitoring was repeated with the Landtec SEM 5000 on November 7, 2025. Methane concentrations ranged from 0 to 8.3 ppm across the Frank Lenci Corporation parcel, with an average of approximately 2.9 ppm. The areas monitored included interior and exterior areas of the northwest, northeast, southeast, and south-central portions of the building. The exterior of the southwest portion of the building was also screened; however, the interior space was not accessible at the time.

The highest methane concentrations (7 to 8.3 ppm) were observed along the northern boundary of the northwest tenant space (Full Circle LLC); however, when the area was resurveyed moments later, methane concentrations had returned to background levels of approximately 2 to 3 ppm. These concentrations are well below the 100 ppm threshold for off-site buildings and the 12,500 ppm (1.25%) threshold for on-site structures. The results of the November 7, 2025 surface emission and indoor air monitoring event confirmed the continued protectiveness of the Frank Lenci property. A map showing the monitored areas and preliminary results is included in Attachment E.

Gas Extraction System Check

Farallon (2025) mobilized to the South Park Landfill on October 30, 2025, to evaluate the status of the CenterPoint gas extraction system. Farallon reported that the gas system was running upon arrival, and that the eight LFG collectors located 165 to 300 feet from GP-32S were operating within normal parameters. The report from Farallon (2025) confirmed that the conditions observed at GP-32S were not related to any system faults or blocked extraction wells.

PSE Investigation

Puget Sound Energy (PSE) mobilized to the Lenci property on October 30, 2025, to determine whether the methane detected at GP-32S originated from nearby natural gas lines within the northern portion of the South Sullivan Street ROW or from the distribution line that serves the western portion of the Frank Lenci building. The distribution line is located approximately 80 feet east of GP-32/GP-32S, and PSE operates a vault box on this line just south of Sullivan Street, within the Frank Lenci Corporation property.

PSE (2025) identified up to 1% methane in their distribution box and approximately 30 to 45% methane in GP-32S. Field meters were used to check for ethane—a tracer added to their piped gas—but none was detected in the probe or elsewhere in the parking area. According to PSE, ethane is the

best tracer gas for determining whether methane originates from a leaking natural gas line. PSE then brought in a subcontractor with an instrument specifically calibrated for ethane detection. PSE and their subcontractor performed the initial ethane analysis with calibrated field meters, but the results were inconclusive. Following their protocol, PSE collected a gas sample for laboratory analysis. On October 31, 2025, Parametrix and SPU were notified that no ethane had been detected in the sample, confirming that the gas in GP-32S was not from a PSE natural gas source.

SPU Investigation

SPU conducted purge testing of GP-32S using an auxiliary pump on October 29, 2025, to evaluate whether the LFG concentrations at the probe could be reduced by pumping. The auxiliary pump operated at a rate of approximately 5 liters per minute (L/min) and purged for approximately 107 minutes. Methane concentrations decreased from 66.6% to 61.1%. Results from the purge test are included in Attachment F. The results indicate the presence of a LFG pocket beneath the asphalt that is not confined solely to the area of the probe.

SPU mobilized to the Lenci property on November 3, 2025, to conduct a barhole investigation in the vegetated strip south of Sullivan Street. Seven barholes were advanced (Locations -3, -2, -1, 0, 1, 2, and 3), spaced approximately 5 feet apart and completed to depths of approximately 3 feet bgs. No methane was detected in any of the barholes (SPU 2025a). A summary of the results is included in Attachment F.

SPU mobilized again on November 4, 2025, to conduct a barhole investigation farther south, in the vegetated strip just north of the asphalt on the Frank Lenci Corporation parcel and within the gravel area southwest of GP-32S. Seven barholes were advanced north of the asphalt (Locations -31, -21, -11, 00, 11, 21, and 31) and one barhole southwest of GP-32S (Location 40). Methane concentrations were measured after 10-second and 100-second purges. Methane ranged from 3 to 49% at 10 seconds and 0.1 to 4.6% at 100 seconds north of the asphalt, and from 0.7 to 0.1% southwest of GP-32S (SPU 2025b). A summary of the results is provided in Attachment F. Methane detected in barholes immediately north of the Lenci property asphalt, but not in barholes located approximately 15 feet farther north near South Sullivan Street, suggests that the gas measured at GP-32S originates from a pocket beneath the asphalt on the Frank Lenci Corporation parcel.

Conclusions

Based on the completed investigations, there is a potential source of LFG on the Frank Lenci Corporation parcel that lies outside the influence of existing LFG control systems and the defined Settlement Area.

LFG appears to be trapped below the asphalt parking lot of the Frank Lenci Corporation parcel, with some methane venting through the vegetated strip north of the parking lot at concentrations ranging from 3 to 50% by volume. The nearest gas extraction wells are located approximately 165 to 300 feet away, and this portion of the landfill is outside the influence of the active gas extraction system.

Previous assessments found that the waste is comprised primarily of wood chips with minor amounts of glass and debris and does not pose a risk to human health or the environment. A limited gas evaluation was completed at a single barhole location (BH-32) in 2011, northwest of GP-32 (Figure 2). Gas probe GP-32 has been blocked with water since construction in 2010.

Parametrix and SPU have conducted quarterly LFG monitoring at perimeter probes since 2020. In 2024, a work plan was developed to install supplemental probes at four locations, including GP-32. Supplemental gas probe GP-32S was installed in August 2025 and first monitored on October 28, 2025, when methane was measured at 66.3%, above the 5% by volume LEL.

Laboratory analyses were completed to confirm the methane concentrations and evaluate the source. PSE verified that the methane was not from its natural gas distribution system, based on the absence of ethane, a tracer compound used in their system. Farallon confirmed that the CenterPoint gas extraction system was operating normally, with all eight extraction points nearest GP-32S functioning as designed.

SPU has conducted daily monitoring of GP-32S, except on Saturdays when the associated tenant within the Frank Lenci Corporation parcel is closed. Methane concentrations have remained above 60%. Parametrix performed surface emission and indoor air monitoring, including outdoor areas of the parcel, for the Frank Lenci Corporation building, on October 29 and November 7. Methane concentrations inside the building and within the parking lot areas were measured well below the 100 ppm threshold for off-site buildings and the 12,500 ppm (1.25%) threshold for on-site structures.

The methane detected at GP-32S appears to originate from waste in place beneath the Frank Lenci Corporation parcel and not from the main portion of the landfill further north. Barholes completed just south of Sullivan Street showed no methane, while barholes located approximately 15 feet farther south, just north of the asphalt parking lot within the Frank Lenci Corporation parcel, showed up to 46% methane. These findings indicate that waste beneath the parcel is likely forming a trapped LFG pocket below the asphalt that slowly releases to the north.

Recommendations

Based on the results of this investigation, we recommend the following:

- Data collected to date indicate that methane concentrations are not changing in response to pumping or barometric conditions. Proceed to weekly monitoring of GP-32S. Continue weekly monitoring for an initial period of four weeks. If concentrations remain stable, reduce the frequency to monthly for the subsequent three months to confirm continued stability, after which quarterly monitoring of the gas probe should resume. Should concentrations become unstable at any stage, monitoring will revert to the next higher frequency until stable conditions are re-established.
- Continue weekly indoor air monitoring within tenant spaces of the Frank Lenci Corporation building for those tenants that request it, using the Landtec SEM 5000 or comparable methane detection device. Monitoring should continue, at tenants' request, until methane alarms are installed inside the building.

  If methane concentrations at GP-32S remain above the LEL and concentrations within the monitored tenant spaces remain below the 100 ppm (off-site) and 12,500 ppm (on-site) thresholds, protectiveness will be considered confirmed. Following this verification, GP-32/GP-32S will be added to the list of probes with established protectiveness and documented in the annual report to Ecology.
- Ecology and PLPs should discuss removal of GP-32/GP-32S as a compliance probe, as these probes are located above waste and do not meet the criteria for a perimeter probe.
- Coordinate a meeting between Ecology, PHSKC, and the property owner/property managers of the Frank Lenci Corporation parcel to discuss the implications of the findings of these and previous investigation findings. Waste is present below the parcel and has been confirmed to be generating LFG at concentrations above the LEL.

  During this meeting, PHSKC should describe the applicable requirements of King County Code Title 10 (King County 2025), including provisions for abandoned landfill sites (10.09.040), methane monitoring (10.09.050), and construction standards for methane

control (10.09.060), as these are regulatory requirements under their authority. These requirements may not have been recognized at the time the building was constructed in 1980.

SPU and the Site Coordinator can provide their interpretation of the findings based on the current understanding of site conditions and existing documents (e.g., CAP, RIFS), but determinations regarding regulatory consequences or required follow-up actions rest with Ecology and KCPH. One potential corrective measure identified in the CAP (2021) is the installation of methane detectors with alarms.

References

EAI (Environmental Associates, Inc.). 2017. Preliminary Phase II Subsurface Sampling & Testing, Lenci Parcel, 424–432 South Cloverdale Street, Seattle, Washington. Prepared for the Frank Lenci Corporation.

Ecology (Washington State Department of Ecology). 2019. Consent Decree with the City of Seattle and South Park Property Development, LLC.

Ecology. 2021. South Park Landfill Final Cleanup Action Plan – Amended 2021.

EPA (U.S. Environmental Protection Agency). 2011. Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from Municipal Solid Waste Landfills.

Farallon. 2025. Email regarding October 30, 2025, inspection of the Landfill Gas Collection and Control System, in response to the October 29 notice to Ecology and Public Health regarding the elevated methane concentration at GP-32S.

Floyd|Snider and others (Aspect, Herrera, and Floyd|Snider). 2018. South Park Landfill Post-Closure Operations, Maintenance, and Monitoring Plan. Prepared for South Park Property Development, LLC, and the City of Seattle.

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King County. 2025. King County Code Title 10 – Solid Waste. Updated January 30, 2025.

PSE (Puget Sound Energy). 2025. Personal communication regarding leak testing results along South Sullivan Street and the distribution line to the Frank Lenci Corporation parcel.

RZA (Rittenhouse-Zeman & Associates, Inc.). 1979. Soils and Foundation Investigation, Proposed Warehouse Site, Cloverdale Street and Fifth Avenue South, Seattle, Washington. Prepared for the Lenci Corporation.

SPU (Seattle Public Utilities). 2025a. Email summary for barhole testing at South Park GP-32S. November 3, 2025.

SPU. 2025b. Email summary for barhole testing at South Park GP-32S. November 4, 2025.

Attachments

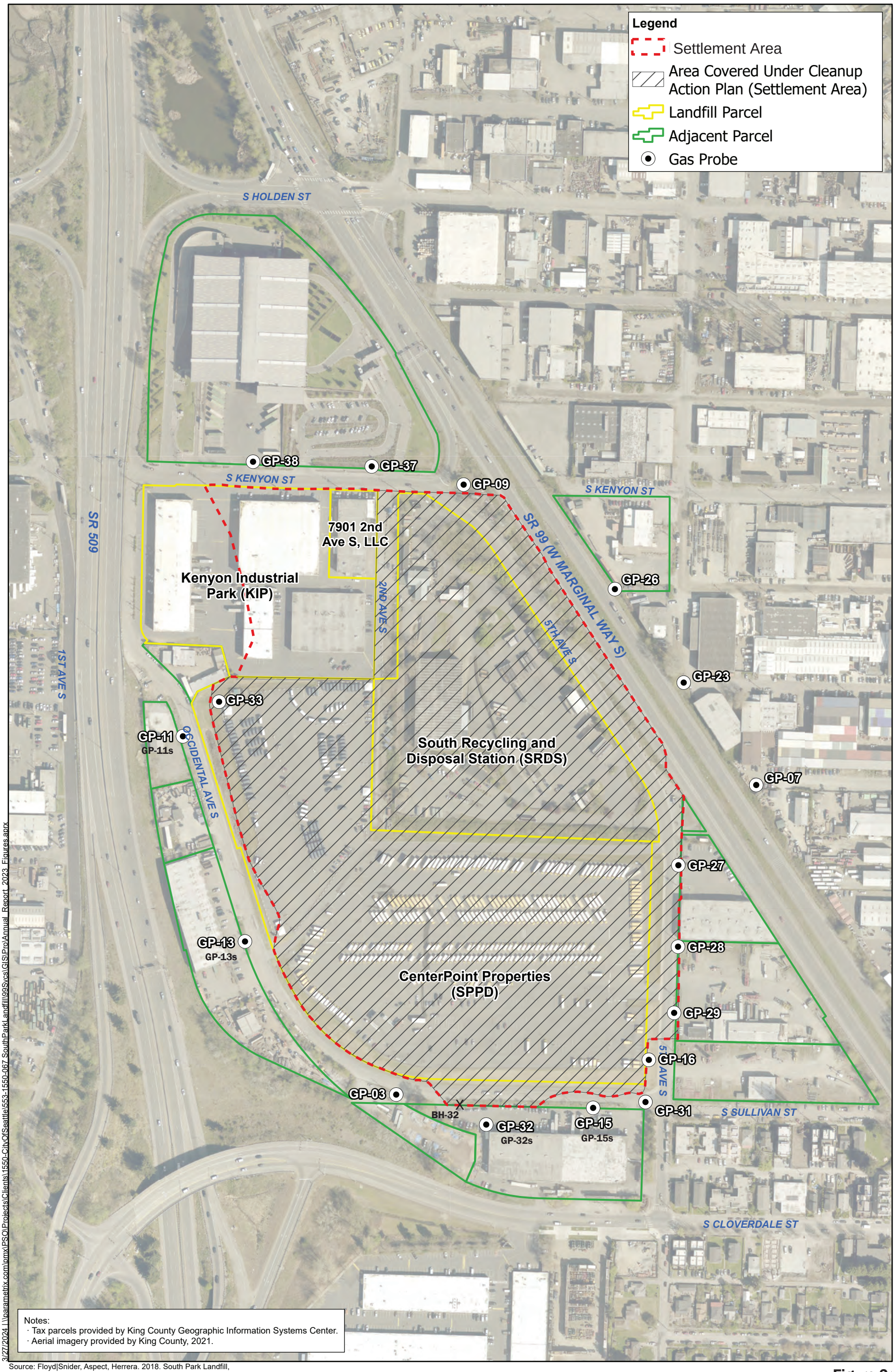
Figures

Table

Attachments

Figures

Figure 1
Vicinity Map
South Park Landfill



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Source: Floyd|Snider, Aspect, Herrera. 2018. South Park Landfill, Landfill Post-Closure Operations, Maintenance, and Monitoring Plan.

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Figure 2
Perimeter Gas Probe Network
South Park Landfill

Legend

Approximate Extent of Solid Waste (based on Aerial Photographs provided by Seattle Public Utilities; refer to Appendix A)

- 1936
- 1941
- 1946
- 1956
- 1960
- 1967, Approximate Landfill Boundary (as shown in RI/FS Work Plan [Farallon 2010a])

Adjacent Non-Landfill Fill

- Cement Kiln Dust Fill Area
- Unclassified Fill Area
- Landfill Parcel
- Adjacent Parcel
- Former Auto-Wrecking
- Former South Sullivan Street Alignment

Notes:
· Tax parcels provided by King County Geographic Information Systems Center.
· Orthoimagery provided by NearMap, September 27, 2015.

Abbreviation:
· RI/FS = Remedial Investigation/Feasibility Study

S HOLDEN ST
Cement Kiln Dust Fill Area (removed)
Cement Kiln Dust Fill Area (removed)
7901 2nd Ave S
Former Auto-Wrecking Yard
S KENYON ST
S KENYON ST
SR 99 (W MARGINAL WAY S)
Former Auto-Wrecking Yard
SR 509
1ST AVE S
Kenyon Industrial Park
5TH AVE S
South Recycling and Disposal Station
OCCIDENTAL AVE S
South Park Property Development
Cement Kiln Dust Fill Area
5TH AVE S
Former Auto-Wrecking Yard
S SULLIVAN ST
S Sullivan St (circa 1936–1967)

N

0 125 250 500
Scale in Feet

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Remedial Investigation/Feasibility Study
South Park Landfill
Seattle, Washington

Figure 3
Historical Footprint of Operations and Fill
South Park Landfill

I:\GIS\Projects\COS-SPARK\MXD\RIFS\RIFS_2016\Figure 4.1 Historical Footprint of Operations.mxd
9/28/2017

Table

Table 1. Gas Probe GP-32S Montioring Results, Landfill Gas Trigger Response, South Park Landfill

Date	Time	Methane (%)	Carbon Dioxide (%)	Oxygen (%)	Static Pressure (inches of water column)	Barometric Pressure (inches of mercury)	Blocked ?	Comment
10/28/2025	10:39	66.4	16.7	0.0	0.00	30.2	FALSE	90 sec purge
10/29/2025	10:46	66.6	16.6	0.0	0.00	30.45	FALSE	60 sec purge
10/30/2025	9:32	65.4	16.5	0.1	0.02	30.28	FALSE	60 sec purge
10/31/2025	10:42	64.9	16.8	0.0	0.03	30.05	FALSE	60 sec purge
11/2/2025	13:02	65.4	16.7	0.0	0.00	30.45	FALSE	60 sec purge
11/3/2025	8:36	67.4	16.9	0.1	-0.06	29.98	FALSE	80 sec purge
11/4/2025	8:05	67.0	16.6	0.1	0.00	30.01	FALSE	60 sec purge
11/5/2025	8:03	68.2	16.9	0.1	0.03	29.49	FALSE	60 sec purge
11/6/2025	12:34	67.1	16.7	0.1	0.35	29.83	FALSE	60 sec purge
11/7/2025	9:16	67.2	16.9	0.1	-0.05	30.21	FALSE	60 sec purge
11/9/2025	8:11	69.0	16.5	0.0	0.00	30.17	FALSE	90 sec purge
11/10/2025	10:13	69.3	16.6	0.1	-0.01	30.25	FALSE	60 sec purge
11/11/2025	10:26	70.0	17.0	0.0	-0.08	30.25	FALSE	90 sec purge
11/12/2025	9:35	70.0	17.5	0.0	0.04	29.88	FALSE	60 sec purge
11/13/2025	12:25	70.2	17.9	0.0	0.17	29.6	FALSE	60 Second Purge
11/14/2025	8:37	70.8	17.5	0.0	0.46	29.78	FALSE	60 Second Purge
11/16/2025	13:32	71.4	18.5	0.0	0.21	29.58	FALSE	60 sec purge
11/17/2025	8:49	71.5	18.4	0.0	-0.02	29.84	FALSE	60 sec purge
11/18/2025	9:47	71.4	17.9	0.0	-0.06	30.15	FALSE	60 sec purge
11/19/2025	9:11	72.1	17.2	0.0	0.02	30.04	FALSE	60 Second Purge
11/20/2025	10:06	72.7	17.1	0.0	-0.02	30.08	FALSE	60 Second Purge
11/21/2025	9:06	72.0	16.8	0.0	-0.01	30.28	FALSE	60 Second Purge
11/23/2025	13:14	72.4	17.4	0.0	0.15	30.1	FALSE	60 sec purge
11/24/2025	11:41	73.9	17.0	0.0	-0.17	30.38	FALSE	60 sec purge
11/25/2025	9:49	74.0	16.8	0.0	-0.11	30.28	FALSE	60 sec purge
11/26/2025	9:21	74.4	16.5	0.0	-0.14	30.28	FALSE	60 sec purge

Attachment A

LFG Flow Charts for Triggers and Contingent Actions

START HERE
for Perimeter Probe Monitoring

Measure LFG concentrations at Perimeter Probes
under Site Coordinator (SC) oversight
(locations listed on table below and Figure A.2.3)

Perimeter LFG probes are assessed probe by probe

Yes → Record results and return to routine monitoring program.

No → Are methane concentrations < 50,000 ppmv?

Yes → Is the methane concentrations < 12,500 ppmv (25% of the LEL) in probes with adjacent buildings where protectiveness has not been established? (See table below)

Yes → Record results and return to routine monitoring program.

No, new condition → Review LFG system at adjacent parcel and continue monitoring probe weekly until situation returns to < 12,500 ppmv or is demonstrated to be protective in adjacent buildings.

No → **Contingent Action Triggered by Exceedance**

1. SC notifies the Ecology PM, Public Health – Seattle & King County, and the rest of the PLP Group within 24 hours.
2. Parcel staff adjust adjacent LFG system to increase control on LFG, and (within 1 business day) begin DAILY monitoring at probe until control is established (using criteria above) then weekly for 4 weeks.
2. SC arranges monitoring of indoor air for LFG in any off-site buildings within 100 feet of the Landfill Property Boundary or Edge of Refuse (Figure A.2.2). Refer to Figure A.2.6 for triggers and actions based on indoor measurements.
3. SC notifies Ecology PM and Public Health – Seattle & King County of the actions taken and their effectiveness. If the adjustments to the adjacent gas system are not effective, then a plan must be prepared and submitted for approval.
4. SC reports exceedances and actions in Annual Report to Ecology.

Perimeter Probe Locations

Perimeter Probe	Adjacent LFG System	Off-site Buildings Adjacent to Probe[1]	Protectiveness Established
GP-03[2]	SPPD	No	NA
GP-07	SRDS/SPPD	Yes	No
GP-09	SRDS	No	NA
GP-11	SPPD	Yes	No
GP-13	SPPD	Yes	No
GP-15	SPPD	Yes	No
GP-16[2]	SPPD	No	NA
GP-23	SRDS	Yes	No
GP-26	SRDS	Yes	Yes
GP-27	SPPD	Yes	Yes
GP-28	SPPD	Yes	No
GP-29	SPPD	Yes	Yes
GP-31[2]	SPPD	Yes	No
GP-32[2]	SPPD	Yes	No
GP-33	SPPD	Yes	No
GP-37	SRDS	No	NA
GP-38	None	No	NA

Notes:
1 Adjacent off-site buildings within 100 feet of the Landfill Property Boundary or Edge of Refuse are shown on Figure A.2.2.
2 Due to shallow groundwater, these probes are only measured when the water table is low enough for the probes to function.

