LANDAU ASSOCIATES

TECHNICAL MEMORANDUM

TO: Michael Warfel, Washington State Department of Ecology

FROM: Kalpana Prasad, GIT; Jenny Green, EIT; and Clint Jacob, PE, LG

DATE: October 20, 2023

RE: Progress Report
Data through July 2023
Beckwith & Kuffel, Inc. Property
1313 South 96th Street
Seattle, Washington
VCP Project No. NW3119
Landau Project No. 1645001.040

INTRODUCTION

At the request of Beckwith & Kuffel, Inc. (B&K), Landau Associates, Inc. (Landau) prepared this technical memorandum, which provides a progress update for remediation activities conducted at the B&K property located at 1313 South 96th Street in Seattle, Washington (Site; Figure 1). Remedial activities address treatment of chlorinated volatile organic compound (cVOC) contamination in Site groundwater. Activities have been conducted as part of the Washington State Department of Ecology's (Ecology's) Voluntary Cleanup Program (VCP). The Site VCP project number is NW3119. Prior data were reported in the 2021 progress report (Landau 2021) and 2022 Work Plan Addendum No. 1 (Landau 2022).

This technical memorandum describes the second application of EHC® for enhanced *in situ* biotic (biological) and abiotic (chemical) treatment in the areas of highest remaining cVOC concentrations in groundwater and presents performance monitoring results. The second round of direct-push injection of EHC occurred in October 2022, following an earlier round of EHC treatment in a smaller area in October 2020. Injection and monitoring were completed in accordance with the 2022 Work Plan Addendum No. 1 (Landau 2022). Two rounds of post-injection performance groundwater monitoring were conducted in January and July 2023. Injection areas are shown on Figure 2.

BACKGROUND INFORMATION

The Site was likely undeveloped land prior to 1977 and then became the location of two forklift maintenance companies (Clarklift of Washington and later FMH Material Handling Solutions [FMH]). In 2010, Industrial Materials Handling, which had purchased FMH, vacated the Site. The Site was vacant until B&K purchased it in 2013 (Shannon & Wilson 2012).

Nature and Extent of Contamination

Previous investigations discovered cVOCs, including trichloroethene (TCE), and its biodegradation breakdown products cis-1,2-dichloroethene (cDCE),and vinyl chloride (VC), in groundwater at the southeast end of the Site in the vicinity of an old concrete wash pad with a severely cracked surface (Shannon & Wilson 2014). Based on the sampling results and the Site's prior use, it appeared that the source of the cVOC contamination was TCE degreasing solvents used by the former Site occupants to clean forklift parts at the wash pad. Depth-discrete sampling results indicated that the cVOC contamination in groundwater was generally limited to the uppermost 20 feet (ft) of the subsurface in an interbedded sand/silt/clay unit that underlies fill material at the Site. Prior to remedial excavation at the B&K property, the highest concentration of TCE was detected in Site well MW-5 (1,320 micrograms per liter [µg/L]) (Shannon & Wilson 2014). Site groundwater flow is north to northeast.

Further investigation conducted by Landau on the Wooldridge Boats (Wooldridge) property to the south of the Site identified TCE at a concentration of 1,100 µg/L at well MW-11 (Landau 2017, 2019), a similarly high concentration to the historical maximum detected at B&K well MW-5. In fact, after remedial excavation of the wash pad and adjacent source material around MW-5 in 2013 (discussed below), the maximum TCE concentration remaining in the TCE plume was at Wooldridge well MW-11. TCE was also detected at a concentration of 73 µg/L at Wooldridge well MW-12, located approximately 80 ft south of the B&K/Wooldridge property boundary. These findings call into question whether the source of the TCE plume was at the B&K property. The plume extent and locations of highest TCE concentration could be explained by a sole source at the Wooldridge property or sources at both the Wooldridge and B&K properties.

The TCE plume is present at the B&K and Woodridge properties and extends onto the adjacent Sea Mar Community Health Centers (Sea Mar) property, located hydraulically crossgradient to downgradient to the east of the Site. The baseline TCE plume is shown with historical results through March 2021 on Figure 3. The baseline extent of the plume (contour shown to 5 µg/L, the lowest of applicable TCE cleanup levels), is based on 2017 monitoring well results and 2016-2017 groundwater samples from supplemental investigation direct-push borings.

Prior Source Excavation and Bioremediation

The former wash pad was excavated in November 2013. The excavation extended to approximately 18 ft below ground surface (bgs) within the approximate extent shown on Figure 2. The northern half of the excavation was backfilled with pea gravel and the southern half with sand and gravel fill. Approximately 1,100 pounds of Regenesis' 3D Microemulsion® electron donor product was added to the excavation during backfilling to enhance natural biodegradation of the cVOCs in groundwater at the Site post-excavation (Shannon & Wilson 2014).

Additional enhancement of bioremediation in the excavation area was conducted by Landau in 2018. Electron donor substrate (LactOil®) was mixed with water and injected to the permeable backfill of the remedial excavation through well MW-7. Approximately 8,500 gallons of injection solution containing 4,400 pounds (480 gallons) of LactOil was injected to the well. The injection was challenging due to

short-circuiting of injected fluid into a broken underground storm drain line on the adjacent Sea Mar property. Injection fluid that infiltrated to the storm drain was contained at a downgradient manhole and removed from the stormwater system (Landau 2019). The injection resulted in enhanced bioremediation in the northern portion of the plume at least into 2021 (Landau 2021).

Injection testing with tap water was conducted in 2019 at two monitoring wells on the Wooldridge property to evaluate injection feasibility. Injection rates were low and water "daylighted" at the ground surface near the test injection wells after a small volume was injected. Both injection attempts confirmed that injection of liquid donor was infeasible at the Site due to the high silt and clay content of the contaminated water-bearing zone targeted for treatment (Landau 2020).

Prior Biotic/Abiotic Treatment at Wooldridge Property

Direct-push injection of EHC was conducted in October 2020 at the Wooldridge property in the area of the highest TCE concentration around MW-11. Approximately 13,400 pounds of EHC, water, and 250 gallons of LactOil[1] were injected as a slurry to 36 borings in the northern portion of the Wooldridge property and adjacent Sea Mar property (Figure 2).

The EHC approach overcomes the difficulty of injecting liquid amendments at the Site. The substrate, EHC, is powdered material composed of zero-valent iron (ZVI) and fermentable organic material for stimulation of both biotic and abiotic degradation of TCE and its breakdown products. The EHC, mixed with water and LactOil[1] to form a slurry, was injected under high pressure to distribute the slurry into fractures created in the interbedded sand/silt/clay.

The slurry components enhance aquifer conditions and directly stimulate biotic and abiotic destruction of TCE and its breakdown products. Anaerobic aquifer conditions are required for biotic and abiotic degradation of TCE and its breakdown products. The presence of dissolved oxygen (DO) is an indicator of aerobic, or oxidative, aquifer conditions. In the absence of DO, conditions are anaerobic, or reducing. The most significant biotic degradation process for the treatment of TCE is reductive dechlorination, which occurs as bacteria gain energy from respiring the chlorinated compounds as electron acceptors while using the provided electron donor substrates as food. Provided electron donor ferments to volatile fatty acids (VFAs) and hydrogen used by the bacteria. The reductive dechlorination process is sequential, transforming TCE into cDCE, cDCE into VC, and VC into ethene and ethane (non-toxic end products). Highly reducing (methanogenic) conditions are required for complete dechlorination to end products. The ZVI in the EHC promotes concurrent and complementary abiotic (i.e., chemical) degradation of TCE primarily by the β-elimination pathway. By this pathway, TCE is transformed to short-lived acetylenes, which quickly degrade to ethene and ethane. Due to its rapid degradation, acetylene is not often detected at sites where abiotic degradation occurs. ZVI also helps in creating the reduced aquifer redox conditions necessary for biotic degradation.

[1] LactOil provided additional electron donor for stimulation of bioremediation.

2022 SITE-WIDE EHC INJECTION

A second round of treatment using direct-push injection of EHC slurry was implemented in 2022 in accordance with the work plan (Landau 2020) and addendum (Landau 2022). From September 27 through October 26, approximately 23,000 pounds of EHC, 500 gallons of Newman Zone (fine droplet vegetable oil emulsion, and 2,300 pounds of ferrous sulfate were injected to 68 direct-push borings at the Site. Ferrous sulfate was added to the slurry to "sulfidate" the ZVI, providing a protective coating against water corrosion, and prolong the reactivity of the ZVI surface to cVOCs. Borings were located on approximate 8-ft centers. As-built locations of borings are shown on Figure 4. An average of 28 pounds of EHC was emplaced per vertical foot, mixed with water, ferrous sulfate, and Newman Zone to create injectable slurry. An average of 34 pounds of ferrous sulfate and 7 gallons of Newman Zone were injected to each boring. The boring IDs, details of injection quantities and intervals, and date injected for each boring are detailed in Table 1.

As with the 2020 injection, challenges were encountered with surfacing of injected slurry and slow dissipation of back pressure. Injection pressures were typically around 50 pounds per square inch. The injection casing was often capped in place overnight after completing injection at a boring and removed after the pressure subsided.

There were four treatment areas for this injection event: the northern and southern ends of the Sea Mar property, the B&K property, and the Wooldridge property. The injections in these areas are summarized below.

- In the northern end of the Sea Mar property (along the shared fence line with the B&K property), four points were injected near monitoring well SM-MW-21. The injection interval was 8 to 20 ft bgs.
- In the southern end of Sea Mar property (along the shared fence line with the Wooldridge property), five points were injected from 8 to 25 ft bgs; this depth is 5 ft deeper than the northern Sea Mar borings to account for Site topography. The treatment interval of the southern Sea Mar borings was the same as on the adjacent Wooldridge property. As a result of substantial surfacing of slurry at these borings, the volume of slurry emplaced was less than intended (Table 1). A catch basin drain cover was placed over the stormwater catch basin in the immediate vicinity of these borings, which prevented surfaced slurry from reaching the drain.
- At the B&K property, 34 of 36 planned boring points were completed. Two borings could not be advanced as intended due to utility conflicts, and most boring locations were hand-cleared before advancing drill rods due to the close proximity of utilities. The treatment interval was 8 to 20 ft bgs. The volume of emplaced slurry was less than intended at four borings due to surfacing. Therefore, a greater than intended volume was delivered to three other borings. During injection at the final boring (BK 34, Table 1), substantial surfacing occurred near a storm drain located 100 ft away. A small amount of slurry entered the drain, but was contained using an inflatable plug installed at the downgradient manhole; slurry and rinse water were removed from the storm drain with a vacuum truck.
- At the Wooldridge property, 25 of 28 planned borings were injected. Three of 18 planned outdoor borings were not injected due to surfacing issues. Two indoor borings did not receive the full proposed volume of slurry due to surfacing, but additional volume was injected at

nearby borings. Substantial surfacing occurred during indoor injection through joints between concrete slabs and up to 60 ft away from the injected points. Slurry was cleaned up with a shop vacuum and mopped with soap and water.

POST-INJECTION MONITORING RESULTS

Groundwater sampling was conducted at 12 monitoring wells in January and July 2023 to monitor treatment progress at approximately 3 and 9 months after the October 2022 injection. Groundwater sampling was completed in accordance with the matrix provided in Table 2. At the beginning of each sampling event, groundwater levels were measured at all monitoring wells. A summary of cumulative groundwater monitoring results is provided in Table 3; Table 3 is ordered from south (upgradient) to north (downgradient). Laboratory analytical data reports are provided in Attachment 1.

Table 3 also presents calculated values for total chlorinated ethenes and molar fractions for each well and monitoring event. For this evaluation, groundwater concentrations of TCE, cDCE, VC, and ethene+ethane are divided by their compound molecular weights, converting the groundwater concentrations in µg/L to molar concentrations in micromoles per liter. Total chlorinated ethenes are the sum of molar concentrations of TCE+cDCE+VC. The molar fraction is calculated by dividing the average molar concentration of each compound (e.g., TCE) by the molar concentration of total ethenes (TCE+cDCE+VC+E+E). Molar conversion and evaluation of molar fractions is useful because one mole of TCE is converted sequentially to one mole of cDCE, then to one mole VC, and finally to non-toxic end products ethene+ethane. The molar fraction shows whether TCE, its breakdown products, or end products are dominant as treatment progresses. A reduction in total chlorinated ethenes demonstrates overall mass destruction. Changes in molar fractions for each well and in average total chlorinated ethenes are discussed below.

Groundwater contours for January and July 2023 indicated a north to northeast flow direction, consistent with previous observations. The storm drain near the Sea Mar property boundary appears to influence localized groundwater levels. Groundwater elevations and contours are shown on Figures 5 and 6.

TCE concentrations decreased substantially at several wells following the EHC injections. TCE iso-concentration contours for July 2023 are shown on Figure 7 with selected historical cVOC results and January and July 2023 cVOC results.

Discussion of Core Treatment Wells and Fringe Wells

Based on data evaluation, monitoring wells are grouped as core treatment wells or fringe wells.

Core Treatment Wells

Core treatment wells had the highest pretreatment TCE concentrations, are within the EHC injection grid, and exhibit strong treatment effects, including increased TOC concentrations and substantial changes in the concentrations of TCE, breakdown products cDCE and VC, and non-toxic end products ethene and ethane. Changes in aquifer redox parameters indicate a more reduced post-treatment condition, conducive to biotic and abiotic degradation. Acetylene, the short-lived intermediary

breakdown product of abiotic degradation, has not been detected. From south to north, core treatment wells and notable results through July 2023 (9 months after EHC injection) are as follows:

- **MW-12**: The TCE concentration decreased from 63.1 µg/L in April 2022 to 0.32 µg/L in July 2023, representing an all-time low at this well and a 99 percent concentration reduction. Coincident with decreased TCE, breakdown products cDCE and VC increased in January and then decreased in July. End products ethene and ethene were detected in January, indicating complete reductive dechlorination. TOC increased substantially to 1,770 milligrams per liter (mg/L; January) and remained elevated (58 mg/L) in July. TOC concentrations above 10 mg/L are generally conducive to ongoing biodegradation (Major et al. 2003) but TOC is not an indicator for the effectiveness of the ZVI component of EHC. Substantial decreases in sulfate (36 mg/L to not detected) and increased methane (<1 to 8.7 mg/L), indicate establishment of the highly reducing conditions (sulfate-reducing to methanogenic), which are required for complete reductive dechlorination. The dominant molar fraction changed from 83 percent TCE (April 2022) to 97 percent breakdown product cDCE and 2 percent VC (July 2023).
- **MW-11**: At this well with the highest baseline TCE concentration (1,100 µg/L, November 2017), TCE decreased from 116 µg/L in April 2022, to 70 µg/L (January 2023) and 28 µg/L (July 2023). Breakdown products increased and end products were detected during both 2022 events. Oddly, a substantial increase in TOC has not yet been observed, although TOC did increase substantially following the October 2020 injection of EHC at locations on the Wooldridge property surrounding MW-11. However, continued high methane concentrations and decreasing sulfate (140 to 42 mg/L) indicate optimally reduced aquifer redox conditions. Following the 2020 injection, cDCE has been the dominant molar fraction at 57 to 86 percent, with end products ethene+ethane ranging 9 to 21 percent.
- **MW-7**: This well is located within the footprint of the 2013 source area excavation. TCE has decreased substantially following the 2013 excavation and the 2018 bioremediation injection to the former excavation area; TCE decreased from 300 µg/L in September 2016 to 0.09 µg/L in July 2023. Breakdown products also decreased by an order of magnitude in 2023 and a maximum detection of ethane (25 µg/L) occurred in July. TOC increased substantially from 4.9 mg/L in April 2022 to 625 mg/L in January 2023, then dropped to 6 mg/L in July. Enhanced aquifer redox conditions are indicated by substantial decreases in sulfate (18 to 0.4 mg/L) and increases in methane (<1 to 12.9 mg/L). Since 2018, when TCE was the dominant molar fraction (80 percent), the dominant fraction has varied between breakdown products cDCE and VC and the end products ethene+ethane. In July, ethene+ethane was the dominant molar fraction at 90 percent.
- **MW-8**: The most substantial decrease in TCE following the 2022 injection occurred at MW-8. TCE decreased from 327 µg/L in April 2021 to 3.6 µg/L in July 2023 (99 percent reduction); this all-time low for TCE at this well is below the groundwater cleanup level of 5 µg/L. Over the same period, breakdown products cDCE and VC increased to maximum levels (123 µg/L and 8.44 µg/L, respectively). End products ethane and/or ethene were detected for the first time in January and also in July. TOC concentrations increased substantially from 3 mg/L in April 2022 to 294 mg/L in July 2023. Enhanced aquifer redox conditions are indicated by substantial decreases in sulfate (80 to 0.4 mg/L) and increases in methane (<0.1 to 11.4 mg/L) by July. Following the 2022 injection, molar fraction dominance has changed from 72 to 91 percent TCE (2017-2022) to cDCE dominance (65 percent) in July 2023. Substantial end products are indicated by an ethene+ethane molar fraction of 29 and 26 percent in January and July 2023, respectively.

- **MW-9**: TCE concentrations have decreased substantially following the 2018 bioremediation injection to the former excavation area; TCE has decreased from 78 µg/L in November 2016 to 5 µg/L in July 2023. Concentrations of cDCE and VC increased following the 2022 injection, while ethene and ethane were not detected. TOC concentrations doubled from 5.6 mg/L in April 2022 to 10 mg/L in January 2023 and decreased to 7 mg/L in July. Methane increased substantially from 0.5 mg/L to 18 and 6 mg/L in January and July, respectively. Sulfate decreased over the same period. With the exception of September 2021, cDCE has been the dominant molar fraction (70 to 91 percent) since 2018.
- **SM-MW-21**: TCE has decreased substantially at this Sea Mar well following the 2018 bioremediation injection to the former excavation area; TCE has decreased from 550 µg/L in March 2018 to 31 µg/L in July 2023. TCE decreased substantially from April 2022 (145 µg/L) to a minimum of 21 µg/L in January 2023 and 31 µg/L in July. Breakdown products cDCE and VC increased following the 2022 injection. Ethene and ethane were detected in January 2023. TOC increased from 2 mg/L in April 2022 to 45 mg/L in January and 4 mg/L in July 2023. Methane increased substantially from 0.1 mg/L to 14 and 12 mg/L in January and July, with minor sulfate changes over the same period. Following the 2022 injection, cDCE was the dominant molar fraction in January and July (58 and 56 percent) and the ethene+ethane molar fraction was 22 percent in January.

Fringe Wells

Fringe wells are located hydraulically crossgradient or downgradient of the core treatment wells. These wells are located on the fringe of the TCE plume and had lower baseline TCE concentrations. Lesser treatment effects, mainly reduced concentrations of TCE and breakdown products, were observed without substantial increases in TOC or coincident changes in aquifer redox conditions. Stronger treatment effects may extend over time to fringe wells. From south to north, fringe wells and notable results through July 2023 (9 months after EHC injection) are as follows:

- **MW-13 and MW-10**: No substantial changes were observed at these crossgradient wells. TCE and cDCE were not detected at MW-13 in 2022, compared to prior low detections (< 1 µg/L). At MW-10, low concentrations of TCE and cDCE (<1 µg/L) were similar to prior results.
- **MW-6**: This well is located within the footprint of the 2013 source area excavation. TCE has decreased substantially following excavation and the 2018 bioremediation injection to the former excavation area; TCE has decreased from 89 µg/L in 2014 to 16 µg/L in March 2021. No substantial changes in TCE concentration were observed through 2023. TCE remained the dominant molar fraction in 2023, at 61 and 92 percent. However, the ethene+ethane molar fraction was substantial in July, at 32 percent.
- **SM-MW-18**: This Sea Mar well is located downgradient or crossgradient of the southern grouping of EHC borings on the Wooldridge and Sea Mar properties. Although some notable changes occurred at this well following the 2022 injection, TOC concentrations increased only slightly, suggesting that the other observed changes resulted from nearby, upgradient treatment. TOC increased slightly to a maximum of 5 mg/L in July 2023. TCE increased from 5 µg/L in April 2022 to 28 µg/L in July 2023, with a similar increase in cDCE; these changes suggest enhanced TCE desorption and biodegradation in the upgradient treatment area. Other upgradient treatment effects include maximum detections of ethane (33 µg/L) and methane

(3 mg/L). Ethene+ethane has been the dominant molar fraction (61 to 80 percent) since March 2021.

- **SM-MW-8**: No substantial changes were observed at this Sea Mar well located crossgradient of the 2022 injection area, of the 2013 source injection, and of the 2018 bioremediation injection to the former excavation area. TCE increased slightly in January to 32 µg/L before decreasing to the lowest level (23 µg/L) since March 2016. TCE remained the dominant molar fraction in 2023, at 79 and 74 percent.
- **SM-MW-17A**: This Sea Mar well is located downgradient of the core treatment area. Similar to well SM-MW-18, some changes following the 2022 injection are attributed to nearby upgradient treatment. TOC changes were insignificant. TCE and cDCE concentrations were low or not detected, consistent with prior results, while VC decreased below the cleanup level. Ethane increased in July (10 µg/L) to its highest level since March 2021. Methane increased to a maximum of 6.5 mg/L in July. Ethene+ethane has been the dominant molar fraction (77 to 99 percent) since March 2021.

Overall Site Trends

To further evaluate Site-wide treatment progress, total chlorinated ethenes and average molar fractions for the 12 monitored wells were compared for July 2023 and prior sampling events (Figure 8). For this evaluation, groundwater concentrations of TCE, cDCE, and VC were divided by the compound molecular weights, converting the groundwater concentrations in µg/L to molar concentrations in micromoles per liter. Molar conversion and evaluation of molar fractions are useful because one mole of TCE is converted sequentially to one mole of cDCE, then to one mole VC, and finally to end products ethene and ethane. The Site-wide evaluation is as follows:

- Total Chlorinated Ethenes: Total chlorinated ethenes (total cVOCs) is the sum of molar concentrations of TCE+cDCE+VC for all 12 wells for each sampling event. A decrease over time in total chlorinated ethenes across the Site demonstrates mass destruction of all cVOCs, not just conversion of TCE to breakdown products.
- Molar Fractions: The average molar fraction of each compound is calculated for each event by dividing the average molar concentration of each compound (e.g., TCE) for all sampling locations by the average molar concentration of total ethenes (TCE+cDCE+VC+E+E) for all sampling locations. The molar fraction indicates which compound dominated at the Site during each sampling event. A shift in molar fraction dominance from the parent product TCE, through breakdown products cDCE and VC, to non-toxic end products ethene+ethane demonstrates the progression of biotic and abiotic degradation.

The benefits of *in situ* treatment from November 2017 through July 2023 are apparent on Figure 8, as described below.

- The generally declining trend in total cVOCs is apparent. Total cVOCs across the Site have decreased from 1.63 micromoles per liter (µmoles/L) in 2017 to 0.69 µmoles/L in July 2023. This indicates a 58 percent decrease in cVOC mass present in Site groundwater over the 6 years shown on the plot.
- The bar graphs of molar fraction for each sampling event show a transition from the parent product TCE to degradation and end products over time. Through July 2023, the TCE molar

fraction has been reduced from approximately 77 percent to 9 percent. Combined breakdown products (cDCE and VC) and end products (ethene and ethane) in July 2023 constituted 91 percent of the molar fraction, including non-toxic end products ethene plus ethane at nearly 30 percent.

SUMMARY AND NEXT STEPS

Initial results following the second injection of EHC indicate that treatment has been effective in stimulating biotic and abiotic degradation of TCE in groundwater in the targeted treatment areas. *In situ* biotic and abiotic treatment over the last 7 years has substantially reduced cVOC mass and degraded TCE to dominance of breakdown products and non-toxic end products.

Groundwater monitoring will continue through 2025 for evaluation of treatment effects and the potential need for subsequent injection.

It is anticipated that the next progress report will be prepared in 2025 documenting treatment progress and results through the dry season 2024 sampling event.

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Please reach out to Clint Jacob (cjacob@landauinc.com, 360.536.2095) if you have any questions or if you would like to discuss sampling results in more detail.

