LANDAU ASSOCIATES

TECHNICAL MEMORANDUM

TO: Michael Warfel, Washington State Department of Ecology

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

DATE: February 24, 2025

RE: 2024 Progress Report
October 2024 Injection Summary and Data through April 2024
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 2023 Progress Report (Landau 2023) and 2024 Work Plan Addendum No. 2 (Landau 2024).

This 2024 progress report presents performance monitoring results following the second application of EHC® for enhanced *in situ* biotic (biological) and abiotic (chemical) treatment and describes the third application in the areas of highest remaining groundwater cVOC concentrations. The first round of direct-push injection of EHC occurred in October 2020, followed by the second round of injection in October 2022 to a larger treatment area. The third EHC injection occurred in October 2024 to a much smaller treatment area. Monitoring for this period was completed in accordance with the 2022 Work Plan Addendum No. 1 (Landau 2022) and the injection was as described in the 2024 Work Plan Addendum No. 2 (Landau 2024). In 2024, a single round of post-injection performance groundwater monitoring following the 2022 injection was conducted in April. Injection areas through 2024 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), which is 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 2017 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. This baseline condition follows source excavation, but precedes extensive bioremediation, as described below.

Prior Source Excavation and Excavation Area 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. A relatively small dose of 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).

Prior Biotic/Abiotic Treatment at B&K and Wooldridge Properties

Injection testing with tap water was conducted in 2019 at two monitoring wells on the Wooldridge property to evaluate the feasibility of further fluid injections. 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).

Instead of attempting further fluid injections through wells to stimulate bioremediation at the Site, the approach was changed to use direct-push injection of EHC. The EHC approach overcomes the difficulty of injecting liquid amendments at the Site. The primary 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 other complementary substrates to form a slurry, was injected under high pressure to distribute the slurry into fractures created in the interbedded sand/silt/clay. Due to a relatively small achievable injection volume compared to typical fluid injection volumes, the EHC direct-push borings are located in a grid pattern with borings on approximate 8-ft centers.

The EHC 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 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.

2020

The initial 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 work was implemented in general accordance with the work plan (Landau 2020).

2022

A second round of EHC injection was implemented over a larger area in 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. The borings were located on the B&K, Wooldridge, and Sea Mar properties (Figure 2). Ferrous sulfate was added to the slurry to "sulfidate" the ZVI, providing a protective coating against water corrosion, which prolongs the reactivity of the ZVI surface to cVOCs. The soluble ferrous sulfate also moves with groundwater flow downgradient from injected borings where it precipitates on the aquifer matrix as reactive iron sulfides, expanding the area of treatment. Iron sulfides destroy TCE and cDCE by the same abiotic mechanism as ZVI. The work was implemented in general accordance with the work plan (Landau 2020) and addendum (Landau 2022).

2023 AND 2024 MONITORING RESULTS

Groundwater sampling was conducted three times following the October 2022 injection to monitor treatment progress. Sampling was conducted at 12 monitoring wells in January and July 2023 and April 2024, corresponding to approximately 3, 9, and 18 months after the 2022 injection. Data from the most recent sampling event in April 2024 are from approximately 6 months prior to the October 2024 injection. The January and July 2023 results were previously reported in the 2023 progress report (Landau 2023). Groundwater sampling was completed in accordance with the matrix provided in Table 1. 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 2; note that Table 2 is ordered from south (upgradient) to north (downgradient). The elapsed time column for 2024 injection event has been added to this cumulative table. The 2024 laboratory analytical data report is provided in Attachment 1.

Table 2 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

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

overall mass destruction. Changes in molar fractions for each well and in average total chlorinated ethenes are discussed below.

Groundwater contours for April 2024 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 Figure 5.

TCE concentrations continued to decrease substantially at several wells through April 2024, but began to rebound or plateau at others. TCE iso-concentration contours for April 2024 are shown on Figure 6 with selected historical cVOC results and April 2024 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 total organic carbon (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 April 2024 (18 months after EHC injection) are as follows:

- **MW-12**: The TCE concentration in April (0.37 µg/L) represents a 99.5 percent concentration reduction compared to 63.1 µg/L in April 2022 prior to the second injection. TCE concentrations have been below the groundwater cleanup levels beginning in July 2023. Concentrations of breakdown products cDCE and VC continued to decrease through April 2024. End products ethene and ethane have not been detected since January 2023, as the concentrations of TCE and breakdown products have decreased. TOC concentrations decreased substantially following injection, from 1,770 milligrams per liter (mg/L) in January 2023 through July 2023 (58 mg/L) and April 2024 (7 mg/L). 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. Sulfate concentrations increased slightly from non-detect in July 2023 to 5.45 mg/L in April 2024 but are still lower than the pretreatment concentration of 36 mg/L. Sulfate concentrations reflect the injection of ferrous sulfate and low sulfate concentrations along with increased methane (17.5 mg/L in April), indicate the continuation of the highly reducing conditions (sulfate-reducing to methanogenic), which are required for complete reductive dechlorination. Following the 2022 injection, the dominant molar fraction changed from TCE (83 percent in April 2022 to cDCE (96 percent in April 2024).
- **MW-11**: At this well with the highest baseline TCE concentration (1,100 µg/L, November 2017), TCE decreased from 116 µg/L prior to the 2022 injection to as low as 28 µg/L in July 2023, then rebounded slightly to 39.4 µg/L in April 2024. TCE remains highest at this well despite a substantial decrease in concentration. Concentrations of breakdown products cDCE and VC increased following injection. However, cDCE is not being optimally converted to VC and

ethene+ethane; this is apparent in the April molar fractions of 88 percent cDCE, 3 percent VC, and 0 percent ethene-ethane (down from 12 and 9 percent in 2023). This lack of proportionality is known as a cDCE-stall and can be caused by inadequately reducing conditions. Although substantial methane continues to be produced (7.34 mg/L in April 2024), sulfate has not been reduced to lower levels like those observed at other Site wells (e.g., MW-12, MW-7, and MW-8). Also, TOC concentrations have remained oddly low following the 2022 injection (maximum 8 mg/L through April 2024). A second possible reason for cDCE-stall is that the bacteria required for the cDCE to VC step (sp. *Dehalococcoides*) is not present, but this is not plausible given the good conversion to VC and ethene+ethane at other Site wells, and prior ethene+ethane molar fractions as high as 21 percent at MW-11. The 2024 injection activities described below were focused in this area to address this stall.