Abbreviations:
Ecology = Washington State Department of Ecology; LEL = Lower Explosive Limit; LFG = Landfill gas; OMMP = Operations, Maintenance, and Monitoring Plan; PLP = Potentially liable person; PM = Project manager; ppmv = parts per million by volume; SPPD = South Park Property Development, LLC; SRDS = South Recycling and Disposal Station

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Amended SPPD/City Cleanup Action Plan
OMMP
South Park Landfill
Seattle, Washington

Attachment A.2: Landfill Gas Monitoring and Contingency Plan
Figure A.2.4
Flow Chart for Triggers and Contingent Actions for Perimeter Probe Monitoring

12/29/2022

START HERE
for Off-Site Building Monitoring

This chart is initiated when an adjacent perimeter probe has methane > 50,000 ppmv (Figure A.2.4). Required notice has been given except to the owner of the off-site building when this chart begins.

Does the building have a methane detector with alarm in working order and an access agreement?

No → Site coordinator (SC) gives notice to off-site building owner(s) and requests permission to come on-site for monitoring.

Was access granted?

No → SC notify Public Health – Seattle & King County of current conditions and lack of access.

Yes → SC initiates monitoring with handheld unit with 100 ppmv detection limit.

Yes → Use the chart in Figure A.2.5 for on-site buildings, except the work is initiated by SC in accordance with the access agreement.

< 100 ppmv Methane	100 ppmv to < 12,500 ppmv Methane		> 12,500 ppmv Methane
Record results and return to routine monitoring program.	100 ppmv to < 5,000 ppmv Methane	5,000 ppmv to 12,500 ppmv Methane	• Evacuate building • ID source or entry point
	• Monitor daily	• Evacuate building • ID source or entry point	
	Verify methane concentrations with second meter		
	Notifications and Reporting • PLP Group • Owner already notified • Ecology PM • Public Health – Seattle & King County		
	Potential Corrective Measures • Seal cracks • Increase ventilation • Install methane detector with alarm • Perform active collection • Modify adjacent LFG system		

Abbreviations: Ecology = Washington State Department of Ecology; LFG = Landfill gas; OMMP = Operations, Maintenance, and Monitoring Plan; PLP = Potentially liable person; PM = Project Manager; ppmv = Parts per million by volume

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Aspect CONSULTING HERRERA

Amended SPPD/City Cleanup Action Plan
OMMP
South Park Landfill
Seattle, Washington

Attachment A.2: Landfill Gas Monitoring and Contingency Plan
Figure A.2.6
Flow Chart for Triggers and Contingent Actions for LFG Monitoring in Off-Site Buildings

12/29/2022

Attachment B

GP-32 and GP-32S Construction Logs

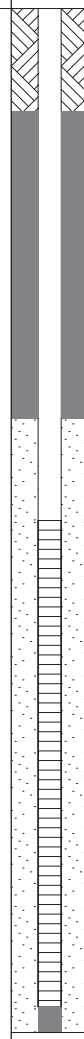
Boring Log

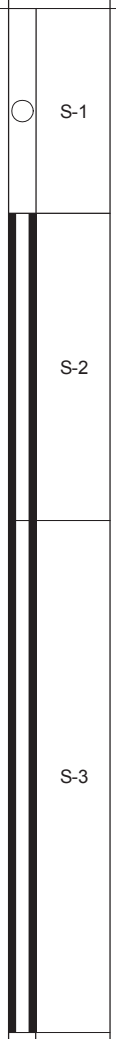
Aspect CONSULTING

Project Number	Boring Number	Sheet
100166	GP-32	1 of 1

Project Name: South Park Landfill
Location: Seattle, WA
Driller/Method: Cascade Drilling, LP / Direct Push Probe
Sampling Method: Continuous Core

Ground Surface Elev: 13.22' NAVD88
Depth to Water: 1.74' BGS
Start/Finish Date: 12/29/2010





Depth / Elevation (feet)	PID (ppm)	Drive/ Recovery	Material Type	Description	Depth (ft)
0				Asphalt. Cored and hand dug to 2' to clear asphalt and soil to set monument.	0
1				Wet, gray, gravelly SAND (SP); fine to medium sand.	1
2	0.0				2
3					3
4				Wet, dark brown, organic SILT (OL). Wood and white ceramic debris	4
5				Green glass shards.	5
6	7.0				6
7				Wood debris	7
8	50.3			Wet, white and black layered, unknown fill material (FILL); rotton egg odor.	8
9	15.0			Moist, dark brown, slightly clayey SILT (ML); with abundant organics.	9
10				Bottom of boring at 10' below ground surface. Soil vapors were measured using GEM 2000 gas analyzer: CH4: 00.1% CO2: 00.1% O2: 19.8% BAL: 80.1% H2S: 0.0 ppm	10
11					11
12					12
13					13
14					14

Sampler Type:
- No Recovery
- Continuous Core

PID - Photoionization Detector (Headspace Measurement)
- Static Water Level
- Water Level (ATD)

Logged by: AET
Approved by: JJS

_ENV BORING LOG SOUTH PARK LANDFILL 100116.GPJ December 1, 2011

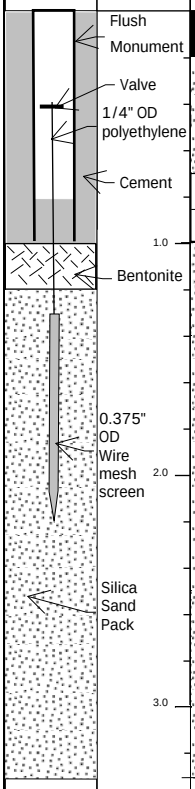
Parametrix

719 2nd Ave #200, Seattle, WA 98104

Phone: (206) 394-3700

Gas Probe Log GP-32S

UTM	:	**Drill Rig**	: Vactor / Air Knife	**Job Number**	: **553-1550-067**
Latitude	:	**Driller Supplier**	: **Holt Services**	**Client**	: **Seattle Public Utilities**
Longitude	:	**Logged By**	: Chris Bourgeois, LG	**Project**	: **South Park Landfill**
Ground Elevation	:	**Reviewed By**	: Michael Brady, LHG	**Location**	: **432 S. Cloverdale Street**
Total Depth	: 3.3 ft BGS	**Date**	: August 1, 2025	**Loc Comment**	: **Parking lot north of building, 2-3 feet west of GP-32**



Depth (ft)	USCS Graphic Log	USCS	Material Description	PID (ppm)
		Asp	Asphalt.	PID
		(fill)	FILL: Gray sand, medium sand and gravel, some minor brick, dry to moist.	
1.0		(fill)	FILL: Brick, red colored brick debris, minor silt and sand.	
		(fill)	FILL: Gray sand, fine to medium sand with gravel and small cobbles, minor silt, moist.	
3.0			No water present within the bottom of the vactor excavation at time of completion.	
			Bottom of Excavation Terminated at 3.3 feet bgs.	

Soil cores not returned for screening, removed via air knife/vactor.

Notes:

Installed via air knife and vactor.

Multi-Rae 5-gas meter used for Health and Safety, elevated methane was not detected in the work area during installation.

Attachment C

Historical Lenci Properties Investigations

- ☐ City box number C-2
- ☐ Title/cover page w/the following info:
  - ☑ Company (author) name
  - ☑ Report Date
  - ☑ Project name
  - ☑ Company's job number
  - ☐ City DCLU project number (7-digit number)
  - ☐ City Permit number (6-digit number)
  - ☐ Kroll map index number (3-digit number, w?/E,W,N,S)
  - ☐ Green label
  - ☐ Site address (may be on 1st or 2nd page of text)
- ☐ Executive Summary and associated figures
- ☐ Table of Contents
- ☐ Project Location Plan/Map or Vicinity Map
- ☑ Site Plans, Boring Location Plans, or Exploration Plans
- ☐ Survey
- ☐ Geologic Maps
- ☐ Cross Sections/Subsurface Profiles
- ☐ Fill or Peat Thickness Maps and Contour Maps
- ☑ Boring Logs
- ☑ Geology Text (if no logs)
- ☐ Soil Classification Key/Boring Log Key
- ☐ Probe Logs
- ☐ Test Pit Logs
- ☐ Monitoring Well Logs
- ☐ Cone Penetrometer Logs
- ☐ Shear Wave Velocity Measurements
- ☐ Groundwater Maps
- ☐ GW Elevation Tables/Data
- ☐ Soils Lab Testing (Geotechnical) Summary Tables
  - ☐ Grain Size Analyses/Hydrometer Analyses
  - ☐ Atterberg Limits
  - ☐ Strength tests: Triaxial, Unconfined, Direct Shear
  - ☐ Organic Content
  - ☐ ^{14}C or Radiocarbon Testing
  - ☐ Other_____
- ☐ Soil Chemical Analytical Testing Summary Tables
- ☐ Water/Groundwater Chemical Analytical Summary Tables
- ☐ Comments_____

_____

- ☐ Date Copied 2-14-99 By CM

2/9/99

424 S CLOVERDALE ST.

RITTENHOUSE-ZEMAN & ASSOCIATES, INC.

GEOLOGY & SOILS ENGINEERING

13837 N.E. 8th Street, Bellevue, Washington 98005 (206) 746-8020

8050 S.W. Cirrus Drive, Beaverton, Oregon 97005 (503) 644-9141

September 28, 1979 W-3148

Lenci Corporation
12205 S.E. 60th
Suite.44
Bellevue, Washington 98006

Attention: Mr. John Pietromonoco

Subject: Soils and Foundation Investigation
Proposed Warehouse Site
Cloverdale Street and Fifth Avenue South
Seattle, Washington

424 S. Cloverdale St.
509044

Gentlemen:

At your request, we are pleased to present the results of our soils and foundation investigation at the above-mentioned site. It is our understanding that a warehouse structure, approximately 56,000 square feet in size, is currently planned for the site. This report summarizes our findings and presents conclusions and recommendations pertinent to development of the property.

SITE DESCRIPTION

The property under investigation is located at the northwest corner of Cloverdale Street and Fifth Avenue South. The property is currently occupied by an auto wrecking yard. The irregularly shaped, gently sloping parcel is approximately three acres in size. No substantial vegetation exists on the site.

SUBSURFACE EXPLORATION

Our field exploration program consisted of drilling four borings using a continuous flight, hollow-stem, power auger. Samples were taken at selected intervals with the Standard Penetration Test being the primary sampling technique. This test consists of driving a 2-inch O.D. split spoon sampler 18 inches with a 140 pound hammer free falling a distance of 30 inches. The number of blows required to drive the sample is termed the "Standard Penetration Resistance" (N) and is an approximate measure of the in-situ relative density. These resistance values (N) are plotted on the right side of the boring logs in Appendix "A". Samples retained in the sampler were classified in the field by an engineering geologist from our firm. Representative samples were placed in air tight jars and returned to our laboratory for reinspection and testing.

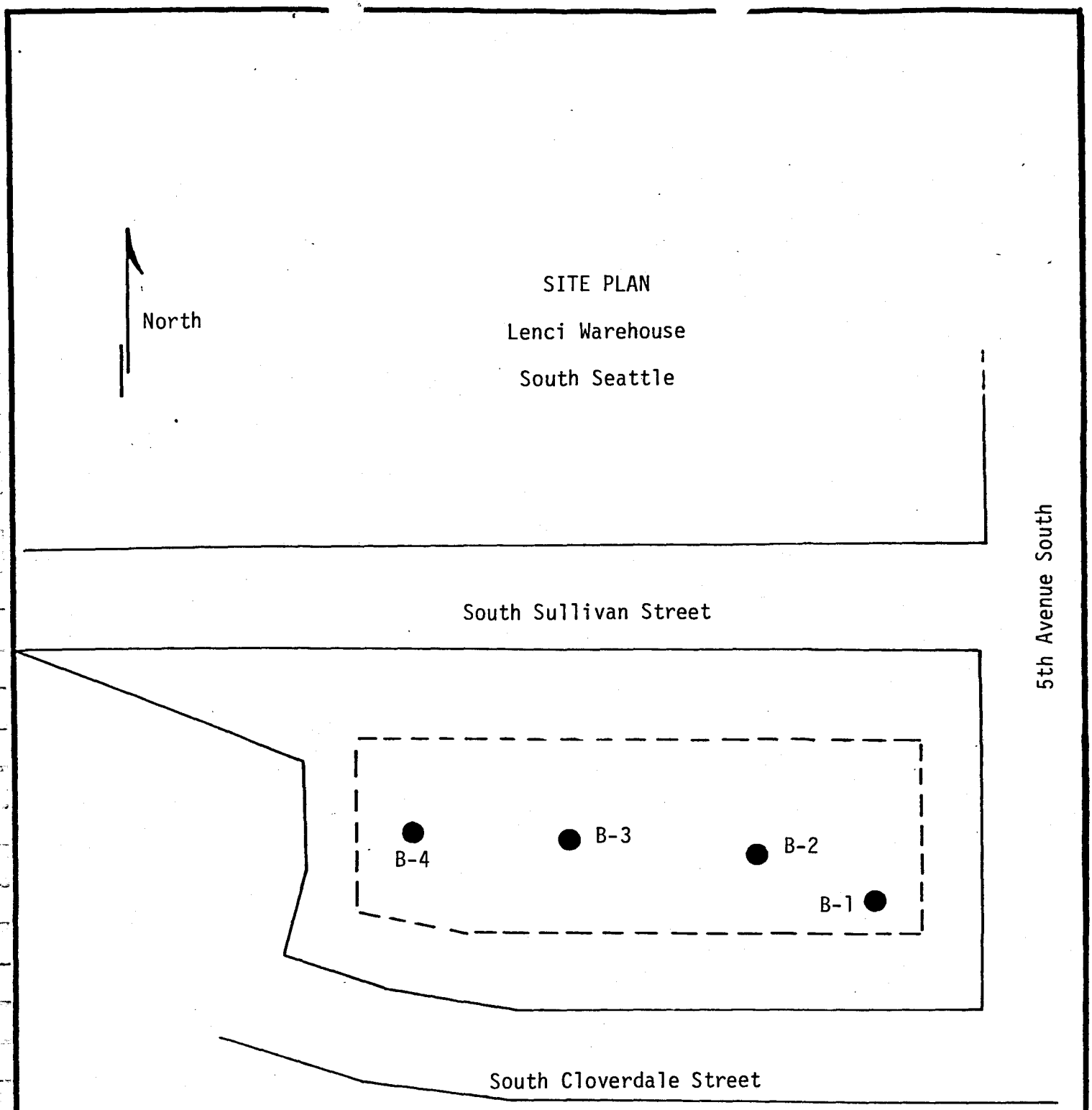
In addition to split spoon samples, undisturbed samples of cohesive soils were obtained by hydraulically pushing a 3-inch O.D. Shelby Tube sampler into the soil beneath the auger. Torvane shear strength determinations were obtained in the field from these samples.

Approximate boring locations can be seen on the attached Site Plan.

SUBSURFACE CONDITIONS

In the borings No. 1 through No. 4, soft, gray silt and loose, dark gray, silty sand was encountered to depths of 13.5 to 20.0 feet. Beneath this, a medium dense to dense, dark gray to black sand was noted.

At borings No. 2, 3, and 4, fill was encountered to depths of 4.5 to 7.0 feet. The fill generally consisted of a loose, gray sand with considerable wood and miscellaneous debris.



● B-4 Indicates Boring Location

RITTENHOUSE - ZEMAN & ASSOC., INC.
FOUNDATION AND SOILS ENGINEERING, GEOLOGY

13837 N.E. 8th Street
Bellevue, Washington 98005
746-8020

8050 S.W. Cirrus Drive
Beaverton, Oregon 97005
644-9141

W.O. 3148 DATE 9-26-79

BY REF SCALE

APPENDIX

Standard Penetration Test ASTM:D-1586-67

This test consists of driving a two inch (outside diameter), split barrel sampler 18 inches (.45 meters), to establish the resistance of the soil to penetration and to obtain representative samples of the material. The sampler is driven with a 140 pound (63.5 kg), pin guided hammer, free falling a distance of 30 inches (.76m). Driving is continued until full penetration is attained or 100 blows for one foot have been applied.

The first 6 inches of driving is generally used to insure proper seating of the sampler. The number of blows required for the remaining one foot of penetration is termed the "Standard Penetration Resistance" (N), and is an approximate measure of the in-place relative density or consistency of the soil. These resistance values (N), are plotted on the boring logs at the respective sample depths.

The relative density or consistency indicated by the blows per foot (N values) is included in the soil description in the boring logs. Changes in consistency or relative density are summarized as follows:

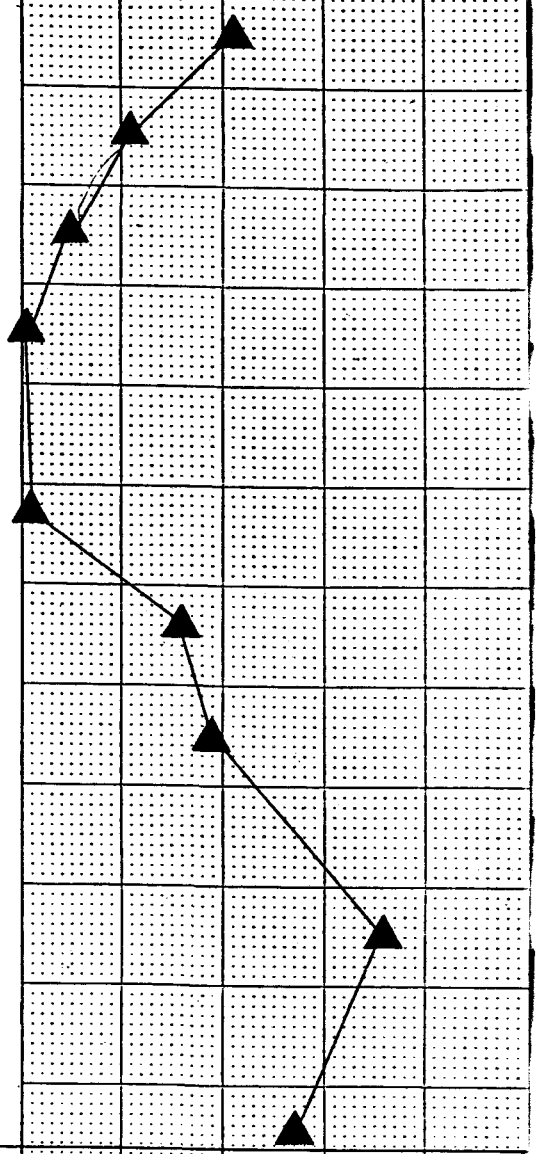
COHESIONLESS SOILS (Primarily Sand or Gravel)		COHESIVE SOILS (Primarily Silt or Clay)	
Relative Density	N, blows/ft.	Consistency	N, blows/ft.
Very loose	0 to 4	Very soft	0 to 2
Loose	4 to 10	Soft	2 to 4
Compact	10 to 30	Firm	4 to 8
Dense	30 to 50	Stiff	8 to 15
Very dense	over 50	Very stiff	15 to 30
		Hard	over 30

Once a thorough visual examination of the samples has been made in the field, they are sealed in air-tight jars to prevent evaporation of soil moisture and returned to our laboratory for re-inspection and testing. Samples are generally held in our laboratory for a period of ninety days unless special arrangements are made.