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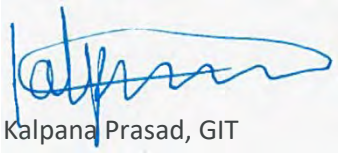

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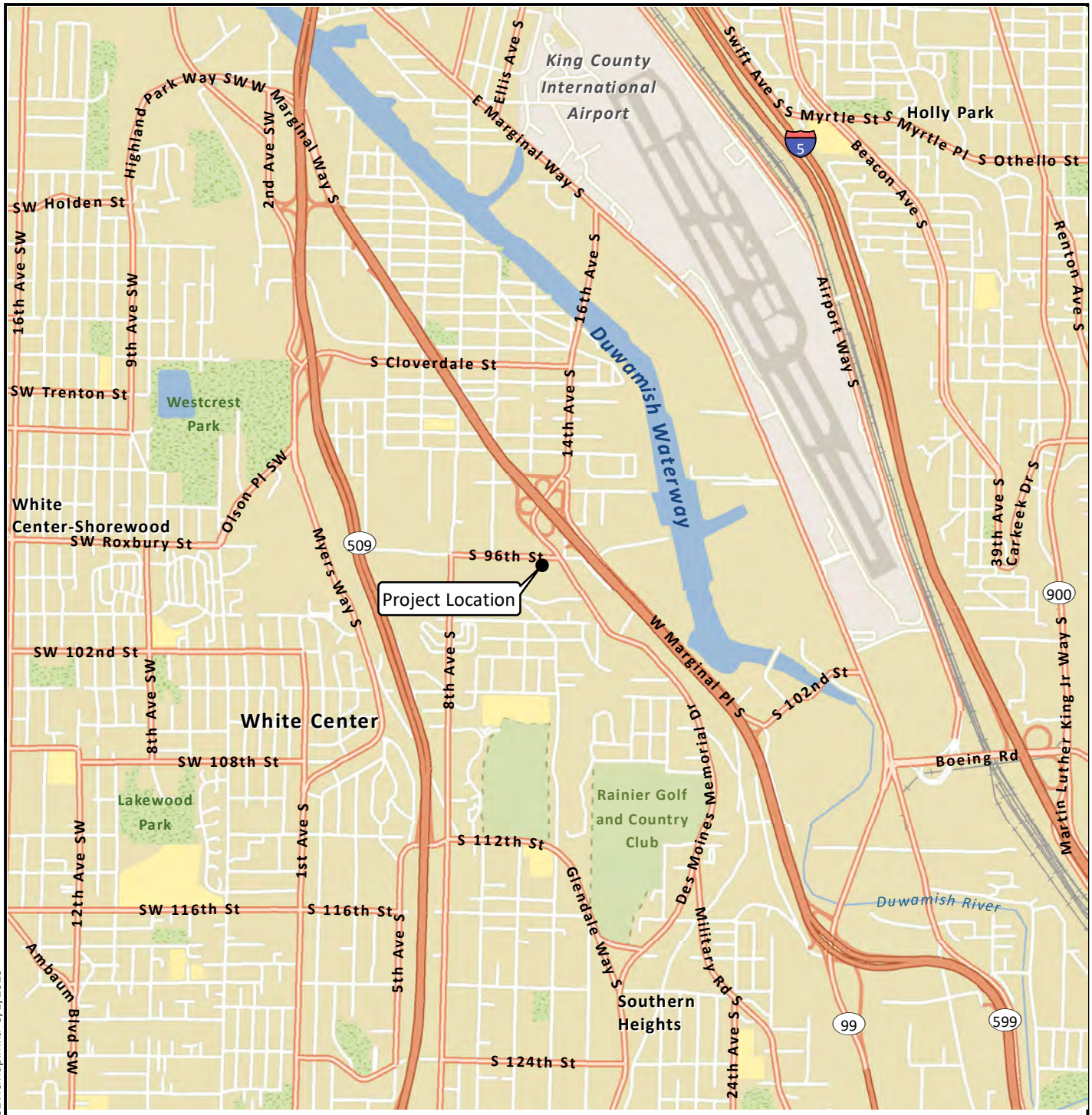
Attachments

Figure 1:	Vicinity Map
Figure 2:	Site Plan
Figure 3:	cVOC Sampling Results Through March 2021
Figure 4:	2022 As-Built Injection Grid
Figure 5:	Groundwater Elevation Contours – January 2023
Figure 6:	Groundwater Elevation Contours – July 2023
Figure 7:	cVOC Sampling Results Through July 2023
Figure 8:	Average Total cVOC Concentrations and Molar Fractions
Table 1:	EHC Injection Summary
Table 2:	Groundwater Sampling Matrix
Table 3:	Bioremediation Data Summary
Attachment 1:	Laboratory Analytical Data Reports



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Beckwith & Kuffel, Inc. Seattle, Washington	**Vicinity Map**	Figure 1

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Legend

MW-12	Monitoring Well (Landau)
SM-MW-11	Monitoring Well (Sea Mar)
MW-4	Former Monitoring Well
LB-1	Former Direct-Push Boring
	Approximate 2022 EHC Injection Area
	Approximate 2020 EHC Injection Area
	Approximate Extent of 2013 Remedial Excavation
	Parcels

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Data Source: Sea Mar; Google Earth Imagery.

0 50 100

Scale in Feet

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Beckwith & Kuffel, Inc. Seattle, Washington	**Site Plan**	Figure 2

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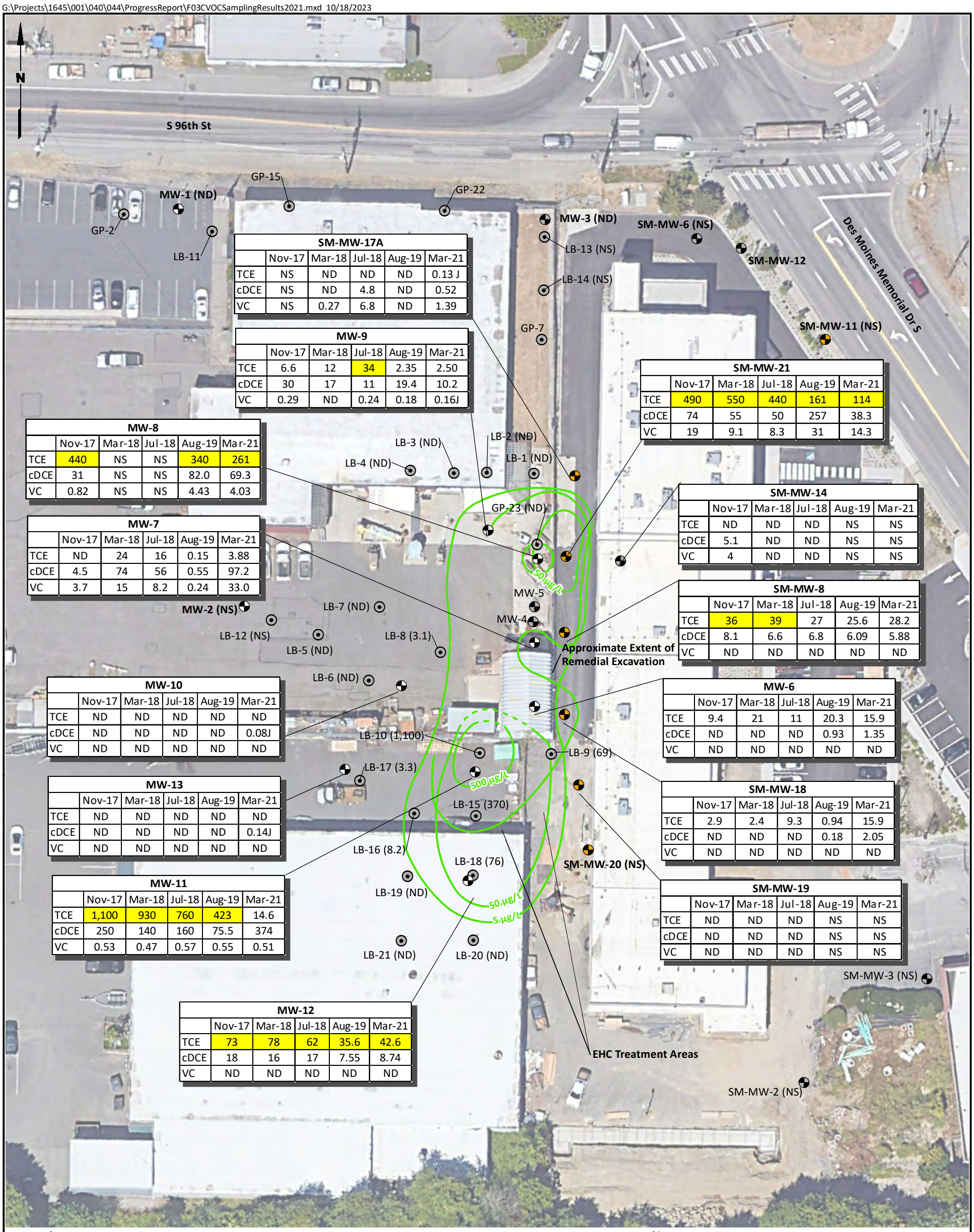


SM-MW-17A					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	NS	ND	ND	ND	0.13 J
cDCE	NS	ND	4.8	ND	0.52
VC	NS	0.27	6.8	ND	1.39

MW-9					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	6.6	12	34	2.35	2.50
cDCE	30	17	11	19.4	10.2
VC	0.29	ND	0.24	0.18	0.16J

SM-MW-21					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	490	550	440	161	114
cDCE	74	55	50	257	38.3
VC	19	9.1	8.3	31	14.3

MW-8					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	440	NS	NS	340	261
cDCE	31	NS	NS	82.0	69.3
VC	0.82	NS	NS	4.43	4.03

SM-MW-14					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	ND	ND	ND	NS	NS
cDCE	5.1	ND	ND	NS	NS
VC	4	ND	ND	NS	NS

MW-7					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	ND	24	16	0.15	3.88
cDCE	4.5	74	56	0.55	97.2
VC	3.7	15	8.2	0.24	33.0

SM-MW-8					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	36	39	27	25.6	28.2
cDCE	8.1	6.6	6.8	6.09	5.88
VC	ND	ND	ND	ND	ND

MW-10					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	ND	ND	ND	ND	ND
cDCE	ND	ND	ND	ND	0.08J
VC	ND	ND	ND	ND	ND

MW-6					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	9.4	21	11	20.3	15.9
cDCE	ND	ND	ND	0.93	1.35
VC	ND	ND	ND	ND	ND

MW-13					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	ND	ND	ND	ND	ND
cDCE	ND	ND	ND	ND	0.14J
VC	ND	ND	ND	ND	ND

SM-MW-18					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	2.9	2.4	9.3	0.94	15.9
cDCE	ND	ND	ND	0.18	2.05
VC	ND	ND	ND	ND	ND

MW-11					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	1,100	930	760	423	14.6
cDCE	250	140	160	75.5	374
VC	0.53	0.47	0.57	0.55	0.51

SM-MW-19					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	ND	ND	ND	NS	NS
cDCE	ND	ND	ND	NS	NS
VC	ND	ND	ND	NS	NS

MW-12					
	Nov-17	Mar-18	Jul-18	Aug-19	Mar-21
TCE	73	78	62	35.6	42.6
cDCE	18	16	17	7.55	8.74
VC	ND	ND	ND	ND	ND

Legend

- MW-12 — Monitoring Well (Landau)
- SM-MW-11 — Monitoring Well (Sea Mar)
- MW-4 — Former Monitoring Well
- LB-1 — Former Direct-Push Boring
- TCE Baseline Iso-Concentration Contour (Approx.)
- TCE Baseline Iso-Concentration Contour

Boring Name — LB-16 (8.2) — Maximum TCE concentration detected in groundwater grab sample collected at time of drilling (2016)

MW-12			
	Nov-17	Mar-18	Jul-18
TCE	73	78	62

- Monitoring Well Designation
- Sampling Date
- Detected Concentration (µg/L)

0 50 100

Scale in Feet

Data Source: Sea Mar; Google Earth Imagery.

Notes

1. Baseline iso-concentration contours are based on 2017 monitoring well results and 2016-2017 groundwater results from temporary borings.
2. Highlighted results exceed the 31 µg/L short-term TCE vapor intrusion screening level.
3. All detected concentrations are reported in micrograms per liter (µg/L).
4. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

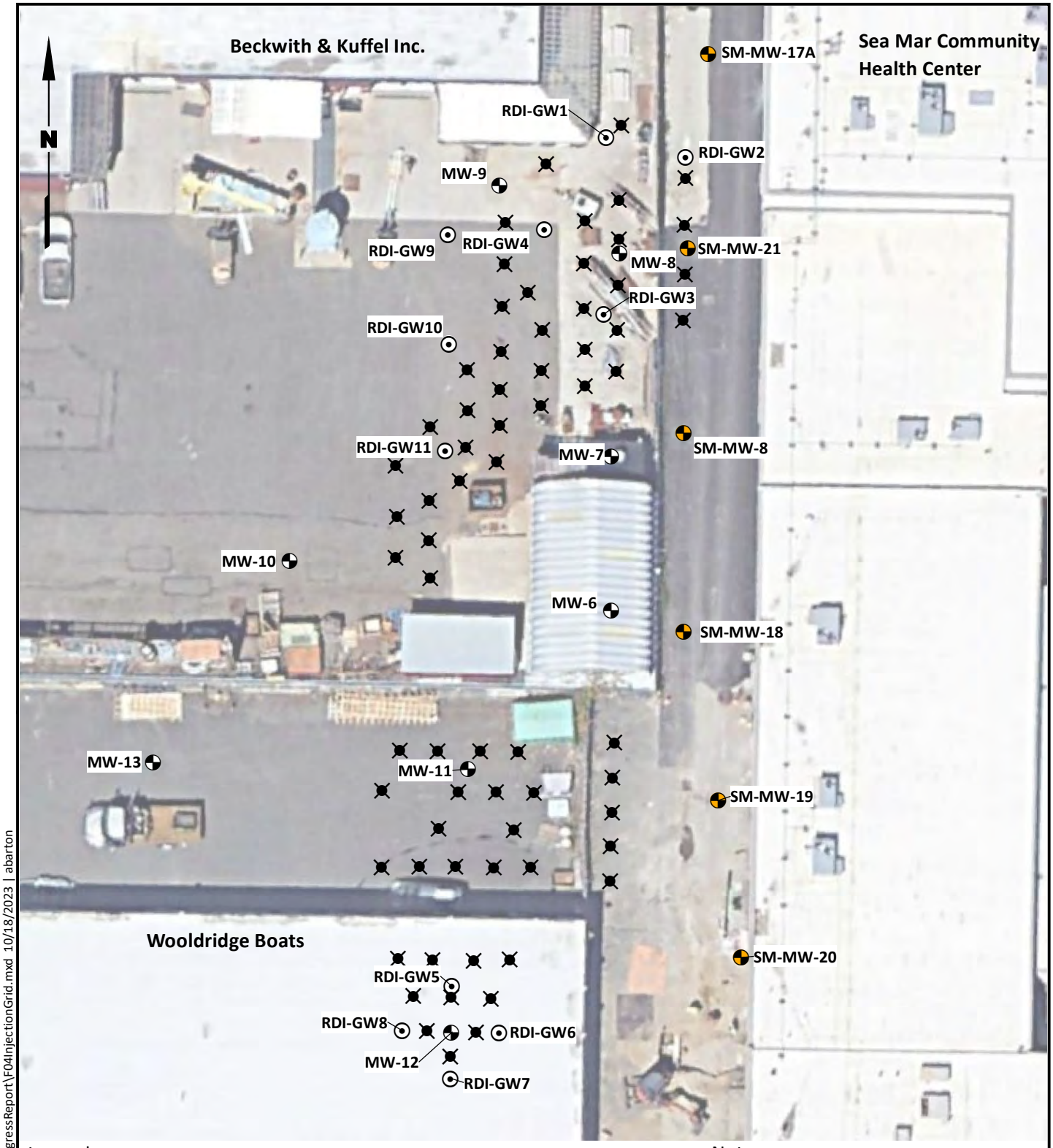
cDCE = *cis*-1,2-dichloroethene
cVOC = chlorinated volatile organic compound
ND = not detected
NS = not sampled
TCE = trichoroethene
VC = vinyl chloride

LANDAU ASSOCIATES

Beckwith & Kuffel, Inc.
Seattle, Washington

cVOC Sampling Results Through March 2021

Figure 3



Legend

- 2022 As-Built Injection Location
- Groundwater Sampling Location
- Monitoring Well (Landau)
- Monitoring Well (Sea Mar)

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 30 60

Scale in Feet

Data Source: Google Earth Pro.

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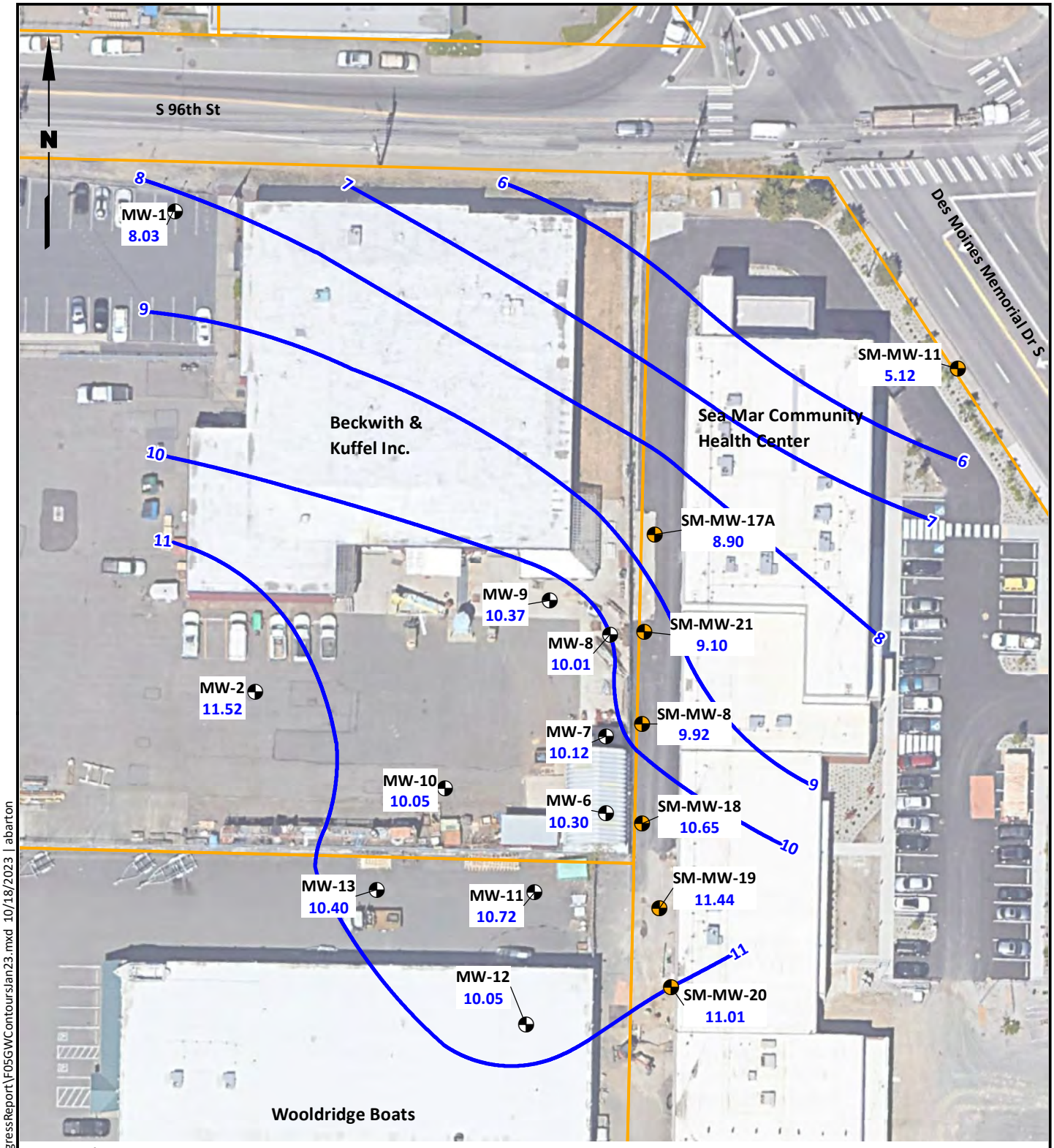
Beckwith & Kuffel, Inc. Seattle, Washington	**2022 As-Built Injection Grid**	Figure 4



Legend

- Monitoring Well (Landau)
- Monitoring Well (Sea Mar)
- Groundwater Contour (feet above arbitrary site datum)
- Parcels

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 60 120

Scale in Feet

Data Source: SeaMar; Google Earth Imagery.

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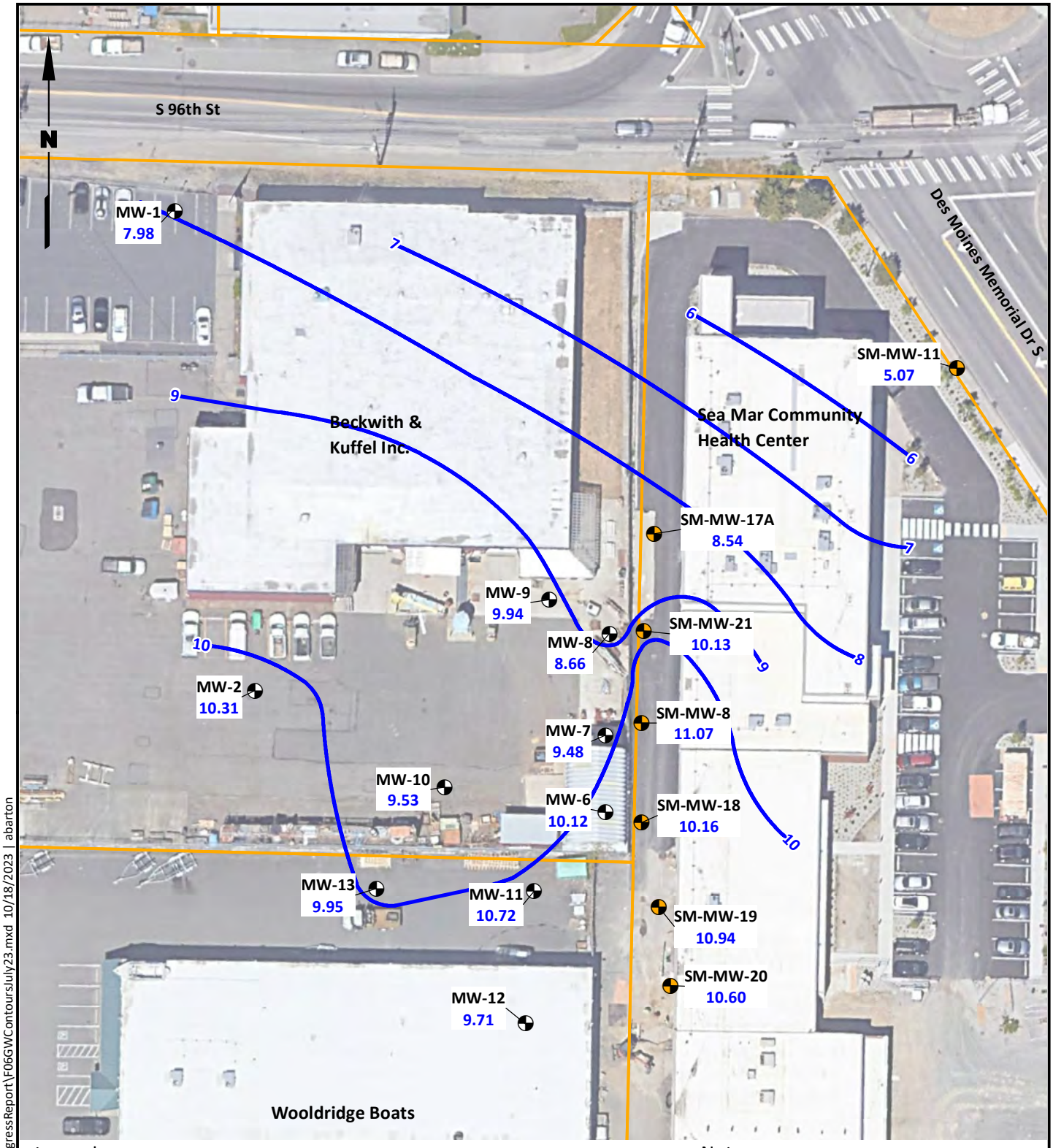
Beckwith & Kuffel, Inc. Seattle, Washington	**Groundwater Elevation Contours January 2023**	Figure 5



Legend

- Monitoring Well (Landau)
- Monitoring Well (Sea Mar)
- Groundwater Contour (feet above arbitrary site datum)
- Parcels

Note

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 60 120

Scale in Feet

Data Source: SeaMar; Google Earth Imagery.