- **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 concentrations decreased from 300 µg/L in September 2016 to 0.08 µg/L in April 2024 (a 99.98 percent reduction). TCE concentrations have been below the groundwater cleanup levels beginning in August 2019. Breakdown product concentrations remain low with a slight increase from 2023 to 2024 despite low TOC concentrations (decreasing from 625 mg/L in January 2023 to 5 mg/L in April 2024). Through April, methane levels remain high (12 mg/L) and sulfate levels are still low, indicating a continuation of the required highly reducing aquifer redox conditions. The slight increase in sulfate from 2023 (< 1 mg/L) to April 2024 (5 mg/L) suggests waning treatment and a return to less reducing aquifer conditions. 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 2023 and April 2024, ethene+ethane was the dominant molar fraction at 90 percent.
- **MW-8**: TCE concentrations decreased from 327 µg/L prior to the 2022 injection to 0.33 µg/L in April 2024 (99.9 percent reduction) and have remained below the groundwater cleanup levels beginning in July 2023. Since the 2022 injection, breakdown products cDCE and VC increased to maximum levels (123 µg/L and 8.44 µg/L, respectively, in July 2023) then decreased significantly in 2024 (1.97 µg/L and 1.16 µg/L). End products ethene and/or ethane have been detected during every event since the 2022 injection with ethane at an all-time high of 30.6 µg/L in April 2024. In April, ethene plus ethane represents a 97 percent molar fraction, indicating robust and complete reductive dechlorination. Continued highly effective treatment and persistent sulfate reducing to methanogenic conditions occur despite decreased TOC concentrations from 294 mg/L in July 2023 to 8 mg/L in April 2024.
- **MW-9**: TCE concentrations have decreased substantially following the 2018 bioremediation injection to the former excavation area; TCE decreased from 78 µg/L in November 2016 to 2.28 µg/L in April 2024 (97 percent reduction). Concentrations of cDCE and VC increased following the 2022 injection in 2023 but decreased in 2024. Ethene and ethane were still not detected in 2024. TOC concentrations increased slightly to 10 mg/L following the 2002 injection, then remained at about 7 mg/L in July 2023 and April 2024. In 2024, methane concentrations remained elevated at 6.3 mg/L while sulfate (14.6 mg/L) was lower than previous sulfate detections (as high as 45 mg/L), indicating occurrence of the desired highly reducing aquifer redox conditions. Except for a brief TCE dominant molar fraction in September 2021, cDCE continues to be 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 concentrations decreased from

550 µg/L in March 2018 to an all-time low of 0.55 µg/L in April 2024 (99.9 percent decrease). The TCE concentration was below the groundwater cleanup level for the first time in April. Breakdown products cDCE and VC initially increased following the 2022 injection but dropped significantly by April 2024. Ethene and ethane were detected in January 2023 but not since, likely because only low levels of cVOCs remain. TOC concentrations decreased from 45.4 mg/L in January 2023 to its lowest level of approximately 2 mg/L in April 2024. Despite low TOC, methane remained elevated (4.6 mg/L) and sulfate remains approximately half of the prior maximum; these results indicate continuation of the desired highly reducing aquifer redox conditions. cDCE remains the dominant mole fraction in April 2024 (81 percent).

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. It is possible that stronger treatment effects may extend over time to fringe wells. From south to north, fringe wells and notable results through April 2024 (18 months after EHC injection) are as follows:

- **MW-13 and MW-10**: No substantial changes were observed at these crossgradient wells located west of the plume. At both wells, low concentrations of cDCE (<1 µg/L) were detected in April 2024 with no TCE detections, similar to pre-injection results. Based on changes at these wells in the 18 months since the large footprint injection in 2022, Landau proposes to drop these wells from ongoing monitoring.
- **MW-6**: This well is located within the footprint of the 2013 source area excavation. TCE decreased substantially following excavation and the 2018 bioremediation injection to the former excavation area; TCE concentrations decreased from 89 µg/L in 2014 to 10.0 µg/L in April 2024 (89 percent reduction); this is the second lowest detection at this well. In April, cDCE became the dominant molar fraction for the first time (46 percent). The April ethene+ethane molar fraction was substantial in April 2024 (21 percent). No notable changes in TOC or aquifer redox parameters have occurred following any of the injections; this indicates that the observed changes for TCE, breakdown products, and end products are the result of upgradient treatment, not treatment in the immediate vicinity of this well.
- **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. TCE concentrations decreased from a maximum of 28 µg/L in July 2023 to 7 µg/L in April 2024, near pre-injection levels. Concentrations of cDCE continued to increase after the 2022 injection to a maximum of 44.6 µg/L in April 2024 along with the first low-level detection of VC at this location (0.1 µg/L). Elevated levels of end product ethane (near 30 µg/L) occurred in July 2023 and April 2024. Methane levels of 3 and 8 mg/L in July 2023 and April 2024 indicate the desired highly reducing aquifer condition despite sulfate levels that remain high after a slight decrease following the 2022 injection (116 mg/L in April). Ethene+ethane has been the dominant molar fraction (61 to 80 percent) since March 2021. Persistent low TOC levels continue to indicate that the observed changes result from nearby, upgradient treatment. TOC increased slightly to a maximum of 5 mg/L in April 2024.

- **SM-MW-8**: This Sea Mar well is located crossgradient (east) of the 2022 injection area, of the 2013 source injection, and of the 2018 bioremediation injection to the former excavation area. TCE decreased again to the lowest concentration to date of 8.5 µg/L, down from a maximum of 39 µg/L. TCE remained the dominant molar fraction in 2024 at 64 percent, also the lowest to date. Due to low groundwater recharge at this well, not all parameters can be analyzed. Observations of low TOC, persistent sulfate, and low to non-detected methane concentrations indicate that observed changes in TCE and cDCE result from nearby, crossgradient treatment.
- **SM-MW-17A**: This Sea Mar well is located downgradient of the core treatment area. Similar to well SM-MW-18, certain changes following the 2022 injection are attributable to nearby upgradient treatment. In 2024, TOC changes continue to be insignificant. In April 2024, TCE and cDCE concentrations were low or not detected, consistent with prior results, while VC decreased to non-detect. Ethane remained high at 9 µg/L; ethene+ethane has been the dominant molar fraction (77 to 99 percent) since March 2021 and reached a maximum of 100 percent in April. Methane in April increased to a maximum of 8 mg/L. These results indicate effective upgradient treatment without any downgradient migration of contaminants.

Overall Site Trends

To further evaluate Site-wide treatment progress, total chlorinated ethenes and average molar fractions for the 12 monitored wells in April 2024 were plotted with results from prior sampling events (Figure 7). 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 cDCE and VC.
- 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 continued benefits of *in situ* treatment from November 2017 through April 2024 are apparent on Figure 7, as described below.

- The generally declining trend in total cVOCs is apparent. Average total cVOCs across the Site decreased from 1.63 micromoles per liter (µmoles/L) in 2017 to an all-time low of 0.41 µmoles/L in April 2024. This represents a 75 percent decrease in total cVOC mass present in Site groundwater over the 7 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 April 2024, the TCE molar

fraction has been reduced from approximately 77 percent to 6 percent. Combined breakdown products (cDCE and VC) and end products (ethene and ethane) in April 2024 constituted 94 percent of the molar fraction, including non-toxic end products ethene plus ethane at 45 percent.

2024 FOCUSED EHC INJECTION

A third round of treatment using direct-push injection of EHC slurry was implemented in 2024 in general accordance with the work plan (Landau 2020) and Addendum No. 2 (Landau 2024). From September 23 through October 4, 2024, approximately 6,200 pounds of EHC, 510 gallons of LactOil, and 1,600 gallons of ferrous sulfate solution were injected to 23 direct-push borings on the Wooldridge (18 borings) and Sea Mar (5 borings) properties. As-built locations of borings for this focused injection are shown on Figure 4. The 2024 and 2022 boring locations are shown together on Figure 6; 2024 borings were offset from prior injected locations.

Various quantities of slurry were emplaced in borings on the Wooldridge and Sea Mar properties. An average of 17 pounds of EHC was emplaced per vertical foot (lb/ft) in the Wooldridge borings and 11 lb/ft in the Sea Mar borings. The difference in emplacement weight between the two properties was planned due to large amounts of surfacing and high pressures at Sea Mar during the 2022 injection. The EHC was mixed with ferrous sulfate solution, LactOil, and minimal water to create injectable slurry. The 2024 injection slurry was more viscous than in 2022 and 2020 to decrease surfacing. An average of 81 gallons of ferrous sulfate and 23 gallons of LactOil were injected in each boring at the Wooldridge property, while the Sea Mar borings averaged 28 gallons of ferrous sulfate and 22 gallons of LactOil. The boring IDs, details of injection quantities and intervals, and date injected for each boring are detailed in Table 3.