DEPTH, FEET	SOIL DESCRIPTION Surface Elevation:	SAMPLES	GROUNDWA. R
5	Very stiff, grading downward to soft, moist to saturated, gray silt interlayered with medium dense, grading downward to loose, moist to saturated, very silty, fine sand		
10			
15			
20	Medium dense to dense, saturated, dark gray to black, fine sand with some silt		
25			
30			
35	Bottom of boring 31.5 feet		
40			

STANDARD PENETRATION RESISTANCE
▲ Blows per foot
(140 lb. hammer, 30" drop)

10 20 30 40 50



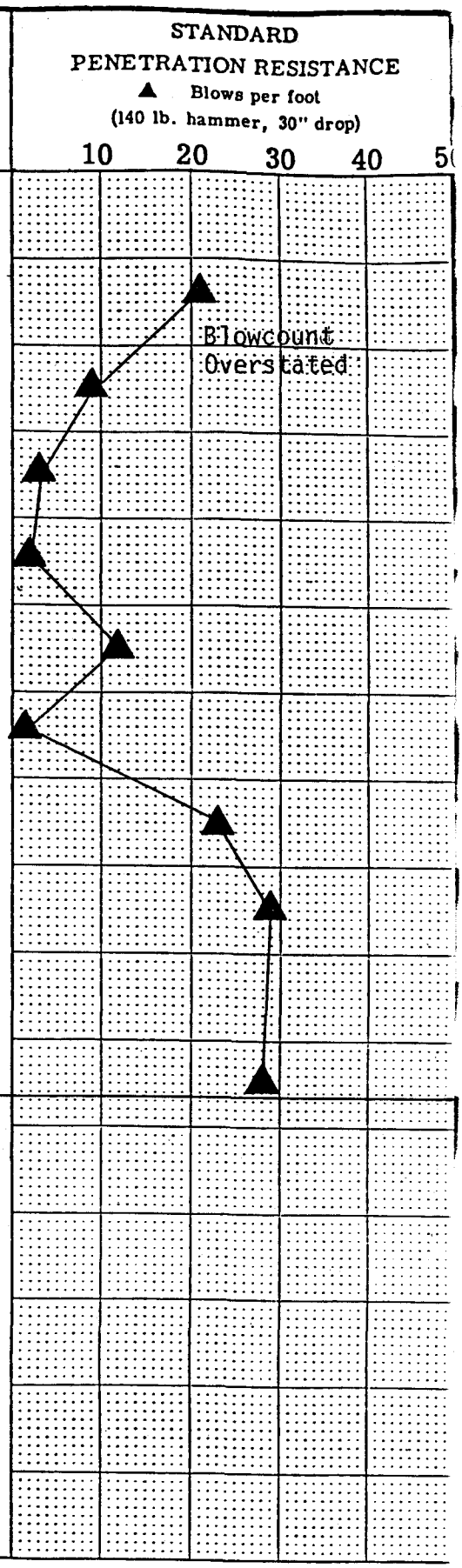
LEGEND

I 2.0" O.D. split spoon sampler
II 3.0" O.D. undisturbed sampler
P Sampler pushed
Atterberg limits: ⊢●⊣ Liquid limit; Natural water content; Plastic Limit
• Sample not recovered
Piezometer tip
▽ Water level
● % Water Content

W-3148
LOG OF BORING NO. 1

RITTENHOUSE-ZEMAN & ASSOC.
SOILS ENGINEERING AND GEOLOGY

DEPTH, FEET	SOIL DESCRIPTION Surface Elevation:	SAMPLES	GROUNDWATER
5	Loose, moist, gray, silty fine to medium sand with logs (Fill)		
10	Soft, moist to saturated, gray silt interleyered with medium dense, saturated, dark gray, silty, fine sand		
15			
20	Medium dense grading down to dense, dark gray to black, fine sand		
25			
30	Bottom of boring 26.5 feet		
35			
40			



LEGEND

I 2.0" O.D. split spoon sampler
II 3.0" O.D. undisturbed sampler
P Sampler pushed
Atterberg limits: ⊢●⊣ Liquid limit
Natural water content
Plastic Limit
• Sample not recovered
Piezometer tip
▽ Water level
● % Water Content

W-3148

LOG OF BORING NO. 2

RITTENHOUSE-ZEMAN & ASSOC.
SOILS ENGINEERING AND GEOLOGY

DEPTH, FEET	SOIL DESCRIPTION Surface Elevation:	SAMPLES	GROUNDW.
	Loose, moist, brown-gray, silty, fine sand with wood debris (Fill)	I	
5	Loose, wet, gray, silty, fine sand with some peaty silt	I	
10	Soft, wet, brown-gray silt with some organic material	I	
15	Medium dense grading down to dense, saturated, dark gray, fine sand	I	
20		I	
25	Bottom of boring 24.0 feet		
30			
35			
40			

STANDARD PENETRATION RESISTANCE
▲ Blows per foot
(140 lb. hammer, 30" drop)

10 20 30 40 5(

On Log

51

LEGEND

I 2.0" O.D. split spoon sampler
II 3.0" O.D. undisturbed sampler
P Sampler pushed
• Sample not recovered
Piezometer tip
▽ Water level
Atterberg limits: ⊢●⊣ ← Liquid limit
Natural water content
Plastic Limit

● % Water Content

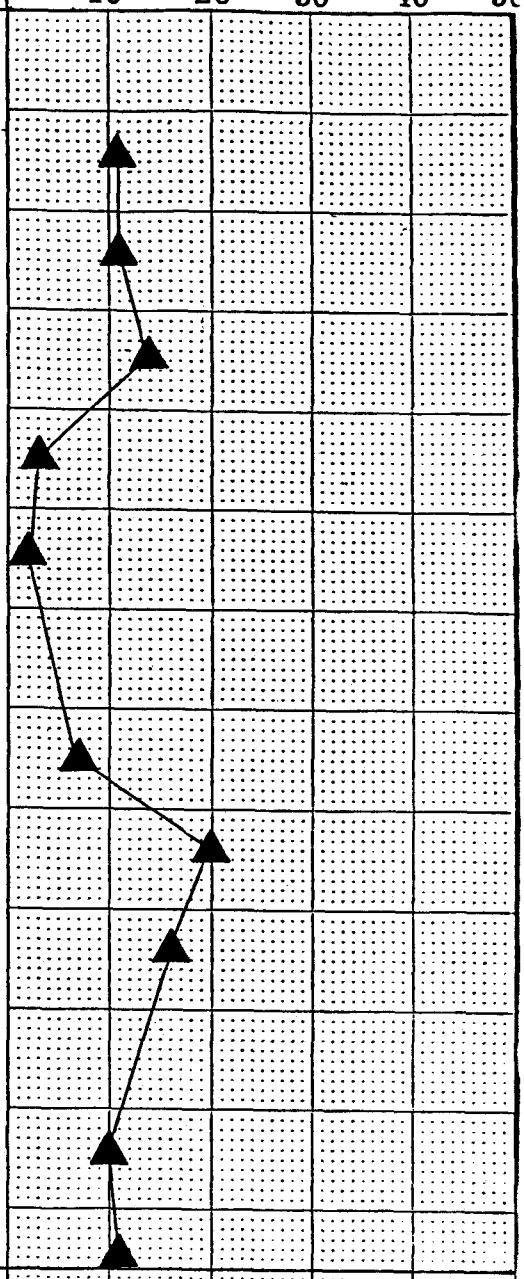
W-3148
LOG OF BORING NO. 3

RITTENHOUSE-ZEMAN & ASSOC.
SOILS ENGINEERING AND GEOLOGY

DEPTH, FEET	SOIL DESCRIPTION Surface Elevation:	SAMPLES	GROUNDW.
5	Medium dense, moist to very wet, brown-gray, silty fine to coarse sand with organic material (Fill)		
10	Loose to medium dense, wet to saturated, silty, fine sand		
15			
20			
25			
30			
35	Bottom of boring 31.5 feet		
40			

STANDARD PENETRATION RESISTANCE
▲ Blows per foot
(140 lb. hammer, 30" drop)

10 20 30 40 50



LEGEND

I 2.0" O.D. split spoon sampler
II 3.0" O.D. undisturbed sampler
P Sampler pushed
• Sample not recovered
Piezometer tip
▽ Water level
Atterberg limits: ⊢●⊣ Liquid limit
Natural water content
Plastic Limit
● % Water Content

W-3148
LOG OF BORING NO. 4

RITTENHOUSE-ZEMAN & ASSOC.
SOILS ENGINEERING AND GEOLOGY

PHASE-II SUBSURFACE SAMPLING & TESTING

Frank Lenci Corporation Property
424-432 South Cloverdale Street
Seattle, Washington

FRANK LENCI CORPORATION

ENVIRONMENTAL
ASSOCIATES, INC.

1380 - 112th Avenue Northeast, Suite 300
Bellevue, Washington 98004
(425) 455-9025 Office
(888) 453-5394 Toll Free
(425) 455-2316 Fax

April 28, 2017 PR-3156-2

Frank Lenci Corporation
c/o Mr. John Pietromonaco john@pietroprop.com
Pietromonaco Properties
7900 SE 28th Street, Suite 400
Mercer Island, Washington 98040

RE: Preliminary Phase-II Subsurface Sampling & Testing
Lenci Parcel
424-432 South Cloverdale Street
Seattle, Washington

Dear Mr. Pietromonaco:

The contents of this report are confidential and are intended solely for your use and the use of your representatives. A single electronic copy of this report is being distributed to you. No other distribution or discussion of these findings will take place without your prior approval in writing.

Background

Earlier environmental reviews reflect that following a period of agricultural use as a farm, the predominant use of the site during much of the 1960's and 1970's was as an auto recycling facility (wrecking yard).

The subject property (Lenci Parcel) lies south of and adjacent to the boundary of the former South Park Landfill operations area. The landfill is currently the focus of a Remedial Investigation / Feasibility Study (RI/FS), being overseen by the Washington State Department of Ecology (WDOE). Based upon our conversations, it is our understanding that the Client has been advised by the WDOE that a review of historical aerial imagery suggests that a portion of the subject site (referred to by the agency as a "lobe") may have historically been subject to landfill activities. This suspected "lobe" and its spatial location relative to the subject parcel is depicted graphically on the attached Proposed Exploration Plan. While the WDOE has apparently offered to perform on-site explorations on the Lenci Parcel, it is our understanding that the Client desired to independently conduct its own evaluation of the area of interest to the WDOE. This letter report presents a summary of the approach, methods, and findings of the Phase II recently performed by Environmental Associates, Inc. (EAI) in general accordance with its proposal of March 9, 2017.

Unable to comment in earlier times as to what specific impacts (if any) may have resulted from the presence of the landfill, certain scope elements of the current Phase II were previously recommended in EAI's May 10, 1993 Phase I report.

Subsurface Explorations

On March 31, 2017, EAI observed the completion of three (3) direct-push soil borings at the approximate locations depicted as B1 through B3 on Plate 2 Exploration Plan. Boring B1 was positioned within the inferred centroid of the area of interest to the WDOE, which the agency postulated as including a "lobe" of landfill deposits associated with the north-adjacent South Park landfill site. Borings B2 and B3 were positioned in an effort to assess localities to the west and east lateral limits of the inferred "lobe."

Soil Sampling

At each boring location, soil cores were collected in 4 to 5-foot sections from the ground surface to varying depths between 12 and 22 feet below the ground surface. Upon recovery, each core was opened and examined. Representative soil samples were collected from each core following EPA methodology 5035-A, a protocol that is intended to minimize the potential loss of volatile organic compounds (VOCs).

Groundwater Sampling - Existing Monitoring Well

Shallow groundwater was encountered at all three (3) push-probe borings at an approximate depth of 5 feet below the ground surface. Additionally, while on site EAI observed a previously existing monitoring well, located approximately 12 to 14 feet off the northwest corner of subject building on the subject property. The monitoring well was 3/4-inch in diameter and appeared to extend to a depth of 10 feet below the ground surface. At the time of EAI's field work, no markings were found on the well monument to identify the name/designation of this monitoring well, therefore for the purposes of this current study it was simply designated MW-NW.

Subsequent research utilizing a partial WDOE well-tag ID lead to identification of this well as WDOE Well-ID# BCM-827. A log for this monitoring well on file at the WDOE suggests that it was installed on December 29, 2010 by the City of Seattle. The purpose and intent by the City for the installation of this well is unknown to EAI, nor has the Client expressed to EAI any knowledge of this well or any findings that may have historically been derived at the time of / or following its installation.

Since this monitoring well was located within the inferred boundaries of the area of interest to the WDOE, and groundwater samples from permanent monitoring wells tend to be more representative of groundwater environmental conditions than "grab samples" from temporary borings, a groundwater sample was collected from MW-NW. Prior to sampling the well was first micro-purged with a peristaltic pump utilizing a low-flow technique. A representative groundwater sample was then transferred directly to laboratory-prepared containers. Groundwater samples intended to be analyzed for dissolved metals were field filtered with a disposable 0.45-micron filter cartridge.

Subsurface Conditions and Soil Sample Selection

Logs for each soil boring, along with a copy of the monitoring well log for MW-NW are provided Appendix-A, and the general subsurface conditions encountered are further described below.

The near surface soils consisted of 3 to 6 feet of fine to medium sand, interpreted to represent fill likely used during development of the current property building in the late 1960s. Under this more recent fill, a layer of wood chips with minor amounts of glass and brick debris was encountered. At B1 this lower fill layer was approximately 2.5 feet thick, whereas at B2 it was approximately 7 feet thick and was somewhat intermixed with organic silts. At B3 the layer of wood chips was less than one (1) foot in thickness. Plate 3 (Photographs) includes photos of the wood-chip fill layers encountered at both B1 and B2. At all three (3) boring locations, soils below the wood-chip layer appeared to be native tideland deposits consisting of organic silt and peat, which extended to the maximum depths of exploration that varied between 12 and 22 feet below the ground surface. As noted earlier, shallow groundwater was present at a depth of approximately 5 feet below the ground surface.

During soil sample collection, a portion of each sample was temporarily sealed in plastic zip-lock bags. After a brief period, a photo ionization detector (PID) was used to sample the "headspace" within each sealed bag. The concentration of any volatile organic compounds VOCs detected in the headspace by the PID is also included in the boring logs in Appendix-A. For this particular study the PID did not detect any significantly elevated concentrations of VOCs during the field screening procedure.

Two (2) soil samples from the current borings along with the groundwater sample from MW-NW were initially selected for laboratory analysis. At B1, the fill layer appeared to be mostly comprised of wood-chips and therefore a soil sample was selected from the deeper native soils below the wood chip fill (sample B1-8). At B2, the wood-chip and brick fill appeared to also be partially intermixed with soil, so a composite of this fill was collected for laboratory analysis as B2-4.

Laboratory Analysis

The two (2) selected soil samples and one (1) selected groundwater sample were initially analyzed for the following compounds:

- Petroleum hydrocarbons, including gasoline, diesel, and oil range petroleum by Washington State test methods NWTPH-G (gasoline) and NWTPH-Dx (diesel and oil).
- Volatile organic compounds (VOCs) by EPA Method 8260.
- Semi-volatile organic compounds (SVOCS) including polycyclic aromatic hydrocarbons (PAHs) by EPA-8270.
- RCRA-8 metals, including arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver, by EPA Method 6020. The groundwater sample from MW-NW was analyzed for dissolved metals only.
- Following EAI's review of initial laboratory results and of soil layering relationships (soil stratigraphy) between the various borings as documented on the boring logs, soil samples designated as B1-8 (sample obtained from 8 foot depth in boring B1 and B2-4 (sample from 4 foot depth in boring B2) were subsequently selected for additional testing for arsenic following EPA Method 1311/Toxicity Characteristic Leaching Procedure or "TCLP" (173-340-747) (7)(b)(ii).

A copy of the laboratory report is provided in Appendix-B and the results are discussed in the remaining subsections of this report.

Analytical Results - Soil Samples

Petroleum Hydrocarbons & VOCs

As presented in Table 1, traces of gasoline range petroleum were detected in both selected soil samples, however no associated BTEX compounds (benzene, toluene, ethylbenzene, xylenes) were detected. Both detected concentrations of gasoline were well below (i.e. **compliant** with) the WDOE's target compliance level of 100 parts per million (ppm), which applies when BTEX compounds are not present.

Referencing the laboratory report in Appendix-B, traces of other petroleum-related volatile compounds were also detected, including 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, naphthalene, and isopropyltoluene. Of these compounds only 1,3,5-trimethylbenzene and naphthalene have individual target compliance levels. As noted in Table 1, the concentrations of these compounds were well below (i.e. **compliant** with) their corresponding target MTCA compliance levels.

Semi Volatile Organic Compounds / PAH Compounds

Of the numerous semi-volatile organic compounds (SVOCs) tested for, only a select few carcinogenic PAH compounds were detected in sample B2-4. These concentrations are presented in Table 2. Additionally, Table 2 includes a summation of total carcinogenic PAHs which are calculated by summing the product of each cPAH compound multiplied by its toxicity equivalency fraction following the procedure outlined in WAC 173-340-708(8). This toxicity summation yielded a total cPAH concentration of 0.26 ppm for sample B2-4. This concentration is well below (i.e. **compliant** with) the MTCA target compliance level of 2.0 ppm for industrial property. For reader reference, the subject property is zoned industrial therefore the 2.0 ppm compliance level for PAHs is applicable.

Metals

Referencing Table 3, several heavy metals were detected in the selected soil samples, including arsenic, barium, cadmium, chromium, and lead. Of the detected concentrations, only the sample B1-8 which was obtained from boring B1 at a depth of 8 feet within the native organic silt/peat deposit underlying fills within the area explored contained arsenic at a concentration (21 ppm), slightly exceeding the WDOE target compliance level (20 ppm). Armed with the relatively common understanding that peat is known to concentrate arsenic under anoxic/reducing environments such as this (Langner, P., 2011), we suspect such naturally occurring bio-concentration/bio-sequestration as a process which may account for the finding in this case.

As discussed earlier in the report, in an effort to validate to some extent the stability of the bio-sequestration postulated above, and to confirm the non-hazardous nature of materials underlying the property, certain samples were selected for additional testing for arsenic following EPA Method 1311/Toxicity Characteristic Leaching Procedure or "**TCLP**" (173-340-747) (7)(b)(ii). Results of the TCLP evaluation of samples B1-8 and B2-4 show that for arsenic, neither the native organic silt/peat nor the mixed fill sample would be classified as "dangerous" in terms of leaching risk under the TCLP guidelines.

Analytical Results - Groundwater

Referencing the laboratory report in Appendix-B, neither petroleum hydrocarbons (gasoline, diesel, or oil TPH), nor VOCs, or SVOCs were detected in the groundwater sample at concentrations above the laboratory's minimum detection limits. As presented in Table 4, the only detections in the groundwater were dissolved concentrations of metals. Arsenic, barium, and chromium were present in the groundwater sample, however all three concentrations were below (i.e. **in compliance** with) the WDOE's target levels for unrestricted land use.

Summary Discussion Of Findings / Conclusions

As discussed in the Background section of this report, the WDOE's interpretation of historical aerial images has inferred that historic South Park Landfill operations, may have extended further south than the current west to east alignment of South Sullivan Street. This approximate area of interest is depicted by brown-tinting on Plate 2, Exploration Plan.

A Seattle-King County Department of Public Health - Abandoned Landfill Study (1984), suggests that the South Park landfill was used in the 1950s by area sawmills for disposal of waste sawdust, and in later years it was used as "burning dump" from municipal refuse disposal.

The thin lenses of wood chips (sawdust) intermixed with minor occurrences of glass and brick as depicted in the sampler photographs presented on Plate 3 and as described in the boring logs contained in Appendix A are similar to some types of materials which have been described by others in association with landfills. As the thickness of the fill was more pronounced at B2, the "lobe" area described by WDOE may have been centered further west than was projected by WDOE in their interpretive review of aerial photographs.

Although fill was encountered, the sampling and laboratory testing performed as part of this current study suggests a very low risk to the public / environment by these materials at the subject. As previously discussed, of the analytes evaluated, only arsenic exceeded an applicable WDOE target compliance level (by 1 ppm). As discussed earlier in this report, that sample was obtained from a depth of approximately 8 feet at boring location B-1. The geologic unit from which the sample was obtained from several feet below the water table and was described as a native organic silt with peat as a substantial component. With respect to soils, that finding is consistent with many low lying and/or marshy areas which historically occupied a substantial portion of the Duwamish locality. In such organic-rich environments where fluctuations in water levels and shifts in biological activity result in anoxic/reducing conditions common to such native marsh areas, many workers have shown that nearly complete sequestration/bio-concentration of naturally occurring arsenic often results. (Langner, P., 2011; Wang, S., et al, 2006).

Without benefit of additional information, the principles illuminated by the cited works would appear to preclude a unique or incontrovertible finding that the arsenic at 8 feet in B-1 is somehow related to the landfill. Finally, regardless of genesis, the results of supplemental TCLP evaluation of the material in question has confirmed that with respect to arsenic the native organic silt/peat appears to be stable and would not be classified as dangerous under MTCA or under other applicable State or Federal laws or regulations.

Taking the totality of the findings developed/discovered to date including but not limited to laboratory testing of soils, compliant groundwater conditions along with the inferred direction of groundwater movement (north to northeast, i.e. away from the subject site), we (EAI) would have no basis upon which to predicate a recommendation for further action or additional evaluation at this time.

Limitations

This report has been prepared for the exclusive use of Frank Lenci Corporation, along with their several representatives for specific application to this site. Our work for this project was conducted in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our proposal dated March 9, 2017. The opinions expressed in this report are based upon interpretations, observations and testing made at a separated locations and conditions may vary between those sampling localities or at other locations, depths, and/or media. EAI makes no warranty as to the accuracy or reliability of data / opinions provided/rendered by other parties. EAI makes no warranty with respect to opinions, or comments, or acceptance of this report by any regulatory agency or other review entity. No other warranty, expressed or implied, is made. If new information is developed in future site work which may include excavations, borings, studies, etc., Environmental Associates, Inc., must be retained to reevaluate the conclusions of this document and to provide amendments as required.

We appreciate the opportunity to be of service on this assignment. If you have any questions or if we may be of additional service, please do not hesitate to contact us.

Respectfully submitted,
ENVIRONMENTAL ASSOCIATES, INC.

Robert B. Roe, M.Sc., LHG.
Senior Hydrogeologist

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Don W. Spencer, M.Sc., P.G., R.E.A.
Principal

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License: 876 (California)
License: 5195 (Illinois)
License: 0327 (Mississippi)

REFERENCES

Gonzalez, A.Z, Krachler, M, et al, 2006. Spatial distribution of natural enrichments of arsenic, selenium, and uranium in a minerotrophic peatland Gola di Lago, Canton Ticino, Switzerland. Environmental Science Technology, Vol. 40, 6568-6574.