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Beckwith & Kuffel, Inc.
Seattle, Washington

Groundwater Elevation Contours
July 2023

Figure
6

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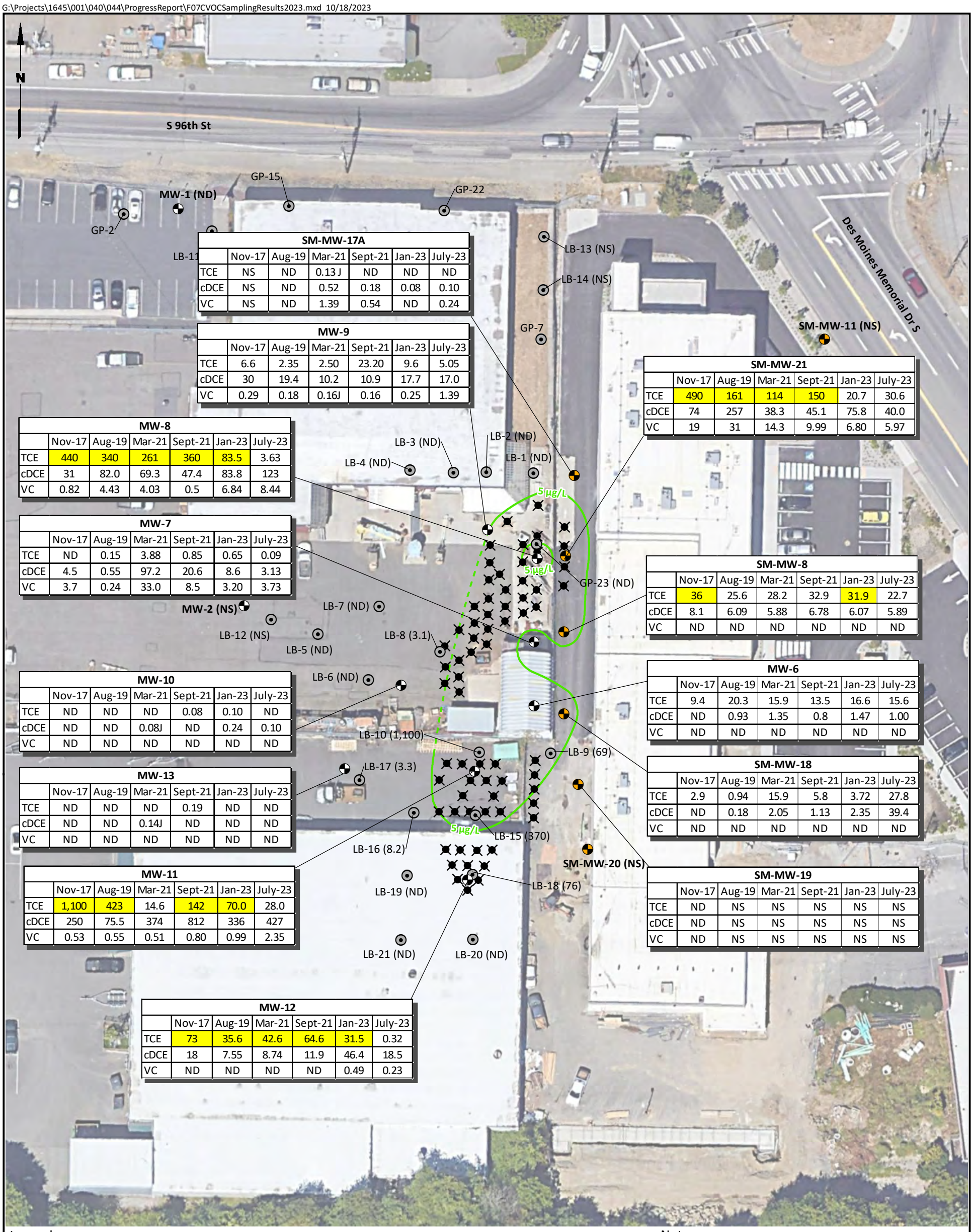


SM-MW-17A

	Nov-17	Aug-19	Mar-21	Sept-21	Jan-23	July-23
TCE	NS	ND	0.13 J	ND	ND	ND
cDCE	NS	ND	0.52	0.18	0.08	0.10
VC	NS	ND	1.39	0.54	ND	0.24

MW-9

	Nov-17	Aug-19	Mar-21	Sept-21	Jan-23	July-23
TCE	6.6	2.35	2.50	23.20	9.6	5.05
cDCE	30	19.4	10.2	10.9	17.7	17.0
VC	0.29	0.18	0.16J	0.16	0.25	1.39

SM-MW-21

	Nov-17	Aug-19	Mar-21	Sept-21	Jan-23	July-23
TCE	490	161	114	150	20.7	30.6
cDCE	74	257	38.3	45.1	75.8	40.0
VC	19	31	14.3	9.99	6.80	5.97

MW-8

	Nov-17	Aug-19	Mar-21	Sept-21	Jan-23	July-23
TCE	440	340	261	360	83.5	3.63
cDCE	31	82.0	69.3	47.4	83.8	123
VC	0.82	4.43	4.03	0.5	6.84	8.44

MW-7

	Nov-17	Aug-19	Mar-21	Sept-21	Jan-23	July-23
TCE	ND	0.15	3.88	0.85	0.65	0.09
cDCE	4.5	0.55	97.2	20.6	8.6	3.13
VC	3.7	0.24	33.0	8.5	3.20	3.73

SM-MW-8

	Nov-17	Aug-19	Mar-21	Sept-21	Jan-23	July-23
TCE	36	25.6	28.2	32.9	31.9	22.7
cDCE	8.1	6.09	5.88	6.78	6.07	5.89
VC	ND	ND	ND	ND	ND	ND

MW-10

	Nov-17	Aug-19	Mar-21	Sept-21	Jan-23	July-23
TCE	ND	ND	ND	0.08	0.10	ND
cDCE	ND	ND	0.08J	ND	0.24	0.10
VC	ND	ND	ND	ND	ND	ND

MW-6

	Nov-17	Aug-19	Mar-21	Sept-21	Jan-23	July-23
TCE	9.4	20.3	15.9	13.5	16.6	15.6
cDCE	ND	0.93	1.35	0.8	1.47	1.00
VC	ND	ND	ND	ND	ND	ND

MW-13

	Nov-17	Aug-19	Mar-21	Sept-21	Jan-23	July-23
TCE	ND	ND	ND	0.19	ND	ND
cDCE	ND	ND	0.14J	ND	ND	ND
VC	ND	ND	ND	ND	ND	ND

SM-MW-18

	Nov-17	Aug-19	Mar-21	Sept-21	Jan-23	July-23
TCE	2.9	0.94	15.9	5.8	3.72	27.8
cDCE	ND	0.18	2.05	1.13	2.35	39.4
VC	ND	ND	ND	ND	ND	ND

MW-11

	Nov-17	Aug-19	Mar-21	Sept-21	Jan-23	July-23
TCE	1,100	423	14.6	142	70.0	28.0
cDCE	250	75.5	374	812	336	427
VC	0.53	0.55	0.51	0.80	0.99	2.35

SM-MW-19

	Nov-17	Aug-19	Mar-21	Sept-21	Jan-23	July-23
TCE	ND	NS	NS	NS	NS	NS
cDCE	ND	NS	NS	NS	NS	NS
VC	ND	NS	NS	NS	NS	NS

MW-12

	Nov-17	Aug-19	Mar-21	Sept-21	Jan-23	July-23
TCE	73	35.6	42.6	64.6	31.5	0.32
cDCE	18	7.55	8.74	11.9	46.4	18.5
VC	ND	ND	ND	ND	0.49	0.23

Legend

- MW-12 — Monitoring Well (Landau)
- SM-MW-11 — Monitoring Well (Sea Mar)
- LB-1 — Former Direct-Push Boring
- 2022 Injection Location
- TCE Iso-Concentration Contour (Approx.)
- TCE Iso-Concentration Contour

Boring Name — LB-16 (8.2) — Maximum TCE concentration detected in groundwater grab sample collected at time of drilling (2016-2017)

Notes

1. Highlighted results exceed the 31 µg/L short-term TCE vapor intrusion screening level.
2. All detected concentrations are reported in micrograms per liter (µg/L).
3. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

MW-12			
	Nov-17	Mar-18	Jul-18
TCE	73	78	62

- Monitoring Well Designation
- Sampling Date
- Detected Concentration (µg/L)

cDCE = *cis*-1,2-dichloroethene
cVOC = chlorinated volatile organic compound
ND = not detected
NS = not sampled
TCE = trichoroethene
VC = vinyl chloride

Data Source: Sea Mar; Google Earth Imagery.

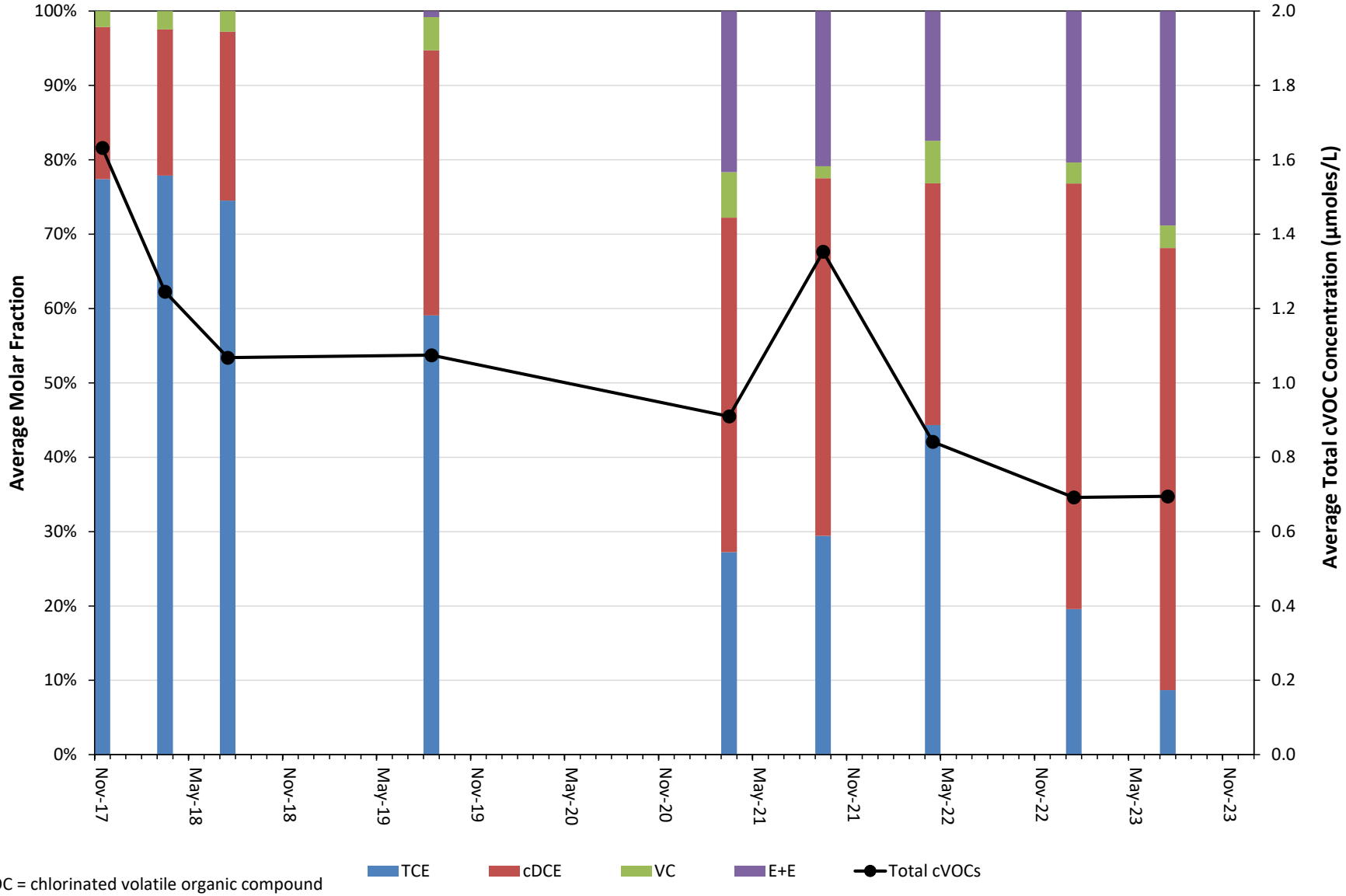
0 50 100
Scale in Feet

LANDAU ASSOCIATES

Beckwith & Kuffel, Inc.
Seattle, Washington

cVOC Sampling Results Through July 2023

Figure 7



cVOC = chlorinated volatile organic compound
µmoles/L = micromoles per liter

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Beckwith & Kuffel, Inc.
Seattle, Washington

Average Total cVOC Concentrations and Molar Fractions

Figure
8

Table 1
EHC Injection Summary
Beckwith & Kuffel, Inc.
Seattle, Washington

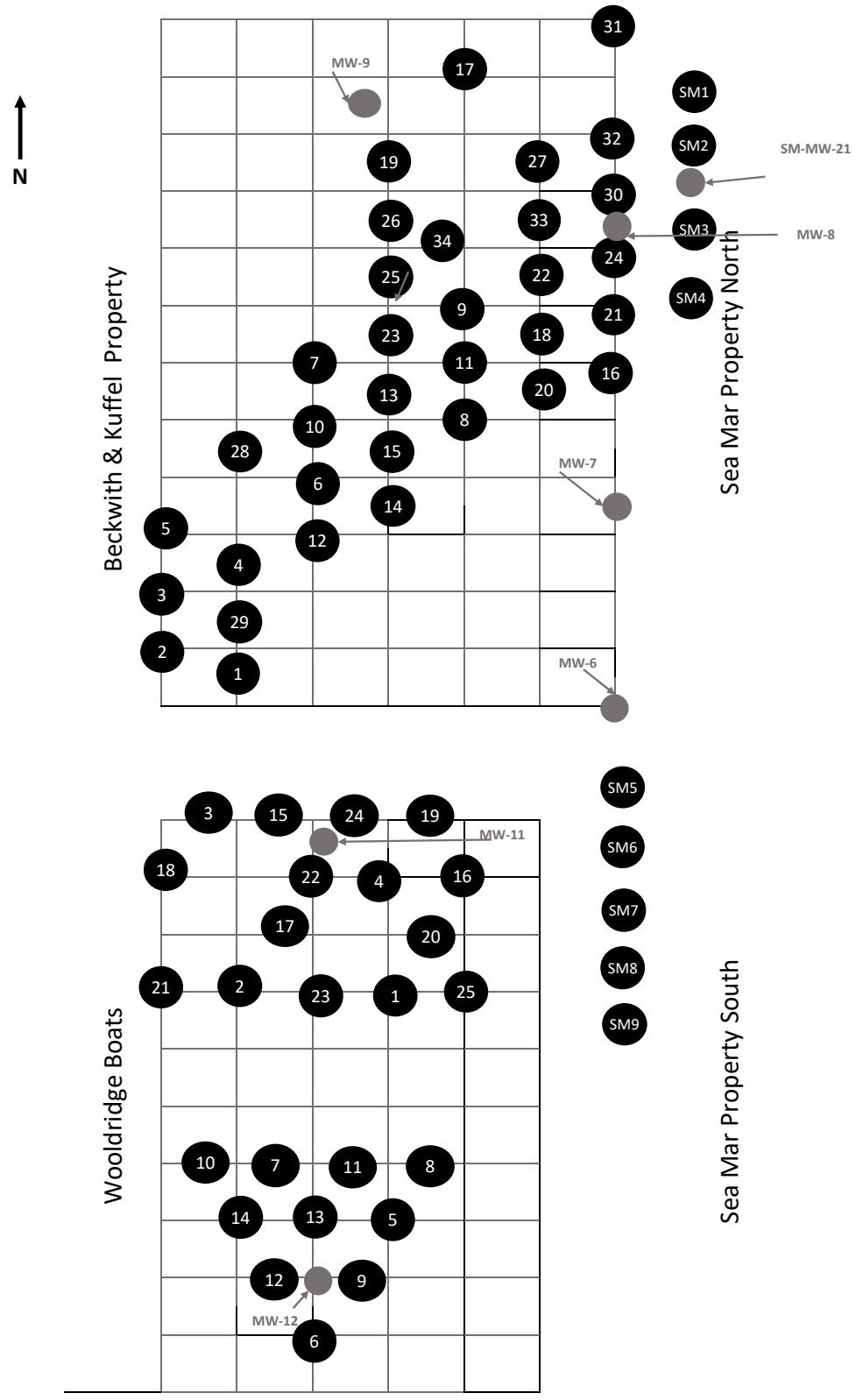

Table 1
EHC Injection Summary
Beckwith & Kuffel, Inc.
Seattle, Washington

Boring	Date	Depth (ft bgs)		Treatment Length (ft)	EHC Reagent			Ferrous Sulfate	Newman Zone	Total
		Bottom	Top		Bags	Mass (lbs)	Dose (lb/ft)	Mass (lbs)	Volume (gal)	Volume
SMN-1	9/27/2022	20	8	12	6.0	300	25	31	6.5	108
SMN-2	9/27/2022	20	8	12	6.0	300	25	31	6.5	108
SMN-3	9/27/2022	20	8	12	6.0	300	25	31	6.5	108
SMN-4	9/27/2022	20	8	12	6.0	300	25	31	6.5	108
SMS-5	9/28/2022	25	8	17	1.0	50	3	5	1.0	18
SMS-6	9/28/2022	25	8	17	1.0	50	3	5	1.0	18
SMS-7	9/28/2022	25	8	17	1.4	72	4	7	1.4	26
SMS-8	9/28/2022	25	8	17	4.3	216	13	21	4.2	78
SMS-9	9/28/2022	25	8	17	6.5	327	19	32	6.3	118
BK1	9/29/2022	20	8	12	6.0	300	25	31	6.5	108
BK2	9/29/2022	20	8	12	6.0	300	25	31	6.5	108
BK3	9/29/2022	20	8	12	6.0	300	25	31	6.5	108
BK4	9/29/2022	20	8	12	6.0	300	25	31	6.5	108
BK5	9/29/2022	20	8	12	6.0	300	25	31	6.5	108
BK6	9/30/2022	20	8	12	6.0	300	25	31	6.5	108
BK7	9/30/2022	20	8	12	6.0	300	25	31	6.5	108
BK8	9/30/2022	20	8	12	6.0	300	25	31	6.5	108
BK9	9/30/2022	20	8	12	6.0	300	25	31	6.5	108
BK10	9/30/2022	20	8	12	6.0	300	25	31	6.5	108
BK11	9/30/2022	20	8	12	4.0	200	17	20	4.4	72
BK12	10/3/2022	20	8	12	6.0	300	25	31	6.5	108
BK13	10/3/2022	20	8	12	6.0	300	25	31	6.5	108
BK14	10/3/2022	20	8	12	6.0	300	25	31	6.5	108
BK15	10/3/2022	20	8	12	6.0	300	25	31	6.5	108
BK16	10/3/2022	20	8	12	6.0	300	25	31	6.5	108
BK17	10/4/2022	20	8	12	6.0	300	25	31	6.5	108
BK18	10/4/2022	20	8	12	6.0	300	25	31	6.5	108
BK19	10/4/2022	20	8	12	6.0	300	25	31	6.5	108
BK20	10/4/2022	20	8	12	6.0	300	25	31	6.5	108
BK21	10/5/2022	20	8	12	6.0	300	25	31	6.5	108
BK22	10/24/2022	20	8	12	7.0	350	29	36	7.6	126
BK23	10/5/2022	20	8	12	2.0	100	8	10	2.2	36
BK24	10/4/2022	20	8	12	6.0	300	25	31	6.5	108
BK25	10/4/2022	20	8	12	6.0	300	25	31	6.5	108
BK26	10/5/2022	20	8	12	6.0	300	25	31	6.5	108
BK27	10/5/2022	20	8	12	6.0	300	25	31	6.5	108
BK28	10/5/2022	20	8	12	6.0	300	25	31	6.5	108
BK29	10/5/2022	20	8	12	6.0	300	25	31	6.5	108
BK30	10/6/2022	20	8	12	6.0	300	25	31	6.5	108
BK31	10/6/2022	20	8	12	4.0	200	17	20	4.4	72
BK32	10/6/2022	20	8	12	4.0	200	17	20	4.4	72
BK33	10/24/2022	20	8	12	7.0	350	29	36	7.6	126
BK34	10/24/2022	20	8	12	7.0	350	29	36	7.6	126

Table 1
EHC Injection Summary
Beckwith & Kuffel, Inc.
Seattle, Washington

Boring	Date	Depth (ft bgs)		Treatment	EHC Reagent			Ferrous Sulfate	Newman Zone	Total
		Bottom	Top	Length (ft)	Bags	Mass (lbs)	Dose (lb/ft)	Mass (lbs)	Volume (gal)	Volume
WB1	10/7/2022	20	8	12	2.0	100	8	10	1.9	36
WB2	10/7/2022	20	8	12	6.0	300	25	30	5.8	108
WB3	10/7/2022	20	8	12	8.5	425	35	42	8.2	153
WB4	10/7/2022	20	8	12	8.5	425	35	42	8.2	153
WB5	10/10/2022	20	8	12	10.0	500	42	49	9.6	180
WB6	10/10/2022	20	8	12	10.0	500	42	49	9.6	180
WB7	10/10/2022	20	8	12	10.0	500	42	49	9.6	180
WB8	10/11/2022	20	8	12	9.0	450	37	44	8.7	162
WB9	10/11/2022	20	8	12	8.0	400	33	40	7.7	144
WB10	10/11/2022	20	8	12	9.0	450	37	44	8.7	162
WB11	10/11/2022	20	8	12	16.0	799	67	79	15.4	288
WB12	10/12/2022	20	8	12	10.0	500	42	49	9.6	180
WB13	10/12/2022	20	8	12	10.0	500	42	49	9.6	180
WB14	10/12/2022	20	8	12	8.0	400	33	40	7.7	144
WB15	10/13/2022	20	8	12	9.0	450	37	44	8.7	162
WB16	10/13/2022	20	8	12	9.0	450	37	44	8.7	162
WB17	10/13/2022	20	8	12	9.0	450	37	44	8.7	162
WB18	10/14/2022	20	8	12	9.0	450	37	44	8.7	162
WB19	10/14/2022	20	8	12	9.0	450	37	44	8.7	162
WB20	10/14/2022	20	8	12	9.0	450	37	44	8.7	162
WB21	10/25/2022	20	8	12	10.0	500	42	49	9.6	180
WB22	10/25/2022	20	8	12	10.1	505	42	50	9.7	182
WB23	10/26/2022	20	8	12	11.2	561	47	55	10.8	202
WB24	10/26/2022	20	8	12	12.5	627	52	62	12.1	226
WB25	10/26/2022	20	8	12	9.0	450	37	44	8.7	162
				Total:	**467.0**	**23,349**	**--**	**2,312**	**472**	**8,410**
				Average:	**--**	**--**	**28**	**--**	**--**	**--**

Abbreviations and Acronyms:

bgs = below ground surface
ft = feet
gal = gallons
lbs = pounds

Table 2
Groundwater Sampling Matrix
Beckwith & Kuffel, Inc.
Seattle, Washington

Well ID	Analysis (a)						Notes
	TCE, cDCE, VC (8260)	Sulfate (300.0)	Nitrate (300.0)	TOC (SM5310)	AMEE (RSK-175)	DO, ORP, pH, Ferrous iron (b)	
Beckwith & Kuffel Property							
MW-1							(c)
MW-2							(c)
MW-6	x	x	x	x	x	x	
MW-7	x	x	x	x	x	x	
MW-8	x	x	x	x	x	x	
MW-9	x	x	x	x	x	x	
MW-10	x	x	x	x	x	x	
Wooldridge Property							
MW-11	x	x	x	x	x	x	
MW-12	x	x	x	x	x	x	
MW-13	x	x	x	x	x	x	
Sea Mar Property							
SM-MW-8	x	?	?	?	x	x	(d)
SM-MW-11							(c)
SM-MW-17A	x	x	x	x	x	x	
SM-MW-18	x	x	x	x	x	x	
SM-MW-19							(c)
SM-MW-20							(c)
SM-MW-21	x	x	x	x	x	x	
SM-MW-14							(c)

Notes:

(a) Field QC samples will include one duplicate and one MS/MSD. Locations of the field QC samples will be varied each event to reduce bias and confirm results.

(b) Field measurement; ferrous iron from Hach field test ki

(c) Water level measurement only. All wells listed are included in the groundwater elevation survey survey performed prior to sampling.

(d) Limited analytes due to very slow recharge. Well only produces enough water to purge and fill containers for the 8260 and RSK-175 analysis.