As with the 2020 and 2022 injections, challenges were encountered with slow dissipation of back pressure, but there was minimal surfacing of injected slurry likely due to the increased viscosity. While beneficial to minimize surfacing, the thicker slurry increased injection pressures, which averaged approximately 700 pounds per square inch (psi) compared to the 50-psi pressures of the two prior injections. The high pressure likely contributed to several instances of pump breakdown, which slowed the injection progress. The injection casing was often capped in place overnight after completing injection at a boring and removed after the pressure subsided.

SUMMARY AND NEXT STEPS

These results, through 18 months after the large footprint EHC injection in 2022, indicate continued, effective treatment through stimulated biotic and abiotic degradation of TCE and breakdown products throughout the plume area. *In situ* biotic and abiotic treatment over the last 7 years has substantially reduced cVOC mass (75 percent reduction) and resulted in a shift from TCE molar fraction dominance to dominance of breakdown products and non-toxic end products. Treatment will be further enhanced by the focused October 2024 injection targeting the area around highest concentration well MW-11 located on the Wooldridge property.

Semiannual groundwater monitoring will continue through 2025 for evaluation of treatment effects and the potential need for subsequent injection. Two monitoring events are anticipated in March and September 2025. Groundwater monitoring will continue in accordance with a revised sampling matrix (Table 4), which reflects the following changes:

- Monitoring will be discontinued at wells MW-10 and MW-13. These wells are located west of the plume and cVOC concentrations have remained consistently very low (<0.25 µg/L) or not detected.
- Nitrate analysis will be discontinued. Nitrate has been consistently not detected since EHC treatment began and is not a beneficial parameter for ongoing evaluation.

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

LANDAU ASSOCIATES, INC.

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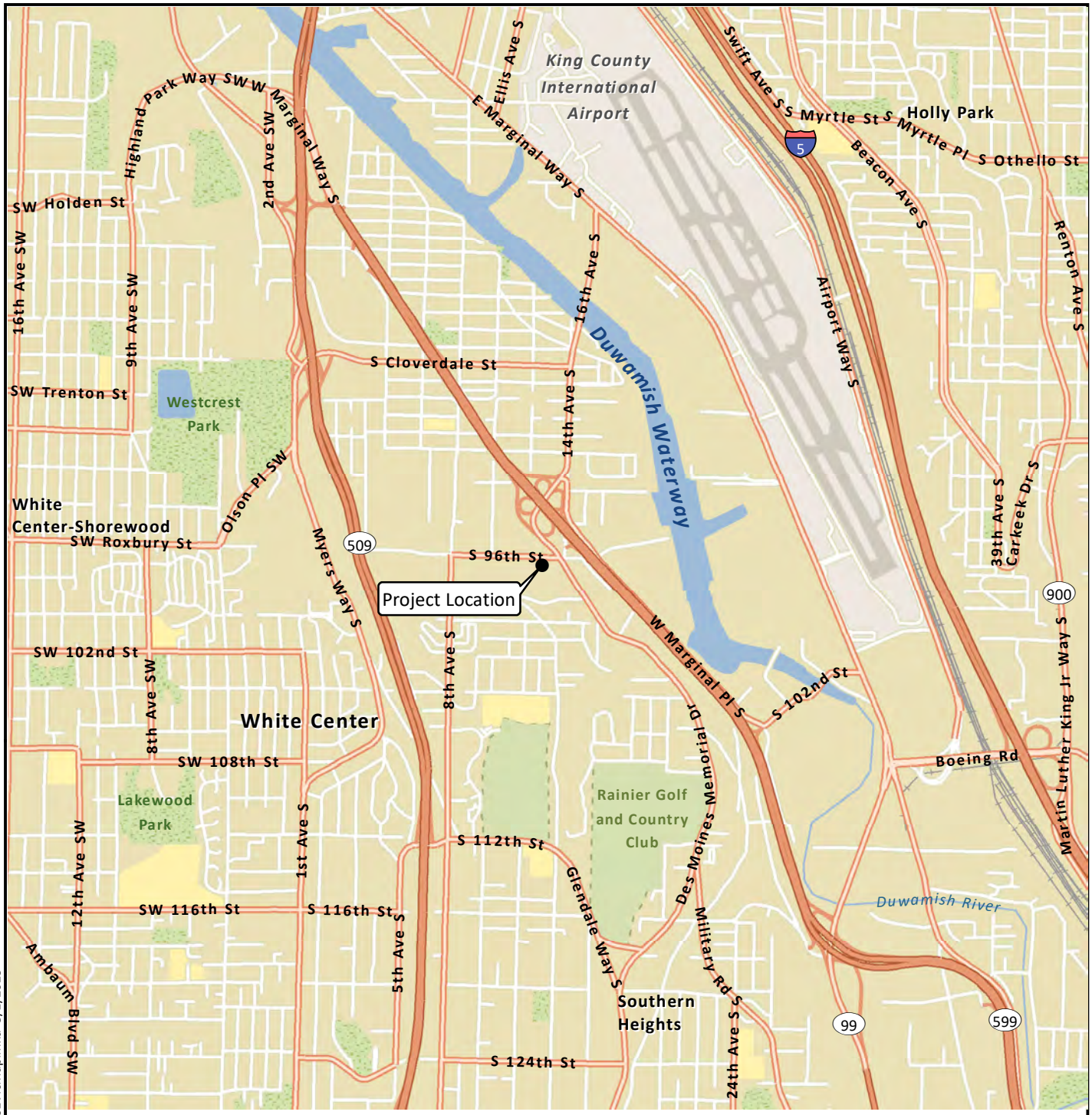
Attachments

Figure 1: Vicinity Map
Figure 2: Site Plan
Figure 3: cVOC Sampling Results Through July 2023
Figure 4: 2024 As-Built Injection Grid
Figure 5: Groundwater Elevation Contours – April 2024
Figure 6: cVOC Sampling Results Through April 2024
Figure 7: Average Total cVOC Concentrations and Molar Fractions
Table 1: Groundwater Sampling Matrix
Table 2: Bioremediation Data Summary
Table 3: EHC Injection Summary
Table 4: Revised Groundwater Sampling Matrix
Attachment 1: Laboratory Analytical Data Report



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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
- Approximate 2024 EHC Injection Area
- 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