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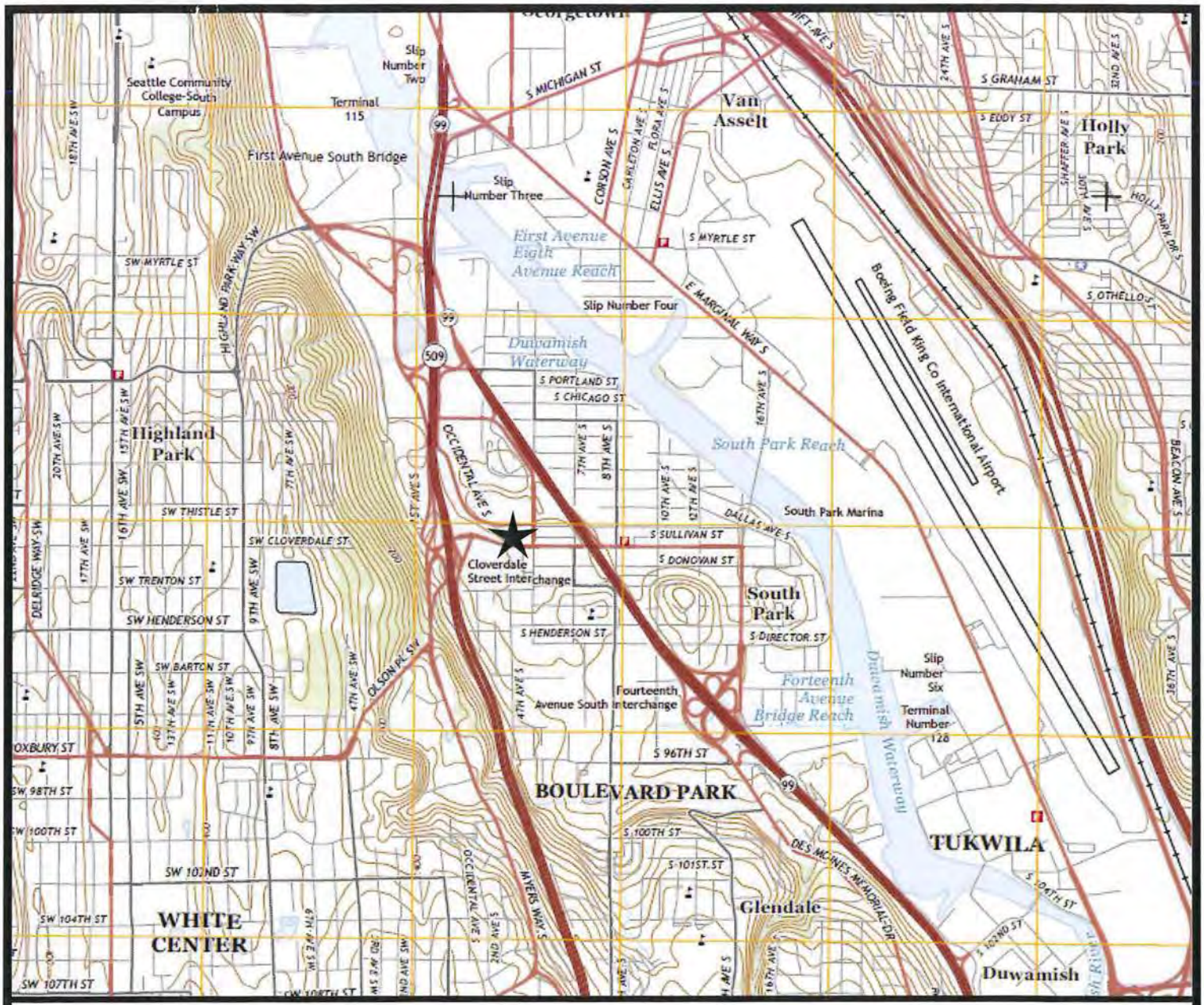
McArthur, J.M., et al. 2004. Natural Organic Matter In Sedimentary Basins And Its Relation To Arsenic In Anoxic Groundwater. Applied Geochemistry, Vol. 19, 1255-1293.

Wang, S., Mulligan, C.N. 2006. Effect Of Natural Organic Matter On Arsenic Release From Soils And Sediments Into Groundwater. Environmental Geochem. Health Vol. 28, 197-214.



★ Approximate location of the subject property.

Inferred direction of groundwater flow in vicinity of the subject site, based upon local topographic gradient.

N

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VICINITY / TOPOGRAPHIC MAP

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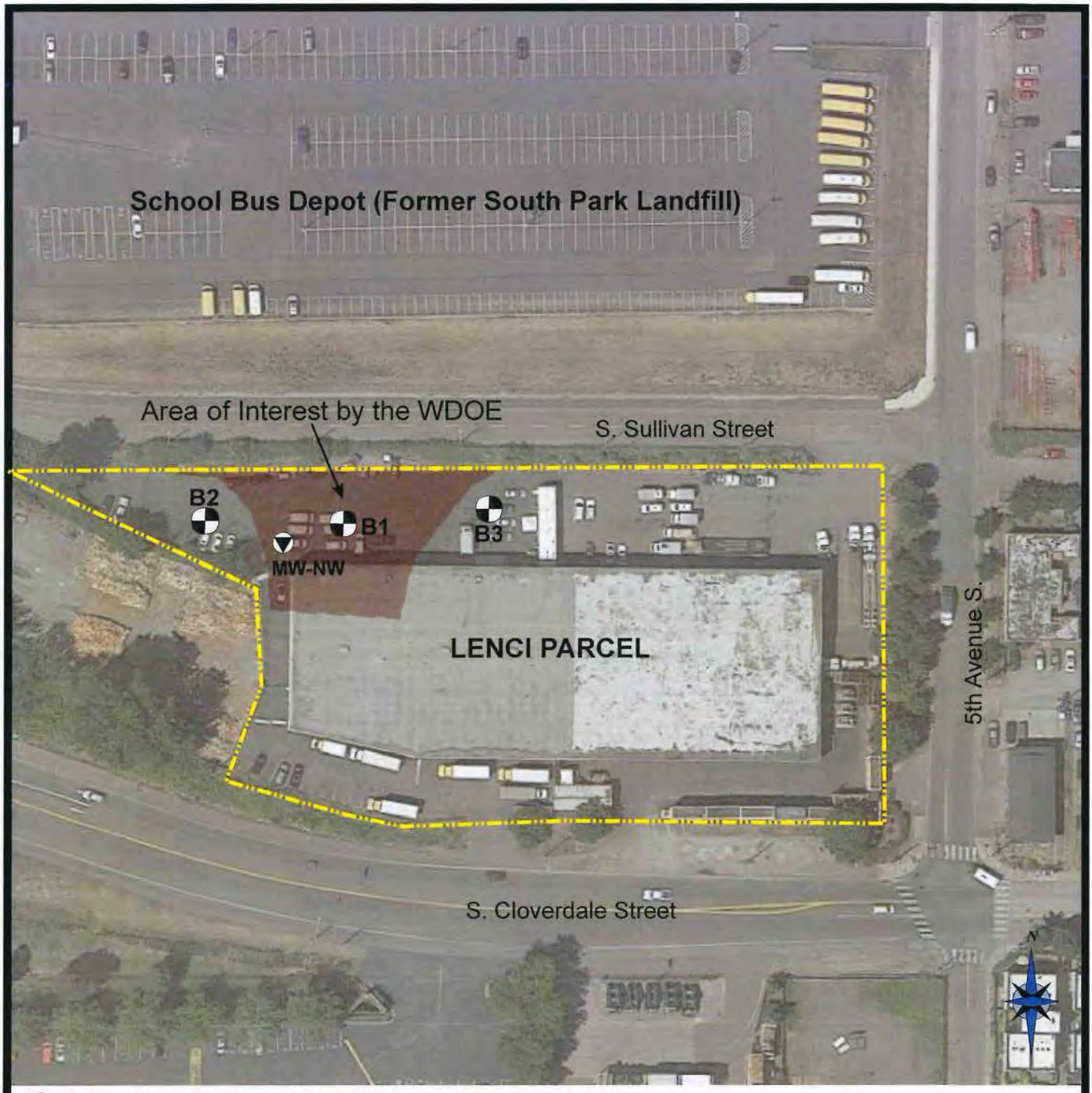
424-432 South Cloverdale Street
Seattle, Washington

Job Number:	*Date:*		*Plate:*
JN-3156-2	March 2017		1



Approximate location of borings made by EAI in March 2017.

Approximate location of an existing monitoring well located off the northwest corner of the building.

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EXPLORATION PLAN

LENCI PROPERTY
424-432 South Cloverdale Street
Seattle, Washington

Job Number:	*Date:*	*Scale:*	*Plate:*
JN-3156-2	March 2017		2

Boring B1 soil core depicting wood-chip fill layer encountered between 4 and 6 feet below the ground surface.

Boring B2 soil core depicting a mixture of wood-chips, brick debris, and organic silts.

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SITE PHOTOGRAPHS

LENCI PROPERTY
424-432 South Cloverdale Street
Seattle, Washington

Job Number:	*Date:*		*Plate:*
JN-3156-2	March 2017		3

TABLE 1 - Petroleum Hydrocarbons & VOCs - Soil Sampling Results
All results and limits in parts per million (ppm)

Boring / Sample Name	Gasoline (TPH)	Diesel (TPH)	Heavy Oil (TPH)	Benzene	Toluene	Ethylbenzene	Total Xylenes	1,3,5-Trimethylbenzene	Naphthalene
B1-8	15	<50	<100	<0.02	<0.05	<0.05	<0.15	<0.05	<0.05
B2-4	49	<50	<100	<0.02	<0.05	<0.05	<0.15	0.051	0.066
Reporting Limit [3]	10	50	100	0.02	0.05	0.05	0.15	0.05	0.05
WDOE Compliance Levels [4]	**100** [5]	**2000**	**2000**	**0.03**	7	6	9	**800**	5

Notes:
1 - "ND" denotes analyte not detected at or above listed Reporting Limit.
2- "---" denotes sample not analyzed for specific analyte.
3- "Reporting Limit" represents the laboratory lower quantitation limit.
4- Method A soil cleanup levels as published in the Model Toxics Control Act (MTCA) 173-340-WAC.
5- The MTCA gasoline TPH cleanup level is 100 ppm for soils with no benzene and less than 20% aromatic hydrocarbons between C8 and C16. Otherwise, the cleanup level is 30 ppm.

Bold and Italics denotes concentrations above MTCA Method A soil cleanup levels.

TABLE 2 - Carcinogenic PAHs - Soil Sampling Results
All results and limits in parts per million (ppm)

Boring / Sample Name	Benzo(a)pyrene	Chrysene	Dibenzo(a,h)anthracene	Indeno(1,2,3,-cd)pyrene	Benzo(k)fluoranthene	Benzo(a)anthracene	Benzo(b)fluoranthene	Total Carcinogenic PAHs[5]
B1-8	0	0	0	0	0	0	0	0.00
B2-4	0	0.05	0.0	1.2	0.00	1.40	0.0	0.26
cPAH Toxicity Equivilant Fraction [5]	1.0	0.01	0.1	0.1	0.1	0.1	0.1	
Reporting Limit [3]	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
MTCA-Method-A Residential [4]	---	---	---	---	---	---	---	0.1
MTCA-Method-A Industrial [4]	---	---	---	---	---	---	---	2

Notes:
1 - "0.00" denotes analyte not detected at or above listed Reporting Limit.
2- "NA" denotes sample not analyzed for specific analyte.
3- "Reporting Limit" represents the laboratory lower quantitation limit.
4- Method A soil cleanup level for total carcinogenic PAHs as published in the Model Toxics Control Act (MTCA) 173-340-WAC.
5- Total carcinogenic PAHs are calculated by suming the product of each cPAH mulitplied by its toxicity equivalency fraction per WAC 173-340-708(8).

TABLE 3 - RCRA-8 Metals - Soil Sampling Results
All results and limits in parts per million (ppm)

Boring/ Sample Name	Arsenic	TCLP Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
B1-8	***21***	<0.2	120	<1	51	4.1	<0.5	<20	<20
B2-4	7.5	<0.2	210	1.4	42	140	<0.5	<20	<20
Reporting Limit [3]	1	0.2	1	1	1	1	0.2	1	1
Existing Cleanup Level[4]	20 (A)	5 [(6)]	16,000 (B)	2 (A)	2000 (A)[5]	250 (A)	2 (A)	400 (B)	400 (B)

Notes:
1 - "ND" denotes analyte not detected at or above listed Reporting Limit.
2- "NA" denotes sample not analyzed for specific analyte.
3- "Reporting Limit" represents the laboratory lower quantitation limit.
4- Method A or B cleanup levels as published in the Model Toxics Control Act (MTCA) 173-340-WAC.
5- The Method A target compliance level for for the more common form of chromium (chromium III) is 2,000 ppm.
The target compliance level for the less common chromium VI is 19 ppm. Chromium VI is not generally suspected at this type of facility.
6- TCLP maximum concentration of contaminants for the Toxicity Characteristic as presented in WAC 173-303-090.

Bold and Italics denotes concentrations above existing MTCA Method A soil cleanup levels.

TABLE 4 - RCRA 8 Dissolved Metals - Groundwater Sampling Results
All results and limits in parts per billion (ppb)

Monitoring Well / Sample Name	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
MW-NW	4.8	370	<2	12	<2	<1	<10	<10
Reporting Limit [3]	2	20	2	10	2	1	10	10
Existing Cleanup Level[4]	5 (A)	3,200 (B)	5 (A)	50 (A)	15 (A)	2 (A)	80 (B)	80 (B)

Notes:
1 - "ND" denotes analyte not detected at or above listed Reporting Limit.
2- "NA" denotes sample not analyzed for specific analyte.
3- "Reporting Limit" represents the laboratory lower quantitation limit.
4- Method A or B cleanup levels as published in the Model Toxics Control Act (MTCA) 173-340-WAC.

Bold and Italics denotes concentrations above existing MTCA Method A soil cleanup levels.

APPENDIX-A

Boring Logs

WDOE Well Tag:
Lat:
Long:

BORING B1

Ground Surface Elevation: ~7 ft

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Soil Sample	PID
0		Moist		(F)	Sand, fine to medium sand, minor silt, gray, no odors. Interpreted to be fill.	B1-4	0.0
5		Wet		(F)	Fill, wood-chips with minor glass debris. "rotting-wood odor"		6.2
		Wet		OL/ Pt	Organic-Silt / Peat, silt, organic, peaty, with lenses of peat & natural woody material, and occasional lenses of sand.	B1-8	0.0
10					*sand-lense at @13-feet*		
15						B1-14	0.0
20							
25					Boring terminated at 22 feet. Groundwater encountered at ~5 feet		
30							
35							
40							

Sampler: Continuous Strataprobe Macro-Core.
Driller: ESN - Geoprobe

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Bellevue, Washington 98004

BORING B1

LENCI PROPERTY
424 South Cloverdale Street
Seattle, Washington

Job Number:	Date:	Logged by:	Plate:
JN-3156-2	3/31/2017	RBR	A-1

WDOE Well Tag:
Lat:
Long:

BORING B2

Ground Surface Elevation: ~7 ft

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Soil Sample	PID
0		Moist		(F)	Sand, fine to medium sand, minor silt, gray, no odors. Interpreted to be fill.		
						B1-4	7.1
5		Wet		(F)	Fill, wood-chips with minor glass debris, intermixed with organic-silts. Thin gray-green clay layer at 7-feet. "rotting-wood odor"		
		Wet				B2-9	0.3
10		Wet		OL/ Pt	Organic-Silt / Peat, silt, organic, peaty, with lenses of peat with native woody material, and occasional lenses of sand.		
						B2-14	0.0
15					Boring terminated at 16 feet. Groundwater encountered at ~5 feet		
20							
25							
30							
35							
40							

Sampler: Continuous Strataprobe Macro-Core.
Driller: ESN - Geoprobe

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BORING B2

LENCI PROPERTY
424 South Cloverdale Street
Seattle, Washington

Job Number:	Date:	Logged by:	Plate:
JN-3156-2	3/31/2017	RBR	A-2

WDOE Well Tag:
Lat:
Long:

BORING B3

Ground Surface Elevation: ~7 ft

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Soil Sample	PID
0		Moist		(F)	Sand, fine to medium sand, minor silt, gray, no odors. Interpreted to be fill.	B3-3	0.1
				(F)	Fill, wood-chips with minor glass debris.		
5		Wet		OL/ Pt	Organic-Silt / Peat, silt, organic, peaty, with lenses of peat with native woody material, and occasional lenses of sand.	B3-8	0.1
10						B3-12	0.5
					Boring terminated at 12 feet. Groundwater encountered at ~5 feet		
15							
20							
25							
30							
35							
40							

Sampler: Continuous Strataprobe Macro-Core.
Driller: ESN - Geoprobe

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ASSOCIATES, INC.
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Bellevue, Washington 98004

BORING B3

LENCI PROPERTY
424 South Cloverdale Street
Seattle, Washington

Job Number:	Date:	Logged by:	Plate:
JN-3156-2	3/31/2017	RBR	A-3

24-4E-32D

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT Notice of Intent No. RE05279

403975

Construction/Decommission

[X] Construction

[ ] Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

[X] Resource Protection

[ ] Geotechnical Soil Boring

Property Owner: City of Seattle

Site Address: 8105 5th Ave. S.

Consulting Firm: Aspect Consulting LLC

City: Seattle County: 17-King

Unique Ecology Well ID Tag No.: BCM-827

Location: 1/4 NW 1/4 NW Sec 32 Twn 24N R 4E [EWM] or WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

[X] Driller [ ] Trainee Name (Print): Elijah Floyd

Driller/Trainee Signature: Elijah Floyd

Driller/Trainee License No.: 2842

Tax Parcel No.: 732840-0005

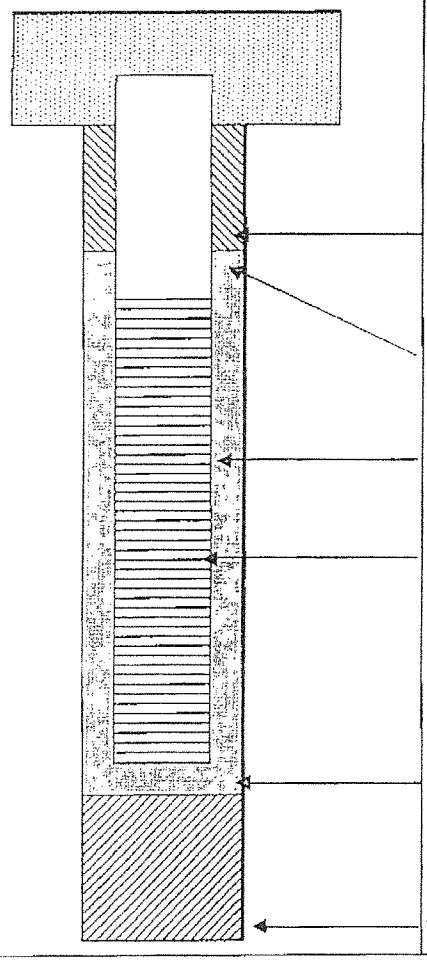
Cased or Uncased Diameter: 2 1/4 Static Level: 5'

Work/Decommission Start Date: 12-29-2010

If trainee, licensed driller's Signature and License No.: _____

Work/Decommission End Date: 12-29-2010

Construction/Design — **Well Data** W10-680



Concrete Surface Seal Depth	2' FT
Blank Casing (dia x dep)	3/4" x 5'
Material	PVC
Backfill	N/A FT
Type	N/A
Seal	1'
Material	Bentonite chips
Gravel Pack	7' FT
Material	2/12 + Pre Pack
Screen (dia x dep)	3/4" x 5'
Slot Size	.010
Material	PVC Pre Pack
Well Depth	10 FT
Backfill	N/A
Material	N/A
Total Hole Depth	10' FT

Formation Description

0 - 10' FT: small gravels, Fine sands silts, Damp @ 5', loose light green, to Dark brown organics mixed in.