Abbreviations & Acronyms:

AMEE = acetylene, methane, ethene, ethane
cDCE = *cis* -1,2-dichloroethene
DO = dissolved oxygen
MS/MSD = matrix spike/matrix spike duplicate
ORP = oxidation reduction potential
QC = quality control
TCE = trichloroethene
TOC = total organic carbon
VC = vinyl chloride

Table 3
Bioremediation Data Summary
Beckwith & Kuffel, Inc.
Seattle, Washington

Location	Date Sampled	Elapsed Time (days)			Parent and Degradation Products							Aquifer Redox Conditions						Treatment Indicators			Molar Fractions (Percent)				
		Excavation Area LactOil Injection	EHC Direct-Push Injection WDG	EHC Direct-Push Injection WDG/B&K	PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	DO (mg/L)	ORP (mV)	Methane (mg/L)	Nitrate (mg-N/L)	Sulfate (mg/L)	Iron II (mg/L)	TOC (mg/L)	pH	Total Chlorinated Ethenes (µmoles/L)	PCE	TCE	cDCE	VC	Ethene + Ethane
MTCA Method C Cleanup Level or ARAR[a]					**5**	**5/31[b]**	**35**	**0.29**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**0.3[c]**	**--**	**--**						
MW-12	11/7/2017	-77			--	**73.0**	**18.0**	ND	ND	ND	ND	0.69	47.1	ND	1	53	NA	3.60	6.74	0.74	0%	75%	25%	0%	0%
	3/22/2018	58			--	**78.0**	**16.0**	ND	ND	ND	ND	0.58	92.9	ND	1.1	48	ND	4.10	6.39	0.76	0%	78%	22%	0%	0%
	7/2/2018	160			--	**62.0**	**17.0**	ND	ND	ND	ND	--	--	ND	1.1	51	--	3.80	--	0.65	0%	73%	27%	0%	0%
	8/28/2019	582	-414		--	**35.6**	**7.55**	ND	ND	ND	ND	0.49	18	0.003	0.607	46.8	ND	2.69	6.88	0.35	0%	78%	22%	0%	0%
	3/9/2021	1,141	145		--	**42.6**	**8.74**	ND	ND	ND	ND	2.09	154.7	0.003	ND	31.3	0.0	2.72	6.44	0.41	0%	78%	22%	0%	0%
	9/30/2021	1,346	350		--	**64.6**	**11.9**	ND	ND	**1.33**	ND	0.59	108.2	0.006	0.106	36.1	0.0	3.01	6.27	0.61	0%	74%	19%	0%	7%
	4/13/2022	1,541	545	-196	--	**63.1**	**9.43**	ND	ND	ND	ND	2.13	168.8	0.001	0.150	35.7	0.0	2.60	6.21	0.58	0%	83%	17%	0%	0%
	1/24/2023	1,827	831	90	--	**31.5**	**46.4**	**0.49**	**5.16**	**1.66**	ND	8.77	-56.7	5.67	ND	7.69	9.0	1,770	5.46	0.73	0%	24%	49%	1%	26%
	7/11/2023	1,995	999	258	--	**0.32**	**18.5**	**0.23**	ND	ND	ND	0.46	-121.4	8.71	ND	ND	6.0	58	6.9	0.20	0%	1%	97%	2%	0%
MW-13	11/7/2017	-77			--	ND	ND	ND	ND	ND	ND	1.77	51.8	ND	ND	130	--	2.80	6.46	0.00	0%	0%	0%	0%	0%
	3/22/2018	58			--	ND	ND	ND	ND	ND	ND	0.36	85.0	ND	ND	93	ND	3.60	6.34	0.00	0%	0%	0%	0%	0%
	7/2/2018	160			--	ND	ND	ND	ND	ND	ND	0.36	84.5	0.020	ND	120	ND	4.30	--	0.00	0%	0%	0%	0%	0%
	8/28/2019	582	-414		--	ND	ND	ND	ND	ND	ND	5.34	48.0	0.016	ND	106	ND	3.55	6.31	0.00	0%	0%	0%	0%	0%
	3/9/2021	1,141	145		--	ND	**0.14**	ND	ND	ND	ND	3.98	-23.9	0.017	ND	68.2	0.0	3.35	6.34	0.00	0%	0%	100%	0%	0%
	9/30/2021	1,347	351		--	**0.19**	ND	ND	ND	ND	ND	0.41	16.4	0.034	ND	114	0.0	4.23	6.29	0.00	0%	100%	0%	0%	0%
	4/13/2022	1,541	545	-196	--	**0.10**	ND	ND	ND	ND	ND	1.33	167.0	0.191	ND	95.8	0.0	4.06	5.77	0.00	0%	100%	0%	0%	0%
	1/24/2023	1,827	831	90	--	ND	ND	ND	ND	ND	ND	4.8	25.5	0.206	ND	246	1.2	4.61	6.35	0.00	0%	0%	0%	0%	0%
	7/11/2023	1,995	999	258	--	ND	ND	ND	ND	ND	ND	0.26	56.4	0.938	ND	105	0.5	4.29	6.23	0.00	0%	0%	0%	0%	0%
SM-MW-19	9/12/2016				--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	0.00	0%	0%	0%	0%	0%
	11/7/2017	-77			--	ND	ND	ND	ND	ND	ND	0.69	35.6	ND	17	220	--	1.50	6.41	0.00	0%	0%	0%	0%	0%
	3/22/2018	58			--	ND	ND	ND	ND	ND	ND	0.39	104	ND	12	160	ND	1.90	6.36	0.00	0%	0%	0%	0%	0%
	7/2/2018	160	-836	-1,577	--	ND	ND	ND	ND	ND	ND	0.39	104	ND	18	180	ND	6.10	--	0.00	0%	0%	0%	0%	0%
MW-11	11/7/2017	-77			--	**1,100**	**250**	**0.53**	ND	ND	ND	--	--	ND	0.5	140	--	5.40	--	10.96	0%	76%	24%	0%	0%
	3/22/2018	58			--	**930**	**140**	**0.47**	ND	ND	ND	0.64	65.2	ND	0.7	110	ND	3.20	6.32	8.53	0%	83%	17%	0%	0%
	7/2/2018	160			--	**760**	**160**	**0.57**	ND	ND	ND	0.64	65.2	0.050	0.87	84	ND	3.10	--	7.44	0%	78%	22%	0%	0%
	8/28/2019	582	-414		--	**423**	**75.5**	**0.55**	ND	ND	ND	4.30	52.7	0.019	1.07	207	ND	3.46	6.42	4.01	0%	80%	19%	0%	0%
	3/9/2021	1,141	145		--	**14.6**	**374**	**0.51**	**3.70**	**19.2**	ND	0.86	-86.2	9.92	ND	4.95	1.4	157	6.49	3.98	0%	2%	80%	0%	17%
	9/30/2021	1,346	350		--	**142**	**812**	**0.80**	ND	**51.2**	ND	0.43	-46.3	4.23	ND	92.2	4.0	3.68	6.37	9.47	0%	10%	74%	0%	16%
	4/13/2022	1,541	545	-196	--	**116**	**223**	ND	**1.54**	**22.6**	ND	1.29	126.7	6.69	ND	140	3.0	5.81	5.92	3.18	0%	22%	57%	0%	21%
	1/24/2023	1,827	831	90	--	**70.0**	**336**	**0.99**	**1.44**	**14.2**	ND	5.76	-44.0	5.75	ND	108	--	6.47	6.31	4.01	0%	12%	76%	0%	12%
	7/11/2023	1,995	999	258	--	**28.0**	**427**	**2.35**	ND	**12.3**	ND	0.18	-3.3	6.56	ND	41.9	6.5	6.43	6.25	4.66	0%	4%	86%	1%	9%
MW-10	11/7/2017	-77			ND	ND	ND	ND	ND	ND	ND	0.72	43.4	ND	ND	74	--	6.90	6.66	0.00	0%	0%	0%	0%	0%
	3/22/2018	58			ND	ND	ND	ND	ND	ND	ND	1.73	124	ND	ND	49	1.5	5.00	6.69	0.00	0%	0%	0%	0%	0%
	7/2/2018	160			ND	ND	ND	ND	ND	ND	ND	1.73	124	0.020	ND	65	1.5	5.40	--	0.00	0%	0%	0%	0%	0%
	8/28/2019	582	-414		--	ND	ND	ND	ND	ND	ND	4.54	91.1	0.002	ND	65.3	ND	2.46	6.60	0.00	0%	0%	0%	0%	0%
	3/9/2021	1,141	145		--	ND	**0.08**	ND	ND	ND	ND	0.86	-31.5	ND	ND	45.2	0.0	2.07	6.70	0.00	0%	0%	100%	0%	0%
	9/30/2021	1,347	351		--	**0.08**	ND	ND	ND	ND	ND	6.6	7.7	0.005	ND	56.2	0.0	2.29	6.60	0.00	0%	100%	0%	0%	0%
	4/13/2022	1,541	545	-196	--	**0.07**	ND	ND	ND	ND	ND	0.50	91.5	ND	ND	57.3	0.0	2.07	6.20	0.00	0%	100%	0%	0%	0%
	1/24/2023	1,827	831	90	--	**0.10**	**0.24**	ND	ND	ND	ND	0.41	-170.0	0.030	ND	59.9	0.75	2.60	6.69	0.00	0%	24%	76%	0%	0%
	7/11/2023	1,995	999	258	--	ND	**0.10**	ND	ND	ND	ND	0.52	-6.8	0.021	R	63.8	1.00	2.42	6.62	0.00	0%	0%	100%	0%	0%

Table 3
Bioremediation Data Summary
Beckwith & Kuffel, Inc.
Seattle, Washington

Location	Date Sampled	Elapsed Time (days)			Parent and Degradation Products							Aquifer Redox Conditions						Treatment Indicators			Molar Fractions (Percent)				
		Excavation Area LactOil Injection	EHC Direct-Push Injection WDG	EHC Direct-Push Injection WDG/B&K	PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	DO (mg/L)	ORP (mV)	Methane (mg/L)	Nitrate (mg-N/L)	Sulfate (mg/L)	Iron II (mg/L)	TOC (mg/L)	pH	Total Chlorinated Ethenes (µmoles/L)	PCE	TCE	cDCE	VC	Ethene + Ethane
MTCA Method C Cleanup Level or ARAR[a]					**5**	**5/31[b]**	**35**	**0.29**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**0.3[c]**	**--**	**--**						
MW-6	2/20/2014				--	**85.0**	**2.17**	ND	--	--	--	--	--	--	--	--	--	--	--	0.67	0%	97%	3%	0%	0%
	5/21/2014				--	**18.9**	ND	ND	--	--	--	--	--	--	--	--	--	--	--	0.14	0%	100%	0%	0%	0%
	8/22/2014				--	**88.6**	**2.99**	ND	--	--	--	--	--	--	--	--	--	--	--	0.71	0%	96%	4%	0%	0%
	9/30/2016				--	**16.0**	ND	ND	--	--	--	--	--	--	--	--	--	--	--	0.12	0%	100%	0%	0%	0%
	11/7/2017	-77			--	**9.40**	ND	ND	ND	ND	ND	--	--	ND	ND	29.0	--	2.40	--	0.07	0%	100%	0%	0%	0%
	3/22/2018	58			--	**21.0**	ND	ND	ND	ND	ND	2.95	124	ND	0.5	31.0	ND	4.00	6.35	0.16	0%	100%	0%	0%	0%
	7/2/2018	160			--	**11.0**	ND	ND	ND	ND	ND	2.95	124	ND	0.26	35.0	ND	3.20	--	0.08	0%	100%	0%	0%	0%
	8/27/2019	581	-415		--	**20.3**	**0.93**	ND	ND	ND	ND	1.76	79.1	0.004	ND	34.7	ND	2.79	6.53	0.16	0%	94%	6%	0%	0%
	3/9/2021	1,141	145		--	**15.9**	**1.35**	ND	ND	ND	ND	0.38	-15.9	ND	ND	22.4	0.0	2.61	6.60	0.13	0%	90%	10%	0%	0%
	9/30/2021	1,347	351		--	**13.5**	**0.80**	ND	ND	**1.73**	ND	0.22	62.7	0.029	ND	25.7	0.0	2.63	6.31	0.11	0%	60%	5%	0%	36%
	4/13/2022	1,541	545	-196	--	**21.1**	**1.02**	ND	ND	ND	ND	0.80	69.8	ND	ND	29.8	0.0	2.46	6.10	0.17	0%	94%	6%	0%	0%
	1/24/2023	1,827	831	90	--	**16.6**	**1.47**	ND	ND	**1.84**	ND	0.27	-13.1	0.175	ND	30.7	0.0	3.54	6.50	0.14	0%	61%	7%	0%	32%
	7/11/2023	1,995	999	258	--	**15.6**	**1.00**	ND	ND	ND	ND	0.48	-59.6	0.837	R	31.2	0.0	2.66	--[d]	0.13	0%	92%	8%	0%	0%
SM-MW-18	11/18/2017	-66			--	**2.90**	ND	ND	ND	ND	ND	3.69	100	ND	14	310	--	1.80	--	0.02	0%	100%	0%	0%	0%
	3/22/2018	58			--	**2.40**	ND	ND	ND	ND	ND	1.16	122	ND	12	330	0.5	1.60	6.88	0.02	0%	100%	0%	0%	0%
	7/2/2018	160			--	**9.30**	ND	ND	ND	ND	ND	1.16	122	ND	9.1	360	0.5	1.80	--	0.07	0%	100%	0%	0%	0%
	8/27/2019	581	-415		--	**0.94**	**0.18**	ND	ND	ND	ND	1.65	41.3	ND	1.7	307	ND	2.31	6.83	0.01	0%	79%	21%	0%	0%
	3/9/2021	1,141	145		--	**15.9**	**2.05**	ND	**1.92**	**5.64**	ND	0.51	-9.6	0.009	0.100	156	0.0	1.69	6.99	0.14	0%	29%	5%	0%	66%
	9/30/2021	1,346	350		--	**5.78**	**1.13**	ND	ND	**2.62**	ND	0.77	113	0.007	0.228	186	0.0	1.75	6.55	0.06	0%	30%	8%	0%	63%
	4/13/2022	1,541	545	-196	--	**5.48**	**0.94**	ND	ND	**2.27**	ND	0.61	135	0.009	0.118	182	0.0	1.71	6.55	0.05	0%	32%	7%	0%	61%
	1/24/2023	1,827	831	90	--	**3.72**	**2.35**	ND	ND	**6.01**	ND	0.49	24.4	0.969	0.116	178	0.4	2.26	6.95	0.05	0%	11%	9%	0%	80%
	7/11/2023	1,995	999	258	--	**27.8**	**39.4**	ND	ND	**33.2**	ND	0.36	89.6	2.94	ND	119	0.0	4.74	6.83	0.62	0%	12%	23%	0%	66%
MW-7	2/14/2014				--	**1.94**	**297**	**95.8**	--	--	--	--	--	--	--	--	--	--	--	4.61	0%	0%	66%	33%	0%
	5/21/2014				--	ND	**143**	**34.5**	--	--	--	--	--	--	--	--	--	--	--	2.03	0%	0%	73%	27%	0%
	8/22/2014				--	ND	**30.0**	**8.19**	--	--	--	--	--	--	--	--	--	--	--	0.44	0%	0%	70%	30%	0%
	9/30/2016				--	**300**	**50.0**	**3.30**	--	--	--	--	--	--	--	--	--	--	--	2.85	0%	80%	18%	2%	0%
	11/7/2017	-77			--	ND	**4.50**	**3.70**	ND	ND	ND	--	--	4.00	6.1	53	--	9.80	--	0.11	0%	0%	44%	56%	0%
	3/22/2018	58			--	**24.0**	**74.0**	**15.0**	ND	ND	ND	1.78	160	1.70	1.4	18	3.0	10,000	5.25	1.19	0%	15%	64%	20%	0%
	7/2/2018	160			--	**16.0**	**56.0**	**8.20**	ND	ND	ND	1.78	159	2.00	ND	20	3.0	180	--	0.83	0%	15%	70%	16%	0%
	8/27/2019	581	-415		--	**0.15**	**0.55**	**0.24**	ND	ND	ND	9.07	3,505	4.81	ND	ND	5.5	251	6.75	0.01	0%	11%	53%	36%	0%
	3/9/2021	1,141	145		--	**3.88**	**97.2**	**33.0**	**18.7**	**14.4**	ND	0.34	-60.4	2.33	ND	25.7	3.0	9.07	6.75	1.56	0%	1%	36%	19%	44%
	9/30/2021	1,347	351		--	**0.85**	**20.6**	**8.5**	**21.7**	**34.1**	ND	0.2	-55.5	1.45	ND	14.7	4.0	7.35	6.73	0.36	0%	0%	9%	6%	85%
	4/13/2022	1,541	545	-196	--	**1.55**	**56.7**	**36.9**	**20.7**	**8.13**	ND	0.41	73.6	0.899	ND	18.0	4.0	4.89	6.50	1.19	0%	1%	26%	26%	48%
	1/24/2023	1,827	831	90	--	**0.65**	**8.6**	**3.2**	ND	ND	ND	5.33	-139	12.8	ND	0.4	5.9	625	6.37	0.14	0%	3%	61%	35%	0%
	7/12/2023	1,996	1,000	259	--	**0.09**	**3.13**	**3.73**	ND	**24.6**	ND	0.47	-83	12.9	ND	0.7	10.0	5.97	6.48	0.09	0%	0%	3%	6%	90%

Table 3
Bioremediation Data Summary
Beckwith & Kuffel, Inc.
Seattle, Washington

Location	Date Sampled	Elapsed Time (days)			Parent and Degradation Products							Aquifer Redox Conditions						Treatment Indicators			Molar Fractions (Percent)				
		Excavation Area LactOil Injection	EHC Direct-Push Injection WDG	EHC Direct-Push Injection WDG/B&K	PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	DO (mg/L)	ORP (mV)	Methane (mg/L)	Nitrate (mg-N/L)	Sulfate (mg/L)	Iron II (mg/L)	TOC (mg/L)	pH	Total Chlorinated Ethenes (µmoles/L)	PCE	TCE	cDCE	VC	Ethene + Ethane
MTCA Method C Cleanup Level or ARAR[a]					**5**	**5/31[b]**	**35**	**0.29**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**0.3[c]**	**--**	**--**						
SM-MW-8	3/7/2016				--	**20.0**	**5.50**	ND	--	--	--	--	--	--	--	--	--	--	--	0.21	0%	73%	27%	0%	0%
	6/30/2016				--	**33.0**	**7.00**	ND	--	--	--	--	--	--	--	--	--	--	--	0.32	0%	78%	22%	0%	0%
	11/28/2017	-56			--	**36.0**	**8.10**	ND	ND	ND	ND	3.12	113	ND	1.4	120	--	1.60	--	0.36	0%	77%	23%	0%	0%
	3/22/2018	58			--	**39.0**	**6.60**	ND	ND	ND	ND	--	--	ND	1.9	130	3.5	2.40	--	0.36	0%	81%	19%	0%	0%
	7/2/2018	160			--	**27.0**	**6.80**	ND	ND	ND	ND	3.72	96.6	ND	1.5	120	3.5	1.60	--	0.28	0%	75%	25%	0%	0%
	8/27/2019	581	-415		--	**25.6**	**6.09**	ND	ND	ND	ND	2.67	24.6	1.31	--	--	ND	--	6.78	0.26	0%	76%	24%	0%	0%
	3/9/2021	1,141	145		--	**28.2**	**5.88**	ND	ND	ND	ND	1.35	-3.4	0.598	--	--	0.0	--	6.90	0.28	0%	78%	22%	0%	0%
	9/30/2021	1,346	350		--	**32.9**	**6.78**	ND	ND	ND	ND	9.69	84.6	0.417	--	--	0.0	--	6.82	0.32	0%	78%	22%	0%	0%
	4/13/2022	1,541	545	-196	--	**28.6**	**5.03**	ND	ND	ND	ND	--	--	0.077	0.555	152	--	1.89	--	0.27	0%	81%	19%	0%	0%
	1/24/2023	1,827	831	90	--	**31.9**	**6.07**	ND	ND	ND	ND	0.80	55.8	0.013	0.404	146	0.0	2.29	6.84	0.31	0%	79%	21%	0%	0%
	7/11/2023	1,995	999	258	--	**22.7**	**5.89**	ND	ND	ND	ND	0.88	116.1	0.026	--	--	0.0	--	6.84	0.23	0%	74%	26%	0%	0%
MW-8	11/7/2017	-77			--	**440**	**31.0**	**0.82**	ND	ND	ND	0.44	17.1	0.020	ND	78	--	3.10	6.98	3.68	0%	91%	9%	0%	0%
	8/28/2019	582	-414		--	**340**	**82.0**	**4.43**	ND	ND	ND	2.19	-36.7	0.453	ND	86.9	ND	3.92	6.91	3.50	0%	74%	24%	2%	0%
	3/9/2021	1141	145		--	**261**	**69.3**	**4.03**	ND	ND	ND	0.28	-30.8	0.423	ND	60.0	1.8	3.24	6.86	2.77	0%	72%	26%	2%	0%
	9/30/2021	1,347	351		--	**360**	**47.4**	**0.50**	ND	ND	ND	0.22	8.6	0.153	ND	79.9	0.5	3.22	6.88	3.24	0%	85%	15%	0%	0%
	4/13/2022	1,541	545	-196	--	**327**	**54.7**	**1.16**	ND	ND	ND	0.38	114.0	0.089	ND	80.7	0.4	3.04	6.52	3.07	0%	81%	18%	1%	0%
	1/24/2023	1,827	831	90	--	**83.5**	**83.8**	**6.84**	**12.7**	**4.54**	ND	0.38	-189.4	12.2	ND	22.9	4.25	29.6	6.59	1.61	0%	28%	38%	5%	29%
	7/11/2023	1,995	999	258	--	**3.63**	**123**	**8.44**	**13.2**	ND	ND	0.31	-89.1	11.4	ND	0.401	9.00	293.9	6.68	1.43	0%	1%	65%	7%	26%
MW-9	11/29/2016				--	**78.0**	**12.0**	ND	--	--	--	0.28	-41.4	--	--	--	3.45	--	6.87	0.72	0%	83%	17%	0%	0%
	11/7/2017	-77			--	**6.60**	**30.0**	**0.29**	ND	ND	ND	1.03	-30.3	0.250	ND	40	NA	6.60	6.66	0.36	0%	14%	85%	1%	0%
	3/22/2018	58			--	**12.0**	**17.0**	ND	ND	ND	ND	1.43	132	0.120	ND	45	3.5	6.40	6.71	0.27	0%	34%	66%	0%	0%
	7/2/2018	160			--	**34.0**	**11.0**	**0.24**	ND	ND	ND	1.43	132	0.070	ND	42	3.5	2.00	--	0.38	0%	69%	30%	1%	0%
	8/28/2019	582	-414		--	**2.35**	**19.4**	**0.18**	ND	ND	ND	4.95	-54.1	0.671	0.11	32.5	3.5	7.70	6.60	0.22	0%	8%	91%	1%	0%
	3/9/2021	1,141	145		--	**2.50**	**10.2**	**0.16**	ND	ND	ND	0.55	-19.1	0.768	ND	24.5	2.5	5.70	6.62	0.13	0%	15%	83%	2%	0%
	9/30/2021	1,347	351		--	**23.2**	**10.9**	**0.16**	ND	ND	ND	0.48	-57	0.869	ND	32.7	3.4	5.03	6.45	0.29	0%	61%	39%	1%	0%
	4/13/2022	1,541	545	-196	--	**4.54**	**12.2**	**0.14**	ND	ND	ND	0.55	116.7	0.486	ND	33.7	3.4	5.66	6.35	0.16	0%	21%	77%	1%	0%
	1/24/2023	1,827	831	90	--	**9.6**	**17.7**	**0.25**	ND	ND	ND	3.30	-83.2	18.4	ND	13.4	4.6	10.2	6.59	0.26	0%	28%	70%	2%	0%
	7/12/2023	1,996	1,000	259	--	**5.05**	**17.0**	**1.39**	ND	ND	ND	0.29	-74	5.9	ND	27.1	8.0	7.37	6.58	0.24	0%	16%	74%	9%	0%
SM-MW-21	11/18/2017	-66			--	**490**	**74.0**	**19.0**	ND	ND	ND	1.78	-320	0.050	ND	48	--	2.60	--	4.80	0%	78%	16%	6%	0%
	3/23/2018	59			--	**550**	**55.0**	**9.10**	ND	ND	ND	0.15	47.5	0.070	ND	54	ND	2.60	6.71	4.90	0%	85%	12%	3%	0%
	7/2/2018	160			--	**440**	**50.0**	**8.30**	ND	ND	ND	0.15	47.5	0.070	0.19	65	ND	2.60	--	4.00	0%	84%	13%	3%	0%
	8/27/2019	581	-415		--	**161**	**257**	**31.0**	ND	**2.92**	ND	8.35	18.1	2.54	ND	16.5	1.0	3.87	6.55	4.37	0%	27%	59%	11%	2%
	3/9/2021	1,141	145		--	**114**	**38.3**	**14.3**	**3.81**	**8.18**	ND	0.35	28.4	0.795	ND	37.8	0.0	2.82	6.72	1.49	0%	45%	20%	12%	23%
	9/30/2021	1,347	351		--	**150**	**45.1**	**9.99**	ND	3.03	ND	0.63	-3.1	0.295	ND	52.7	0.5	2.66	6.79	1.77	0%	61%	25%	9%	6%
	4/13/2022	1,541	545	-196	--	**145**	**22.2**	**4.55**	ND	1.26	ND	0.50	137.8	0.107	ND	34.6	0.6	2.14	6.57	1.41	0%	76%	16%	5%	3%
	1/24/2023	1,827	831	90	--	**20.7**	**75.8**	**6.8**	**4.88**	**3.05**	ND	0.36	-293.4	14.1	ND	27.8	1.5	45.4	6.71	1.05	0%	12%	58%	8%	22%
	7/11/2023	1,995	999	258	--	**30.6**	**40.0**	**5.97**	ND	ND	ND	0.15	-79.7	11.8	ND	38.6	4.5	4.03	6.52	0.74	0%	31%	56%	13%	0%

Table 3
Bioremediation Data Summary
Beckwith & Kuffel, Inc.
Seattle, Washington

Location	Date Sampled	Elapsed Time (days)			Parent and Degradation Products							Aquifer Redox Conditions						Treatment Indicators			Molar Fractions (Percent)				
		Excavation Area LactOil Injection	EHC Direct-Push Injection WDG	EHC Direct-Push Injection WDG/B&K	PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	DO (mg/L)	ORP (mV)	Methane (mg/L)	Nitrate (mg-N/L)	Sulfate (mg/L)	Iron II (mg/L)	TOC (mg/L)	pH	Total Chlorinated Ethenes (µmoles/L)	PCE	TCE	cDCE	VC	Ethene + Ethane
MTCA Method C Cleanup Level or ARAR[a]					**5**	**5/31[b]**	**35**	**0.29**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**0.3[c]**	**--**	**--**						
SM-MW-14	5/6/2016				--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	0.00	0%	0%	0%	0%	0%
	6/30/2016				--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	0.00	0%	0%	0%	0%	0%
	9/12/2016	-498			--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	0.00	0%	0%	0%	0%	0%
	11/7/2017	-77			--	ND	**5.10**	**4.00**	ND	ND	ND	--	--	3.50	6	54	--	9.90	--	0.12	0%	0%	45%	55%	0%
	3/23/2018	59			--	ND	ND	ND	ND	ND	ND	0.52	66.4	ND	ND	74	ND	2.90	6.90	0.00	0%	0%	0%	0%	0%
	7/2/2018	160	-836	-1,577	--	ND	ND	ND	ND	ND	ND	0.52	66.4	ND	ND	65	ND	2.20	--	0.00	0%	0%	0%	0%	0%
SM-MW-17A	3/23/2018	59			--	ND	ND	**0.27**	ND	ND	ND	0.46	63.2	0.780	ND	14	1.6	2.80	6.48	0.00	0%	0%	0%	100%	0%
	7/2/2018	160			--	ND	**4.80**	**6.80**	ND	ND	ND	0.46	63.2	0.900	ND	13	1.6	3.00	--	0.16	0%	0%	31%	69%	0%
	8/27/2019	581	-415		--	ND	ND	ND	ND	ND	ND	0.41	-51.8	0.121	ND	13.1	ND	3.28	7.55	0.00	0%	0%	0%	0%	0%
	3/9/2021	1,141	145		--	**0.13**	**0.52**	**1.39**	ND	**11.0**	ND	0.32	-71.3	3.14	ND	5.14	0.0	3.53	7.71	0.03	0%	0%	1%	5%	93%
	9/30/2021	1,346	350		--	ND	**0.18**	**0.54**	ND	**2.7**	ND	1.26	-84.1	2.99	ND	8.02	0.8	3.96	7.11	0.01	0%	0%	2%	8%	90%
	4/13/2022	1,541	545	-196	--	**0.13**	**0.26**	**0.92**	ND	**1.7**	ND	0.50	111.2	2.45	ND	3.94	1.0	2.18	6.85	0.02	0%	1%	3%	19%	77%
	1/24/2023	1,827	831	90	--	ND	**0.08**	ND	ND	**2.16**	ND	0.33	-202.7	1.44	ND	5.95	0.0	2.74	8.04	0.00	0%	0%	1%	0%	99%
	7/11/2023	1,995	999	258	--	ND	**0.10**	**0.24**	ND	**10.4**	ND	0.38	-90.2	6.49	ND	0.647	3.0	2.98	6.91	0.00	0%	0%	0%	1%	99%