LANDAU ASSOCIATES

Beckwith & Kuffel, Inc.
Seattle, Washington

Site Plan

Figure
2

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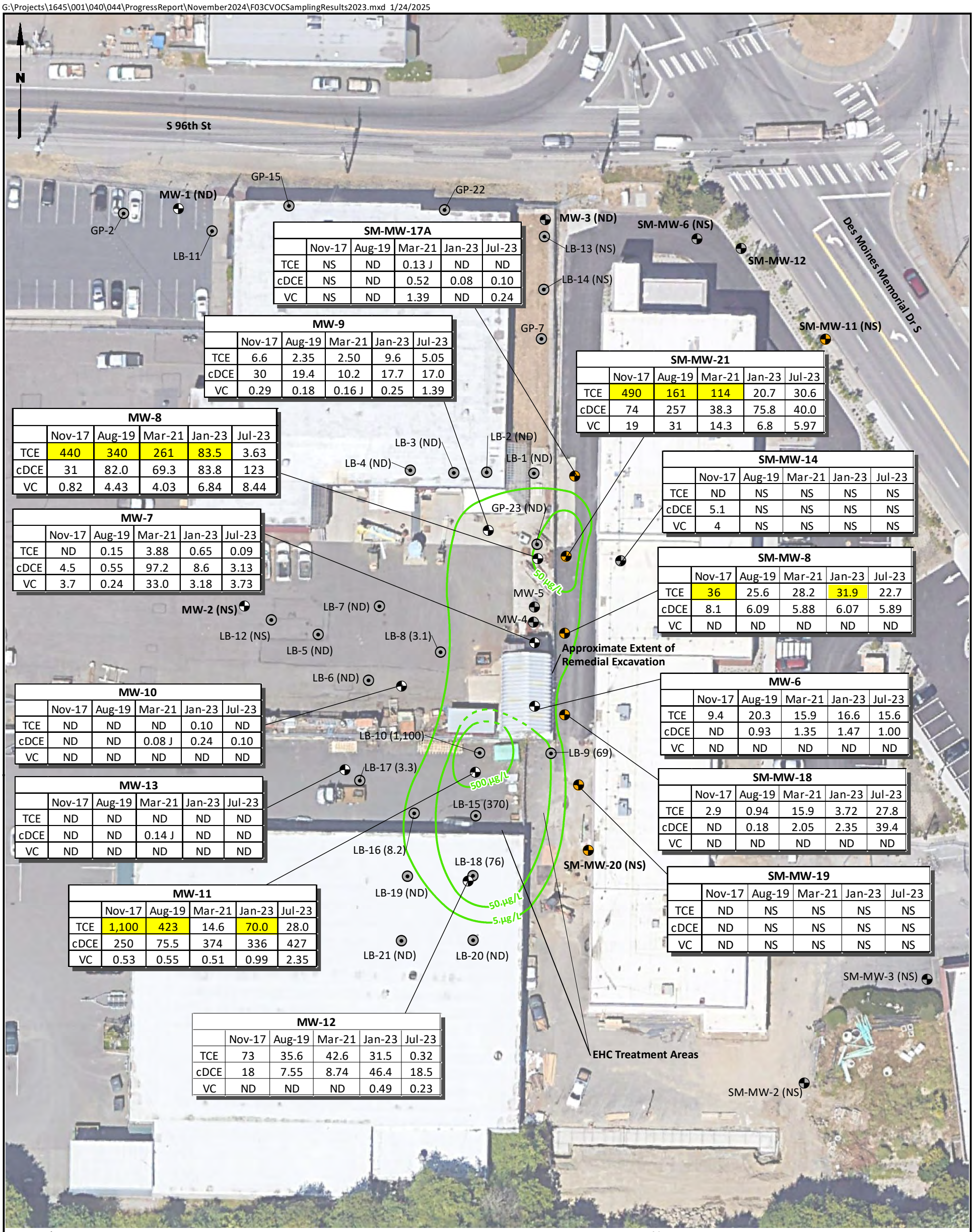


SM-MW-17A

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

MW-9

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

SM-MW-21

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23
TCE	490	161	114	20.7	30.6
cDCE	74	257	38.3	75.8	40.0
VC	19	31	14.3	6.8	5.97

MW-8

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

SM-MW-14

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23
TCE	ND	NS	NS	NS	NS
cDCE	5.1	NS	NS	NS	NS
VC	4	NS	NS	NS	NS

MW-7

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23
TCE	ND	0.15	3.88	0.65	0.09
cDCE	4.5	0.55	97.2	8.6	3.13
VC	3.7	0.24	33.0	3.18	3.73

SM-MW-8

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

MW-6

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

MW-10

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

SM-MW-18

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

MW-13

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23
TCE	ND	ND	ND	ND	ND
cDCE	ND	ND	0.14 J	ND	ND
VC	ND	ND	ND	ND	ND

SM-MW-19

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

MW-11

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

MW-12

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

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.

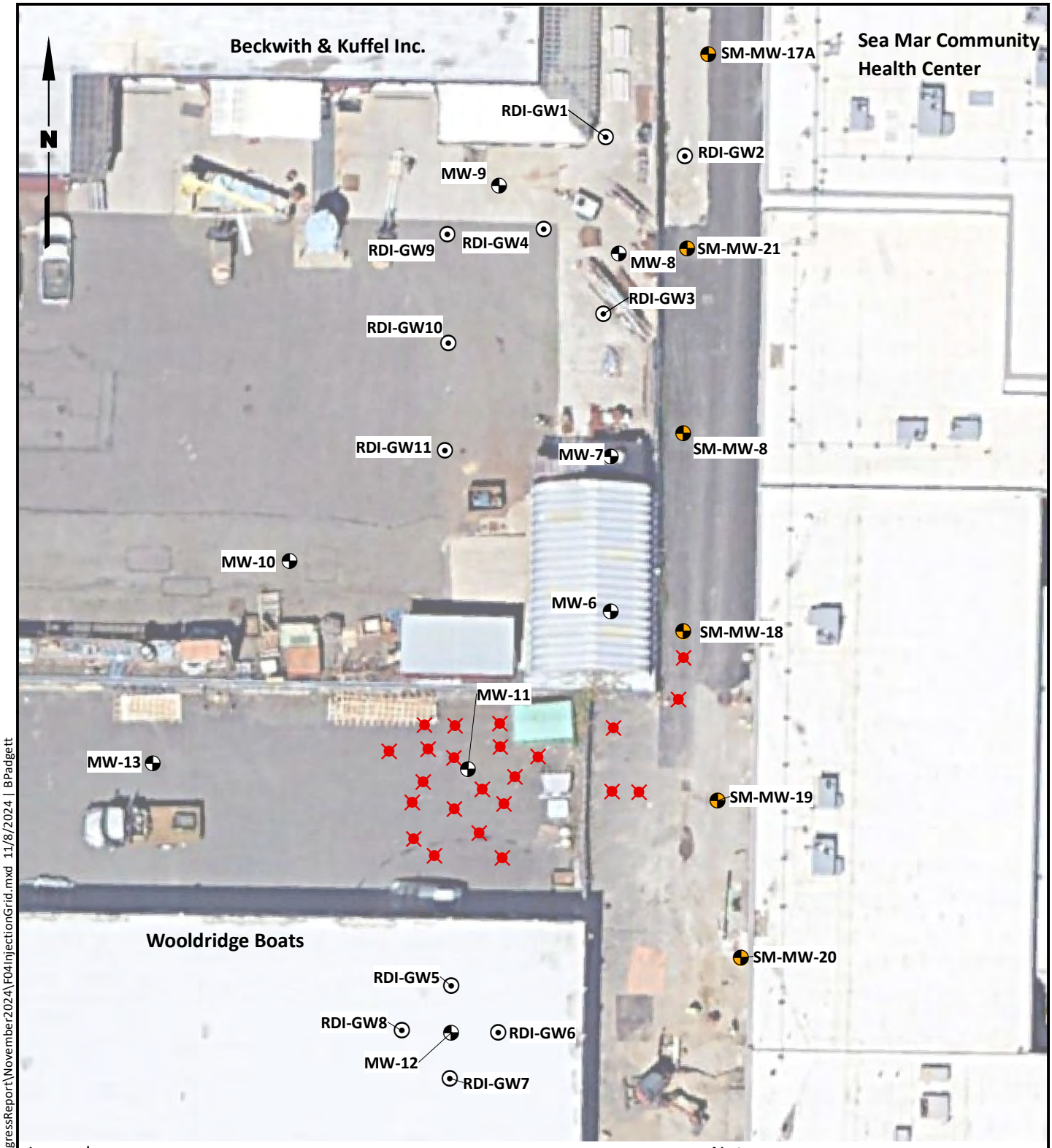
cDCE = *cis*-1,2-dichloroethene
cVOC = chlorinated volatile organic compound
ND = not detected
NS = not sampled
TCE = trichoroethene
VC = vinyl chloride