0 - FT

0 - FT

Scale 1" = _____ Page _____ of _____

RECEIVED FEB 02 2011 WATER RESOURCES - NWRO

ECY 050-12 (Rev. 2/2011)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

APPENDIX-B

Laboratory Reports

ESN NORTHWEST CHEMISTRY LABORATORY

Environmental Associates, Inc.
PROJECT LENCI PROPERTY
PROJECT #EAI-3156-2
Seattle, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Diesel Range Organics & Lube Oil Range Organics in Soil by Method NWTPH-Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (mg/kg)	Lube Oil Range Organics (mg/kg)
Method Blank	4/3/2017	4/3/2017	126	nd	nd
LCS	4/3/2017	4/3/2017	115	139%	---
B1-8	4/3/2017	4/3/2017	132	nd	nd
B1-8 Duplicate	4/3/2017	4/3/2017	119	nd	nd
B2-4	4/3/2017	4/3/2017	110	nd	nd
Reporting Limits				50	100

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

ESN NORTHWEST CHEMISTRY LABORATORY

Environmental Associates, Inc.
PROJECT LENCI PROPERTY
PROJECT #EAI-3156-2
Seattle, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Diesel Range Organics & Lube Oil Range Organics in Water by Method NWTPH-Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Diesel Range Organics (ug/L)	Lube Oil Range Organics (ug/L)
Method Blank	4/3/2017	4/3/2017	124	nd	nd
LCS	4/3/2017	4/3/2017	119	113%	---
MW-NW	4/3/2017	4/3/2017	154*	nd	nd
Reporting Limits				250	500

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

ESN NORTHWEST CHEMISTRY LABORATORY

Environmental Associates, Inc.
PROJECT LENCI PROPERTY
PROJECT #EAI-3156-2
Seattle, Washington

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lab@esnnw.com

Analysis of Gasoline Range Organics in Soil
by Method NWTPH-Gx

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Gasoline Range Organics (mg/kg)
Method Blank	4/5/2017	4/5/2017	107	nd
LCS	4/5/2017	4/5/2017	105	134%
B1-8	3/31/2017	4/5/2017	106	**15**
B2-4	3/31/2017	4/5/2017	106	**49**
Reporting Limits				10

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

ESN NORTHWEST CHEMISTRY LABORATORY

Environmental Associates, Inc.
PROJECT LENCI PROPERTY
PROJECT #EAI-3156-2
Seattle, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Analysis of Gasoline Range Organics in Water
by Method NWTPH-Gx

Sample Number	Date Analyzed	Surrogate Recovery (%)	Gasoline Range Organics (ug/L)
Method Blank	4/4/2017	107	nd
LCS	4/4/2017	108	106%
MW-NW	4/4/2017	105	nd
Reporting Limits			100

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

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Seattle, Washington

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lab@esnnw.com

Analysis of Volatile Organic Compounds in Soil by Method 8260C/5035

	RL	MB	LCS	LCSD	B1-8	B2-4
Date extracted		04/05/17	04/05/17	04/05/17	03/31/17	03/31/17
Date analyzed	(mg/Kg)	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17
% Moisture					59%	12%
Dichlorodifluoromethane	0.05	nd			nd	nd
Chloromethane	0.05	nd			nd	nd
Vinyl chloride	0.02	nd	119%	121%	nd	nd
Bromomethane	0.05	nd			nd	nd
Chloroethane	0.05	nd			nd	nd
Trichlorofluoromethane	0.05	nd			nd	nd
Acetone	0.25	nd			nd	nd
1,1-Dichloroethene	0.05	nd	87%	87%	nd	nd
Methylene chloride	0.05	nd			nd	nd
Methyl-t-butyl ether (MTBE)	0.05	nd			nd	nd
trans-1,2-Dichloroethene	0.05	nd			nd	nd
1,1-Dichloroethane	0.05	nd			nd	nd
2-Butanone (MEK)	0.25	nd			nd	nd
cis-1,2-Dichloroethene	0.05	nd			nd	nd
2,2-Dichloropropane	0.05	nd			nd	nd
Chloroform	0.05	nd	123%	114%	nd	nd
Bromochloromethane	0.05	nd			nd	nd
1,1,1-Trichloroethane	0.05	nd			nd	nd
1,2-Dichloroethane (EDC)	0.05	nd			nd	nd
1,1-Dichloropropene	0.05	nd			nd	nd
Carbon tetrachloride	0.05	nd			nd	nd
Benzene	0.02	nd	88%	91%	nd	nd
Trichloroethene (TCE)	0.02	nd	109%	111%	nd	nd
1,2-Dichloropropane	0.05	nd	99%	103%	nd	nd
Dibromomethane	0.05	nd			nd	nd
Bromodichloromethane	0.05	nd			nd	nd
4-Methyl-2-pentanone (MIBK)	0.25	nd			nd	nd
cis-1,3-Dichloropropene	0.05	nd			nd	nd
Toluene	0.05	nd	104%	111%	nd	nd
trans-1,3-Dichloropropene	0.05	nd			nd	nd
1,1,2-Trichloroethane	0.05	nd			nd	nd
2-Hexanone	0.25	nd			nd	nd
1,3-Dichloropropane	0.05	nd			nd	nd
Dibromochloromethane	0.05	nd			nd	nd
Tetrachloroethene (PCE)	0.02	nd	116%	122%	nd	nd
1,2-Dibromoethane (EDB)	0.05	nd			nd	nd
Chlorobenzene	0.05	nd	114%	118%	nd	nd
1,1,1,2-Tetrachloroethane	0.05	nd			nd	nd
Ethylbenzene	0.05	nd	112%	114%	nd	nd
Xylenes	0.15	nd	107%	111%	nd	nd
Styrene	0.05	nd			nd	nd
Bromoform	0.05	nd			nd	nd
1,1,2,2-Tetrachloroethane	0.05	nd			nd	nd
Isopropylbenzene	0.05	nd			nd	nd
1,2,3-Trichloropropane	0.05	nd			nd	nd
Bromobenzene	0.05	nd			nd	nd

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Analysis of Volatile Organic Compounds in Soil by Method 8260C/5035

	RL	MB	LCS	LCSD	B1-8	B2-4
Date extracted		04/05/17	04/05/17	04/05/17	03/31/17	03/31/17
Date analyzed	(mg/Kg)	04/05/17	04/05/17	04/05/17	04/05/17	04/05/17
% Moisture					59%	12%
n-Propylbenzene	0.05	nd			nd	nd
2-Chlorotoluene	0.05	nd			nd	nd
4-Chlorotoluene	0.05	nd			nd	nd
1,3,5-Trimethylbenzene	0.05	nd			nd	**0.051**
tert-Butylbenzene	0.05	nd			nd	nd
1,2,4-Trimethylbenzene	0.05	nd			nd	**0.10**
sec-Butylbenzene	0.05	nd			nd	nd
1,3-Dichlorobenzene	0.05	nd			nd	nd
1,4-Dichlorobenzene	0.05	nd			nd	nd
Isopropyltoluene	0.05	nd			nd	**0.11**
1,2-Dichlorobenzene	0.05	nd			nd	nd
n-Butylbenzene	0.05	nd			nd	nd
1,2-Dibromo-3-Chloropropane	0.05	nd			nd	nd
1,2,4-Trichlorobenzene	0.05	nd			nd	nd
Naphthalene	0.05	nd			nd	**0.066**
Hexachloro-1,3-butadiene	0.05	nd			nd	nd
1,2,3-Trichlorobenzene	0.05	nd			nd	nd
Surrogate recoveries						
Dibromofluoromethane		117%	99%	99%	112%	113%
Toluene-d8		99%	92%	93%	100%	102%
4-Bromofluorobenzene		107%	102%	103%	106%	106%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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Analysis of Volatile Organic Compounds in Water by Method 8260C/5030C

Analytical Results

	RL	MB	LCS	LCSD	MW-NW
Date analyzed	(ug/L)	04/04/17	04/04/17	04/04/17	
Dichlorodifluoromethane	1.0	nd			nd
Chloromethane	1.0	nd			nd
Vinyl chloride	0.2	nd	117%	124%	nd
Bromomethane	1.0	nd			nd
Chloroethane	1.0	nd			nd
Trichlorofluoromethane	1.0	nd			nd
Acetone	10.0	nd			nd
1,1-Dichloroethene	1.0	nd	88%	87%	nd
Methylene chloride	1.0	nd			nd
Methyl-t-butyl ether (MTBE)	1.0	nd			nd
trans-1,2-Dichloroethene	1.0	nd			nd
1,1-Dichloroethane	1.0	nd			nd
2-Butanone (MEK)	10.0	nd			nd
cis-1,2-Dichloroethene	1.0	nd			nd
2,2-Dichloropropane	1.0	nd			nd
Chloroform	1.0	nd	125%	119%	nd
Bromochloromethane	1.0	nd			nd
1,1,1-Trichloroethane	1.0	nd			nd
1,2-Dichloroethane (EDC)	1.0	nd			nd
1,1-Dichloropropene	1.0	nd			nd
Carbon tetrachloride	1.0	nd			nd
Benzene	1.0	nd	81%	79%	nd
Trichloroethene (TCE)	1.0	nd			nd
1,2-Dichloropropane	1.0	nd	88%	87%	nd
Dibromomethane	1.0	nd			nd
Bromodichloromethane	1.0	nd			nd
4-Methyl-2-pentanone (MIBK)	1.0	nd			nd
cis-1,3-Dichloropropene	1.0	nd			nd
Toluene	1.0	nd	93%	94%	nd
trans-1,3-Dichloropropene	1.0	nd			nd
1,1,2-Trichloroethane	1.0	nd			nd
2-Hexanone	1.0	nd			nd
1,3-Dichloropropane	1.0	nd			nd
Dibromochloromethane	1.0	nd			nd
Tetrachloroethene (PCE)	1.0	nd	99%	99%	nd
1,2-Dibromoethane (EDB)	1.0	nd			nd
Chlorobenzene	1.0	nd	101%	101%	nd
1,1,1,2-Tetrachloroethane	1.0	nd			nd
Ethylbenzene	1.0	nd	97%	99%	nd
Xylenes	3.0	nd	98%	118%	nd
Styrene	1.0	nd			nd
Bromoform	1.0	nd			nd
1,1,2,2-Tetrachloroethane	1.0	nd			nd
Isopropylbenzene	1.0	nd			nd
1,2,3-Trichloropropane	1.0	nd			nd
Bromobenzene	1.0	nd			nd

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Analysis of Volatile Organic Compounds in Water by Method 8260C/5030C

Analytical Results

	RL	MB	LCS	LCSD	MW-NW
Date analyzed	(ug/L)	04/04/17	04/04/17	04/04/17	
n-Propylbenzene	1.0	nd			nd
2-Chlorotoluene	1.0	nd			nd
4-Chlorotoluene	1.0	nd			nd
1,3,5-Trimethylbenzene	1.0	nd			nd
tert-Butylbenzene	1.0	nd			nd
1,2,4-Trimethylbenzene	1.0	nd			nd
sec-Butylbenzene	1.0	nd			nd
1,3-Dichlorobenzene	1.0	nd			nd
1,4-Dichlorobenzene	1.0	nd			nd
Isopropyltoluene	1.0	nd			nd
1,2-Dichlorobenzene	1.0	nd			nd
n-Butylbenzene	1.0	nd			nd
1,2-Dibromo-3-Chloropropane	1.0	nd			nd
1,2,4-Trichlorobenzene	1.0	nd			nd
Naphthalene	1.0	nd			nd
Hexachloro-1,3-butadiene	1.0	nd			nd
1,2,3-Trichlorobenzene	1.0	nd			nd
Surrogate recoveries					
Dibromofluoromethane		118%	113%	114%	116%
Toluene-d8		97%	91%	90%	98%
4-Bromofluorobenzene		107%	97%	101%	105%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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Analysis of Semivolatile Organic Compounds in Soil by Method 8270

Analytical Results

		MTH BLK	LCS	B1-8	B2-4
Date extracted	Reporting	04/03/17	04/03/17	04/03/17	04/03/17
Date analyzed	Limits	04/03/17	04/03/17	04/03/17	04/03/17
Moisture, %	(mg/kg)			0%	12%
Pyridine	1.0	nd		nd	nd
Aniline	1.0	nd		nd	nd
Phenol	1.0	nd	83%	nd	nd
2-Chlorophenol	1.0	nd		nd	nd
Bis (2-chloroethyl) ether	1.0	nd		nd	nd
1,3-Dichlorobenzene	1.0	nd		nd	nd
1,4-Dichlorobenzene	1.0	nd	90%	nd	nd
1,2-Dichlorobenzene	1.0	nd		nd	nd
Benzyl alcohol	1.0	nd		nd	nd
Hexacholorethane	1.0	nd		nd	nd
N-Nitroso-di-n-propylamine	1.0	nd	102%	nd	nd
3,4-Methylphenol (m,p-cresol)	1.0	nd		nd	nd
2-Methylphenol (o-cresol)	1.0	nd		nd	nd
Bis (2-chloroisopropyl) ether	5.0	nd		nd	nd
Nitrobenzene	1.0	nd		nd	nd
Isophorone	1.0	nd		nd	nd
2-Nitrophenol	5.0	nd	101%	nd	nd
2,4-Dimethylphenol	1.0	nd		nd	nd
Bis (2-chloroethoxy) methane	1.0	nd		nd	nd
2,4-Dichlorophenol	5.0	nd		nd	nd
1,2,4-Trichlorobenzene	1.0	nd	104%	nd	nd
Naphthalene	1.0	nd		nd	nd
4-Chloroaniline	5.0	nd		nd	nd
Hexachlorobutadiene	1.0	nd	128%	nd	nd
4-Chloro-3-methylphenol	5.0	nd	114%	nd	nd
2-Methylnapthalene	1.0	nd		nd	nd
1-Methylnapthalene	1.0	nd		nd	nd
Hexachlorocyclopentadiene	1.0	nd	143%	nd	nd
2,4,6-Trichlorophenol	5.0	nd	79%	nd	nd
2,4,5-Trichlorophenol	5.0	nd		nd	nd
2-Chloronaphthalene	1.0	nd		nd	nd
2-Nitroaniline	5.0	nd		nd	nd
1,4-Dinitrobenzene	5.0	nd		nd	nd
Acenaphthylene	0.1	nd		nd	nd
1,3-Dinotrobenzene	5.0	nd		nd	nd
Dimethylphthalate	1.0	nd		nd	nd
2,6-Dinitrotoluene	1.0	nd		nd	nd
1,2-Dinitrobenzene	1.0	nd		nd	nd
Acenaphthene	0.1	nd	102%	nd	nd
2,4-Dinitrophenol	5.0	nd	95%	nd	nd

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Analysis of Semivolatile Organic Compounds in Soil by Method 8270

Analytical Results

		MTH BLK	LCS	B1-8	B2-4
Date extracted	Reporting	04/03/17	04/03/17	04/03/17	04/03/17
Date analyzed	Limits	04/03/17	04/03/17	04/03/17	04/03/17
Moisture, %	(mg/kg)			0%	12%
2,4-Dinitrotoluene	1.0	nd	102%	nd	nd
4-Nitrophenol	5.0	nd	127%	nd	nd
Dibenzofuran	1.0	nd		nd	nd
2,3,4,6-Tetrachlorophenol	1.0	nd		nd	nd
2,3,5,6-Tetrachlorophenol	1.0	nd		nd	nd
Fluorene	0.1	nd		nd	nd
4-Chlorophenylphenylether	1.0	nd		nd	nd
Diethylphthalate	1.0	nd		nd	nd
4-Nitroaniline	5.0	nd		nd	nd
4,6-Dinitro-2-methylphenol	5.0	nd		nd	nd
N-nitrosodiphenylamine	1.0	nd		nd	nd
Azobenzene	1.0	nd		nd	nd
4-Bromophenylphenylether	1.0	nd		nd	nd
Hexachlorobenzene	1.0	nd		nd	nd
Pentachlorophenol	5.0	nd	145%	nd	nd
Phenanthrene	0.1	nd		nd	nd
Anthracene	0.1	nd		nd	nd
Carbazole	1.0	nd		nd	nd
Di-n-butylphthalate	1.0	nd		nd	nd
Fluoranthene	0.1	nd	106%	nd	**0.77**
Pyrene	0.1	nd	106%	nd	**0.89**
Butylbenzylphthalate	1.0	nd		nd	nd
Bis(2-ethylhexyl) adipate	1.0	nd		nd	nd
Benzo(a)anthracene	0.1	nd	103%	nd	**1.4**
Chrysene	0.1	nd	99%	nd	**0.05**
Bis (2-ethylhexyl) phthalate	1.0	nd		nd	nd
Di-n-octyl phthalate	1.0	nd	86%	nd	nd
Benzo(b)fluoranthene	0.1	nd		nd	nd
Benzo(k)fluoranthene	0.1	nd		nd	nd
Benzo(a)pyrene	0.1	nd	122%	nd	nd
Dibenzo(a,h)anthracene	0.1	nd		nd	nd
Benzo(ghi)perylene	0.1	nd	118%	nd	**1.0**
Indeno(1,2,3-cd)pyrene	0.1	nd	105%	nd	**1.2**

Surrogate recoveries				
2-Fluorophenol	71%	76%	80%	66%
Phenol-d6	77%	86%	77%	70%
Nitrobenzene-d5	92%	114%	106%	82%
2-Fluorobiphenyl	98%	98%	116%	88%
2,4,6-Tribromophenol	98%	119%	114%	98%
4-Terphenyl-d14	102%	100%	107%	89%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

Acceptable Recovery limits:

2-Flurophenol: 10-135 %
Phenol - d5: 10-135 %
2,4,6- tribromophenol: 29-159%
Nitrobenzene - d5: 20-120 %
2-Flurobiphenyl: 50-150%
p-Terphenyl-d14: 50-150%
Acceptable RPD limit: 35%

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Analysis of Semivolatile Organic Compounds in Water by Method 8270

Analytical Results

	Reporting	MTH BLK	LCS	MW-NW
Date extracted	Limits	04/03/17	04/03/17	04/03/17
Date analyzed	(µg/L)	04/03/17	04/03/17	04/03/17
Pyridine	2.0	nd		nd
Aniline	2.0	nd		nd
Phenol	2.0	nd	88%	nd
2-Chlorophenol	2.0	nd		nd
Bis (2-chloroethyl) ether	2.0	nd		nd
1,3-Dichlorobenzene	2.0	nd		nd
1,4-Dichlorobenzene	2.0	nd	86%	nd
1,2-Dichlorobenzene	2.0	nd		nd
Benzyl alcohol	2.0	nd		nd
2-Methylphenol (o-cresol)	2.0	nd		nd
Bis (2-chloroisopropyl) ether	10.0	nd		nd
3,4-Methylphenol (m,p-cresol)	2.0	nd		nd
Hexacholorethane	2.0	nd		nd
N-Nitroso-di-n-propylamine	2.0	nd	96%	nd
Nitrobenzene	2.0	nd		nd
Isophorone	2.0	nd		nd
2-Nitrophenol	10.0	nd		nd
4-Nitrophenol	10.0	nd		nd
2,4-Dimethylphenol	2.0	nd		nd
Bis (2-chloroethoxy) methane	2.0	nd		nd
2,4-Dichlorophenol	10.0	nd		nd
1,2,4-Trichlorobenzene	2.0	nd	96%	nd
Naphthalene	2.0	nd		nd
4-Chloroaniline	10.0	nd		nd
Hexachlorobutadiene	2.0	nd	128%	nd
4-Chloro-3-methylphenol	10.0	nd	115%	nd
2-Methylnapthalene	2.0	nd		nd
1-Methylnapthalene	2.0	nd		nd
Hexachlorocyclopentadiene	2.0	nd	149%	nd
2,4,6-Trichlorophenol	10.0	nd	78%	nd
2,4,5-Trichlorophenol	10.0	nd		nd
2-Chloronaphthalene	2.0	nd		nd
2-Nitroaniline	10.0	nd		nd
1,4-Dinitrobenzene	10.0	nd		nd
Dimethylphthalate	2.0	nd		nd
Acenaphthylene	0.2	nd		nd
1,3-Dinotrobenzene	10.0	nd		nd
2,6-Dinitrotoluene	2.0	nd		nd
1,2-Dinitrobenzene	2.0	nd		nd
Acenaphthene	0.2	nd	99%	nd
2,4-Dinitrophenol	2.0	nd	130%	nd
2,4-Dinitrotoluene	2.0	nd	99%	nd
4-Nitrophenol	10.0	nd	109%	nd
Dibenzofuran	2.0	nd		nd
2,3,4,6-Tetrachlorophenol	2.0	nd		nd
2,3,5,6-Tetrachlorophenol	2.0	nd		nd
2,4-Dinitrophenol	10.0	nd		nd
Fluorene	0.2	nd		nd

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Analysis of Semivolatile Organic Compounds in Water by Method 8270

Analytical Results

	Reporting	MTH BLK	LCS	MW-NW
Date extracted	Limits	04/03/17	04/03/17	04/03/17
Date analyzed	(µg/L)	04/03/17	04/03/17	04/03/17
4-Chlorophenylphenylether	2.0	nd		nd
Diethylphthalate	2.0	nd		nd
4-Nitroaniline	10.0	nd		nd
4,6-Dinitro-2-methylphenol	10.0	nd		nd
N-nitrosodiphenylamine	2.0	nd		nd
Azobenzene	2.0	nd		nd
4-Bromophenylphenylether	2.0	nd		nd
Hexachlorobenzene	2.0	nd		nd
Pentachlorophenol	10.0	nd	142%	nd
Phenanthrene	0.2	nd		nd
Anthracene	0.2	nd		nd
Carbazole	2.0	nd		nd
Di-n-butylphthalate	2.0	nd		nd
Fluoranthene	0.2	nd		nd
Pyrene	0.2	nd	104%	nd
Butylbenzylphthalate	2.0	nd		nd
Bis(2-ethylhexyl) adipate	2.0	nd		nd
Benzo(a)anthracene	0.2	nd		nd
Chrysene	0.2	nd		nd
Bis (2-ethylhexyl) phthalate	2.0	nd		nd
Di-n-octyl phthalate	2.0	nd	89%	nd
Benzo(b)fluoranthene	0.2	nd		nd
Benzo(k)fluoranthene	0.2	nd		nd
Benzo(a)pyrene	0.2	nd	122%	nd
Dibenzo(a,h)anthracene	0.2	nd		nd
Benzo(ghi)perylene	0.2	nd		nd
Indeno(1,2,3-cd)pyrene	0.2	nd		nd

Surrogate recoveries			
2-Fluorophenol	78%	83%	68%
Phenol-d6	88%	91%	75%
Nitrobenzene-d5	103%	108%	24%
2-Fluorobiphenyl	93%	98%	131%
2,4,6-Tribromophenol	104%	117%	106%
4-Terphenyl-d14	100%	99%	146%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits

Acceptable Recovery limits:

2-Flurophenol: 10-135 %
Phenol - d5: 10-135 %
2,4,6- tribromophenol: 29-159%
Nitrobenzene - d5: 20-120 %
2-Flurobiphenyl: 50-150%
p-Terphenyl-d14: 50-150%
Acceptable RPD limit: 35%

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Total Metals in Soil by EPA-6020 Series

Sample Number	Date Analyzed	Lead (Pb) (mg/kg)	Cadmium (Cd) (mg/kg)	Chromium (Cr) (mg/kg)	Arsenic (As) (mg/kg)	Silver (Ag) (mg/kg)	Barium (Ba) (mg/kg)	Selenium (Se) (mg/kg)	Mercury (Hg) (mg/kg)
Method Blank	4/6/2017	nd	nd	nd	nd	nd	nd	nd	nd
B1-8	4/6/2017	**4.1**	nd	**51**	**21**	nd	**120**	nd	nd
B2-4	4/6/2017	**140**	**1.4**	**42**	**7.5**	nd	**210**	nd	nd
Reporting Limits		5.0	1.0	5.0	5.0	20	50	20	0.5

"nd" Indicates not detected at listed detection limits.

QA/QC Data - Total Metals EPA-6020

Sample Number: QC Batch

	Matrix Spike			Matrix Spike Duplicate			RPD
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	(%)
Lead	73.5	78.1	106	75.2	79.8	106	0.13
Cadmium	73.5	73.4	99.9	75.2	75.7	101	0.80
Chromium	73.5	95.4	130	75.2	96.4	128	1.24
Arsenic	73.5	86.3	117	75.2	86.7	115	1.82
Silver	73.5	72.6	98.8	75.2	73.0	97.1	1.74
Barium	73.5	112.0	152M	75.2	80.3	107	35.2M
Selenium	73.5	79.1	108	75.2	79.7	106	1.53
Mercury	7.35	7.61	104	7.52	7.76	103	0.33

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%
M - Matrix Spike recovery failed due to matrix interference.