Abbreviations & Acronyms:

ARAR = applicable or relevant and appropriate requirement
B&K = Beckwith & Kuffel
cDCE = *cis* -1,2-dichloroethene
DO = dissolved oxygen
µg/L = micrograms per liter
µmoles/L = micromoles per liter
mg/L = milligrams per liter
mV = millivolts
MTCA = Model Toxics Control Act
ORP = oxidation-reduction potential
PCE = perchloroethene
TCE = trichloroethene
TOC = total organic carbon
UIC = Underground Injection Control program
VC = vinyl chloride
WAC = Washington Administrative Code
WDG = Wooldridge

Notes:

[a]Lowest applicable cleanup level or ARAR was selected.
[b]The lowest of the MTCA Method C cleanup levels and ARARs is 5 µg/L. The acute vapor intrusion screening level for TCE is 31 µg/L.
[c]Washington State Water Quality Criteria (WAC 173-200-040). Must be met per UIC Registration, February 25, 2020 (Site No. 33669).
[d]pH measurements not considered usable.
-- = not analyzed or not measured
ND = not detected
NA = not analyzed
R = The data are unusable. The sample results are rejected due to serious deficiencies in meeting quality control criteria. The analyte may or may not be present in the sample.
Bold = detection
= exceeds the acute vapor intrusion screening level for TCE (see note b).
= exceeds applicable cleanup criteria
= methane concentration > 1 mg/L
= TOC concentration > 10 mg/L
= dominant molar fraction

Source Excavation	11/21/2013

Injection Dates:

Fluid Injection	1/23/2018	LactOil injected to MW-7 in former excavation backfill
Wooldridge Direct-Push Injection	10/15/2020	EHC and Lactoil injected to 36 borings in NE corner of Wooldridge property and onto Sea Mar property
Site-wide Direct-Push Injection	10/26/2022	EHC and Newman Zone EVO injected to 68 borings located in NE corner of Wooldridge property, onto Sea Mar property, and on B&K property

ATTACHMENT 1

Laboratory Analytical Data Reports

Analytical Resources, LLC
Analytical Chemists and Consultants

17 February 2023

Clint Jacob
Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

RE: Beckwith and Kuffle (January 2023 GW Monitoring)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
23A0520	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

T.C.S 1/23/23
23A0250 23A0520

LANDAU ASSOCIATES

Chain-of-Custody Record

☒ North Seattle (206) 631-8660 ☐ Spokane (509) 327-9737
☐ Tacoma (253) 926-2493 ☐ Portland (503) 542-1080
☐ Olympia (360) 791-3178 ☐ _____

Date 1/24/23
Page 1 of 1

Turnaround Time:
Standard X
Accelerated _____

Project Name Beckwith & Kuffel Project No. 164500I.040.044
Project Location/Event Seattle, WA / January 2023 GW Monitoring
Sampler's Name Kalpana Prasad and Adam Torocsik
Project Contact Clint Jacob
Send Results To C. Jacob, data@landauinc.com

Special Handling Requirements: _____
Shipment Method: Drop off
Stored on ice: (Yes) No
3.8, 3.6, 3.1°C

Sample I.D.	Date	Time	Matrix	No. of Containers	TCE, cDCE, VC (8260D)**	Sulfate (300.0)*	Nitrate (300.0)*	TOC (SM5310)	AMEE (RSK-175) MS/MSD	Observations/Comments
DUP1-230124	1/24/23	800	AQ	6***	X	X	X	X	X	
MW-12-230124		904		7	X	X	X	X	X	
MW-13-230124		954		7	X	X	X	X	X	
MW-11-230124		1054		21	X	X	X	X	X	X
MW-10-230124		1108		7	X	X	X	X	X	
MW-6-230124		1228		7	X	X	X	X	X	
MW-7-230124		1234		7	X	X	X	X	X	
MW-8-230124		1328		7	X	X	X	X	X	
MW-9-230124		1334		7	X	X	X	X	X	
SM-MW-18-230124		1444		7	X	X	X	X	X	
SM-MW-17A-230124		1448		7	X	X	X	X	X	
SM-MW-8-230124		1524		7	X	X	X	X	X	
SM-MW-21-230124		1528		7	X	X	X	X	X	
Trip Blanks	—	—		2	X					

KVP 1/24

Testing Parameters

___ Allow water samples to settle, collect aliquot from clear portion ☐

___ NWTPH-Dx - Acid wash cleanup ☐
- Silica gel cleanup ☐

___ Dissolved metal samples were field filtered

Other * 48 hr. hold time on Nitrate

** VOAs with HCl

*** Missing 1,40mL VOA, Run 3 VOAs for VOCs, 1 for AMEE
KVP 1/24

3 Coolers

Relinquished by	Received by	Relinquished by	Received by
Signature [redacted]	Signature Phillip	Signature	Signature
Printed Name Kalpana Prasad	Printed Name Phillip Bates	Printed Name	Printed Name
Company LAI	Company AR	Company	Company
Date 1/24/23 Time 1642	Date 1/24/23 Time 1642	Date Time	Date Time

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Re

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DUP1-230124	23A0520-01	Water	24-Jan-2023 08:00	24-Jan-2023 16:42
MW-12-230124	23A0520-02	Water	24-Jan-2023 09:04	24-Jan-2023 16:42
MW-13-230124	23A0520-03	Water	24-Jan-2023 09:54	24-Jan-2023 16:42
MW-11-230124	23A0520-04	Water	24-Jan-2023 10:54	24-Jan-2023 16:42
MW-10-230124	23A0520-05	Water	24-Jan-2023 11:08	24-Jan-2023 16:42
MW-6-230124	23A0520-06	Water	24-Jan-2023 12:28	24-Jan-2023 16:42
MW-7-230124	23A0520-07	Water	24-Jan-2023 12:34	24-Jan-2023 16:42
MW-8-230124	23A0520-08	Water	24-Jan-2023 13:28	24-Jan-2023 16:42
MW-9-230124	23A0520-09	Water	24-Jan-2023 13:34	24-Jan-2023 16:42
SM-MW-18-230124	23A0520-10	Water	24-Jan-2023 14:44	24-Jan-2023 16:42
SM-MW-17A-230124	23A0520-11	Water	24-Jan-2023 14:48	24-Jan-2023 16:42
SM-MW-8-230124	23A0520-12	Water	24-Jan-2023 15:24	24-Jan-2023 16:42
SM-MW-21-230124	23A0520-13	Water	24-Jan-2023 15:28	24-Jan-2023 16:42
Trip Blanks	23A0520-14	Water	24-Jan-2023 08:00	24-Jan-2023 16:42

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Work Order Case Narrative

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits with the exception of alaytes flagged on the associated forms.

Volatile Gases - MEE by RSK175

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements with the exception of CCV1 and CCV2 for ethane and ethene which were out of control high. Samples 23A0520-01, -02, -04, -06, -07, -08, -10, - 11, -13 were re-analyzed as the samples had detections for one or both of those analytes for SLA0292.

All samples were reanalyzed due to high CCVs in the original run SLA0292. The instrument was recalibrated. Unfortunately, CCV1 and CCV2 were high again for ethane and ethene in the sample re-analysis of SLA0296. Opening QC was in control. The sample results were consistent with the original analyses. Both sets of data were reported.

The surrogate percent recoveries were within control limits with the exception of surrogates flagged on the associated forms.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

Wet Chemistry

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Landau Seattle Project Name: Beckwith & Kuffel

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 23A0520 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 16:42 3.8 3.6 3.1 ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: TO097098

Cooler Accepted by: PIB Date: 1/24/23 Time: 16:42

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?			YES (NO)
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
How were bottles sealed in plastic bags?	Individually	Grouped	(Not)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	(YES)	NO
Were all VOC vials free of air bubbles?	NA T.S. 1/25/23	(YES)	(NO)
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	NA	1/20/23	

Were the sample(s) split by ARI? (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: [signature] Date: 01/25/23 Time: 8:44 Labels checked by: TCS

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

O1C No Sample Volume

O8B bubbles Present, too to determine size

By: [signature] Date: 01/25/23

WORK ORDER

23A0520

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Landau Associates, Inc. **Project Manager:** Kelly Bottem

Project: Beckwith and Kuffle **Project Number:** January 2023 GW Monitoring

Preservation Confirmation

Container ID	Container Type	pH
23A0520-01 A	VOA Vial, Clear, 40 mL, HCL	
23A0520-01 B	VOA Vial, Clear, 40 mL, HCL	
23A0520-01 C	VOA Vial, Clear, 40 mL, HCL	
23A0520-01 D	VOA Vial, Clear, 40 mL, HCL	
23A0520-01 E	VOA Vial, Clear, 40 mL, HCL	
23A0520-01 F	HDPE NM, 500 mL	
23A0520-01 G	Glass NM, Amber, 250 mL, 9N H2SO4	<2 P
23A0520-02 A	VOA Vial, Clear, 40 mL, HCL	
23A0520-02 B	VOA Vial, Clear, 40 mL, HCL	
23A0520-02 C	VOA Vial, Clear, 40 mL, HCL	
23A0520-02 D	VOA Vial, Clear, 40 mL, HCL	
23A0520-02 E	VOA Vial, Clear, 40 mL, HCL	
23A0520-02 F	HDPE NM, 500 mL	
23A0520-02 G	Glass NM, Amber, 250 mL, 9N H2SO4	<2 P
23A0520-03 A	VOA Vial, Clear, 40 mL, HCL	
23A0520-03 B	VOA Vial, Clear, 40 mL, HCL	
23A0520-03 C	VOA Vial, Clear, 40 mL, HCL	
23A0520-03 D	VOA Vial, Clear, 40 mL, HCL	
23A0520-03 E	VOA Vial, Clear, 40 mL, HCL	
23A0520-03 F	HDPE NM, 500 mL	
23A0520-03 G	Glass NM, Amber, 250 mL, 9N H2SO4	<2 P
23A0520-04 A	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 B	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 C	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 D	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 E	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 F	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 G	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 H	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 I	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 J	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 K	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 L	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 M	VOA Vial, Clear, 40 mL, HCL	

Reviewed By Date

WORK ORDER

23A0520

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Landau Associates, Inc. **Project Manager:** Kelly Bottem

Project: Beckwith and Kuffle **Project Number:** January 2023 GW Monitoring

23A0520-04 N	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 O	VOA Vial, Clear, 40 mL, HCL	
23A0520-04 P	HDPE NM, 500 mL	
23A0520-04 Q	HDPE NM, 500 mL	
23A0520-04 R	HDPE NM, 500 mL	
23A0520-04 S	Glass NM, Amber, 250 mL, 9N H2SO4	<2 p
23A0520-04 T	Glass NM, Amber, 250 mL, 9N H2SO4	<2 p
23A0520-04 U	Glass NM, Amber, 250 mL, 9N H2SO4	<2 p
23A0520-05 A	VOA Vial, Clear, 40 mL, HCL	
23A0520-05 B	VOA Vial, Clear, 40 mL, HCL	
23A0520-05 C	VOA Vial, Clear, 40 mL, HCL	
23A0520-05 D	VOA Vial, Clear, 40 mL, HCL	
23A0520-05 E	VOA Vial, Clear, 40 mL, HCL	
23A0520-05 F	HDPE NM, 500 mL	
23A0520-05 G	Glass NM, Amber, 250 mL, 9N H2SO4	<2 p
23A0520-06 A	VOA Vial, Clear, 40 mL, HCL	
23A0520-06 B	VOA Vial, Clear, 40 mL, HCL	
23A0520-06 C	VOA Vial, Clear, 40 mL, HCL	
23A0520-06 D	VOA Vial, Clear, 40 mL, HCL	
23A0520-06 E	VOA Vial, Clear, 40 mL, HCL	
23A0520-06 F	HDPE NM, 500 mL	
23A0520-06 G	Glass NM, Amber, 250 mL, 9N H2SO4	<2 p
23A0520-07 A	VOA Vial, Clear, 40 mL, HCL	
23A0520-07 B	VOA Vial, Clear, 40 mL, HCL	
23A0520-07 C	VOA Vial, Clear, 40 mL, HCL	
23A0520-07 D	VOA Vial, Clear, 40 mL, HCL	
23A0520-07 E	VOA Vial, Clear, 40 mL, HCL	
23A0520-07 F	HDPE NM, 500 mL	
23A0520-07 G	Glass NM, Amber, 250 mL, 9N H2SO4	<2 p
23A0520-08 A	VOA Vial, Clear, 40 mL, HCL	
23A0520-08 B	VOA Vial, Clear, 40 mL, HCL	
23A0520-08 C	VOA Vial, Clear, 40 mL, HCL	
23A0520-08 D	VOA Vial, Clear, 40 mL, HCL	
23A0520-08 E	VOA Vial, Clear, 40 mL, HCL	
23A0520-08 F	HDPE NM, 500 mL	
23A0520-08 G	Glass NM, Amber, 250 mL, 9N H2SO4	<2 p

Reviewed By Date

WORK ORDER

23A0520

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Landau Associates, Inc. **Projeet Manager: Kelly Bottem**

Project: Beckwith and Kuffle **Project Number: January 2023 GW Monitoring**

23A0520-09 A	VOA Vial, Clear, 40 mL, HCL	
23A0520-09 B	VOA Vial, Clear, 40 mL, HCL	
23A0520-09 C	VOA Vial, Clear, 40 mL, HCL	
23A0520-09 D	VOA Vial, Clear, 40 mL, HCL	
23A0520-09 E	VOA Vial, Clear, 40 mL, HCL	
23A0520-09 F	HDPE NM, 500 mL	
23A0520-09 G	Glass NM, Amber, 250 mL, 9N H2SO4	C2 P
23A0520-10 A	VOA Vial, Clear, 40 mL, HCL	
23A0520-10 B	VOA Vial, Clear, 40 mL, HCL	
23A0520-10 C	VOA Vial, Clear, 40 mL, HCL	
23A0520-10 D	VOA Vial, Clear, 40 mL, HCL	
23A0520-10 E	VOA Vial, Clear, 40 mL, HCL	
23A0520-10 F	HDPE NM, 500 mL	
23A0520-10 G	Glass NM, Amber, 250 mL, 9N H2SO4	C2 P
23A0520-11 A	VOA Vial, Clear, 40 mL, HCL	
23A0520-11 B	VOA Vial, Clear, 40 mL, HCL	
23A0520-11 C	VOA Vial, Clear, 40 mL, HCL	
23A0520-11 D	VOA Vial, Clear, 40 mL, HCL	
23A0520-11 E	VOA Vial, Clear, 40 mL, HCL	
23A0520-11 F	HDPE NM, 500 mL	
23A0520-11 G	Glass NM, Amber, 250 mL, 9N H2SO4	C2 P
23A0520-12 A	VOA Vial, Clear, 40 mL, HCL	
23A0520-12 B	VOA Vial, Clear, 40 mL, HCL	
23A0520-12 C	VOA Vial, Clear, 40 mL, HCL	
23A0520-12 D	VOA Vial, Clear, 40 mL, HCL	
23A0520-12 E	VOA Vial, Clear, 40 mL, HCL	
23A0520-12 F	HDPE NM, 500 mL	
23A0520-12 G	Glass NM, Amber, 250 mL, 9N H2SO4	C2 P
23A0520-13 A	VOA Vial, Clear, 40 mL, HCL	
23A0520-13 B	VOA Vial, Clear, 40 mL, HCL	
23A0520-13 C	VOA Vial, Clear, 40 mL, HCL	
23A0520-13 D	VOA Vial, Clear, 40 mL, HCL	
23A0520-13 E	VOA Vial, Clear, 40 mL, HCL	
23A0520-13 F	HDPE NM, 500 mL	
23A0520-13 G	Glass NM, Amber, 250 mL, 9N H2SO4	C2 P
23A0520-14 A	VOA Vial, Clear, 40 mL, HCL	

Reviewed By Date

WORK ORDER

23A0520

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Landau Associates, Inc. **Project Manager: Kelly Bottem**

Project: Beckwith and Kuffle **Project Number: January 2023 GW Monitoring**

23A0520-14 B VOA Vial, Clear, 40 mL, HCL

Preservation Confirmed By

01/25/23
Date

Reviewed By

Date

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

DUP1-230124

23A0520-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 08:00
Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 13:42

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-01 D
Preparation Batch: BLA0602 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	6.71	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	83.1	ug/L	E
Trichloroethene	79-01-6	1	0.07	0.20	90.1	ug/L	E
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*95.3*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.6*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

DUP1-230124

23A0520-01 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 08:00
Instrument: FID6 Analyst: LH — Analyzed: 01/25/2023 11:51

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-01 A
Preparation Batch: BLA0599 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	10500	ug/L	
Ethane	74-84-0	1	1.23	3.84	ug/L	
Ethene	74-85-1	1	1.14	9.89	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*69.4*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

DUP1-230124

23A0520-01 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 08:00
Instrument: IC930 Analyst: KLD — Analyzed: 01/25/2023 19:59

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-01 F
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

DUP1-230124

23A0520-01 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/24/2023 08:00
Instrument: TOC-LCSH Analyst: RMS — Analyzed: 02/07/2023 06:41

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-01 G
Preparation Batch: BLB0138 — Sample Size: 20 mL
Prepared: 02/06/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	30.36	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

DUP1-230124

23A0520-01RE1 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 08:00
Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 19:02

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-01RE1 B
Preparation Batch: BLA0602 — Sample Size: 2 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.41	1.00	4.87	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.41	1.00	61.8	ug/L	
Trichloroethene	79-01-6	1	0.35	1.00	64.1	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*101*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.4*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

DUP1-230124

23A0520-01RE1 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 08:00
Instrument: FID6 Analyst: LH — Analyzed: 01/26/2023 13:39

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-01RE1 E
Preparation Batch: BLA0616 — Sample Size: 10 mL
Prepared: 01/26/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	10300	ug/L	
Ethane	74-84-0	1	1.23	4.65	ug/L	
Ethene	74-85-1	1	1.14	10.9	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*71.0*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

DUP1-230124

23A0520-01RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 08:00
Instrument: IC930 Analyst: KLD — Analyzed: 02/15/2023 08:43

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-01RE1 F
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	20	2.00	2.00	22.6	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-12-230124

23A0520-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 09:04
Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 14:04

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-02 C
Preparation Batch: BLA0602 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	0.49	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	46.4	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	31.5	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*98.5*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.5*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-12-230124

23A0520-02 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 09:04
Instrument: FID6 Analyst: LH — Analyzed: 01/25/2023 12:09

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-02 A
Preparation Batch: BLA0599 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	6460	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	5.07	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*69.7*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-12-230124

23A0520-02 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 09:04
Instrument: IC930 Analyst: KLD — Analyzed: 01/25/2023 20:19

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-02 F
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	7.69	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-12-230124

23A0520-02 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/24/2023 09:04
Instrument: TOC-LCSH Analyst: RMS — Analyzed: 02/07/2023 08:05

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-02 G
Preparation Batch: BLB0138 — Sample Size: 20 mL
Prepared: 02/06/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		50	25.00	25.00	1770	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-12-230124

23A0520-02RE1 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 09:04
Instrument: FID6 Analyst: LH — Analyzed: 01/26/2023 13:57

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-02RE1 B
Preparation Batch: BLA0616 — Sample Size: 10 mL
Prepared: 01/26/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	5670	ug/L	
Ethane	74-84-0	1	1.23	1.66	ug/L	
Ethene	74-85-1	1	1.14	5.16	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*64.9*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-13-230124

23A0520-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 09:54
Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 14:26

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-03 C
Preparation Batch: BLA0602 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*92.8*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.3*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-13-230124

23A0520-03 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 09:54
Instrument: FID6 Analyst: LH — Analyzed: 01/25/2023 12:27

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-03 A
Preparation Batch: BLA0599 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	206	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*71.2*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-13-230124

23A0520-03 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 09:54
Instrument: IC930 Analyst: KLD — Analyzed: 01/25/2023 20:39

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-03 F
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-13-230124

23A0520-03 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/24/2023 09:54

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 02/07/2023 08:33

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-03 G

Preparation Batch: BLB0138 — Sample Size: 20 mL

Prepared: 02/06/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	4.61	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-13-230124

23A0520-03RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 09:54
Instrument: IC930 Analyst: KLD — Analyzed: 02/15/2023 10:03

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-03RE1 F
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	50	5.00	5.00	246	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-11-230124

23A0520-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 10:54
Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 14:51

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-04 F
Preparation Batch: BLA0602 — Sample Size: 2 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.41	1.00	0.99	ug/L	J
cis-1,2-Dichloroethene	156-59-2	1	0.41	1.00	336	ug/L	
Trichloroethene	79-01-6	1	0.35	1.00	70.0	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*101*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.4*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-11-230124

23A0520-04 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 10:54
Instrument: FID6 Analyst: LH — Analyzed: 01/25/2023 12:45

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-04 A
Preparation Batch: BLA0599 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	6110	ug/L	
Ethane	74-84-0	1	1.23	14.0	ug/L	
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*66.8*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-11-230124

23A0520-04 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 10:54
Instrument: IC930 Analyst: KLD — Analyzed: 01/25/2023 21:59

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-04 P
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-11-230124

23A0520-04 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/24/2023 10:54
Instrument: TOC-LCSH Analyst: RMS — Analyzed: 02/07/2023 08:52

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-04 S
Preparation Batch: BLB0138 — Sample Size: 20 mL
Prepared: 02/06/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	6.47	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-11-230124

23A0520-04RE1 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 10:54
Instrument: FID6 Analyst: LH — Analyzed: 01/26/2023 14:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-04RE1 G
Preparation Batch: BLA0616 — Sample Size: 10 mL
Prepared: 01/26/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	5750	ug/L	
Ethane	74-84-0	1	1.23	14.2	ug/L	
Ethene	74-85-1	1	1.14	1.44	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*64.8*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-11-230124

23A0520-04RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 10:54
Instrument: IC930 Analyst: KLD — Analyzed: 02/15/2023 10:23

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-04RE1 P
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	50	5.00	5.00	108	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-10-230124

23A0520-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 11:08
Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 15:13

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-05 A
Preparation Batch: BLA0602 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	0.24	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	0.10	ug/L	J
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*93.0*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.0*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-10-230124

23A0520-05 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 11:08
Instrument: FID6 Analyst: LH — Analyzed: 01/25/2023 13:21

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-05 B
Preparation Batch: BLA0599 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	30.2	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*88.1*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-10-230124

23A0520-05 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 11:08
Instrument: IC930 Analyst: KLD — Analyzed: 01/25/2023 23:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-05 F
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-10-230124

23A0520-05 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/24/2023 11:08
Instrument: TOC-LCSH Analyst: RMS — Analyzed: 02/07/2023 10:17

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-05 G
Preparation Batch: BLB0138 — Sample Size: 20 mL
Prepared: 02/06/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.60	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-10-230124

23A0520-05RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 11:08

Instrument: IC930 Analyst: KLD — Analyzed: 02/15/2023 11:43

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-05RE1 F

Preparation Batch: BLA0609 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	50	5.00	5.00	59.9	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-6-230124

23A0520-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 12:28
Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 15:35

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-06 C
Preparation Batch: BLA0602 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	1.47	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	16.6	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*94.4*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.8*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-6-230124

23A0520-06 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 12:28
Instrument: FID6 Analyst: LH — Analyzed: 01/25/2023 13:39

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-06 A
Preparation Batch: BLA0599 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	179	ug/L	
Ethane	74-84-0	1	1.23	1.39	ug/L	
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*91.2*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-6-230124

23A0520-06 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 12:28
Instrument: IC930 Analyst: KLD — Analyzed: 01/25/2023 23:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-06 F
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-6-230124

23A0520-06 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/24/2023 12:28
Instrument: TOC-LCSH Analyst: RMS — Analyzed: 02/07/2023 10:36

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-06 G
Preparation Batch: BLB0138 — Sample Size: 20 mL
Prepared: 02/06/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	3.54	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-6-230124

23A0520-06RE1 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 12:28
Instrument: FID6 Analyst: LH — Analyzed: 01/26/2023 14:51

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-06RE1 B
Preparation Batch: BLA0616 — Sample Size: 10 mL
Prepared: 01/26/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	175	ug/L	
Ethane	74-84-0	1	1.23	1.84	ug/L	
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*89.2*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-6-230124