LANDAU ASSOCIATES

Beckwith & Kuffel, Inc.
Seattle, Washington

cVOC Sampling Results Through July 2023

Figure 3



Legend

- 2024 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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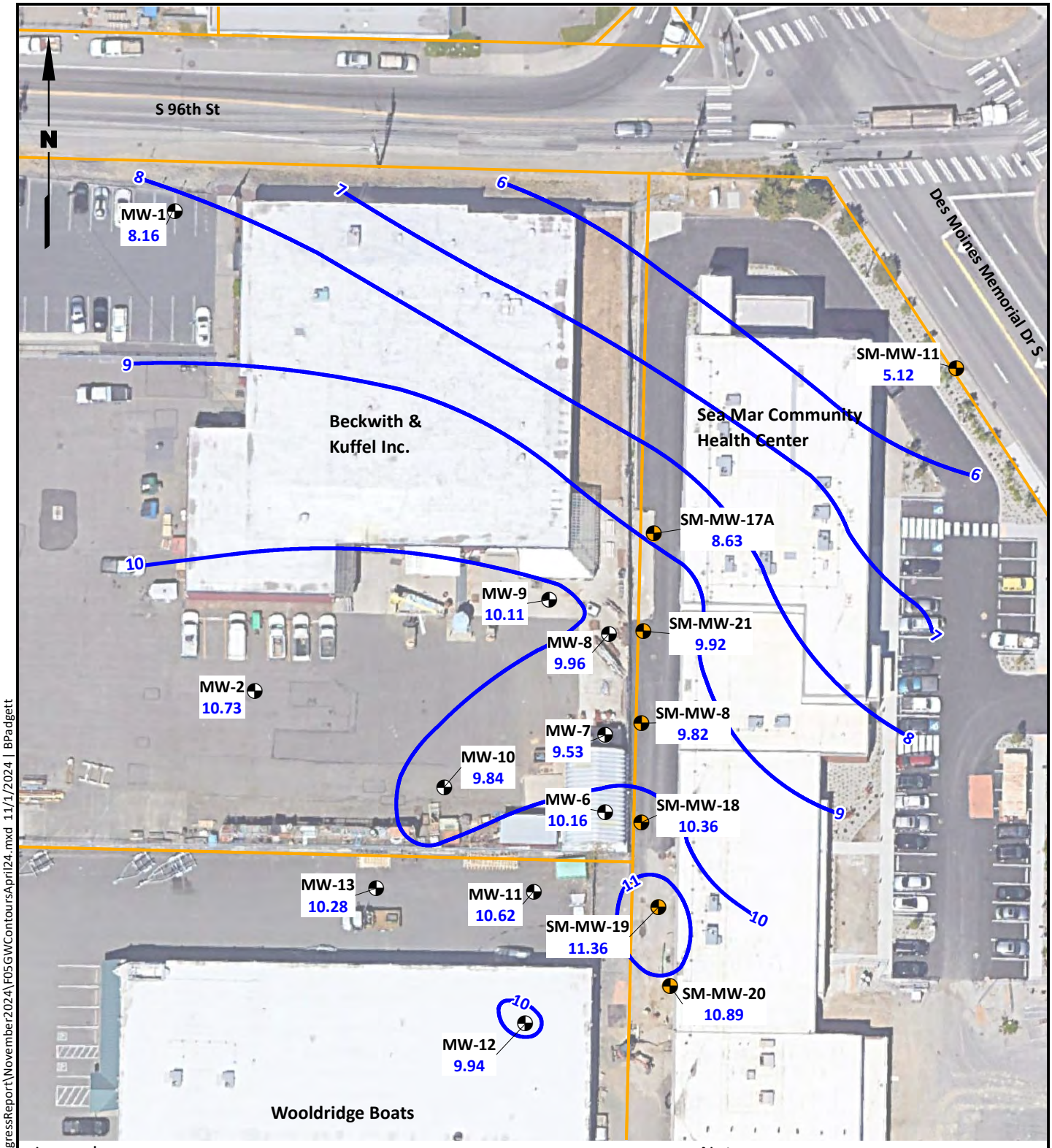
LANDAU ASSOCIATES

Beckwith & Kuffel, Inc. Seattle, Washington	**2024 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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LANDAU ASSOCIATES

Beckwith & Kuffel, Inc. Seattle, Washington	**Groundwater Elevation Contours April 2024**	Figure 5

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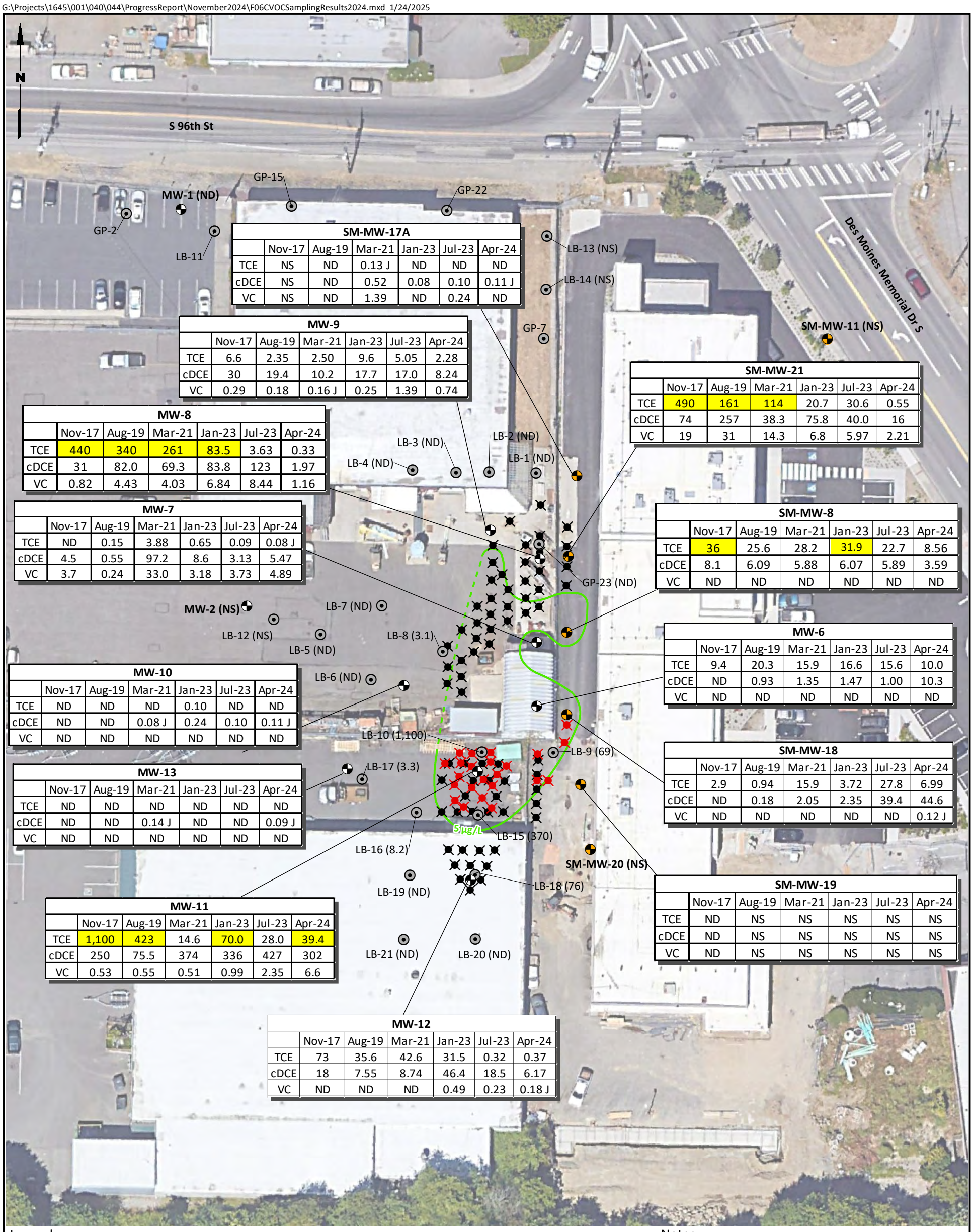