	Laboratory Control Sample		
	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
Lead	100	106	106
Cadmium	100	103	103
Chromium	100	116	116
Arsenic	100	115	115
Silver	100	101	101
Barium	100	103	103
Selenium	100	114	114
Mercury	10.0	10.3	103

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 80%-120%

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Dissolved Metals in Water by EPA-6020 Method

Sample Number	Date Analyzed	Lead (Pb) (ug/L)	Cadmium (Cd) (ug/L)	Chromium (Cr) (ug/L)	Arsenic (As) (ug/L)	Silver (Ag) (ug/L)	Barium (Ba) (ug/L)	Selenium (Se) (ug/L)	Mercury (Hg) (ug/L)
Method Blank	4/6/2017	nd	nd	nd	nd	nd	nd	nd	nd
MW-NW	4/6/2017	nd	nd	**12**	**4.8**	nd	**370**	nd	nd
MW-NW Duplicate	4/6/2017	nd	nd	**12**	**4.8**	nd	**340**	nd	nd
Reporting Limits		2.0	2.0	10	2.0	10	20	10	1.0

"nd" Indicates not detected at listed detection limits.

QA/QC Data - Total Metals EPA-6020

	Laboratory Control Sample			Laboratory Control Sample Duplicate			RPD
	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	Spiked Conc. (ug/L)	Measured Conc. (ug/L)	Spike Recovery (%)	(%)
Lead	20	21.8	109	20	21.3	107	2.32
Cadmium	20	19.9	99.5	20	20.1	101	1.00
Chromium	20	20.9	105	20	20.7	104	0.96
Arsenic	20	21.5	108	20	21.7	109	0.93
Silver	20	23.5	118	20	21.9	110	7.05
Barium	20	21.1	106	20	20.9	105	0.95
Selenium	20	21.7	109	20	22.6	113	4.06
Mercury	2.0	2.26	113	2.0	2.15	108	4.99

ACCEPTABLE RECOVERY LIMITS FOR LABORATORY CONTROL SAMPLES: 80%-120%
ACCEPTABLE RPD IS 20%

ESN NORTHWEST, INC. | Environmental Services Network

Send lab report to Environmental Associates, Inc.

CHAIN-OF-CUSTODY RECORD

CLIENT: Frank Lenci Corporation % Portomarco Properties
ADDRESS: 7900 SE 28th St Suite 400 Mercer Island WA 98040
PHONE: (206) 232-7502 FAX: John@portoprop.com
CLIENT PROJECT #: EAI-3156-2 PROJECT MANAGER: Chet Roe

DATE: 3/21/17 PAGE 1 OF 1
PROJECT NAME: Lenci Property
LOCATION: Seattle - WA
COLLECTOR: EAI / Chet Roe DATE OF COLLECTION: 3/1/17

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite			NOTES	Total Number of Containers	Laboratory Note Number
1. B1-4			Soil	4oz Glass																					2	
2. B1-7						X	X			X	X			X											3	
3. B1-14																									3	
4. B2-4						X	X			X	X			X											3	
5. B2-9																									3	
6. B2-14																									3	
7. B3-3																									3	
8. B3-7																									3	
9. B3-12			↓	↓																					3	
10. B1			H_2O	Amber																					6	
11. B2			↓	↓																					6	
12. MW-NW			↓	1		X	X			X	X			X										dissolved	6	
13. B1-F11			Soil	4oz Glass																					4/1	
14.																									1	
15.																										
16.																										
17.																										
18.																										

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[signature]	3/21/17		
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR 5 DAY

1210 Eastside Street SE, Suite 200
Olympia, Washington 98501
Phone: 360-459-4670
Fax: 360-459-3432
Website: www.esnnw.com
E-Mail: info@esnnw.com

ESN NORTHWEST, INC. | Environmental Services Network

Send lab report to Environmental Associates, Inc.

CHAIN-OF-CUSTODY RECORD

CLIENT: Frank Lenci Corporation % Pietromonaco Properties
ADDRESS: 7900 SE 28th St, Suite 400 Mercer Island, WA 98040
PHONE: (206) 232-7502 FAX: JohnCpietroprop.com
CLIENT PROJECT #: EAI-3156-2 PROJECT MANAGER: Robert Roe

DATE: 3/31/17 PAGE 1 OF 1
PROJECT NAME: Lenci Property
LOCATION: Seattle - WA
COLLECTOR: EAI / Robert Roe DATE OF COLLECTION: 3/31/17

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite	NOTES	Total Number of Containers	Laboratory Note Number
1. B1-4			Soil	multiple																			3	
2. B1-8					X	X			X	X				X									3	
3. B1-14																							3	
4. B2-4					X	X			X	X				X									3	
5. B2-9																							3	
6. B2-14																							3	
7. B3-3																							3	
8. B3-8																							3	
9. B3-12																							3	
10. B1			H_2O	Multiple																			6	
11. B2																							6	
12. MW-NW					X	X			X	X				X								Dissolved	6	
13. B1-Fill			Soil	4oz Jar																			#1	
14.																							#	
15.																								
16.																								
17.																								
18.																								

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[signature]	3/31/17	[signature]	3/31/17
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR (5 DAY)

1210 Eastside Street SE, Suite 200
Olympia, Washington 98501
Phone: 360-459-4670
Fax: 360-459-3432
Website: www.esnnw.com
E-Mail: info@esnnw.com

ESN NORTHWEST CHEMISTRY LABORATORY

Environmental Associates, Inc.
PROJECT LENCI PROPERTY
PROJECT #EAI-3156-2
Seattle, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

Sample Preparation Information for Toxicity Characteristic Leaching Procedure (TCLP) by EPA Method 1311

Sample Number:	B1-4
No. of Extractions:	1
Type of Extraction:	Rotary
Extraction Fluid:	#1
Date Extracted:	4/20/2017

Sample Preparation Information for Toxicity Characteristic Leaching Procedure (TCLP) by EPA Method 1311

Sample Number:	B1-8
No. of Extractions:	1
Type of Extraction:	Rotary
Extraction Fluid:	#1
Date Extracted:	4/20/2017

ESN NORTHWEST CHEMISTRY LABORATORY

Environmental Associates, Inc.
PROJECT LENCI PROPERTY
PROJECT #EAI-3156-2
Seattle, Washington

ESN Northwest
1210 Eastside Street SE Suite 200
Olympia, WA 98501
(360) 459-4670 (360) 459-3432 Fax
lab@esnnw.com

TCLP Metals in Soil by EPA-Method 1311/6020

Sample Number	Date Analyzed	Arsenic (As) (mg/L)
Method Blank	4/24/2017	nd
B1-4	4/24/2017	nd
B1-8	4/24/2017	nd
Method Detection Limits		0.2

QA/QC Data - TCLP Metals EPA-Method 1311/6020

Sample Number:TCLP	Date Analyzed	Arsenic (As) (mg/L)
Laboratory Control Sample Spike		1.00
Laboratory Control Sample Result	4/24/2017	1.23
Percent Recovery (%)		123
Method Detection Limits		0.2

"nd" Indicates not detected at listed detection limits.

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 75%-125%
ACCEPTABLE RPD IS 20%

ESN NORTHWEST, INC. | Environmental Services Network

Send lab report to Environmental Associates, Inc.

CHAIN-OF-CUSTODY RECORD

CLIENT: Frank Lenci Corporation % Pietromonaco Properties
ADDRESS: 7900 SE 28th St, Suite 400 Mercer Island, WA 98040
PHONE: (206) 232-7502 FAX: JohnC@pietroprop.com
CLIENT PROJECT #: EAI-3156-2 PROJECT MANAGER: Robert Roe

DATE: 3/31/17 PAGE 1 OF 1
PROJECT NAME: Lenci Property
LOCATION: Seattle - WA
COLLECTOR: EAI / Robert Roe DATE OF COLLECTION: 3/31/17

Sample Number	Depth	Time	Sample Type	Container Type	TPH - HCID	TPH - Diesel & Oil	TPH - Gasoline	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	Cl Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos - PLM	GRO Suite	DRO Suite	WO Suite	TCLP AS	NOTES	Total Number of Containers	Laboratory Note Number
1. B1-4			Soil	multiple																		(X)		3	
2. B1-8					X	X			X	X				X								(X)		3	
3. B1-14																								3	
4. B2-4					X	X			X	X				X										3	
5. B2-9																								3	
6. B2-14																								3	
7. B3-3																								3	
8. B3-8																								3	
9. B3-12			↓	↓																				3	
10. B1			H_2O	multiple																				6	
11. B2																								6	
12. MW-NW			↓	↓	X	X			X	X				X									Dissolved	6	
13. B1-Fill			Soil	4oz Jar																				#1	
14.																								#	
15.																									
16.																									
17.																									
18.																									

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[signature]	3/31/17	[signature]	3/31/17
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES:	

LABORATORY NOTES:
(X) Add-on

Turn Around Time: 24 HR 48 HR (5 DAY)

1210 Eastside Street SE, Suite 200
Olympia, Washington 98501
Phone: 360-459-4670
Fax: 360-459-3432
Website: www.esnnw.com
E-Mail: info@esnnw.com

Attachment D

October 2025 Laboratory Data

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

Friedman & Bruya
Michael Erdahl
5500 4th Ave S
Seattle, WA 98108

RE: 510509,
Work Order Number: 2510713

October 29, 2025

Attention Michael Erdahl:

Alliance Technical Group, LLC - Seattle received 1 sample(s) on 10/28/2025 for the analyses presented in the following report.

Major Gases by EPA Method 3C

All analyses were performed according to our accredited Quality Assurance program. Please contact the laboratory if you should have any questions about the results.

Alliance Technical Group is committed to accuracy, speed, and customer service. Thank you for choosing Alliance Technical Group's Seattle laboratory team for your analytical needs. We appreciate this opportunity to serve you!

Sincerely,

Brianna Barnes
Project Manager

CC:
Chris Bourgeois
Laura Lee

Date: *10/30/2025*

CLIENT: Friedman & Bruya
Project: 510509
Work Order: 2510713

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2510713-001	GP-32S	10/28/2025 1:05 PM	10/28/2025 3:10 PM

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

Case Narrative

WO#: **2510713**

Date: **10/29/2025**

CLIENT: Friedman & Bruya

Project: 510509

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

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. 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 and the MS/MSD 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.

10/30/25: Rev1 includes a sample ID correction per client request.

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

Analytical Report

Work Order: **2510713**
Date Reported: **10/29/2025**

CLIENT: Friedman & Bruya
Project: 510509

Lab ID: 2510713-001
Client Sample ID: **GP-32S**
Collection Date: 10/28/2025 1:05:00 PM
Matrix: Air

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Major Gases by EPA Method 3C				Batch ID: R10421		Analyst: CO
Carbon Dioxide	16.9	0.0500		%	1	10/29/2025 11:16:00 AM
Carbon Monoxide	ND	0.0500		%	1	10/29/2025 11:16:00 AM
Methane	68.2	0.0500		%	1	10/29/2025 11:16:00 AM
Nitrogen	14.3	0.0500		%	1	10/29/2025 11:16:00 AM
Oxygen	0.629	0.0500		%	1	10/29/2025 11:16:00 AM
Hydrogen	ND	0.0500		%	1	10/29/2025 11:16:00 AM
BTU	690			BTU/ft^3	1	10/29/2025 11:16:00 AM

Work Order: 2510713
CLIENT: Friedman & Bruya
Project: 510509

QC SUMMARY REPORT

Major Gases by EPA Method 3C

Sample ID: **LCS-R104211** SampType: **LCS** Units: **%** Prep Date: **10/29/2025** RunNo: **104211**
Client ID: **LCSW** Batch ID: **R104211** Analysis Date: **10/29/2025** SeqNo: **2173827**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon Dioxide	100	0.0500	100.0	0	100	90	110				
Carbon Monoxide	100	0.0500	100.0	0	100	90	110				
Methane	100	0.0500	100.0	0	100	90	110				
Nitrogen	102	0.0500	100.0	0	102	90	110				
Oxygen	101	0.0500	100.0	0	101	90	110				
Hydrogen	99.9	0.0500	100.0	0	99.9	90	110				

Sample ID: **2510671-001AREP** SampType: **REP** Units: **%** Prep Date: **10/29/2025** RunNo: **104211**
Client ID: **BATCH** Batch ID: **R104211** Analysis Date: **10/29/2025** SeqNo: **2173825**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Carbon Dioxide	0.568	0.0500						0.6030	5.93	30	
Carbon Monoxide	ND	0.0500						0		30	
Methane	8.18	0.0500						8.304	1.49	30	
Nitrogen	88.0	0.0500						87.82	0.250	30	
Oxygen	3.21	0.0500						3.269	1.92	30	
Hydrogen	ND	0.0500						0		30	
BTU	82.7							83.98	1.49	30	

Sample Log-In Check List

Client Name:	FB	Work Order Number:	2510713
Logged by:	Morgan Wilson	Date Received:	10/28/2025 3:10:00 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:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

Item Information

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

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2510713

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 5500 4th Ave S

City, State, ZIP Seattle, WA 98108

email: merdahl@friedmanandbruya.com

SUBCONTRACTER ATG	
PROJECT NAME/NO. 510509	PO # F-533
REMARKS EQuIS	

TURNAROUND TIME
Standard
☒ RUSH 10/29/25
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: EPA 3C										Notes
GP-325		10/28/2025	1305	air	1	x										

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	10/28/25	1352
Received by:		Nathan Kuffel	ATG	10/28/25	1510
Relinquished by:					
Received by:					

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2510713

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 5500 4th Ave S

City, State, ZIP Seattle, WA 98108

email: merdahl@friedmanandbruya.com

SUBCONTRACTER	
ATG	
PROJECT NAME/NO.	PO #
510509	F-533
REMARKS	
EQuIS	Edits per C.B. 10/29/25-BB

TURNAROUND TIME

Standard

☒ RUSH 10/29/25

Rush charges authorized by:

SAMPLE DISPOSAL

Dispose after 30 days

Return samples

Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: EPA 3C										Notes
~~GP-325~~ GP-32S		10/28/2025	1305	air	1	x										

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
~~Relinquished by:~~		Michael Erdahl	Friedman & Bruya	10/28/25	1352
Received by:		Nathan Kuffel	ATG	10/28/25	1510
Relinquished by:					
Received by:					

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Elizabeth Webber-Bruya
Ann Webber-Bruya
Michael Erdahl
Vineta Mills
Eric Young

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

October 30, 2025

Laura Lee, Project Manager
Parametrix
719 2nd Ave, Suite 200
Seattle, WA 98104

Dear Ms Lee:

Included are the additional results from the testing of material submitted on October 28, 2025 from the 5531550067, F&BI 510509 project. There are 6 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Mike Brady
PMX1030R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 28, 2025 by Friedman & Bruya, Inc. from the Parametrix 5531550067, F&BI 510509 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Parametrix
510509 -01	GP-32S

The sample GP-32S was prepared for TO17 analysis by passing 100 mLs of sample through a sorbent tube.

The TIC and library search results for sample GP-32S are included. The concentrations shown by library search are 1/10 the estimated concentration in the sample.

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	GP-32S	Client:	Parametrix
Date Received:	10/28/25	Project:	5531550067, F&BI 510509
Date Collected:	10/23/25	Lab ID:	510509-01 1/10
Date Analyzed:	10/30/25	Data File:	102928.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	VM

Compounds:	Concentration ug/m3	Compounds:	Concentration ug/m3
Dichlorodifluoromethane	<250	1,2-Dibromoethane (EDB)	<50
Vinyl chloride	<50	Chlorobenzene	<10
2-Propanol	<2,500	Ethylbenzene	<50
1,1-Dichloroethene	<50	1,1,1,2-Tetrachloroethane	<50
Hexane	<300	m,p-Xylene	<100
t-Butyl alcohol (TBA)	<2,500	o-Xylene	<50
Methyl t-butyl ether (MTBE)	<250	Styrene	<50
trans-1,2-Dichloroethene	<50	Isopropylbenzene	<50
1,1-Dichloroethane	<50	Bromoform	<50
2,2-Dichloropropane	<50	n-Propylbenzene	<10
cis-1,2-Dichloroethene	<50	Bromobenzene	<10
Chloroform	<50	1,3,5-Trimethylbenzene	<10
2-Butanone (MEK)	<250	1,1,2,2-Tetrachloroethane	<10
1,2-Dichloroethane (EDC)	<50	1,2,3-Trichloropropane	<10
1,1,1-Trichloroethane	<50	2-Chlorotoluene	<10
1,1-Dichloropropene	<50	4-Chlorotoluene	<10
Carbon tetrachloride	<50	tert-Butylbenzene	<10
Benzene	<100	1,2,4-Trimethylbenzene	<10
Trichloroethene	<10	sec-Butylbenzene	<10
1,2-Dichloropropane	<50	p-Isopropyltoluene	<10
Bromodichloromethane	<50	1,3-Dichlorobenzene	<10
Dibromomethane	<50	1,4-Dichlorobenzene	<10
4-Methyl-2-pentanone	<50	1,2-Dichlorobenzene	<10
cis-1,3-Dichloropropene	<50	1,2-Dibromo-3-chloropropane	<10
Toluene	<50	1,2,4-Trichlorobenzene	<10
trans-1,3-Dichloropropene	<10	Hexachlorobutadiene	<10
1,1,2-Trichloroethane	<10	Naphthalene	<10
2-Hexanone	<250	1,2,3-Trichlorobenzene	<50
1,3-Dichloropropane	<10	2-Methylnaphthalene	<100
Tetrachloroethene	<10	1-Methylnaphthalene	<100
Dibromochloromethane	<50	Gasoline Range Organics	48,000

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	Method Blank	Client:	Parametrix
Date Received:	Not Applicable	Project:	5531550067, F&BI 510509
Date Collected:	Not Applicable	Lab ID:	05-2723 mb
Date Analyzed:	10/29/25	Data File:	102907.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3	Compounds:	Concentration ug/m3
Dichlorodifluoromethane	<25	1,2-Dibromoethane (EDB)	<5
Vinyl chloride	<5	Chlorobenzene	<1
2-Propanol	<250	Ethylbenzene	<5
1,1-Dichloroethene	<5	1,1,1,2-Tetrachloroethane	<5
Hexane	<30	m,p-Xylene	<10
t-Butyl alcohol (TBA)	<250	o-Xylene	<5
Methyl t-butyl ether (MTBE)	<25	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<5	Bromobenzene	<1
Chloroform	<5	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<25	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<1
1,1-Dichloropropene	<5	4-Chlorotoluene	<1
Carbon tetrachloride	<5	tert-Butylbenzene	<1
Benzene	<10	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<5	p-Isopropyltoluene	<1
Bromodichloromethane	<5	1,3-Dichlorobenzene	<1
Dibromomethane	<5	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<5	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<1
Toluene	<5	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<25	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<1	2-Methylnaphthalene	<10
Tetrachloroethene	<1	1-Methylnaphthalene	<10
Dibromochloromethane	<5	Gasoline Range Organics	<1,000

Date of Report: 10/30/25
Date Received: 10/28/25
Project: 5531550067, F&BI 510509

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-17

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	ng/tube	50	111	70-130
Vinyl chloride	ng/tube	50	94	70-130
2-Propanol	ng/tube	250	94	70-130
1,1-Dichloroethene	ng/tube	50	100	70-130
Hexane	ng/tube	50	91	70-130
t-Butyl alcohol (TBA)	ng/tube	250	90	70-130
Methyl t-butyl ether (MTBE)	ng/tube	50	93	70-130
trans-1,2-Dichloroethene	ng/tube	50	100	70-130
1,1-Dichloroethane	ng/tube	50	91	70-130
2,2-Dichloropropane	ng/tube	50	92	70-130
cis-1,2-Dichloroethene	ng/tube	50	94	70-130
Chloroform	ng/tube	50	94	70-130
2-Butanone (MEK)	ng/tube	50	99	70-130
1,2-Dichloroethane (EDC)	ng/tube	50	93	70-130
1,1,1-Trichloroethane	ng/tube	50	93	70-130
1,1-Dichloropropene	ng/tube	50	90	70-130
Carbon tetrachloride	ng/tube	50	95	70-130
Benzene	ng/tube	50	84	70-130
Trichloroethene	ng/tube	50	99	70-130
1,2-Dichloropropane	ng/tube	50	91	70-130
Bromodichloromethane	ng/tube	50	90	70-130
Dibromomethane	ng/tube	50	93	70-130
4-Methyl-2-pentanone	ng/tube	50	95	70-130
cis-1,3-Dichloropropene	ng/tube	50	90	70-130
Toluene	ng/tube	50	92	70-130
trans-1,3-Dichloropropene	ng/tube	50	89	70-130
1,1,2-Trichloroethane	ng/tube	50	88	70-130
2-Hexanone	ng/tube	50	96	70-130
1,3-Dichloropropane	ng/tube	50	87	70-130
Tetrachloroethene	ng/tube	50	93	70-130
Dibromochloromethane	ng/tube	50	87	70-130
1,2-Dibromoethane (EDB)	ng/tube	50	90	70-130
Chlorobenzene	ng/tube	50	101	70-130
Ethylbenzene	ng/tube	50	96	70-130
1,1,1,2-Tetrachloroethane	ng/tube	50	94	70-130
m,p-Xylene	ng/tube	100	102	70-130
o-Xylene	ng/tube	50	100	70-130
Styrene	ng/tube	50	99	70-130
Isopropylbenzene	ng/tube	50	100	70-130
Bromoform	ng/tube	50	95	70-130