23A0520-06RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 12:28

Instrument: IC930 Analyst: KLD — Analyzed: 02/15/2023 12:03

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-06RE1 F

Preparation Batch: BLA0609 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	20	2.00	2.00	30.7	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-7-230124

23A0520-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 12:34
Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 15:57

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-07 C
Preparation Batch: BLA0602 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	3.18	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	8.60	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	0.65	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*90.0*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.8*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-7-230124

23A0520-07 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 12:34
Instrument: FID6 Analyst: LH — Analyzed: 01/25/2023 13:57

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-07 A
Preparation Batch: BLA0599 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	11900	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*53.0*	*%*	*

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-7-230124

23A0520-07 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 12:34
Instrument: IC930 Analyst: KLD — Analyzed: 01/26/2023 00:00

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-07 F
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	0.391	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-7-230124

23A0520-07 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/24/2023 12:34
Instrument: TOC-LCSH Analyst: RMS — Analyzed: 02/07/2023 11:09

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-07 G
Preparation Batch: BLB0138 — Sample Size: 20 mL
Prepared: 02/06/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		13.68	6.84	6.84	625.2	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-7-230124

23A0520-07RE1 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 12:34
Instrument: FID6 Analyst: LH — Analyzed: 01/26/2023 15:09

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-07RE1 B
Preparation Batch: BLA0616 — Sample Size: 10 mL
Prepared: 01/26/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	12800	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*65.5*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-8-230124

23A0520-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 13:28
Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 16:22

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-08 D
Preparation Batch: BLA0602 — Sample Size: 2 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.41	1.00	6.84	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.41	1.00	83.8	ug/L	
Trichloroethene	79-01-6	1	0.35	1.00	83.5	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.0*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-8-230124

23A0520-08 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 13:28
Instrument: FID6 Analyst: LH — Analyzed: 01/25/2023 14:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-08 A
Preparation Batch: BLA0599 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	12500	ug/L	
Ethane	74-84-0	1	1.23	4.22	ug/L	
Ethene	74-85-1	1	1.14	11.6	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*72.3*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-8-230124

23A0520-08 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 13:28
Instrument: IC930 Analyst: KLD — Analyzed: 01/26/2023 00:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-08 F
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-8-230124

23A0520-08 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/24/2023 13:28
Instrument: TOC-LCSH Analyst: RMS — Analyzed: 02/07/2023 11:30

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-08 G
Preparation Batch: BLB0138 — Sample Size: 20 mL
Prepared: 02/06/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	29.58	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-8-230124

23A0520-08RE1 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 13:28
Instrument: FID6 Analyst: LH — Analyzed: 01/26/2023 15:27

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-08RE1 E
Preparation Batch: BLA0616 — Sample Size: 10 mL
Prepared: 01/26/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	12200	ug/L	
Ethane	74-84-0	1	1.23	4.54	ug/L	
Ethene	74-85-1	1	1.14	12.7	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*74.9*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-8-230124

23A0520-08RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 13:28
Instrument: IC930 Analyst: KLD — Analyzed: 02/15/2023 12:23

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-08RE1 F
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	20	2.00	2.00	22.9	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-9-230124

23A0520-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 13:34
Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 16:44

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-09 C
Preparation Batch: BLA0602 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	0.25	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	17.7	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	9.55	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*100*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.3*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-9-230124

23A0520-09 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 13:34
Instrument: FID6 Analyst: LH — Analyzed: 01/25/2023 14:33

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-09 A
Preparation Batch: BLA0599 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	18400	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*103*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-9-230124

23A0520-09 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 13:34
Instrument: IC930 Analyst: KLD — Analyzed: 01/26/2023 00:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-09 F
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-9-230124

23A0520-09 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/24/2023 13:34

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 02/07/2023 12:34

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-09 G

Preparation Batch: BLB0138 — Sample Size: 20 mL

Prepared: 02/06/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	10.17	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

MW-9-230124

23A0520-09RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 13:34
Instrument: IC930 Analyst: KLD — Analyzed: 02/15/2023 12:43

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-09RE1 F
Preparation Batch: BLA0609 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	10	1.00	1.00	13.4	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-18-230124

23A0520-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 14:44

Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 17:06

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-10 B

Preparation Batch: BLA0602 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	2.35	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	3.72	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*98.6*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.9*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-18-230124

23A0520-10 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 14:44

Instrument: FID6 Analyst: LH — Analyzed: 01/25/2023 15:09

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-10 A

Preparation Batch: BLA0599 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	2350	ug/L	
Ethane	74-84-0	1	1.23	9.74	ug/L	
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*158*	*%*	*

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-18-230124

23A0520-10 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 14:44

Instrument: IC930 Analyst: KLD — Analyzed: 01/26/2023 01:00

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-10 F

Preparation Batch: BLA0609 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	0.116	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-18-230124

23A0520-10 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/24/2023 14:44

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 02/07/2023 13:01

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-10 G

Preparation Batch: BLB0138 — Sample Size: 20 mL

Prepared: 02/06/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.26	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-18-230124

23A0520-10RE1 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 14:44

Instrument: FID6 Analyst: LH — Analyzed: 02/01/2023 09:07

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-10RE1 D

Preparation Batch: BLB0013 — Sample Size: 10 mL

Prepared: 02/01/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	969	ug/L	
Ethane	74-84-0	1	1.23	6.01	ug/L	
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*97.8*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-18-230124

23A0520-10RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 14:44

Instrument: IC930 Analyst: KLD — Analyzed: 02/15/2023 13:03

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-10RE1 F

Preparation Batch: BLA0609 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	100	10.0	10.0	178	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-17A-230124

23A0520-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 14:48

Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 17:28

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-11 C

Preparation Batch: BLA0602 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	0.08	ug/L	J
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*98.8*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*94.6*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-17A-230124

23A0520-11 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 14:48

Instrument: FID6 Analyst: LH — Analyzed: 01/25/2023 15:27

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-11 A

Preparation Batch: BLA0599 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	1630	ug/L	
Ethane	74-84-0	1	1.23	2.16	ug/L	
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*91.4*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-17A-230124

23A0520-11 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 14:48

Instrument: IC930 Analyst: KLD — Analyzed: 01/26/2023 02:20

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-11 F

Preparation Batch: BLA0609 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	5.95	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-17A-230124

23A0520-11 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/24/2023 14:48

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 02/07/2023 13:19

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-11 G

Preparation Batch: BLB0138 — Sample Size: 20 mL

Prepared: 02/06/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.74	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-17A-230124

23A0520-11RE1 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 14:48
Instrument: FID6 Analyst: LH — Analyzed: 01/26/2023 16:03

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-11RE1 B
Preparation Batch: BLA0616 — Sample Size: 10 mL
Prepared: 01/26/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	1440	ug/L	
Ethane	74-84-0	1	1.23	2.16	ug/L	
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*91.4*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-8-230124

23A0520-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 15:24

Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 17:50

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-12 C

Preparation Batch: BLA0602 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	6.07	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	31.9	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*95.6*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.0*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-8-230124

23A0520-12 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 15:24
Instrument: FID6 Analyst: LH — Analyzed: 01/25/2023 15:45

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-12 A
Preparation Batch: BLA0599 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	12.8	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*96.5*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-8-230124

23A0520-12 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 15:24

Instrument: IC930 Analyst: KLD — Analyzed: 01/26/2023 02:40

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-12 F

Preparation Batch: BLA0609 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	0.404	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-8-230124

23A0520-12 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/24/2023 15:24

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 02/07/2023 13:45

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-12 G

Preparation Batch: BLB0138 — Sample Size: 20 mL

Prepared: 02/06/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.29	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-8-230124

23A0520-12RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 15:24

Instrument: IC930 Analyst: KLD — Analyzed: 02/15/2023 14:23

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-12RE1 F

Preparation Batch: BLA0609 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	50	5.00	5.00	146	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-21-230124

23A0520-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 15:28

Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 18:15

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-13 C

Preparation Batch: BLA0602 — Sample Size: 2 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.41	1.00	6.80	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.41	1.00	75.8	ug/L	
Trichloroethene	79-01-6	1	0.35	1.00	20.7	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.0*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-21-230124

23A0520-13 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 15:28

Instrument: FID6 Analyst: LH — Analyzed: 01/25/2023 16:03

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-13 A

Preparation Batch: BLA0599 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	16500	ug/L	
Ethane	74-84-0	1	1.23	2.75	ug/L	
Ethene	74-85-1	1	1.14	4.71	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*70.6*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-21-230124

23A0520-13 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 15:28

Instrument: IC930 Analyst: KLD — Analyzed: 01/26/2023 03:00

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-13 F

Preparation Batch: BLA0609 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-21-230124

23A0520-13 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 01/24/2023 15:28

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 02/07/2023 14:08

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-13 G

Preparation Batch: BLB0138 — Sample Size: 20 mL

Prepared: 02/06/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	45.43	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-21-230124

23A0520-13RE1 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 01/24/2023 15:28

Instrument: FID6 Analyst: LH — Analyzed: 02/01/2023 09:25

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-13RE1 E

Preparation Batch: BLB0013 — Sample Size: 10 mL

Prepared: 02/01/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	14100	ug/L	
Ethane	74-84-0	1	1.23	3.05	ug/L	
Ethene	74-85-1	1	1.14	4.88	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*78.8*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

SM-MW-21-230124

23A0520-13RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 01/24/2023 15:28

Instrument: IC930 Analyst: KLD — Analyzed: 02/15/2023 14:43

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23A0520-13RE1 F

Preparation Batch: BLA0609 — Sample Size: 10 mL

Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	10	1.00	1.00	27.8	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Trip Blanks

23A0520-14 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 01/24/2023 08:00
Instrument: NT3 Analyst: PKC — Analyzed: 01/25/2023 12:33

Analysis by: Analytical Resources, LLC

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23A0520-14 A
Preparation Batch: BLA0602 — Sample Size: 10 mL
Prepared: 01/25/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*94.0*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.5*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BLA0602 - EPA 8260D

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLA0602-BLK1)					Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 12:11						
Vinyl Chloride	ND	0.08	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.68			ug/L	*5.00*		*93.7*	*80-129*			
Surrogate: Toluene-d8	4.80			ug/L	*5.00*		*96.0*	*80-120*			
LCS (BLA0602-BS1)					Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 10:42						
Vinyl Chloride	9.33	0.08	0.20	ug/L	10.0		93.3	66-133			
cis-1,2-Dichloroethene	9.43	0.08	0.20	ug/L	10.0		94.3	80-121			
Trichloroethene	9.83	0.07	0.20	ug/L	10.0		98.3	80-120			
Surrogate: 1,2-Dichloroethane-d4	4.95			ug/L	*5.00*		*99.1*	*80-129*			
Surrogate: Toluene-d8	4.87			ug/L	*5.00*		*97.4*	*80-120*			
LCS Dup (BLA0602-BSD1)					Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 11:27						
Vinyl Chloride	9.06	0.08	0.20	ug/L	10.0		90.6	66-133	3.02	30	
cis-1,2-Dichloroethene	9.16	0.08	0.20	ug/L	10.0		91.6	80-121	2.91	30	
Trichloroethene	9.61	0.07	0.20	ug/L	10.0		96.1	80-120	2.32	30	
Surrogate: 1,2-Dichloroethane-d4	4.81			ug/L	*5.00*		*96.2*	*80-129*			
Surrogate: Toluene-d8	4.97			ug/L	*5.00*		*99.5*	*80-120*			
Matrix Spike (BLA0602-MS1)		**Source: 23A0520-04**			Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 19:24						
Vinyl Chloride	41.6	0.41	1.00	ug/L	50.0	0.99	81.3	66-133			
cis-1,2-Dichloroethene	379	0.41	1.00	ug/L	50.0	336	85.5	80-121			
Trichloroethene	116	0.35	1.00	ug/L	50.0	70.0	91.2	80-120			
Surrogate: 1,2-Dichloroethane-d4	24.6			ug/L	*25.0*	*25.2*	*98.3*	*80-129*			
Surrogate: Toluene-d8	24.4			ug/L	*25.0*	*24.1*	*97.8*	*80-120*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BLA0602-MSD1)		**Source: 23A0520-04**			Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 19:46						
Vinyl Chloride	44.6	0.41	1.00	ug/L	50.0	0.99	87.2	66-133	6.91	30	
cis-1,2-Dichloroethene	408	0.41	1.00	ug/L	50.0	336	144	80-121	7.39	30	*, E
Trichloroethene	125	0.35	1.00	ug/L	50.0	70.0	110	80-120	7.88	30	
Surrogate: 1,2-Dichloroethane-d4	24.2			ug/L	*25.0*	*25.2*	*96.6*	*80-129*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BLA0602 - EPA 8260D

Instrument: NT3 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BLA0602-MSD1)	**Source: 23A0520-04**			Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 19:46							
Surrogate: Toluene-d8	23.9			ug/L	*25.0*	*24.1*	*95.7*	*80-120*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BLA0599 - EPA RSK-175

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLA0599-BLK1)				Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 11:19						
Methane	ND	0.65	ug/L							U
Ethane	ND	1.23	ug/L							U
Ethene	ND	1.14	ug/L							U
Acetylene	ND	1.06	ug/L							U
Surrogate: Propane	1650		ug/L	*1800*		*91.7*	*62-122*			
LCS (BLA0599-BS1)				Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 10:43						
Methane	644	0.65	ug/L	656		98.1	80-120			
Ethane	1250	1.23	ug/L	1230		101	80-120			
Ethene	1190	1.14	ug/L	1150		103	80-120			
Acetylene	996	1.06	ug/L	1060		93.9	73-123			
Surrogate: Propane	1710		ug/L	*1800*		*95.1*	*62-122*			
LCS Dup (BLA0599-BSD1)				Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 11:01						
Methane	562	0.65	ug/L	656		85.7	80-120	13.60	30	
Ethane	1060	1.23	ug/L	1230		86.4	80-120	15.80	30	
Ethene	1030	1.14	ug/L	1150		89.2	80-120	14.80	30	
Acetylene	852	1.06	ug/L	1060		80.3	73-123	15.60	30	
Surrogate: Propane	1500		ug/L	*1800*		*83.6*	*62-122*			
Duplicate (BLA0599-DUP1)	**Source: 23A0520-04**			Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 13:03						
Methane	5720	0.65	ug/L		6110			6.68	30	
Ethane	13.2	1.23	ug/L		14.0			5.70	30	
Ethene	ND	1.14	ug/L		ND					U
Acetylene	ND	1.06	ug/L		ND					U
Surrogate: Propane	1010		ug/L	*1800*	*1200*	*56.1*	*62-122*			*
Duplicate (BLA0599-DUP2)	**Source: 23A0520-13**			Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 16:21						
Methane	17000	0.65	ug/L		16500			2.99	30	
Ethane	2.92	1.23	ug/L		2.75			5.76	30	
Ethene	4.99	1.14	ug/L		4.71			5.94	30	
Acetylene	ND	1.06	ug/L		ND					U
Surrogate: Propane	1230		ug/L	*1800*	*1270*	*68.5*	*62-122*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BLA0599 - EPA RSK-175

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike (BLA0599-MS1)	**Source: 23A0520-04**		Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 16:39							
Methane	7940	0.65	ug/L	656	6110	278	80-120			*
Ethane	896	1.23	ug/L	1230	14.0	71.7	80-120			*
Ethene	830	1.14	ug/L	1150	ND	72.1	80-120			*
Acetylene	714	1.06	ug/L	1060	ND	67.3	73-123			*
Surrogate: Propane	1260		ug/L	*1800*	*1200*	*70.0*	*62-122*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BLA0599-MSD1)	**Source: 23A0520-04**		Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 16:57							
Methane	7090	0.65	ug/L	656	6110	149	80-120	11.30	30	*
Ethane	721	1.23	ug/L	1230	14.0	57.5	80-120	21.70	30	*
Ethene	680	1.14	ug/L	1150	ND	59.0	80-120	20.00	30	*
Acetylene	668	1.06	ug/L	1060	ND	63.1	73-123	6.55	30	*
Surrogate: Propane	995		ug/L	*1800*	*1200*	*55.3*	*62-122*			*

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BLA0616 - EPA RSK-175

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLA0616-BLK1)				Prepared: 26-Jan-2023 Analyzed: 26-Jan-2023 13:08						
Methane	ND	0.65	ug/L							U
Ethane	ND	1.23	ug/L							U
Ethene	ND	1.14	ug/L							U
Acetylene	ND	1.06	ug/L							U
Surrogate: Propane	1710		ug/L	*1800*		*94.8*	*62-122*			
LCS (BLA0616-BS1)				Prepared: 26-Jan-2023 Analyzed: 26-Jan-2023 12:14						
Methane	664	0.65	ug/L	656		101	80-120			
Ethane	1300	1.23	ug/L	1230		106	80-120			
Ethene	1220	1.14	ug/L	1150		106	80-120			
Acetylene	1100	1.06	ug/L	1060		104	73-123			E
Surrogate: Propane	1830		ug/L	*1800*		*102*	*62-122*			
LCS Dup (BLA0616-BSD1)				Prepared: 26-Jan-2023 Analyzed: 26-Jan-2023 12:50						
Methane	583	0.65	ug/L	656		88.9	80-120	12.90	30	
Ethane	1150	1.23	ug/L	1230		93.4	80-120	12.60	30	
Ethene	1070	1.14	ug/L	1150		93.4	80-120	13.10	30	
Acetylene	946	1.06	ug/L	1060		89.2	73-123	15.50	30	
Surrogate: Propane	1630		ug/L	*1800*		*90.3*	*62-122*			
Duplicate (BLA0616-DUP1)		**Source: 23A0520-04RE1**		Prepared: 26-Jan-2023 Analyzed: 26-Jan-2023 14:33						
Methane	6070	0.65	ug/L		5750			5.57	30	
Ethane	15.3	1.23	ug/L		14.2			7.63	30	
Ethene	1.40	1.14	ug/L		1.44			2.50	30	
Acetylene	ND	1.06	ug/L		ND					U
Surrogate: Propane	1240		ug/L	*1800*	*1170*	*68.8*	*62-122*			
Matrix Spike (BLA0616-MS1)		**Source: 23A0520-04RE1**		Prepared: 26-Jan-2023 Analyzed: 26-Jan-2023 16:57						
Methane	7100	0.65	ug/L	656	5750	207	80-120			*
Ethane	1710	1.23	ug/L	1230	14.2	138	80-120			*
Ethene	1560	1.14	ug/L	1150	1.44	136	80-120			*
Acetylene	589	1.06	ug/L	1060	ND	55.5	73-123			*
Surrogate: Propane	1200		ug/L	*1800*	*1170*	*66.8*	*62-122*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BLA0616 - EPA RSK-175

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BLA0616-MSD1)	**Source: 23A0520-04RE1**		Prepared: 26-Jan-2023	Analyzed: 26-Jan-2023 17:15						
Methane	7920	0.65	ug/L	656	5750	332	80-120	10.90	30	*
Ethane	1080	1.23	ug/L	1230	14.2	86.9	80-120	45.00	30	*
Ethene	991	1.14	ug/L	1150	1.44	86.0	80-120	44.80	30	*
Acetylene	686	1.06	ug/L	1060	ND	64.7	73-123	15.20	30	*
Surrogate: Propane	1250		ug/L	*1800*	*1170*	*69.4*	*62-122*			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BLB0013 - EPA RSK-175

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLB0013-BLK1)				Prepared: 01-Feb-2023		Analyzed: 01-Feb-2023 08:27				
Methane	ND	0.65	ug/L							U
Ethane	ND	1.23	ug/L							U
Ethene	ND	1.14	ug/L							U
Acetylene	ND	1.06	ug/L							U
Surrogate: Propane	1710		ug/L	*1800*		*95.0*	*62-122*			
LCS (BLB0013-BS1)				Prepared: 01-Feb-2023		Analyzed: 01-Feb-2023 07:51				
Methane	640	0.65	ug/L	656		97.6	80-120			
Ethane	1270	1.23	ug/L	1230		103	80-120			
Ethene	1190	1.14	ug/L	1150		103	80-120			
Acetylene	1090	1.06	ug/L	1060		103	73-123			E
Surrogate: Propane	1830		ug/L	*1800*		*102*	*62-122*			
LCS Dup (BLB0013-BSD1)				Prepared: 01-Feb-2023		Analyzed: 01-Feb-2023 08:09				
Methane	602	0.65	ug/L	656		91.8	80-120	6.16	30	
Ethane	1170	1.23	ug/L	1230		95.3	80-120	7.77	30	
Ethene	1090	1.14	ug/L	1150		95.2	80-120	8.32	30	
Acetylene	929	1.06	ug/L	1060		87.7	73-123	15.80	30	
Surrogate: Propane	1820		ug/L	*1800*		*101*	*62-122*			
Duplicate (BLB0013-DUP1)	**Source: 23A0520-10RE1**			Prepared: 01-Feb-2023		Analyzed: 01-Feb-2023 11:23				
Methane	835	0.65	ug/L		969			14.80	30	
Ethane	4.46	1.23	ug/L		6.01			29.60	30	
Ethene	ND	1.14	ug/L		ND					U
Acetylene	ND	1.06	ug/L		ND					U
Surrogate: Propane	1750		ug/L	*1800*	*1760*	*97.3*	*62-122*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BLA0609 - EPA 300.0

Instrument: IC930 Analyst: KLD

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLA0609-BLK1)				Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 18:19							
Nitrate-N	ND	0.100	0.100	mg/L							U
Sulfate	ND	0.100	0.100	mg/L							U
LCS (BLA0609-BS1)				Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 18:39							
Nitrate-N	5.44	0.100	0.100	mg/L	5.00		109	90-110			
Sulfate	5.08	0.100	0.100	mg/L	5.00		102	90-110			
Duplicate (BLA0609-DUP1)		**Source: 23A0520-04**		Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 22:20							
Nitrate-N	ND	0.100	0.100	mg/L		ND					U
Duplicate (BLA0609-DUP2)		**Source: 23A0520-04RE1**		Prepared: 25-Jan-2023 Analyzed: 15-Feb-2023 10:43							
Sulfate	104	5.00	5.00	mg/L		108			3.31	20	D
Matrix Spike (BLA0609-MS1)		**Source: 23A0520-04**		Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 22:40							
Nitrate-N	2.08	0.100	0.100	mg/L	1.98	ND	105	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BLA0609-MS2)		**Source: 23A0520-04RE1**		Prepared: 25-Jan-2023 Analyzed: 15-Feb-2023 11:03							
Sulfate	199	5.00	10.0	mg/L	100	108	91.3	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BLA0609-MSD1)		**Source: 23A0520-04**		Prepared: 25-Jan-2023 Analyzed: 25-Jan-2023 23:00							
Nitrate-N	2.08	0.100	0.100	mg/L	1.98	ND	105	75-125	0.05	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BLA0609-MSD2)		**Source: 23A0520-04RE1**		Prepared: 25-Jan-2023 Analyzed: 15-Feb-2023 11:23							
Sulfate	204	5.00	10.0	mg/L	100	108	95.8	75-125	2.26	20	D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BLB0138 - SM 5310 B-00

Instrument: TOC-LCSH Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLB0138-BLK1)				Prepared: 06-Feb-2023 Analyzed: 07-Feb-2023 05:59							
Total Organic Carbon	ND	0.50	0.50	mg/L							U
LCS (BLB0138-BS1)				Prepared: 06-Feb-2023 Analyzed: 07-Feb-2023 06:22							
Total Organic Carbon	20.67	0.50	0.50	mg/L	20.00		103	90-110			
Duplicate (BLB0138-DUP1)		**Source: 23A0520-04**		Prepared: 06-Feb-2023 Analyzed: 07-Feb-2023 09:11							
Total Organic Carbon	6.55	0.50	0.50	mg/L		6.47			1.29	20	
Matrix Spike (BLB0138-MS1)		**Source: 23A0520-04**		Prepared: 06-Feb-2023 Analyzed: 07-Feb-2023 09:30							
Total Organic Carbon	23.51	0.50	0.50	mg/L	20.00	6.47	85.2	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BLB0138-MSD1)		**Source: 23A0520-04**		Prepared: 06-Feb-2023 Analyzed: 07-Feb-2023 09:50							
Total Organic Carbon	23.49	0.50	0.50	mg/L	20.00	6.47	85.1	75-125	0.09	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Certified Analyses included in this Report

Analyte	Certifications
EPA 300.0 in Water	
Nitrate-N	DoD-ELAP,WADOE,WA-DW,NELAP
Sulfate	DoD-ELAP,WADOE,WA-DW,NELAP
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
n-Hexane	WADOE
2-Pentanone	WADOE

EPA RSK-175 in Water

Methane	NELAP
Ethane	NELAP
Ethene	NELAP
Acetylene	NELAP

SM 5310 B-00 in Water

Total Organic Carbon	WA-DW,WADOE,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2023
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2023
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2023
WADOE	WA Dept of Ecology	C558	06/30/2023
WA-DW	Ecology - Drinking Water	C558	06/30/2023

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: January 2023 GW Monitoring	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	17-Feb-2023 16:38

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
J	Estimated concentration value detected below the reporting limit.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

22 August 2023

Clint Jacob
Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

RE: Beckwith and Kuffle (1645001.040.044)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
23G0196	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

23G0196

LANDAU ASSOCIATES

Chain-of-Custody Record

☒ North Seattle (206) 631-8660 ☐ Spokane (509) 327-9737
☐ Tacoma (253) 926-2493 ☐ Portland (503) 542-1080
☐ Olympia (360) 791-3178 ☐ _____

Date 7/12/23
Page 1 of 1

Turnaround Time: Standard X Accelerated ____

Project Name Beckwith and Kuffel Project No. 164501.040.041
Project Location/Event Seattle, WA/July 2023 GW Monitoring
Sampler's Name Kalpana Prasad and Mina Walters
Project Contact Clint Jacob
Send Results To C. Jacob, data@landauinc.com

Special Handling Requirements: ____
Shipment Method: drop
Stored on ice: (Yes) No

Sample I.D.	Date	Time	Matrix	No. of Containers	TCE/DCE/VC (8260D)	Silica (300.0)	Nitrate (300.0)	TOC (SM5310)	AMEE (RSK-175)	MS/MSD
SM-MW-8-230711	7/11/23	1340	GW	5	X					X
SM-MW-17A-230711		1450		7	X	X	X	X	X	
SM-MW-27-230711		1405		7	X	X	X	X	X	
SM-MW-18-230711		1250		7	X	X	X	X	X	
MW-12-230711				7	X	X	X	X	X	
MW-11-230711		955		7	X	X	X	X	X	
MW-13-230711		1105		7	X	X	X	X	X	
MW-10-230711		1120		7	X	X	X	X	X	
MW-6-230711				7	X	X	X	X	X	
MW-8-230711		1650		21	X	X	X	X	X	X
DUP1-230711	↓			7	X	X	X	X	X	
Trip Blank	—	—	↓	3	X					

Testing Parameters

Observations/Comments

___ Allow water samples to settle, collect aliquot from clear portion ☐
___ NWTPH-Dx - Acid wash cleanup ☐
- Silica gel cleanup ☐
___ Dissolved metal samples were field filtered

Other
VOAs w/ HCl
+ 48 hr. holdtime

2 coolers

Relinquished by	Received by	Relinquished by	Received by
Signature [signature]	Signature [signature]	Signature	Signature
Printed Name Kalpana Prasad	Printed Name Matthew Reeves	Printed Name	Printed Name
Company Landau	Company ARLLC	Company	Company
Date 7/12/23 Time 730	Date 07/12/23 Time 0822	Date Time	Date Time

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Representative

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SM-MW-8-230711	23G0196-01	Water	11-Jul-2023 13:40	12-Jul-2023 08:22
SM-MW-17A-230711	23G0196-02	Water	11-Jul-2023 14:50	12-Jul-2023 08:22
SM-MW-21-230711	23G0196-03	Water	11-Jul-2023 14:05	12-Jul-2023 08:22
SM-MW-18-230711	23G0196-04	Water	11-Jul-2023 12:50	12-Jul-2023 08:22
MW-12-230711	23G0196-05	Water	11-Jul-2023 09:40	12-Jul-2023 08:22
MW-11-230711	23G0196-06	Water	11-Jul-2023 09:55	12-Jul-2023 08:22
MW-13-230711	23G0196-07	Water	11-Jul-2023 11:05	12-Jul-2023 08:22
MW-10-230711	23G0196-08	Water	11-Jul-2023 11:20	12-Jul-2023 08:22
MW-6-230711	23G0196-09	Water	11-Jul-2023 16:35	12-Jul-2023 08:22
MW-8-230711	23G0196-10	Water	11-Jul-2023 16:50	12-Jul-2023 08:22
DUP1-230711	23G0196-11	Water	11-Jul-2023 18:00	12-Jul-2023 08:22
Trip Blanks	23G0196-12	Water	11-Jul-2023 09:55	12-Jul-2023 08:22

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

Work Order Case Narrative

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

Volatile Gases - MEE by RSK175

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits with the exception of surrogates flagged on the associated forms. Sample 23G0196-10 was re-analyzed with the same matrix effects. Both runs were reported for your review.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits with the exception of analytes flagged on the associated forms.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times with the exception of the re-analysis of nitrate samples 23G0196--08, 09 and 11. Samples were originally analyzed within the holding time and due to an instrument halt the original analysis did not have a closing bracket. The samples were re-analyzed outside of the holding time.