SM-MW-17A

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23	Apr-24
TCE	NS	ND	0.13 J	ND	ND	ND
cDCE	NS	ND	0.52	0.08	0.10	0.11 J
VC	NS	ND	1.39	ND	0.24	ND

MW-9

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23	Apr-24
TCE	6.6	2.35	2.50	9.6	5.05	2.28
cDCE	30	19.4	10.2	17.7	17.0	8.24
VC	0.29	0.18	0.16 J	0.25	1.39	0.74

SM-MW-21

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23	Apr-24
TCE	490	161	114	20.7	30.6	0.55
cDCE	74	257	38.3	75.8	40.0	16
VC	19	31	14.3	6.8	5.97	2.21

MW-8

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23	Apr-24
TCE	440	340	261	83.5	3.63	0.33
cDCE	31	82.0	69.3	83.8	123	1.97
VC	0.82	4.43	4.03	6.84	8.44	1.16

MW-7

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23	Apr-24
TCE	ND	0.15	3.88	0.65	0.09	0.08 J
cDCE	4.5	0.55	97.2	8.6	3.13	5.47
VC	3.7	0.24	33.0	3.18	3.73	4.89

SM-MW-8

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23	Apr-24
TCE	36	25.6	28.2	31.9	22.7	8.56
cDCE	8.1	6.09	5.88	6.07	5.89	3.59
VC	ND	ND	ND	ND	ND	ND

MW-6

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23	Apr-24
TCE	9.4	20.3	15.9	16.6	15.6	10.0
cDCE	ND	0.93	1.35	1.47	1.00	10.3
VC	ND	ND	ND	ND	ND	ND

MW-10

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23	Apr-24
TCE	ND	ND	ND	0.10	ND	ND
cDCE	ND	ND	0.08 J	0.24	0.10	0.11 J
VC	ND	ND	ND	ND	ND	ND

SM-MW-18

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23	Apr-24
TCE	2.9	0.94	15.9	3.72	27.8	6.99
cDCE	ND	0.18	2.05	2.35	39.4	44.6
VC	ND	ND	ND	ND	ND	0.12 J

MW-13

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23	Apr-24
TCE	ND	ND	ND	ND	ND	ND
cDCE	ND	ND	0.14 J	ND	ND	0.09 J
VC	ND	ND	ND	ND	ND	ND

SM-MW-19

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23	Apr-24
TCE	ND	NS	NS	NS	NS	NS
cDCE	ND	NS	NS	NS	NS	NS
VC	ND	NS	NS	NS	NS	NS

MW-11

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23	Apr-24
TCE	1,100	423	14.6	70.0	28.0	39.4
cDCE	250	75.5	374	336	427	302
VC	0.53	0.55	0.51	0.99	2.35	6.6

MW-12

	Nov-17	Aug-19	Mar-21	Jan-23	Jul-23	Apr-24
TCE	73	35.6	42.6	31.5	0.32	0.37
cDCE	18	7.55	8.74	46.4	18.5	6.17
VC	ND	ND	ND	0.49	0.23	0.18 J

Legend

- MW-12 — Monitoring Well (Landau)
- SM-MW-11 — Monitoring Well (Sea Mar)
- LB-1 — Former Direct-Push Boring
- 2022 Injection Location
- 2024 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)

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

- MW-12 - Monitoring Well Designation
- Nov-17 - Sampling Date
- TCE - Detected Concentration (µg/L)

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.

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.