Date of Report: 10/30/25
Date Received: 10/28/25
Project: 5531550067, F&BI 510509

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-17

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
n-Propylbenzene	ng/tube	50	97	70-130
Bromobenzene	ng/tube	50	106	70-130
1,3,5-Trimethylbenzene	ng/tube	50	98	70-130
1,1,2,2-Tetrachloroethane	ng/tube	50	91	70-130
1,2,3-Trichloropropane	ng/tube	50	92	70-130
2-Chlorotoluene	ng/tube	50	100	70-130
4-Chlorotoluene	ng/tube	50	101	70-130
tert-Butylbenzene	ng/tube	50	100	70-130
1,2,4-Trimethylbenzene	ng/tube	50	101	70-130
sec-Butylbenzene	ng/tube	50	99	70-130
p-Isopropyltoluene	ng/tube	50	102	70-130
1,3-Dichlorobenzene	ng/tube	50	107	70-130
1,4-Dichlorobenzene	ng/tube	50	106	70-130
1,2-Dichlorobenzene	ng/tube	50	104	70-130
1,2-Dibromo-3-chloropropane	ng/tube	50	87	70-130
1,2,4-Trichlorobenzene	ng/tube	50	109	70-130
Hexachlorobutadiene	ng/tube	50	105	70-130
Naphthalene	ng/tube	50	105	70-130
1,2,3-Trichlorobenzene	ng/tube	50	113	70-130
2-Methylnaphthalene	ng/tube	50	111	70-130
1-Methylnaphthalene	ng/tube	50	121	70-130
Gasoline Range	ng/tube	2,000	95	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported between the method detection limit and the lowest calibration point. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k – The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

510509

SAMPLE CHAIN OF CUSTODY

10/28/25

Report To Laura Lee

Company Parametrix

Address

City, State, ZIP

Phone Email Lblee@parametrix.com

SAMPLERS (signature) Chris

PROJECT NAME: 5531550067 per CB/ME 10/30/25

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO: PMX

Page # _____ of _____

TURNAROUND TIME
- ☐ Standard turnaround
- ☑ RUSH
- Rush charges authorized by: Chris Bourgeois on behalf of

SAMPLE DISPOSAL LBL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	EPA 3C	TO17 SCREEN			Notes
GP-325	01 A B	10/28/25	1305	Tedlar bag	2								X	✓			✓ 10/29 NEXT DAY

Samples received at 20 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Chris	Chris Bourgeois	PMX	10/28/25	1335
Received by:	Nhan Phan	FEBI	10/28/25	1335
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
5500 4th Ave S.
Seattle WA 98108
(206) 285-8282
office@friedmanandbruya.com

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 510509 CLIENT Parametrix INITIALS/ DATE: DP 10/28/25

If custody seals are present on cooler, are they intact? ☒ NA ☐ YES ☐ NO

Cooler/Sample temperature 2W °C
Thermometer ID: Fluke 96312917

Were samples received on ice/cold packs? ☐ YES ☒ NO

How did samples arrive?
☒ Over the Counter ☐ Picked up by F&BI ☐ FedEx/UPS/GSO

Is there a Chain-of-Custody* (COC)? ☒ YES ☐ NO Initials/ Date: NP 10/28
*or other representative documents, letters, and/or shipping memos

Number of days samples have been sitting prior to receipt at laboratory 0 days

Are the samples clearly identified? (explain "no" answer below) ☒ YES ☐ NO

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☒ YES ☐ NO

Were appropriate sample containers used? ☒ YES ☐ NO ☐ Unknown

If custody seals are present on samples, are they intact? ☒ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☒ NA ☐ YES ☐ NO

Is the following information provided on the COC, and does it match the sample label?
(explain "no" answer below)

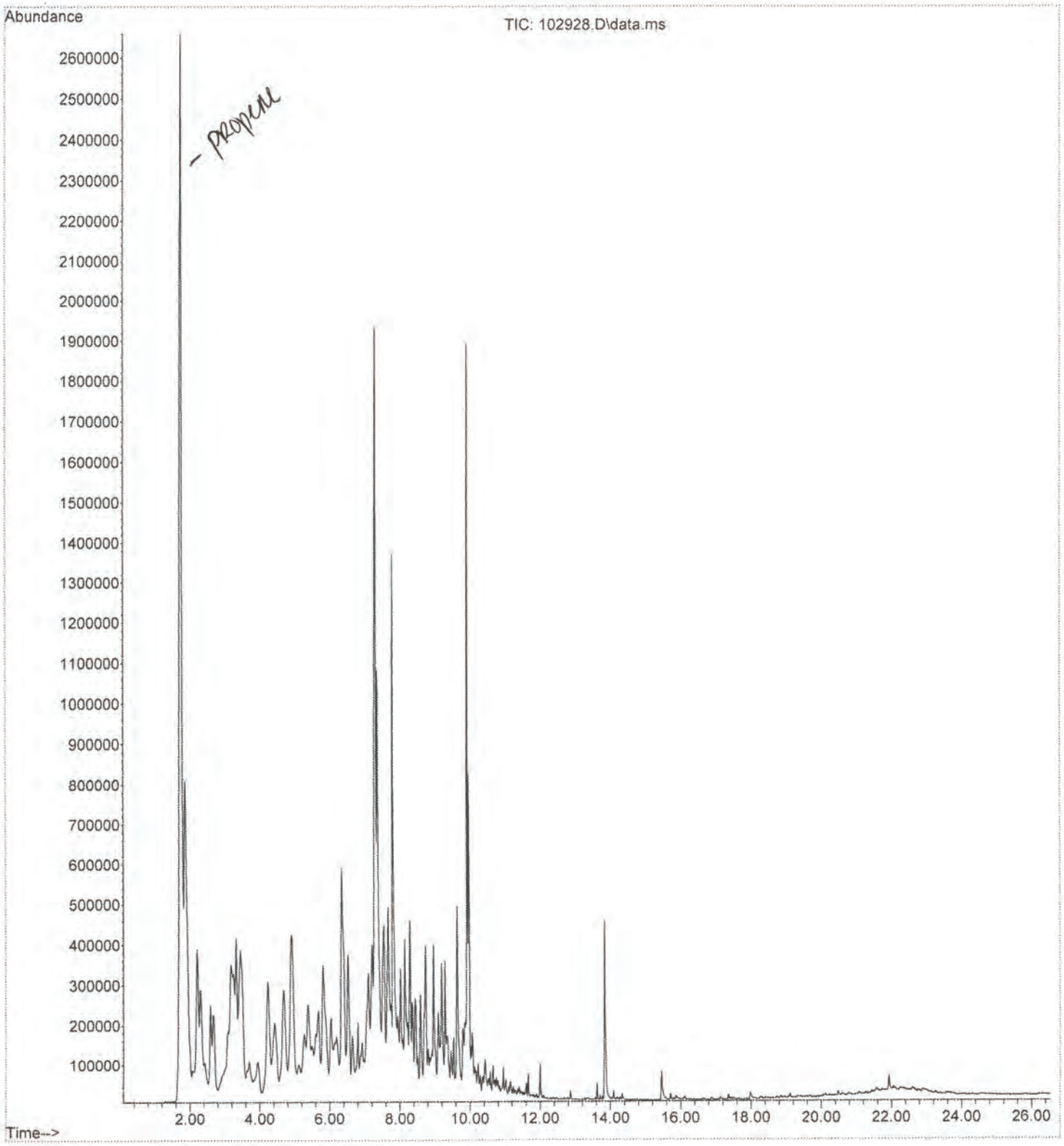
Sample ID's	☒ Yes ☐ No	☐ Not on COC/label
Date Sampled	☒ Yes ☐ No	☐ Not on COC/label
Time Sampled	☐ Yes ☒ No	☐ Not on COC/label
# of Containers	☒ Yes ☐ No	
Relinquished	☒ Yes ☐ No	
Requested analysis	☒ Yes ☐ On Hold	

Other comments (use a separate page if needed)

Air Samples: Were any additional canisters/tubes received? ☒ NA ☐ YES ☐ NO

Number of unused TO15 canisters** _____ Number of unused TO17 tubes _____
**Fill out Green manifolds billing sheet

File :D:\Proc_GCMS10\10-29-25\102928.D
Operator : VM
Acquired : 30 Oct 2025 07:59 am using AcqMethod to17.M
Instrument : GCMS10
Sample Name: 510509-01 1/10
Misc Info : 950478
Vial Number: 31



Library Search Compound Report

Data Path : D:\Proc_GCMS10\10-29-25\
Data File : 102928.D
Acq On : 30 Oct 2025 07:59 am
Operator : VM
Sample : 510509-01 1/10
Misc : 950478
ALS Vial : 31 Sample Multiplier: 1

Quant Method : D:\gcms10 methods\101725GAS.M
Quant Title : TO-17 method

TIC Library : C:\Database\NIST20.L
TIC Integration Parameters: LSCINT.P

****

Peak Number 1 Propene Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
1.75	183.95 ng/tube	12925800	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Propene	42	C3H6	000115-07-1	9
2	1-Propanesulfonyl chloride	142	C3H7ClO2S	010147-36-1	9
3	Propane	44	C3H8	000074-98-6	5
4	Isobutane	58	C4H10	000075-28-5	4
5	Propane	44	C3H8	000074-98-6	4

****

Peak Number 2 Butane, 2-methyl- Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
1.86	58.04 ng/tube	4078550	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Butane, 2-methyl-	72	C5H12	000078-78-4	78
2	Butane, 2-methyl-	72	C5H12	000078-78-4	72
3	Butane, 2-methyl-	72	C5H12	000078-78-4	56
4	3-Buten-1-ol	72	C4H8O	000627-27-0	9
5	Pentane	72	C5H12	000109-66-0	9

****

Peak Number 3 Cyclopentane Concentration Rank 19

R.T.	EstConc	Area	Relative to ISTD	R.T.
2.21	17.56 ng/tube	1233930	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclopentane	70	C5H10	000287-92-3	43
2	Butane, 2,3-dimethyl-	86	C6H14	000079-29-8	40
3	1-Pentanol, 2-methyl-	102	C6H14O	000105-30-6	38
4	1-Butanol, 2-ethyl-	102	C6H14O	000097-95-0	35
5	2H-Pyran-2-one, tetrahydro-3,6-d...	128	C7H12O2	003720-22-7	28

****

Peak Number 4 Pentane, 3-methyl- Concentration Rank 16

R.T.	EstConc	Area	Relative to ISTD	R.T.

R.T.	EstConc	Area	Relative to ISTD	R.T.
2.30	18.15 ng/tube	1275300	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Pentane, 3-methyl-	86	C6H14	000096-14-0	86
2	Pentane, 2,2,3-trimethyl-	114	C8H18	000564-02-3	43
3	Pentane, 3-methyl-	86	C6H14	000096-14-0	38
4	Butane, 2-bromo-	136	C4H9Br	000078-76-2	10
5	1-Penten-3-ol	86	C5H10O	000616-25-1	10

****

Peak Number 5 Pentane, 2,3-dimethyl- Concentration Rank 17

R.T.	EstConc	Area	Relative to ISTD	R.T.
3.18	17.63 ng/tube	1239110	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Pentane, 2,3-dimethyl-	100	C7H16	000565-59-3	64
2	Aziridine, 2,2-dimethyl-	71	C4H9N	002658-24-4	59
3	Hexane, 3-methyl-	100	C7H16	000589-34-4	53
4	Hexane, 3-methyl-	100	C7H16	000589-34-4	53
5	Ethane, isocyanato-	71	C3H5NO	000109-90-0	47

****

Peak Number 6 Cyclohexane, methyl- Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.23	44.25 ng/tube	3109350	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, methyl-	98	C7H14	000108-87-2	58
2	2-Pentene, 4,4-dimethyl-, (Z)-	98	C7H14	000762-63-0	46
3	2-Pentene, 3,4-dimethyl-, (Z)-	98	C7H14	004914-91-4	46
4	Cyclopentane, 1-ethyl-1-methyl-	112	C8H16	016747-50-5	46
5	2-Pentene, 4,4-dimethyl-, (Z)-	98	C7H14	000762-63-0	46

****

Peak Number 7 Cyclopentane, 1,2,3-trimeth... Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.91	29.22 ng/tube	2053330	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclopentane, 1,2,3-trimethyl-, ...	112	C8H16	015890-40-1	87
2	Cyclopentane, 1,2,3-trimethyl-, ...	112	C8H16	015890-40-1	76
3	Cyclopentane, 1,2,3-trimethyl-	112	C8H16	002815-57-8	53
4	Cyclopentane, 1,2,4-trimethyl-	112	C8H16	002815-58-9	52
5	Cyclopentane, 1,2-dimethyl-, cis-	98	C7H14	001192-18-3	50

****

Peak Number 8 Cyclohexane, 1,2-dimethyl-,... Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
5.81	24.82 ng/tube	1659260	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual

1	Cyclohexane, 1,2-dimethyl-, cis-	112 C8H16	002207-01-4	90
2	Cyclohexane, 1,2-dimethyl-, trans-	112 C8H16	006876-23-9	87
3	Cyclohexane, 1,2-dimethyl-, trans-	112 C8H16	006876-23-9	87
4	Cyclohexane, 1,2-dimethyl-	112 C8H16	000583-57-3	83
5	Cyclohexane, 1,2-dimethyl-, cis-	112 C8H16	002207-01-4	83

****

Peak Number 9 Sulfurous acid, cyclohexylm... Concentration Rank 13

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.03	19.68 ng/tube	1315760	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Sulfurous acid, cyclohexylmethyl...	332	C18H36O3S	1000309-21-9	59
2	Sulfurous acid, cyclohexylmethyl...	234	C11H22O3S	1000309-21-3	59
3	Sulfurous acid, butyl cyclohexyl...	234	C11H22O3S	1000309-21-4	53
4	Sulfurous acid, cyclohexylmethyl...	206	C9H18O3S	1000309-21-2	53
5	Sulfurous acid, cyclohexylmethyl...	262	C13H26O3S	1000309-21-5	50

****

Peak Number 10 Cyclohexane, 1,2-dimethyl-,... Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.34	41.35 ng/tube	2764300	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,2-dimethyl-, trans-	112	C8H16	006876-23-9	96
2	Cyclohexane, 1,2-dimethyl-	112	C8H16	000583-57-3	94
3	Cyclohexane, 1,2-dimethyl-, trans-	112	C8H16	006876-23-9	93
4	Cyclohexane, 1,2-dimethyl-	112	C8H16	000583-57-3	90
5	Cyclohexane, 1,2-dimethyl-, trans-	112	C8H16	006876-23-9	90

****

Peak Number 11 Cyclopentene, 1,2,3-trimethyl- Concentration Rank 18

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.52	17.60 ng/tube	1176340	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclopentene, 1,2,3-trimethyl-	110	C8H14	000473-91-6	46
2	1,3-Dimethyl-1-cyclohexene	110	C8H14	002808-76-6	45
3	1,3-Dimethyl-1-cyclohexene	110	C8H14	002808-76-6	43
4	Furan, 2-ethyl-5-methyl-	110	C7H10O	001703-52-2	43
5	Cyclopentane, 1,2-dimethyl-3-met...	110	C8H14	091884-67-2	38

****

Peak Number 12 Cyclohexane, 1,2-dimethyl- Concentration Rank 11

R.T.	EstConc	Area	Relative to ISTD	R.T.
7.10	22.48 ng/tube	1502880	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,2-dimethyl-	112	C8H16	000583-57-3	72
2	Cyclohexane, 1,2-dimethyl-, cis-	112	C8H16	002207-01-4	70
3	Cyclohexane, 1,2-dimethyl-, cis-	112	C8H16	002207-01-4	58

4	7-Oxabicyclo[4.1.0]heptane, 3-me...	112	C7H12O	036099-51-1	53
5	1H-Pyrazol-4-amine, 3-methyl-	97	C4H7N3	1000338-28-2	47

****

Peak Number 13 Heptane, 3,5-dimethyl- Concentration Rank 14

R.T.	EstConc	Area	Relative to ISTD	R.T.
7.20	19.66 ng/tube	1314110	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Heptane, 3,5-dimethyl-	128	C9H20	000926-82-9	49
2	Heptane, 3,5-dimethyl-	128	C9H20	000926-82-9	47
3	Heptane, 2,5-dimethyl-	128	C9H20	002216-30-0	46
4	Heptane, 2,5-dimethyl-	128	C9H20	002216-30-0	43
5	Octane, 3-methyl-	128	C9H20	002216-33-3	38

****

Peak Number 14 Cyclohexane, 1,1,3-trimethyl- Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
7.29	86.71 ng/tube	5796330	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,1,3-trimethyl-	126	C9H18	003073-66-3	70
2	Cyclohexane, 1,1,3-trimethyl-	126	C9H18	003073-66-3	70
3	4-Amino-6-hydroxypyrimidine	111	C4H5N3O	001193-22-2	64
4	Cyclohexane, 1,3,5-trimethyl-	126	C9H18	001839-63-0	64
5	Cyclohexane, 1,3,5-trimethyl-, (...	126	C9H18	001795-27-3	64

****

Peak Number 15 Cyclohexane, 1,1-dimethyl- Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
7.54	26.46 ng/tube	1768860	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,1-dimethyl-	112	C8H16	000590-66-9	47
2	1-Azabicyclo[2.2.2]oct-3-ylamine	126	C7H14N2	006238-14-8	38
3	Cyclohexane, 1,2,3-trimethyl-, (...	126	C9H18	007667-55-2	38
4	Cyclopentane, 1,2,3-trimethyl-, ...	112	C8H16	002613-69-6	35
5	Cyclopentane, 1,2-dimethyl-, cis-	98	C7H14	001192-18-3	35

****

Peak Number 16 Cyclohexane, 1,2,4-trimethy... Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
7.66	36.99 ng/tube	2472390	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,2,4-trimethyl-, (...	126	C9H18	007667-60-9	91
2	Cyclohexane, 1,3,5-trimethyl-, (...	126	C9H18	001795-26-2	91
3	Cyclohexane, 1,3,5-trimethyl-	126	C9H18	001839-63-0	90
4	Cyclohexane, 1,2,4-trimethyl-, (...	126	C9H18	007667-60-9	81
5	Cyclohexane, 1,2,4-trimethyl-	126	C9H18	002234-75-5	81

****

Peak Number 17 Cyclohexane, 1,2,3-trimethy... Concentration Rank 10

R.T.	EstConc	Area	Relative to ISTD	R.T.
8.14	24.27 ng/tube	1622100	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,2,3-trimethyl-, (...	126	C9H18	001678-81-5	97
2	Cyclohexane, 1,2,3-trimethyl-, (...	126	C9H18	001678-81-5	90
3	Cyclohexane, 1,2,4-trimethyl-	126	C9H18	002234-75-5	87
4	Cyclohexane, 1,2,4-trimethyl-	126	C9H18	002234-75-5	87
5	Cyclohexane, 1,2,4-trimethyl-	126	C9H18	002234-75-5	86

****

Peak Number 18 Cyclohexane, 1,2,3-trimethy... Concentration Rank 20

R.T.	EstConc	Area	Relative to ISTD	R.T.
8.28	16.56 ng/tube	1107090	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,2,3-trimethyl-, (...	126	C9H18	001678-81-5	81
2	Cyclohexane, 1,1,2-trimethyl-	126	C9H18	007094-26-0	78
3	Cyclohexane, 1,1,2-trimethyl-	126	C9H18	007094-26-0	46
4	Cyclohexane, 1,2,4-trimethyl-	126	C9H18	002234-75-5	42
5	Cyclohexane, 1,1,2-trimethyl-	126	C9H18	007094-26-0	38

****

Peak Number 19 Cyclohexane, 1,1,2,3-tetram... Concentration Rank 15

R.T.	EstConc	Area	Relative to ISTD	R.T.
9.63	19.58 ng/tube	1308600	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,1,2,3-tetramethyl-	140	C10H20	006783-92-2	81
2	2-Octene, 2,6-dimethyl-	140	C10H20	004057-42-5	62
3	2-Octene, 2,6-dimethyl-	140	C10H20	004057-42-5	62
4	2-Octene, 2,6-dimethyl-	140	C10H20	004057-42-5	58
5	3,4-Diethyl-3-hexene	140	C10H20	000868-46-2	41