Initial and continuing calibrations were within method requirements.

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Landau

Project Name: Beaconsfield and Kuffel

COC No(s): NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: drop box

Assigned ARI Job No: 23G0196

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 0822 — 2.6°C 3.8°C

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: 90708

Cooler Accepted by: MP Date: 07/12/23 Time: 0822

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	07/28/23	

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: MP Date: 07/12/23 Time: 0934 Labels checked by: MP

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

WORK ORDER

23G0196

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Landau Associates, Inc. **Project Manager: Kelly Bottem**

Project: Beckwith and Kuffle **Project Number: 1645001.040.044**

23G0196-06 B	Glass NM, Amber, 250 mL, 9N H2SO4	L2 pass
23G0196-06 C	VOA Vial, Clear, 40 mL, HCL	
23G0196-06 D	VOA Vial, Clear, 40 mL, HCL	
23G0196-06 E	VOA Vial, Clear, 40 mL, HCL	
23G0196-06 F	VOA Vial, Clear, 40 mL, HCL	
23G0196-06 G	VOA Vial, Clear, 40 mL, HCL	
23G0196-07 A	HDPE NM, 500 mL	
23G0196-07 B	Glass NM, Amber, 250 mL, 9N H2SO4	L2 pass
23G0196-07 C	VOA Vial, Clear, 40 mL, HCL	
23G0196-07 D	VOA Vial, Clear, 40 mL, HCL	
23G0196-07 E	VOA Vial, Clear, 40 mL, HCL	
23G0196-07 F	VOA Vial, Clear, 40 mL, HCL	
23G0196-07 G	VOA Vial, Clear, 40 mL, HCL	
23G0196-08 A	HDPE NM, 500 mL	
23G0196-08 B	Glass NM, Amber, 250 mL, 9N H2SO4	L2 pass
23G0196-08 C	VOA Vial, Clear, 40 mL, HCL	
23G0196-08 D	VOA Vial, Clear, 40 mL, HCL	
23G0196-08 E	VOA Vial, Clear, 40 mL, HCL	
23G0196-08 F	VOA Vial, Clear, 40 mL, HCL	
23G0196-08 G	VOA Vial, Clear, 40 mL, HCL	
23G0196-09 A	HDPE NM, 500 mL	
23G0196-09 B	Glass NM, Amber, 250 mL, 9N H2SO4	L2 pass
23G0196-09 C	VOA Vial, Clear, 40 mL, HCL	
23G0196-09 D	VOA Vial, Clear, 40 mL, HCL	
23G0196-09 E	VOA Vial, Clear, 40 mL, HCL	
23G0196-09 F	VOA Vial, Clear, 40 mL, HCL	
23G0196-09 G	VOA Vial, Clear, 40 mL, HCL	
23G0196-10 A	HDPE NM, 500 mL	
23G0196-10 B	HDPE NM, 500 mL	
23G0196-10 C	HDPE NM, 500 mL	
23G0196-10 D	Glass NM, Amber, 250 mL, 9N H2SO4	L2 pass
23G0196-10 E	Glass NM, Amber, 250 mL, 9N H2SO4	L2 pass
23G0196-10 F	Glass NM, Amber, 250 mL, 9N H2SO4	L2 pass
23G0196-10 G	VOA Vial, Clear, 40 mL, HCL	
23G0196-10 H	VOA Vial, Clear, 40 mL, HCL	
23G0196-10 I	VOA Vial, Clear, 40 mL, HCL	

Reviewed By _____ Date _____

WORK ORDER

23G0196

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Landau Associates, Inc. **Project Manager:** Kelly Bottem

Project: Beckwith and Kuffle **Project Number:** 1645001.040.044

Preservation Confirmation

Container ID	Container Type	pH
23G0196-01 A	VOA Vial, Clear, 40 mL, HCL	
23G0196-01 B	VOA Vial, Clear, 40 mL, HCL	
23G0196-01 C	VOA Vial, Clear, 40 mL, HCL	
23G0196-01 D	VOA Vial, Clear, 40 mL, HCL	
23G0196-01 E	VOA Vial, Clear, 40 mL, HCL	Bubble
23G0196-02 A	HDPE NM, 500 mL	
23G0196-02 B	Glass NM, Amber, 250 mL, 9N H2SO4	LZ pass
23G0196-02 C	VOA Vial, Clear, 40 mL, HCL	
23G0196-02 D	VOA Vial, Clear, 40 mL, HCL	
23G0196-02 E	VOA Vial, Clear, 40 mL, HCL	
23G0196-02 F	VOA Vial, Clear, 40 mL, HCL	
23G0196-02 G	VOA Vial, Clear, 40 mL, HCL	
23G0196-03 A	HDPE NM, 500 mL	
23G0196-03 B	Glass NM, Amber, 250 mL, 9N H2SO4	LZ pass
23G0196-03 C	VOA Vial, Clear, 40 mL, HCL	
23G0196-03 D	VOA Vial, Clear, 40 mL, HCL	
23G0196-03 E	VOA Vial, Clear, 40 mL, HCL	
23G0196-03 F	VOA Vial, Clear, 40 mL, HCL	
23G0196-03 G	VOA Vial, Clear, 40 mL, HCL	
23G0196-04 A	HDPE NM, 500 mL	
23G0196-04 B	Glass NM, Amber, 250 mL, 9N H2SO4	LZ pass
23G0196-04 C	VOA Vial, Clear, 40 mL, HCL	
23G0196-04 D	VOA Vial, Clear, 40 mL, HCL	
23G0196-04 E	VOA Vial, Clear, 40 mL, HCL	
23G0196-04 F	VOA Vial, Clear, 40 mL, HCL	
23G0196-04 G	VOA Vial, Clear, 40 mL, HCL	
23G0196-05 A	HDPE NM, 500 mL	
23G0196-05 B	Glass NM, Amber, 250 mL, 9N H2SO4	LZ pass
23G0196-05 C	VOA Vial, Clear, 40 mL, HCL	
23G0196-05 D	VOA Vial, Clear, 40 mL, HCL	
23G0196-05 E	VOA Vial, Clear, 40 mL, HCL	
23G0196-05 F	VOA Vial, Clear, 40 mL, HCL	
23G0196-05 G	VOA Vial, Clear, 40 mL, HCL	
23G0196-06 A	HDPE NM, 500 mL	

Reviewed By

Date

WORK ORDER

23G0196

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Landau Associates, Inc. **Project Manager: Kelly Bottem**

Project: Beckwith and Kuffle **Project Number: 1645001.040.044**

23G0196-10 J	VOA Vial, Clear, 40 mL, HCL	
23G0196-10 K	VOA Vial, Clear, 40 mL, HCL	
23G0196-10 L	VOA Vial, Clear, 40 mL, HCL	
23G0196-10 M	VOA Vial, Clear, 40 mL, HCL	Bubble
23G0196-10 N	VOA Vial, Clear, 40 mL, HCL	Bubble
23G0196-10 O	VOA Vial, Clear, 40 mL, HCL	Bubble
23G0196-10 P	VOA Vial, Clear, 40 mL, HCL	Bubble
23G0196-10 Q	VOA Vial, Clear, 40 mL, HCL	Bubble
23G0196-10 R	VOA Vial, Clear, 40 mL, HCL	Bubble
23G0196-10 S	VOA Vial, Clear, 40 mL, HCL	Bubble
23G0196-10 T	VOA Vial, Clear, 40 mL, HCL	Bubble
23G0196-10 U	VOA Vial, Clear, 40 mL, HCL	Bubble
23G0196-11 A	HDPE NM, 500 mL	
23G0196-11 B	Glass NM, Amber, 250 mL, 9N H2SO4	L2 pass
23G0196-11 C	VOA Vial, Clear, 40 mL, HCL	
23G0196-11 D	VOA Vial, Clear, 40 mL, HCL	
23G0196-11 E	VOA Vial, Clear, 40 mL, HCL	
23G0196-11 F	VOA Vial, Clear, 40 mL, HCL	
23G0196-11 G	VOA Vial, Clear, 40 mL, HCL	
23G0196-12 A	VOA Vial, Clear, 40 mL, HCL	
23G0196-12 B	VOA Vial, Clear, 40 mL, HCL	
23G0196-12 C	VOA Vial, Clear, 40 mL, HCL	

MM
Preservation Confirmed By

07/12/23
Date

Reviewed By

Date

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-8-230711
23G0196-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/11/2023 13:40
Instrument: NT2 Analyst: PKC — Analyzed: 07/12/2023 16:19

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-01 C
Preparation Batch: BLG0219 — Sample Size: 10 mL
Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	5.89	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	22.7	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.7*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-8-230711

23G0196-01 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/11/2023 13:40

Instrument: FID6 Analyst: LH — Analyzed: 07/12/2023 14:04

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-01 A

Preparation Batch: BLG0215 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	25.9	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*92.0*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-17A-230711

23G0196-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/11/2023 14:50

Instrument: NT2 Analyst: PKC — Analyzed: 07/12/2023 16:40

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-02 F

Preparation Batch: BLG0219 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	0.24	ug/L	M
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	0.10	ug/L	J
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.1*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-17A-230711

23G0196-02 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/11/2023 14:50

Instrument: FID6 Analyst: LH — Analyzed: 07/12/2023 14:22

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-02 C

Preparation Batch: BLG0215 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	6490	ug/L	
Ethane	74-84-0	1	1.23	10.4	ug/L	
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*89.0*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-17A-230711

23G0196-02 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 14:50

Instrument: IC930 Analyst: BF — Analyzed: 07/12/2023 20:08

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-02 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	0.647	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-17A-230711

23G0196-02 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 07/11/2023 14:50

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 07/17/2023 14:36

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-02 B

Preparation Batch: BLG0308 — Sample Size: 20 mL

Prepared: 07/17/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.98	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-21-230711

23G0196-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/11/2023 14:05

Instrument: NT2 Analyst: PKC — Analyzed: 07/12/2023 17:01

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-03 F

Preparation Batch: BLG0219 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	5.97	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	40.0	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	30.6	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.1*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-21-230711

23G0196-03 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/11/2023 14:05

Instrument: FID6 Analyst: LH — Analyzed: 07/12/2023 14:40

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-03 C

Preparation Batch: BLG0215 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	11800	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*89.9*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-21-230711

23G0196-03 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 14:05

Instrument: IC930 Analyst: BF — Analyzed: 07/12/2023 20:28

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-03 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-21-230711

23G0196-03 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 07/11/2023 14:05

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 07/17/2023 14:55

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-03 B

Preparation Batch: BLG0308 — Sample Size: 20 mL

Prepared: 07/17/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	4.03	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-21-230711

23G0196-03RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 14:05

Instrument: IC930 Analyst: BF — Analyzed: 07/14/2023 00:13

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-03RE1 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	10	1.00	1.00	38.6	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-18-230711

23G0196-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/11/2023 12:50

Instrument: NT2 Analyst: PKC — Analyzed: 07/12/2023 17:21

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-04 F

Preparation Batch: BLG0219 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	39.4	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	27.8	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.8*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-18-230711

23G0196-04 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/11/2023 12:50

Instrument: FID6 Analyst: LH — Analyzed: 07/12/2023 14:58

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-04 C

Preparation Batch: BLG0215 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	2940	ug/L	
Ethane	74-84-0	1	1.23	33.2	ug/L	
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*83.4*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-18-230711

23G0196-04 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 12:50

Instrument: IC930 Analyst: BF — Analyzed: 07/12/2023 20:48

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-04 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-18-230711

23G0196-04 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 07/11/2023 12:50

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 07/17/2023 15:14

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-04 B

Preparation Batch: BLG0308 — Sample Size: 20 mL

Prepared: 07/17/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	4.74	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

SM-MW-18-230711

23G0196-04RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 12:50

Instrument: IC930 Analyst: BF — Analyzed: 07/14/2023 00:33

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-04RE1 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	50	5.00	5.00	119	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-12-230711

23G0196-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/11/2023 09:40

Instrument: NT2 Analyst: PKC — Analyzed: 07/12/2023 17:42

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-05 G

Preparation Batch: BLG0219 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	0.23	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	18.5	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	0.32	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-12-230711

23G0196-05 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/11/2023 09:40

Instrument: FID6 Analyst: LH — Analyzed: 07/12/2023 15:16

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-05 E

Preparation Batch: BLG0215 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	8710	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*52.2*	*%*	*

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-12-230711

23G0196-05 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 09:40

Instrument: IC930 Analyst: BF — Analyzed: 07/12/2023 21:08

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-05 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-12-230711

23G0196-05 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 07/11/2023 09:40

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 07/17/2023 16:20

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-05 B

Preparation Batch: BLG0308 — Sample Size: 20 mL

Prepared: 07/17/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		10	5.00	5.00	58.18	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-11-230711

23G0196-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/11/2023 09:55

Instrument: NT2 Analyst: PKC — Analyzed: 07/12/2023 18:05

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-06 F

Preparation Batch: BLG0219 — Sample Size: 2 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.41	1.00	2.35	ug/L	M
cis-1,2-Dichloroethene	156-59-2	1	0.41	1.00	408	ug/L	E
Trichloroethene	79-01-6	1	0.35	1.00	28.0	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.8*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-11-230711

23G0196-06 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/11/2023 09:55

Instrument: FID6 Analyst: PB — Analyzed: 07/13/2023 12:44

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-06 E

Preparation Batch: BLG0252 — Sample Size: 10 mL

Prepared: 07/13/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	6560	ug/L	
Ethane	74-84-0	1	1.23	12.3	ug/L	
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*73.7*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-11-230711

23G0196-06 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 09:55

Instrument: IC930 Analyst: BF — Analyzed: 07/12/2023 21:28

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-06 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-11-230711

23G0196-06 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 07/11/2023 09:55

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 07/17/2023 16:55

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-06 B

Preparation Batch: BLG0308 — Sample Size: 20 mL

Prepared: 07/17/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	6.43	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-11-230711

23G0196-06RE1 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/11/2023 09:55

Instrument: NT2 Analyst: PKC — Analyzed: 07/13/2023 12:45

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-06RE1 D

Preparation Batch: BLG0232 — Sample Size: 1 mL

Prepared: 07/13/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.82	2.00	1.94	ug/L	J
cis-1,2-Dichloroethene	156-59-2	1	0.81	2.00	427	ug/L	
Trichloroethene	79-01-6	1	0.70	2.00	27.9	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*107*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.5*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-11-230711

23G0196-06RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 09:55

Instrument: IC930 Analyst: BF — Analyzed: 07/14/2023 00:53

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-06RE1 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	10	1.00	1.00	41.9	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-13-230711

23G0196-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/11/2023 11:05

Instrument: NT2 Analyst: PKC — Analyzed: 07/13/2023 12:01

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-07 D

Preparation Batch: BLG0232 — Sample Size: 10 mL

Prepared: 07/13/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-13-230711

23G0196-07 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/11/2023 11:05

Instrument: FID6 Analyst: LH — Analyzed: 07/12/2023 15:52

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-07 C

Preparation Batch: BLG0215 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	938	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*86.5*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-13-230711

23G0196-07 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 11:05

Instrument: IC930 Analyst: BF — Analyzed: 07/12/2023 21:48

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-07 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-13-230711

23G0196-07 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 07/11/2023 11:05

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 07/17/2023 17:13

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-07 B

Preparation Batch: BLG0308 — Sample Size: 20 mL

Prepared: 07/17/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	4.29	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-13-230711

23G0196-07RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 11:05

Instrument: IC930 Analyst: BF — Analyzed: 07/14/2023 01:12

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-07RE1 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	20	2.00	2.00	105	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-10-230711

23G0196-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/11/2023 11:20

Instrument: NT2 Analyst: PKC — Analyzed: 07/12/2023 18:46

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-08 F

Preparation Batch: BLG0219 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	0.10	ug/L	J
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.9*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-10-230711

23G0196-08 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/11/2023 11:20

Instrument: FID6 Analyst: LH — Analyzed: 07/12/2023 16:28

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-08 C

Preparation Batch: BLG0215 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	20.9	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*89.5*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-10-230711

23G0196-08 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 11:20

Instrument: IC930 Analyst: BF — Analyzed: 07/12/2023 23:08

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-08 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-10-230711

23G0196-08 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 07/11/2023 11:20

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 07/17/2023 17:40

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-08 B

Preparation Batch: BLG0308 — Sample Size: 20 mL

Prepared: 07/17/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.42	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-10-230711

23G0196-08RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 11:20

Instrument: IC930 Analyst: BF — Analyzed: 07/13/2023 20:13

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-08RE1 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	H, U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-10-230711

23G0196-08RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 11:20

Instrument: IC930 Analyst: BF — Analyzed: 07/14/2023 04:50

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-08RE2 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	16	1.60	1.60	63.8	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-6-230711

23G0196-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/11/2023 16:35

Instrument: NT2 Analyst: PKC — Analyzed: 07/12/2023 19:06

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-09 D

Preparation Batch: BLG0219 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	1.00	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	15.6	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.8*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-6-230711

23G0196-09 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/11/2023 16:35

Instrument: FID6 Analyst: LH — Analyzed: 07/12/2023 16:46

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-09 C

Preparation Batch: BLG0215 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	837	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*94.9*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-6-230711

23G0196-09 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 16:35

Instrument: IC930 Analyst: BF — Analyzed: 07/12/2023 23:28

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-09 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-6-230711

23G0196-09 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 07/11/2023 16:35

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 07/17/2023 18:02

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-09 B

Preparation Batch: BLG0308 — Sample Size: 20 mL

Prepared: 07/17/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.66	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-6-230711

23G0196-09RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 16:35

Instrument: IC930 Analyst: BF — Analyzed: 07/13/2023 20:33

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-09RE1 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	H, U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-6-230711

23G0196-09RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 16:35

Instrument: IC930 Analyst: BF — Analyzed: 07/14/2023 05:10

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-09RE2 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	8	0.800	0.800	31.2	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-8-230711

23G0196-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/11/2023 16:50

Instrument: NT2 Analyst: PKC — Analyzed: 07/12/2023 19:29

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-10 L

Preparation Batch: BLG0219 — Sample Size: 2 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.41	1.00	8.44	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.41	1.00	123	ug/L	
Trichloroethene	79-01-6	1	0.35	1.00	3.63	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.5*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-8-230711

23G0196-10 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/11/2023 16:50

Instrument: FID6 Analyst: LH — Analyzed: 07/12/2023 17:04

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-10 T

Preparation Batch: BLG0215 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	11400	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	13.2	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*60.9*	*%*	*

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-8-230711

23G0196-10 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 16:50

Instrument: IC930 Analyst: BF — Analyzed: 07/12/2023 23:48

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-10 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-8-230711

23G0196-10RE1 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/11/2023 16:50

Instrument: FID6 Analyst: PB — Analyzed: 07/13/2023 13:02

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-10RE1 T

Preparation Batch: BLG0252 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	9510	ug/L	
Ethane	74-84-0	1	1.23	4.98	ug/L	
Ethene	74-85-1	1	1.14	12.2	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*54.6*	*%*	*

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-8-230711

23G0196-10RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 16:50

Instrument: IC930 Analyst: BF — Analyzed: 07/13/2023 20:53

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-10RE1 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	0.401	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

MW-8-230711

23G0196-10RE1 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 07/11/2023 16:50

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 07/20/2023 19:49

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-10RE1 E

Preparation Batch: BLG0308 — Sample Size: 20 mL

Prepared: 07/17/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		10	5.00	5.00	293.9	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

DUP1-230711

23G0196-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/11/2023 18:00

Instrument: NT2 Analyst: PKC — Analyzed: 07/13/2023 12:21

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-11 G

Preparation Batch: BLG0232 — Sample Size: 10 mL

Prepared: 07/13/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	1.04	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	16.3	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*105*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.5*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

DUP1-230711

23G0196-11 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/11/2023 18:00

Instrument: FID6 Analyst: LH — Analyzed: 07/12/2023 18:16

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-11 E

Preparation Batch: BLG0215 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	964	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*98.6*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

DUP1-230711

23G0196-11 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 18:00

Instrument: IC930 Analyst: BF — Analyzed: 07/13/2023 01:09

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-11 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

DUP1-230711

23G0196-11 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 07/11/2023 18:00

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 07/17/2023 19:56

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-11 B

Preparation Batch: BLG0308 — Sample Size: 20 mL

Prepared: 07/17/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.96	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

DUP1-230711

23G0196-11RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 18:00

Instrument: IC930 Analyst: BF — Analyzed: 07/13/2023 23:13

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-11RE1 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	H, U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

DUP1-230711

23G0196-11RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/11/2023 18:00

Instrument: IC930 Analyst: BF — Analyzed: 07/14/2023 07:09

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0196-11RE2 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	8	0.800	0.800	31.4	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

Trip Blanks

23G0196-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/11/2023 09:55

Instrument: NT2 Analyst: PKC — Analyzed: 07/12/2023 15:38

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0196-12 B

Preparation Batch: BLG0219 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.6*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BLG0219 - EPA 8260D