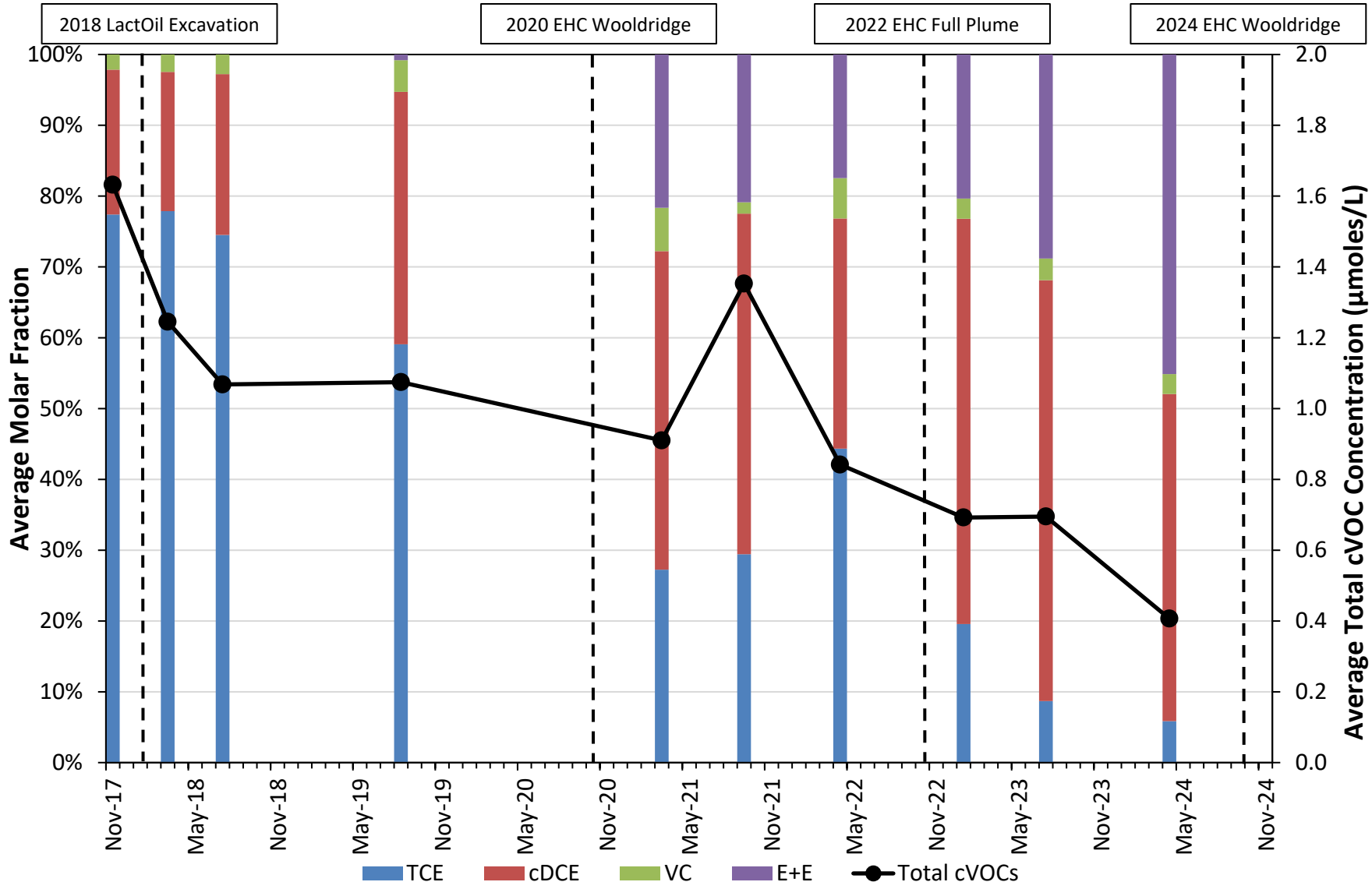
0 50 100
Scale in Feet

LANDAU ASSOCIATES

Beckwith & Kuffel, Inc.
Seattle, Washington

cVOC Sampling Results Through April 2024

Figure 6



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
7

Table 1
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 and 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 2
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	EHC Direct-Push Injection WDG	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)	Nitrate (mg-N/L)	Iron II (mg/L)	Sulfate (mg/L)	Methane (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	1	NA	53	ND	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	1.1	ND	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	--	--	1.1	--	51	ND	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	0.607	ND	46.8	0.003	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	ND	0.0	31.3	0.003	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	0.106	0.0	36.1	0.006	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	0.150	0.0	35.7	0.001	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	ND	9.0	7.69	5.67	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	ND	6.0	ND	8.71	58	6.9	0.20	0%	1%	97%	2%	0%
	4/11/2024	2,270	1274	533	-176	--	**0.37**	**6.17**	**0.18 J**	ND	ND	ND	0.78	-113	ND	7.0	5.45	17.5	6.83	6.77	0.07	0%	4%	96%	0%	0%
MW-13	11/7/2017	-77				--	ND	ND	ND	ND	ND	ND	1.77	51.8	ND	--	130	ND	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	ND	ND	120	0.020	4.30	--	0.00	0%	0%	0%	0%	0%
	8/28/2019	582	-414			--	ND	ND	ND	ND	ND	ND	5.34	48.0	ND	ND	106	0.016	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	ND	0.0	68.2	0.017	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	ND	0.0	114	0.034	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	ND	0.0	95.8	0.191	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	ND	1.2	246	0.206	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	ND	0.5	105	0.938	4.29	6.23	0.00	0%	0%	0%	0%	0%
	4/11/2024	2,270	1274	533	-176	'--	ND	**0.09 J**	ND	ND	ND	ND	0.82	2.6	ND	0.5	78.3	0.802	4.51	6.33	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	17	--	220	ND	1.50	6.41	0.00	0%	0%	0%	0%	0%
	3/22/2018	58				--	ND	ND	ND	ND	ND	ND	0.39	104	12	ND	160	ND	1.90	6.36	0.00	0%	0%	0%	0%	0%
	7/2/2018	160	-836	-1,577	-2286	--	ND	ND	ND	ND	ND	ND	0.39	104	18	ND	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	--	--	0.5	--	140	ND	5.40	--	10.96	0%	76%	24%	0%	0%
	3/22/2018	58				--	**930**	**140**	**0.47**	ND	ND	ND	0.64	65.2	0.7	ND	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	0.87	ND	84	0.050	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	1.07	ND	207	0.019	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	ND	1.4	4.95	9.92	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	ND	4.0	92.2	4.23	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	ND	3.0	140	6.69	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	ND	--	108	5.75	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	ND	6.5	41.9	6.56	6.43	6.25	4.66	0%	4%	86%	1%	9%
	4/11/2024	2,270	1274	533	-176	--	**39.4**	**302**	**6.6**	**6.63 J**	**9.05 J**	ND	2.97	22.9	ND	5.5	43.8	7.34 J	8.33	6.21	3.52	0%	9%	88%	3%	0%

Table 2
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	EHC Direct-Push Injection WDG	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)	Nitrate (mg-N/L)	Iron II (mg/L)	Sulfate (mg/L)	Methane (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-10	11/7/2017	-77				ND	ND	ND	ND	ND	ND	ND	0.72	43.4	ND	--	74	ND	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	1.5	49	ND	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	ND	1.5	65	0.020	5.40	--	0.00	0%	0%	0%	0%	0%
	8/28/2019	582	-414			--	ND	ND	ND	ND	ND	ND	4.54	91.1	ND	ND	65.3	0.002	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	0.0	45.2	ND	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	ND	0.0	56.2	0.005	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	0.0	57.3	ND	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	ND	0.75	59.9	0.030	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	R	1.00	63.8	0.021	2.42	6.62	0.00	0%	0%	100%	0%	0%
	4/11/2024	2,270	1274	533	-176	--	ND	**0.11 J**	ND	ND	ND	ND	0.83	115.0	ND	0.00	66.8	0.002	2.43	6.57	0.00	0%	0%	0%	0%	0%
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	--	29.0	ND	2.40	--	0.07	0%	100%	0%	0%	0%
	3/22/2018	58				--	**21.0**	ND	ND	ND	ND	ND	2.95	124	0.5	ND	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	0.26	ND	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	ND	ND	34.7	0.004	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	0.0	22.4	ND	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	ND	0.0	25.7	0.029	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	0.0	29.8	ND	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	ND	0.0	30.7	0.175	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	R	0.0	31.2	0.837	2.66	--[d]	0.13	0%	92%	8%	0%	0%
	4/11/2024	2,270	1274	533	-176	--	**10.0**	**10.3**	ND	ND	**1.40**	ND	0.3	10.8	ND	0.0	31.6	0.3	2.74	6.4	0.18	0%	33%	46%	0%	21%
SM-MW-18	11/18/2017	-66				--	**2.90**	ND	ND	ND	ND	ND	3.69	100	14	--	310	ND	1.80	--	0.02	0%	100%	0%	0%	0%
	3/22/2018	58				--	**2.40**	ND	ND	ND	ND	ND	1.16	122	12	0.5	330	ND	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	9.1	0.5	360	ND	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	1.7	ND	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	0.100	0.0	156	0.009	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	0.228	0.0	186	0.007	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	0.118	0.0	182	0.009	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	0.116	0.4	178	0.969	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	ND	0.0	119	2.94	4.74	6.83	0.62	0%	12%	23%	0%	66%
	4/11/2024	2,271	1275	534	-175	--	**6.99**	**44.6**	**0.12 J**	ND	**28.4**	ND	0.36	-119	ND	0.0	116	8.4	4.91	6.77	0.51	0%	3%	30%	0%	66%