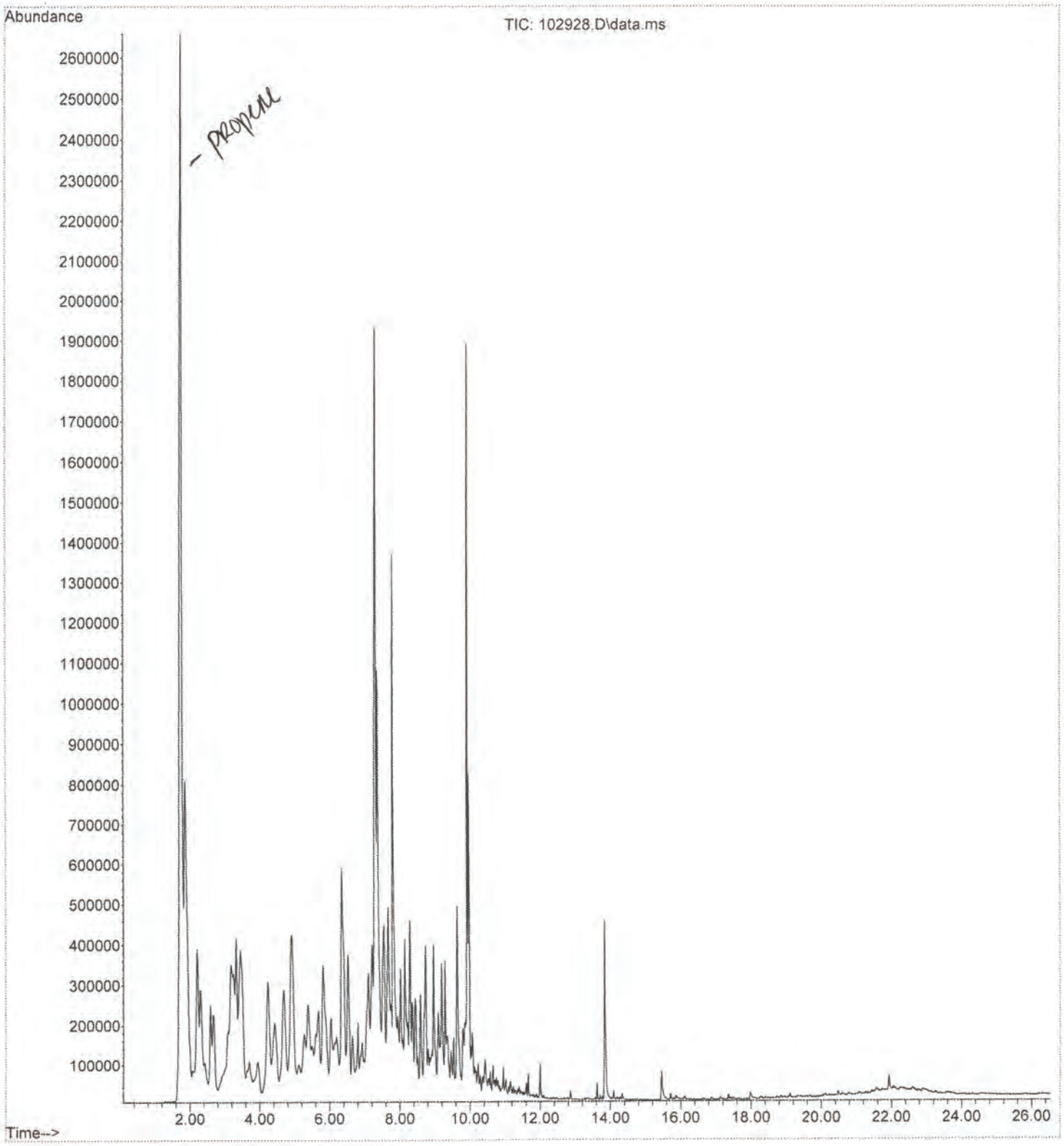
****

Peak Number 20 Bicyclo[2.2.1]heptane, 2,2,... Concentration Rank 12

R.T.	EstConc	Area	Relative to ISTD	R.T.
9.97	21.79 ng/tube	1456920	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Bicyclo[2.2.1]heptane, 2,2,3-tri...	138	C10H18	000473-19-8	90
2	Cyclohexanone, 2-(1-methylethyli...	138	C9H14O	013747-73-4	46
3	Bicyclo[2.2.1]heptane, 2,2,3-tri...	138	C10H18	020536-41-8	43
4	3-Octyne, 7-methyl-	124	C9H16	037050-06-9	38
5	Cyclohexene, 3,5-dimethyl-	110	C8H14	000823-17-6	38

File :D:\Proc_GCMS10\10-29-25\102928.D
Operator : VM
Acquired : 30 Oct 2025 07:59 am using AcqMethod to17.M
Instrument : GCMS10
Sample Name: 510509-01 1/10
Misc Info : 950478
Vial Number: 31



Library Search Compound Report

Data Path : D:\Proc_GCMS10\10-29-25\
Data File : 102928.D
Acq On : 30 Oct 2025 07:59 am
Operator : VM
Sample : 510509-01 1/10
Misc : 950478
ALS Vial : 31 Sample Multiplier: 1

Quant Method : D:\gcms10 methods\101725GAS.M
Quant Title : TO-17 method

TIC Library : C:\Database\NIST20.L
TIC Integration Parameters: LSCINT.P

****

Peak Number 1 Propene Concentration Rank 1

R.T.	EstConc	Area	Relative to ISTD	R.T.
1.75	183.95 ng/tube	12925800	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Propene	42	C3H6	000115-07-1	9
2	1-Propanesulfonyl chloride	142	C3H7ClO2S	010147-36-1	9
3	Propane	44	C3H8	000074-98-6	5
4	Isobutane	58	C4H10	000075-28-5	4
5	Propane	44	C3H8	000074-98-6	4

****

Peak Number 2 Butane, 2-methyl- Concentration Rank 3

R.T.	EstConc	Area	Relative to ISTD	R.T.
1.86	58.04 ng/tube	4078550	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Butane, 2-methyl-	72	C5H12	000078-78-4	78
2	Butane, 2-methyl-	72	C5H12	000078-78-4	72
3	Butane, 2-methyl-	72	C5H12	000078-78-4	56
4	3-Buten-1-ol	72	C4H8O	000627-27-0	9
5	Pentane	72	C5H12	000109-66-0	9

****

Peak Number 3 Cyclopentane Concentration Rank 19

R.T.	EstConc	Area	Relative to ISTD	R.T.
2.21	17.56 ng/tube	1233930	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclopentane	70	C5H10	000287-92-3	43
2	Butane, 2,3-dimethyl-	86	C6H14	000079-29-8	40
3	1-Pentanol, 2-methyl-	102	C6H14O	000105-30-6	38
4	1-Butanol, 2-ethyl-	102	C6H14O	000097-95-0	35
5	2H-Pyran-2-one, tetrahydro-3,6-d...	128	C7H12O2	003720-22-7	28

****

Peak Number 4 Pentane, 3-methyl- Concentration Rank 16

R.T.	EstConc	Area	Relative to ISTD	R.T.

R.T.	EstConc	Area	Relative to ISTD	R.T.
2.30	18.15 ng/tube	1275300	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Pentane, 3-methyl-	86	C6H14	000096-14-0	86
2	Pentane, 2,2,3-trimethyl-	114	C8H18	000564-02-3	43
3	Pentane, 3-methyl-	86	C6H14	000096-14-0	38
4	Butane, 2-bromo-	136	C4H9Br	000078-76-2	10
5	1-Penten-3-ol	86	C5H10O	000616-25-1	10

****

Peak Number 5 Pentane, 2,3-dimethyl- Concentration Rank 17

R.T.	EstConc	Area	Relative to ISTD	R.T.
3.18	17.63 ng/tube	1239110	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Pentane, 2,3-dimethyl-	100	C7H16	000565-59-3	64
2	Aziridine, 2,2-dimethyl-	71	C4H9N	002658-24-4	59
3	Hexane, 3-methyl-	100	C7H16	000589-34-4	53
4	Hexane, 3-methyl-	100	C7H16	000589-34-4	53
5	Ethane, isocyanato-	71	C3H5NO	000109-90-0	47

****

Peak Number 6 Cyclohexane, methyl- Concentration Rank 4

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.23	44.25 ng/tube	3109350	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, methyl-	98	C7H14	000108-87-2	58
2	2-Pentene, 4,4-dimethyl-, (Z)-	98	C7H14	000762-63-0	46
3	2-Pentene, 3,4-dimethyl-, (Z)-	98	C7H14	004914-91-4	46
4	Cyclopentane, 1-ethyl-1-methyl-	112	C8H16	016747-50-5	46
5	2-Pentene, 4,4-dimethyl-, (Z)-	98	C7H14	000762-63-0	46

****

Peak Number 7 Cyclopentane, 1,2,3-trimeth... Concentration Rank 7

R.T.	EstConc	Area	Relative to ISTD	R.T.
4.91	29.22 ng/tube	2053330	1,4-Difluorobenzene	3.33

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclopentane, 1,2,3-trimethyl-, ...	112	C8H16	015890-40-1	87
2	Cyclopentane, 1,2,3-trimethyl-, ...	112	C8H16	015890-40-1	76
3	Cyclopentane, 1,2,3-trimethyl-	112	C8H16	002815-57-8	53
4	Cyclopentane, 1,2,4-trimethyl-	112	C8H16	002815-58-9	52
5	Cyclopentane, 1,2-dimethyl-, cis-	98	C7H14	001192-18-3	50

****

Peak Number 8 Cyclohexane, 1,2-dimethyl-,... Concentration Rank 9

R.T.	EstConc	Area	Relative to ISTD	R.T.
5.81	24.82 ng/tube	1659260	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual

1	Cyclohexane, 1,2-dimethyl-, cis-	112 C8H16	002207-01-4	90
2	Cyclohexane, 1,2-dimethyl-, trans-	112 C8H16	006876-23-9	87
3	Cyclohexane, 1,2-dimethyl-, trans-	112 C8H16	006876-23-9	87
4	Cyclohexane, 1,2-dimethyl-	112 C8H16	000583-57-3	83
5	Cyclohexane, 1,2-dimethyl-, cis-	112 C8H16	002207-01-4	83

****

Peak Number 9 Sulfurous acid, cyclohexylm... Concentration Rank 13

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.03	19.68 ng/tube	1315760	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Sulfurous acid, cyclohexylmethyl...	332	C18H36O3S	1000309-21-9	59
2	Sulfurous acid, cyclohexylmethyl...	234	C11H22O3S	1000309-21-3	59
3	Sulfurous acid, butyl cyclohexyl...	234	C11H22O3S	1000309-21-4	53
4	Sulfurous acid, cyclohexylmethyl...	206	C9H18O3S	1000309-21-2	53
5	Sulfurous acid, cyclohexylmethyl...	262	C13H26O3S	1000309-21-5	50

****

Peak Number 10 Cyclohexane, 1,2-dimethyl-,... Concentration Rank 5

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.34	41.35 ng/tube	2764300	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,2-dimethyl-, trans-	112	C8H16	006876-23-9	96
2	Cyclohexane, 1,2-dimethyl-	112	C8H16	000583-57-3	94
3	Cyclohexane, 1,2-dimethyl-, trans-	112	C8H16	006876-23-9	93
4	Cyclohexane, 1,2-dimethyl-	112	C8H16	000583-57-3	90
5	Cyclohexane, 1,2-dimethyl-, trans-	112	C8H16	006876-23-9	90

****

Peak Number 11 Cyclopentene, 1,2,3-trimethyl- Concentration Rank 18

R.T.	EstConc	Area	Relative to ISTD	R.T.
6.52	17.60 ng/tube	1176340	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclopentene, 1,2,3-trimethyl-	110	C8H14	000473-91-6	46
2	1,3-Dimethyl-1-cyclohexene	110	C8H14	002808-76-6	45
3	1,3-Dimethyl-1-cyclohexene	110	C8H14	002808-76-6	43
4	Furan, 2-ethyl-5-methyl-	110	C7H10O	001703-52-2	43
5	Cyclopentane, 1,2-dimethyl-3-met...	110	C8H14	091884-67-2	38

****

Peak Number 12 Cyclohexane, 1,2-dimethyl- Concentration Rank 11

R.T.	EstConc	Area	Relative to ISTD	R.T.
7.10	22.48 ng/tube	1502880	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,2-dimethyl-	112	C8H16	000583-57-3	72
2	Cyclohexane, 1,2-dimethyl-, cis-	112	C8H16	002207-01-4	70
3	Cyclohexane, 1,2-dimethyl-, cis-	112	C8H16	002207-01-4	58

4	7-Oxabicyclo[4.1.0]heptane, 3-me...	112	C7H12O	036099-51-1	53
5	1H-Pyrazol-4-amine, 3-methyl-	97	C4H7N3	1000338-28-2	47

****

Peak Number 13 Heptane, 3,5-dimethyl- Concentration Rank 14

R.T.	EstConc	Area	Relative to ISTD	R.T.
7.20	19.66 ng/tube	1314110	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Heptane, 3,5-dimethyl-	128	C9H20	000926-82-9	49
2	Heptane, 3,5-dimethyl-	128	C9H20	000926-82-9	47
3	Heptane, 2,5-dimethyl-	128	C9H20	002216-30-0	46
4	Heptane, 2,5-dimethyl-	128	C9H20	002216-30-0	43
5	Octane, 3-methyl-	128	C9H20	002216-33-3	38

****

Peak Number 14 Cyclohexane, 1,1,3-trimethyl- Concentration Rank 2

R.T.	EstConc	Area	Relative to ISTD	R.T.
7.29	86.71 ng/tube	5796330	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,1,3-trimethyl-	126	C9H18	003073-66-3	70
2	Cyclohexane, 1,1,3-trimethyl-	126	C9H18	003073-66-3	70
3	4-Amino-6-hydroxypyrimidine	111	C4H5N3O	001193-22-2	64
4	Cyclohexane, 1,3,5-trimethyl-	126	C9H18	001839-63-0	64
5	Cyclohexane, 1,3,5-trimethyl-, (...	126	C9H18	001795-27-3	64

****

Peak Number 15 Cyclohexane, 1,1-dimethyl- Concentration Rank 8

R.T.	EstConc	Area	Relative to ISTD	R.T.
7.54	26.46 ng/tube	1768860	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,1-dimethyl-	112	C8H16	000590-66-9	47
2	1-Azabicyclo[2.2.2]oct-3-ylamine	126	C7H14N2	006238-14-8	38
3	Cyclohexane, 1,2,3-trimethyl-, (...	126	C9H18	007667-55-2	38
4	Cyclopentane, 1,2,3-trimethyl-, ...	112	C8H16	002613-69-6	35
5	Cyclopentane, 1,2-dimethyl-, cis-	98	C7H14	001192-18-3	35

****

Peak Number 16 Cyclohexane, 1,2,4-trimethy... Concentration Rank 6

R.T.	EstConc	Area	Relative to ISTD	R.T.
7.66	36.99 ng/tube	2472390	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,2,4-trimethyl-, (...	126	C9H18	007667-60-9	91
2	Cyclohexane, 1,3,5-trimethyl-, (...	126	C9H18	001795-26-2	91
3	Cyclohexane, 1,3,5-trimethyl-	126	C9H18	001839-63-0	90
4	Cyclohexane, 1,2,4-trimethyl-, (...	126	C9H18	007667-60-9	81
5	Cyclohexane, 1,2,4-trimethyl-	126	C9H18	002234-75-5	81

****

Peak Number 17 Cyclohexane, 1,2,3-trimethy... Concentration Rank 10

R.T.	EstConc	Area	Relative to ISTD	R.T.
8.14	24.27 ng/tube	1622100	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,2,3-trimethyl-, (...	126	C9H18	001678-81-5	97
2	Cyclohexane, 1,2,3-trimethyl-, (...	126	C9H18	001678-81-5	90
3	Cyclohexane, 1,2,4-trimethyl-	126	C9H18	002234-75-5	87
4	Cyclohexane, 1,2,4-trimethyl-	126	C9H18	002234-75-5	87
5	Cyclohexane, 1,2,4-trimethyl-	126	C9H18	002234-75-5	86

****

Peak Number 18 Cyclohexane, 1,2,3-trimethy... Concentration Rank 20

R.T.	EstConc	Area	Relative to ISTD	R.T.
8.28	16.56 ng/tube	1107090	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,2,3-trimethyl-, (...	126	C9H18	001678-81-5	81
2	Cyclohexane, 1,1,2-trimethyl-	126	C9H18	007094-26-0	78
3	Cyclohexane, 1,1,2-trimethyl-	126	C9H18	007094-26-0	46
4	Cyclohexane, 1,2,4-trimethyl-	126	C9H18	002234-75-5	42
5	Cyclohexane, 1,1,2-trimethyl-	126	C9H18	007094-26-0	38

****

Peak Number 19 Cyclohexane, 1,1,2,3-tetram... Concentration Rank 15

R.T.	EstConc	Area	Relative to ISTD	R.T.
9.63	19.58 ng/tube	1308600	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Cyclohexane, 1,1,2,3-tetramethyl-	140	C10H20	006783-92-2	81
2	2-Octene, 2,6-dimethyl-	140	C10H20	004057-42-5	62
3	2-Octene, 2,6-dimethyl-	140	C10H20	004057-42-5	62
4	2-Octene, 2,6-dimethyl-	140	C10H20	004057-42-5	58
5	3,4-Diethyl-3-hexene	140	C10H20	000868-46-2	41

****

Peak Number 20 Bicyclo[2.2.1]heptane, 2,2,... Concentration Rank 12

R.T.	EstConc	Area	Relative to ISTD	R.T.
9.97	21.79 ng/tube	1456920	Chlorobenzene-d5	7.36

Hit# of 5	Tentative ID	MW	MolForm	CAS#	Qual
1	Bicyclo[2.2.1]heptane, 2,2,3-tri...	138	C10H18	000473-19-8	90
2	Cyclohexanone, 2-(1-methylethyli...	138	C9H14O	013747-73-4	46
3	Bicyclo[2.2.1]heptane, 2,2,3-tri...	138	C10H18	020536-41-8	43
4	3-Octyne, 7-methyl-	124	C9H16	037050-06-9	38
5	Cyclohexene, 3,5-dimethyl-	110	C8H14	000823-17-6	38

Attachment E

Map of Air Monitoring Locations and Preliminary Results, November 7, 2025

Date: 11/9/2025
Sources: King County, King County Aerial Imagery (2023)
Disclaimer: This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes.

Lenci Parcel

Building Divisions

Lenci Property

Surface Emission and Indoor Air Monitoring

November 7, 2025

South Park Landfill

Attachment E

Seattle, WA

0 25 50 100 Feet

Attachment F

SPU Purge Testing and Barhole Investigation Results

South Park Supplemental Probe 32S Readings

Date:	10/29/25

TS, DF

Notes

Time	Pressure	CH4 %	CO2 %	O2 %	
10:46 (60sec)	0.00	66.6	16.6	0.0	
10:51	X	65.7	16.4	0.0	
10:56	X	65.5	16.3	0.0	
11:02	X	65.2	16.3	0.0	GEM off ~60 sec.
11:07	X	65.2	16.2	0.0	
11:12	X	65.0	16.2	0.0	
11:17	X	64.8	16.2	0.0	
11:22	X	64.6	16.2	0.0	
11:27	X	64.3	16.1	0.0	
11:32	X	64.2	16.1	0.0	
11:37	X	64.0	16.1	0.0	
11:42	X	63.8	16.1	0.0	
11:47	X	63.7	16.1	0.0	1 hr
11:52	X	63.5	16.0	0.0	
11:57	X	63.3	16.1	0.0	
12:02	X	63.1	16.0	0.0	
12:07	X	62.9	16.0	0.0	
12:12	X	62.6	16.0	0.0	
12:17	X	62.2	16.0	0.0	
12:22	X	61.8	15.9	0.0	
12:27	X	61.4	15.8	0.0	
12:32	X	61.1	15.7	0.0	
	X				
	X				
	X				

Gasoline-like smell.

Probe 5:

12:30 +0.03 0.0% 11.5% 10.7% 100 sec. duration

Subject: RE: Bar Holes test for South Park G32S

From: Yim, Min-Soon <Min-Soon.Yim@seattle.gov>
Sent: Tuesday, November 4, 2025 11:14 AM
To: Laura Lee <Lblee@parametrix.com>; Jusayan, Mark <mark.jusayan@seattle.gov>
Cc: Straws, Shannon <Shannon.Straws@seattle.gov>
Subject: RE: Bar Holes test for South Park G32S

Hi,

Today's bar-hole screening along the property asphalt edge (11 / 04 / 2025, 09:30–10:30 AM, BP 30.01) detected gas peaks up to 49 % CH_4 within 10 seconds at some points, with lower stabilized readings thereafter.
Because the surface was hardpan and asphalt, these results are **qualitative only**—they show gas presence but not true concentration and may **understate** subsurface gas strength.

Bar Hole test result
date : 11/04/2025 Time: 9:30 - 10:30 BP 30.01

Location	Ch4 pick within 10 sec	Ch4 (100 sec)	Co2	O2	Comment
-31	25	3.4	1.4	20.7	property asphalt edge
-21	3	0.1	0.2	20.0	property asphalt edge
-11	13	0.3	0.3	20.9	property asphalt edge
00	49	4.6	1.0	20.0	property asphalt edge
+11	23	1.3	0.4	20.7	property asphalt edge
+21	26	1.6	0.6	20.2	property asphalt edge
+31	7	0.5	0.2	20.9	property asphalt edge
40	0.7	0.1	1.0	19.8	gravel

Best Regards.

Min Soon Yim
Utility Manager
City of Seattle, Seattle Public Utilities | Seattle.gov - Utilities | seattle.gov
Solid Waste Line of Business
Household Hazardous Waste & Landfill Closure Division
23076 Military Road So. Kent, WA 98032
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From: Yim, Min-Soon
Sent: Monday, November 3, 2025 11:59 AM
To: Laura Lee <Lblee@parametrix.com>; Jusayan, Mark <Mark.Jusayan@seattle.gov>
Cc: Straws, Shannon <Shannon.Straws@seattle.gov>
Subject: Bar Holes test for South Park G32S

Hi,

Since there was a rapid barometric pressure change from 30.05 to 30.00 between noon on November 2, 2025, and today, I believe this is a good opportunity to conduct bar hole testing to evaluate whether gas is migrating from the landfill toward the GP-32S area.
I tested seven bar holes spaced approximately 5 feet apart along the property fence near the roadside. The results are summarized in the table below.
I would like to extend the testing to the end of the pavement within the property, as there is an elevation difference of about 4 feet between the road and the property. Could you please contact the property owner to request permission for this additional testing?

Bar Hole test result :
date : 11/03/2025 Time: 10:45 AM

Location	Ch4	Co2	O2
-3	0.0	0.6	20.9
-2	0.0	0.6	20.8
-1	0.0	0.6	20.9
0	0.0	0.9	20.4
+1	0.0	0.9	20.5
+2	0.0	0.9	20.5
+3	0.0	1.0	20.4

Best Regards.

Min Soon Yim
Utility Manager
City of Seattle, Seattle Public Utilities | Seattle.gov - Utilities | seattle.gov
Solid Waste Line of Business
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