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLG0219-BLK1)					Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 15:17						
Vinyl Chloride	ND	0.08	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.09			ug/L	*5.0000*		*102*	*80-129*			
Surrogate: Toluene-d8	4.89			ug/L	*5.0000*		*97.9*	*80-120*			
LCS (BLG0219-BS1)					Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 14:14						
Vinyl Chloride	9.87	0.08	0.20	ug/L	10.000		98.7	66-133			
cis-1,2-Dichloroethene	10.1	0.08	0.20	ug/L	10.000		101	80-121			
Trichloroethene	9.84	0.07	0.20	ug/L	10.000		98.4	80-120			
Surrogate: 1,2-Dichloroethane-d4	4.75			ug/L	*5.0000*		*95.0*	*80-129*			
Surrogate: Toluene-d8	5.05			ug/L	*5.0000*		*101*	*80-120*			
LCS Dup (BLG0219-BSD1)					Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 14:34						
Vinyl Chloride	9.89	0.08	0.20	ug/L	10.000		98.9	66-133	0.14	30	
cis-1,2-Dichloroethene	10.2	0.08	0.20	ug/L	10.000		102	80-121	1.56	30	
Trichloroethene	10.1	0.07	0.20	ug/L	10.000		101	80-120	2.18	30	
Surrogate: 1,2-Dichloroethane-d4	4.93			ug/L	*5.0000*		*98.5*	*80-129*			
Surrogate: Toluene-d8	4.98			ug/L	*5.0000*		*99.5*	*80-120*			
Matrix Spike (BLG0219-MS1)		**Source: 23G0196-10**			Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 20:54						
Vinyl Chloride	55.6	0.41	1.00	ug/L	50.000	8.44	94.3	66-133			
cis-1,2-Dichloroethene	159	0.41	1.00	ug/L	50.000	123	70.1	80-121			*
Trichloroethene	52.2	0.35	1.00	ug/L	50.000	3.63	97.2	80-120			
Surrogate: 1,2-Dichloroethane-d4	25.5			ug/L	*25.000*	*25.8*	*102*	*80-129*			
Surrogate: Toluene-d8	25.0			ug/L	*25.000*	*24.9*	*100*	*80-120*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BLG0219-MSD1)		**Source: 23G0196-10**			Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 21:15						
Vinyl Chloride	59.0	0.41	1.00	ug/L	50.000	8.44	101	66-133	5.90	30	
cis-1,2-Dichloroethene	169	0.41	1.00	ug/L	50.000	123	90.7	80-121	6.31	30	
Trichloroethene	54.6	0.35	1.00	ug/L	50.000	3.63	102	80-120	4.45	30	
Surrogate: 1,2-Dichloroethane-d4	25.0			ug/L	*25.000*	*25.8*	*99.8*	*80-129*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BLG0219 - EPA 8260D

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Matrix Spike Dup (BLG0219-MSD1)	**Source: 23G0196-10**			Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 21:15							
Surrogate: Toluene-d8	25.0			ug/L	*25.000*	*24.9*	*100*	*80-120*			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BLG0232 - EPA 8260D

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLG0232-BLK1)					Prepared: 13-Jul-2023 Analyzed: 13-Jul-2023 11:40						
Vinyl Chloride	ND	0.08	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.15			ug/L	*5.0000*		*103*	*80-129*			
Surrogate: Toluene-d8	5.00			ug/L	*5.0000*		*100*	*80-120*			
LCS (BLG0232-BS1)					Prepared: 13-Jul-2023 Analyzed: 13-Jul-2023 10:18						
Vinyl Chloride	10.2	0.08	0.20	ug/L	10.000		102	66-133			
cis-1,2-Dichloroethene	10.4	0.08	0.20	ug/L	10.000		104	80-121			
Trichloroethene	10.2	0.07	0.20	ug/L	10.000		102	80-120			
Surrogate: 1,2-Dichloroethane-d4	5.07			ug/L	*5.0000*		*101*	*80-129*			
Surrogate: Toluene-d8	5.04			ug/L	*5.0000*		*101*	*80-120*			
LCS Dup (BLG0232-BSD1)					Prepared: 13-Jul-2023 Analyzed: 13-Jul-2023 10:59						
Vinyl Chloride	9.63	0.08	0.20	ug/L	10.000		96.3	66-133	5.55	30	
cis-1,2-Dichloroethene	10.4	0.08	0.20	ug/L	10.000		104	80-121	0.14	30	
Trichloroethene	10.2	0.07	0.20	ug/L	10.000		102	80-120	0.03	30	
Surrogate: 1,2-Dichloroethane-d4	4.99			ug/L	*5.0000*		*99.8*	*80-129*			
Surrogate: Toluene-d8	5.08			ug/L	*5.0000*		*102*	*80-120*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BLG0215 - EPA RSK-175

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLG0215-BLK1)				Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 12:15						
Methane	ND	0.65	ug/L							U
Ethane	ND	1.23	ug/L							U
Ethene	ND	1.14	ug/L							U
Acetylene	ND	1.06	ug/L							U
Surrogate: Propane	1760		ug/L	*1800.0*		*98.0*	*62-122*			
LCS (BLG0215-BS1)				Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 11:39						
Methane	705	0.65	ug/L	656.00		107	80-120			
Ethane	1370	1.23	ug/L	1230.0		112	80-120			
Ethene	1240	1.14	ug/L	1150.0		108	80-120			
Acetylene	1110	1.06	ug/L	1060.0		104	73-123			E
Surrogate: Propane	1840		ug/L	*1800.0*		*102*	*62-122*			
LCS Dup (BLG0215-BSD1)				Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 11:57						
Methane	697	0.65	ug/L	656.00		106	80-120	1.08	30	
Ethane	1360	1.23	ug/L	1230.0		111	80-120	0.75	30	
Ethene	1240	1.14	ug/L	1150.0		108	80-120	0.22	30	
Acetylene	1140	1.06	ug/L	1060.0		108	73-123	3.37	30	E
Surrogate: Propane	1840		ug/L	*1800.0*		*102*	*62-122*			
Duplicate (BLG0215-DUP2)		**Source: 23G0196-10**		Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 17:22						
Methane	11600	0.65	ug/L		11400			2.06	30	
Ethane	ND	1.23	ug/L		ND					U
Ethene	13.6	1.14	ug/L		13.2			3.35	30	
Acetylene	ND	1.06	ug/L		ND					U
Surrogate: Propane	1030		ug/L	*1800.0*	*1100*	*57.2*	*62-122*			*
Matrix Spike (BLG0215-MS1)		**Source: 23G0196-10**		Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 17:40						
Methane	11400	0.65	ug/L	656.00	11400	1.20	80-120			*
Ethane	723	1.23	ug/L	1230.0	ND	58.8	80-120			*
Ethene	661	1.14	ug/L	1150.0	13.2	56.3	80-120			*
Acetylene	587	1.06	ug/L	1060.0	ND	55.4	73-123			*
Surrogate: Propane	959		ug/L	*1800.0*	*1100*	*53.3*	*62-122*			*

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BLG0215 - EPA RSK-175

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										
Matrix Spike Dup (BLG0215-MSD1)	**Source: 23G0196-10**		Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 17:58							
Methane	12200	0.65	ug/L	656.00	11400	126	80-120	6.97	30	*
Ethane	783	1.23	ug/L	1230.0	ND	63.7	80-120	7.97	30	*
Ethene	715	1.14	ug/L	1150.0	13.2	61.1	80-120	7.89	30	*
Acetylene	630	1.06	ug/L	1060.0	ND	59.5	73-123	7.06	30	*
Surrogate: Propane	1040		ug/L	*1800.0*	*1100*	*57.7*	*62-122*			*
Recovery limits for target analytes in MS/MSD QC samples are advisory only.										

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BLG0252 - EPA RSK-175

Instrument: FID6 Analyst: PB

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLG0252-BLK1)				Prepared: 13-Jul-2023 Analyzed: 13-Jul-2023 10:32						
Methane	ND	0.65	ug/L							U
Ethane	ND	1.23	ug/L							U
Ethene	ND	1.14	ug/L							U
Acetylene	ND	1.06	ug/L							U
Surrogate: Propane	1960		ug/L	*1800.0*		*109*	*62-122*			
LCS (BLG0252-BS1)				Prepared: 13-Jul-2023 Analyzed: 13-Jul-2023 11:04						
Methane	702	0.65	ug/L	656.00		107	80-120			
Ethane	1350	1.23	ug/L	1230.0		110	80-120			
Ethene	1230	1.14	ug/L	1150.0		107	80-120			
Acetylene	1150	1.06	ug/L	1060.0		109	73-123			E
Surrogate: Propane	2030		ug/L	*1800.0*		*113*	*62-122*			
LCS Dup (BLG0252-BSD1)				Prepared: 13-Jul-2023 Analyzed: 13-Jul-2023 11:22						
Methane	721	0.65	ug/L	656.00		110	80-120	2.70	30	
Ethane	1400	1.23	ug/L	1230.0		114	80-120	3.75	30	
Ethene	1280	1.14	ug/L	1150.0		111	80-120	3.41	30	
Acetylene	1190	1.06	ug/L	1060.0		112	73-123	2.99	30	E
Surrogate: Propane	2010		ug/L	*1800.0*		*112*	*62-122*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BLG0211 - EPA 300.0

Instrument: IC930 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLG0211-BLK1)					Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 19:28						
Nitrate-N	ND	0.100	0.100	mg/L							U
Sulfate	ND	0.100	0.100	mg/L							U
LCS (BLG0211-BS1)					Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 19:48						
Nitrate-N	5.32	0.100	0.100	mg/L	5.0000		106	90-110			
Sulfate	4.93	0.100	0.100	mg/L	5.0000		98.5	90-110			
Duplicate (BLG0211-DUP1)		**Source: 23G0196-10**			Prepared: 12-Jul-2023 Analyzed: 13-Jul-2023 00:08						
Nitrate-N	ND	0.100	0.100	mg/L		ND					U
Sulfate	0.236	0.100	0.100	mg/L		0.240			1.68	20	
Duplicate (BLG0211-DUP2)		**Source: 23G0196-10RE1**			Prepared: 12-Jul-2023 Analyzed: 13-Jul-2023 22:13						
Sulfate	0.386	0.100	0.100	mg/L		0.401			3.81	20	L
Matrix Spike (BLG0211-MS1)		**Source: 23G0196-10**			Prepared: 12-Jul-2023 Analyzed: 13-Jul-2023 00:29						
Nitrate-N	1.90	0.100	0.100	mg/L	1.9778	ND	96.2	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BLG0211-MS2)		**Source: 23G0196-10RE1**			Prepared: 12-Jul-2023 Analyzed: 13-Jul-2023 22:33						
Sulfate	2.12	0.100	0.100	mg/L	2.0014	0.401	86.0	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BLG0211-MSD1)		**Source: 23G0196-10**			Prepared: 12-Jul-2023 Analyzed: 13-Jul-2023 00:49						
Nitrate-N	1.83	0.100	0.100	mg/L	1.9778	ND	92.7	75-125	3.69	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BLG0211-MSD2)		**Source: 23G0196-10RE1**			Prepared: 12-Jul-2023 Analyzed: 13-Jul-2023 22:53						
Sulfate	2.10	0.100	0.100	mg/L	2.0014	0.401	85.0	75-125	0.90	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BLG0308 - SM 5310 B-00

Instrument: TOC-LCSH Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLG0308-BLK1)				Prepared: 17-Jul-2023 Analyzed: 17-Jul-2023 12:39							
Total Organic Carbon	ND	0.50	0.50	mg/L							U
LCS (BLG0308-BS1)				Prepared: 17-Jul-2023 Analyzed: 17-Jul-2023 12:58							
Total Organic Carbon	19.89	0.50	0.50	mg/L	20.000		99.5	90-110			
Duplicate (BLG0308-DUP2)		**Source: 23G0196-10RE1**		Prepared: 17-Jul-2023 Analyzed: 20-Jul-2023 20:10							
Total Organic Carbon	293.1	5.00	5.00	mg/L		293.9			0.27	20	D
Matrix Spike (BLG0308-MS2)		**Source: 23G0196-10RE1**		Prepared: 17-Jul-2023 Analyzed: 20-Jul-2023 20:31							
Total Organic Carbon	384.5	5.00	5.00	mg/L	99.980	293.9	90.6	75-125			D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Matrix Spike Dup (BLG0308-MSD2)		**Source: 23G0196-10RE1**		Prepared: 17-Jul-2023 Analyzed: 20-Jul-2023 20:52							
Total Organic Carbon	388.3	5.00	5.00	mg/L	99.980	293.9	94.4	75-125	0.98	20	D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

Certified Analyses included in this Report

Analyte	Certifications
EPA 300.0 in Water	
Nitrate-N	DoD-ELAP,WADOE,WA-DW,NELAP
Sulfate	DoD-ELAP,WADOE,WA-DW,NELAP
EPA 8260D in Water	
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
EPA RSK-175 in Water	
Methane	NELAP
Ethane	NELAP
Ethene	NELAP
Acetylene	NELAP
SM 5310 B-00 in Water	
Total Organic Carbon	WA-DW,WADOE,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:40

Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
H	Hold time violation - Hold time was exceeded.
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

22 August 2023

Clint Jacob
Landau Associates, Inc.
130 2nd Avenue S.
Edmonds, WA 98020

RE: Beckwith and Kuffle (1645001.040.044)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
23G0204	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

23G0204

LANDAU ASSOCIATES

Chain-of-Custody Record

☒ North Seattle (206) 631-8660 ☐ Spokane (509) 327-9737
☐ Tacoma (253) 926-2493 ☐ Portland (503) 542-1080
☐ Olympia (360) 791-3178 ☐ _____

Date 7/12/23
Page 1 of 1

Turnaround Time:
Standard X
Accelerated _____

Project Name Beckwith & Koffel Project No. 164501.040.0LL1
Project Location/Event Seattle, WA / July GW Monitoring
Sampler's Name Kalpana Prasad
Project Contact Clint Jacob
Send Results To C. Jacob, data@landauinc.com

Special Handling Requirements: _____
Shipment Method: drop
Stored on ice: (Yes) / No

Sample I.D.	Date	Time	Matrix	No. of Containers	TCE, cDCE, VC (8260 D)	Sulfate (300.0)*	Nitrate (300.0)*	TOC (SM 5310C)	AMEE (RSK-175)
MW-7-230712	7/12/23	850	GW	7	X	X	X	X	X
MW-9-230712	↓	950	↓	7	X	X	X	X	X
Trip Blanks	↓	—	↓	3	X				

Testing Parameters

Observations/Comments

— Allow water samples to settle, collect aliquot from clear portion ☐
— NWTPH-Dx - Acid wash cleanup ☐
- Silica gel cleanup ☐
— Dissolved metal samples were field filtered

Other VOAs with HCl

* 48 hr. holding time for nitrate

1 cooler

Relinquished by	Received by	Relinquished by	Received by
Signature	Signature	Signature	Signature
Printed Name Kalpana Prasad	Printed Name Kevin Cruz	Printed Name	Printed Name
Company LAI	Company ARI C	Company	Company
Date 7/12/23 Time 1043	Date 07122023 Time 10:43	Date Time	Date Time

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Representative

10/2018

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-7-230712	23G0204-01	Water	12-Jul-2023 08:50	12-Jul-2023 10:43
MW-9-230712	23G0204-02	Water	12-Jul-2023 09:50	12-Jul-2023 10:43
Trip Blanks	23G0204-03	Water	12-Jul-2023 00:00	12-Jul-2023 10:43

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

Work Order Case Narrative

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

Volatile Gases - MEE by RSK175

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The sample duplicate relative percent difference (RPD) were within advisory control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The blank spike (BS/LCS) percent recoveries were within control limits.

The matrix spike (MS) percent recoveries and the duplicate (DUP) relative percent difference (RPD) were within advisory control limits.

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

WORK ORDER

23G0204

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Landau Associates, Inc. **Project Manager:** Kelly Bottem

Project: Beckwith and Kuffle **Project Number:** 1645001.040.044

Preservation Confirmation

Container ID	Container Type	pH	
23G0204-01 A	HDPE NM, 500 mL		
23G0204-01 B	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
23G0204-01 C	VOA Vial, Clear, 40 mL, HCL		
23G0204-01 D	VOA Vial, Clear, 40 mL, HCL		
23G0204-01 E	VOA Vial, Clear, 40 mL, HCL		
23G0204-01 F	VOA Vial, Clear, 40 mL, HCL		
23G0204-01 G	VOA Vial, Clear, 40 mL, HCL		
23G0204-02 A	HDPE NM, 500 mL		
23G0204-02 B	Glass NM, Amber, 250 mL, 9N H2SO4	<2	Pass
23G0204-02 C	VOA Vial, Clear, 40 mL, HCL		
23G0204-02 D	VOA Vial, Clear, 40 mL, HCL		
23G0204-02 E	VOA Vial, Clear, 40 mL, HCL		
23G0204-02 F	VOA Vial, Clear, 40 mL, HCL		
23G0204-02 G	VOA Vial, Clear, 40 mL, HCL		
23G0204-03 A	VOA Vial, Clear, 40 mL		
23G0204-03 B	VOA Vial, Clear, 40 mL		
23G0204-03 C	VOA Vial, Clear, 40 mL		

Preservation Confirmed By

07/12/2023
Date

Reviewed By

Date

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: LANDAU ASSOCIATES Project Name: Beck with & Kuffel

COC No(s): NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 10:43 10.0

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 5009708

Cooler Accepted by: KFC Date: 07122023 Time: 10:43

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:			
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ...	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: KFC Date: 07122023 Time: 11:20 Labels checked by: KFC

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

ARI Work Order: 23G0204

Cooler#: 1 **Temperature(°C):** 10.0

Sample ID	Bottle Count	Bottle Type
SAMPLES recieved above 6°C		

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Cooler#: _____ **Temperature(°C):** _____

Sample ID	Bottle Count	Bottle Type

Completed by: VRC Date: 07122023 Time: 10:43

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

MW-7-230712
23G0204-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/12/2023 08:50
Instrument: NT2 Analyst: PKC — Analyzed: 07/12/2023 20:13

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0204-01 D
Preparation Batch: BLG0219 — Sample Size: 10 mL
Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	3.73	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	3.13	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	0.09	ug/L	J
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

MW-7-230712

23G0204-01 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/12/2023 08:50

Instrument: FID6 Analyst: LH — Analyzed: 07/12/2023 12:59

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0204-01 G

Preparation Batch: BLG0215 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	12900	ug/L	
Ethane	74-84-0	1	1.23	24.6	ug/L	
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*76.7*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

MW-7-230712

23G0204-01 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 07/12/2023 08:50

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 07/20/2023 11:08

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0204-01 B

Preparation Batch: BLG0309 — Sample Size: 20 mL

Prepared: 07/17/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	5.97	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

MW-7-230712

23G0204-01RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/12/2023 08:50

Instrument: IC930 Analyst: BF — Analyzed: 07/13/2023 23:33

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0204-01RE1 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	0.678	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

MW-9-230712

23G0204-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/12/2023 09:50

Instrument: NT2 Analyst: PKC — Analyzed: 07/12/2023 20:34

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0204-02 F

Preparation Batch: BLG0219 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	1.39	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	17.0	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	5.05	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.7*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

MW-9-230712

23G0204-02 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 07/12/2023 09:50

Instrument: FID6 Analyst: LH — Analyzed: 07/12/2023 13:28

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0204-02 C

Preparation Batch: BLG0215 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	5900	ug/L	
Ethane	74-84-0	1	1.23	ND	ug/L	U
Ethene	74-85-1	1	1.14	ND	ug/L	U
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*65.6*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

MW-9-230712

23G0204-02 (Water)

Wet Chemistry

Method: SM 5310 B-00 — Sampled: 07/12/2023 09:50

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 07/20/2023 12:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0204-02 B

Preparation Batch: BLG0309 — Sample Size: 20 mL

Prepared: 07/17/2023 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	7.37	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

MW-9-230712

23G0204-02RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/12/2023 09:50

Instrument: IC930 Analyst: BF — Analyzed: 07/13/2023 23:53

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0204-02RE1 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Nitrate-N	14797-55-8	1	0.100	0.100	ND	mg/L	U

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

MW-9-230712

23G0204-02RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 07/12/2023 09:50

Instrument: IC930 Analyst: BF — Analyzed: 07/14/2023 07:29

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 23G0204-02RE2 A

Preparation Batch: BLG0211 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	7	0.700	0.700	27.1	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

Trip Blanks

23G0204-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 07/12/2023 00:00

Instrument: NT2 Analyst: PKC — Analyzed: 07/12/2023 15:58

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 23G0204-03 B

Preparation Batch: BLG0219 — Sample Size: 10 mL

Prepared: 07/12/2023 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.1*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BLG0219 - EPA 8260D

Instrument: NT2 Analyst: PKC

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLG0219-BLK1)				Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 15:17							
Vinyl Chloride	ND	0.08	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	5.09			ug/L	*5.0000*		*102*	*80-129*			
Surrogate: Toluene-d8	4.89			ug/L	*5.0000*		*97.9*	*80-120*			
LCS (BLG0219-BS1)				Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 14:14							
Vinyl Chloride	9.87	0.08	0.20	ug/L	10.000		98.7	66-133			
cis-1,2-Dichloroethene	10.1	0.08	0.20	ug/L	10.000		101	80-121			
Trichloroethene	9.84	0.07	0.20	ug/L	10.000		98.4	80-120			
Surrogate: 1,2-Dichloroethane-d4	4.75			ug/L	*5.0000*		*95.0*	*80-129*			
Surrogate: Toluene-d8	5.05			ug/L	*5.0000*		*101*	*80-120*			
LCS Dup (BLG0219-BSD1)				Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 14:34							
Vinyl Chloride	9.89	0.08	0.20	ug/L	10.000		98.9	66-133	0.14	30	
cis-1,2-Dichloroethene	10.2	0.08	0.20	ug/L	10.000		102	80-121	1.56	30	
Trichloroethene	10.1	0.07	0.20	ug/L	10.000		101	80-120	2.18	30	
Surrogate: 1,2-Dichloroethane-d4	4.93			ug/L	*5.0000*		*98.5*	*80-129*			
Surrogate: Toluene-d8	4.98			ug/L	*5.0000*		*99.5*	*80-120*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BLG0215 - EPA RSK-175

Instrument: FID6 Analyst: LH

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLG0215-BLK1)				Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 12:15						
Methane	ND	0.65	ug/L							U
Ethane	ND	1.23	ug/L							U
Ethene	ND	1.14	ug/L							U
Acetylene	ND	1.06	ug/L							U
Surrogate: Propane	1760		ug/L	*1800.0*		*98.0*	*62-122*			
LCS (BLG0215-BS1)				Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 11:39						
Methane	705	0.65	ug/L	656.00		107	80-120			
Ethane	1370	1.23	ug/L	1230.0		112	80-120			
Ethene	1240	1.14	ug/L	1150.0		108	80-120			
Acetylene	1110	1.06	ug/L	1060.0		104	73-123			E
Surrogate: Propane	1840		ug/L	*1800.0*		*102*	*62-122*			
LCS Dup (BLG0215-BSD1)				Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 11:57						
Methane	697	0.65	ug/L	656.00		106	80-120	1.08	30	
Ethane	1360	1.23	ug/L	1230.0		111	80-120	0.75	30	
Ethene	1240	1.14	ug/L	1150.0		108	80-120	0.22	30	
Acetylene	1140	1.06	ug/L	1060.0		108	73-123	3.37	30	E
Surrogate: Propane	1840		ug/L	*1800.0*		*102*	*62-122*			
Duplicate (BLG0215-DUP1)	**Source: 23G0204-02**			Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 13:46						
Methane	6620	0.65	ug/L		5900			11.50	30	
Ethane	ND	1.23	ug/L		ND					U
Ethene	ND	1.14	ug/L		ND					U
Acetylene	ND	1.06	ug/L		ND					U
Surrogate: Propane	1300		ug/L	*1800.0*	*1180*	*72.3*	*62-122*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BLG0211 - EPA 300.0

Instrument: IC930 Analyst: BF

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLG0211-BLK1)				Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 19:28							
Nitrate-N	ND	0.100	0.100	mg/L							U
Sulfate	ND	0.100	0.100	mg/L							U
LCS (BLG0211-BS1)				Prepared: 12-Jul-2023 Analyzed: 12-Jul-2023 19:48							
Nitrate-N	5.32	0.100	0.100	mg/L	5.0000		106	90-110			
Sulfate	4.93	0.100	0.100	mg/L	5.0000		98.5	90-110			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: 1645001.040.044	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	22-Aug-2023 11:49

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BLG0309 - SM 5310 B-00

Instrument: TOC-LCSH Analyst: RMS

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BLG0309-BLK1)				Prepared: 17-Jul-2023 Analyzed: 20-Jul-2023 10:27							
Total Organic Carbon	ND	0.50	0.50	mg/L							U
LCS (BLG0309-BS1)				Prepared: 17-Jul-2023 Analyzed: 20-Jul-2023 10:49							
Total Organic Carbon	21.10	0.50	0.50	mg/L	20.000		106	90-110			
Duplicate (BLG0309-DUP1)		**Source: 23G0204-01**		Prepared: 17-Jul-2023 Analyzed: 20-Jul-2023 11:27							
Total Organic Carbon	5.92	0.50	0.50	mg/L		5.97			0.71	20	
Matrix Spike (BLG0309-MS1)		**Source: 23G0204-01**		Prepared: 17-Jul-2023 Analyzed: 20-Jul-2023 11:46							
Total Organic Carbon	22.40	0.50	0.50	mg/L	19.996	5.97	82.2	75-125			

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

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Certified Analyses included in this Report

Analyte	Certifications
EPA 300.0 in Water	
Nitrate-N	DoD-ELAP,WADOE,WA-DW,NELAP
Sulfate	DoD-ELAP,WADOE,WA-DW,NELAP
EPA 8260D in Water	
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
EPA RSK-175 in Water	
Methane	NELAP
Ethane	NELAP
Ethene	NELAP
Acetylene	NELAP
SM 5310 B-00 in Water	
Total Organic Carbon	WA-DW,WADOE,NELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024

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Notes and Definitions

*	Flagged value is not within established control limits.
D	The reported value is from a dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
J	Estimated concentration value detected below the reporting limit.
L	Analyte concentration is <=5 times the reporting limit and the replicate control limit defaults to +/- RL instead of 20% RPD
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.