Table 2
Bioremediation Data Summary
Beckwith & Kuffel, Inc.
Seattle, Washington

Location	Date Sampled	Elapsed Time (days)				Parent and Degradation Products							Aquifer Redox Conditions						Treatment Indicators		Total Chlorinated Ethenes (µmoles/L)	Molar Fractions (Percent)				
		Excavation Area LactOil Injection	EHC Direct-Push Injection WDG	EHC Direct-Push Injection WDG/B&K	EHC Direct-Push Injection WDG	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)	Nitrate (mg-N/L)	Iron II (mg/L)	Sulfate (mg/L)	Methane (mg/L)	TOC (mg/L)	pH		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-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	--	--	6.1	--	53	4.00	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	1.4	3.0	18	1.70	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	ND	3.0	20	2.00	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	ND	5.5	ND	4.81	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	ND	3.0	25.7	2.33	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	ND	4.0	14.7	1.45	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	ND	4.0	18.0	0.899	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	ND	5.9	0.4	12.8	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	ND	10.0	0.7	12.9	5.97	6.48	0.09	0%	0%	3%	6%	90%
	4/11/2024	2,271	1,275	534	-175	--	0.08 J	5.47	4.89	7.25	27.9	ND	0.91	-90	ND	6.0	5.22	11.9	4.99	6.53	0.13	0%	0%	4%	6%	90%
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	1.4	--	120	ND	1.60	--	0.36	0%	77%	23%	0%	0%
	3/22/2018	58				--	39.0	6.60	ND	ND	ND	ND	--	--	1.9	3.5	130	ND	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	1.5	3.5	120	ND	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	--	ND	--	1.31	--	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	--	0.0	--	0.598	--	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	--	0.0	--	0.417	--	6.82	0.32	0%	78%	22%	0%	0%
	4/13/2022	1,541	545	-196		--	28.6	5.03	ND	ND	ND	ND	--	--	0.555	--	152	0.077	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	0.404	0.0	146	0.013	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	--	0.0	--	0.026	--	6.84	0.23	0%	74%	26%	0%	0%
	4/11/2024	2,271	1275	534	-175	--	8.56	3.59	ND	ND	ND	ND	2.97	-68.5	--	0.0	--	0.003	--	6.79	0.10	0%	64%	36%	0%	0%
MW-8	11/7/2017	-77				--	440	31.0	0.82	ND	ND	ND	0.44	17.1	ND	--	78	0.020	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	ND	ND	86.9	0.453	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	ND	1.8	60.0	0.423	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	ND	0.5	79.9	0.153	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	ND	0.4	80.7	0.089	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	ND	4.25	22.9	12.2	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	ND	9.00	0.401	11.4	293.9	6.68	1.43	0%	1%	65%	7%	26%
	4/11/2024	2,271	1275	534	-175	--	0.33	1.97	1.16	6.57	30.6	ND	0.45	-68.4	ND	7.00	1.62	12.3	8.14	6.82	0.04	0%	0%	1%	1%	97%

Table 2
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	EHC Direct-Push Injection WDG	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)	Nitrate (mg-N/L)	Iron II (mg/L)	Sulfate (mg/L)	Methane (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-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	ND	NA	40	0.250	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	ND	3.5	45	0.120	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	ND	3.5	42	0.070	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	0.11	3.5	32.5	0.671	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	ND	2.5	24.5	0.768	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	ND	3.4	32.7	0.869	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	ND	3.4	33.7	0.486	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	ND	4.6	13.4	18.4	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	ND	8.0	27.1	5.9	7.37	6.58	0.24	0%	16%	74%	9%	0%
	4/11/2024	2,271	1,275	534	-175	--	**2.28**	**8.24**	**0.74**	ND	ND	ND	1.07	-32.8	ND	5.0	14.6	6.3	7.39	6.57	0.11	0%	15%	74%	10%	0%
SM-MW-21	11/18/2017	-66				--	**490**	**74.0**	**19.0**	ND	ND	ND	1.78	-320	ND	--	48	0.050	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	ND	ND	54	0.070	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	0.19	ND	65	0.070	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	ND	1.0	16.5	2.54	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	ND	0.0	37.8	0.795	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	ND	0.5	52.7	0.295	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	ND	0.6	34.6	0.107	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	ND	1.5	27.8	14.1	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	ND	4.5	38.6	11.8	4.03	6.52	0.74	0%	31%	56%	13%	0%
	4/11/2024	2,271	1275	534	-175	--	**0.55**	**16**	**2.21**	ND	ND	ND	6.57	-24	ND	2.5	33.4	4.58	1.83	7.24	0.20	0%	2%	81%	17%	0%
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	--	--	6	--	54	3.50	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	-2286	--	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	ND	1.6	14	0.780	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	ND	1.6	13	0.900	3.00	--	0.16	0%	0%	31%	69%	0%
	8/27/2019	581	-415			--	ND	ND	ND	ND	ND	ND	0.41	-51.8	ND	ND	13.1	0.121	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	ND	0.0	5.14	3.14	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	ND	0.8	8.02	2.99	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	ND	1.0	3.94	2.45	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	ND	0.0	5.95	1.44	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	ND	3.0	0.647	6.49	2.98	6.91	0.00	0%	0%	0%	1%	99%
	4/11/2024	2,271	1275	534	-175	--	ND	**0.11 J**	ND	ND	**9.42**	ND	0.33	-69.8	ND	3.5	0.851	8.26	2.92	7.22	0.00	0%	0%	0%	0%	100%

Table 2
Bioremediation Data Summary
Beckwith & Kuffel, Inc.
Seattle, Washington

Abbreviations and 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
J = lab estimated value
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 injecte LactOil injected to MW-7 in former excavation backfill
Wooldridge Direct-Push Injection	10/15/2020	EHC and Lacto 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 New 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
Wooldrige Direct-Push Injection	10/4/2024	EHC and Lacto EHC and LactOil injected to 23 borings located in NE corner of Wooldridge property and onto Sea Mar property

Table 3
EHC Injection Summary
Beckwith & Kuffel, Inc.
Seattle, Washington

Boring	Date	Depth (ft bgs)		Treatment Length (ft)	EHC Reagent			Ferrous Sulfate Volume (gal)	LactOil Volume (gal)	Total Volume
		Bottom	Top		Bags	Mass (lbs)	Dose (lb/ft)			
WB1	9/24/2024	25	8	17	6.0	296	17	82	22.7	133
WB2	9/24/2024	25	8	17	6.0	296	17	82	22.7	133
WB3	9/24/2024	25	8	17	6.0	293	17	81	22.5	132
WB4	9/24/2024	25	8	17	6.0	293	17	81	22.5	132
WB5	9/25/2024	25	8	17	6.0	293	17	81	22.5	132
WB6	9/25/2024	25	8	17	6.0	293	17	81	22.5	132
WB7	9/26/2024	25	8	17	6.0	293	17	81	22.5	132
WB8	9/26/2024	25	8	17	6.0	293	17	81	22.5	132
WB9	9/26/2024	25	8	17	6.0	293	17	81	22.5	132
WB10	9/26/2024	25	8	17	6.0	293	17	81	22.5	132
WB11	9/26/2024	25	8	17	6.0	293	17	81	22.5	132
WB12	9/27/2024	25	8	17	6.0	293	17	81	22.5	132
WB13	9/30/2024	25	8	17	6.0	293	17	81	22.5	132
WB14	10/1/2024	25	8	17	6.0	293	17	81	22.5	132
WB15	10/1/2024	25	8	17	6.0	293	17	81	22.5	132
WB16	10/2/2024	25	8	17	6.0	293	17	81	22.5	132
WB17	10/2/2024	25	8	17	6.0	293	17	81	22.5	132
WB18	10/2/2024	25	8	17	6.0	293	17	81	22.5	132
SM-2	10/3/2024	25	8	17	3.0	141	8	28	21.6	62
SM-3	10/3/2024	25	8	17	4.0	188	11	28	21.6	71
SM-4	10/3/2024	25	8	17	4.0	188	11	28	21.6	71
SM-5	10/4/2024	25	8	17	4.0	188	11	28	21.6	71
SM-7	10/3/2024	25	8	17	4.0	188	11	28	21.6	71
				Total:	**127.0**	**6,173**	**--**	**1,600**	**513**	**2,724**
				WB Average:	**--**	**--**	**17**		**--**	**--**
				SM Average:			**11**			

Abbreviations and Acronyms:

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

Table 3
EHC Injection Summary
Beckwith & Kuffel, Inc.
Seattle, Washington

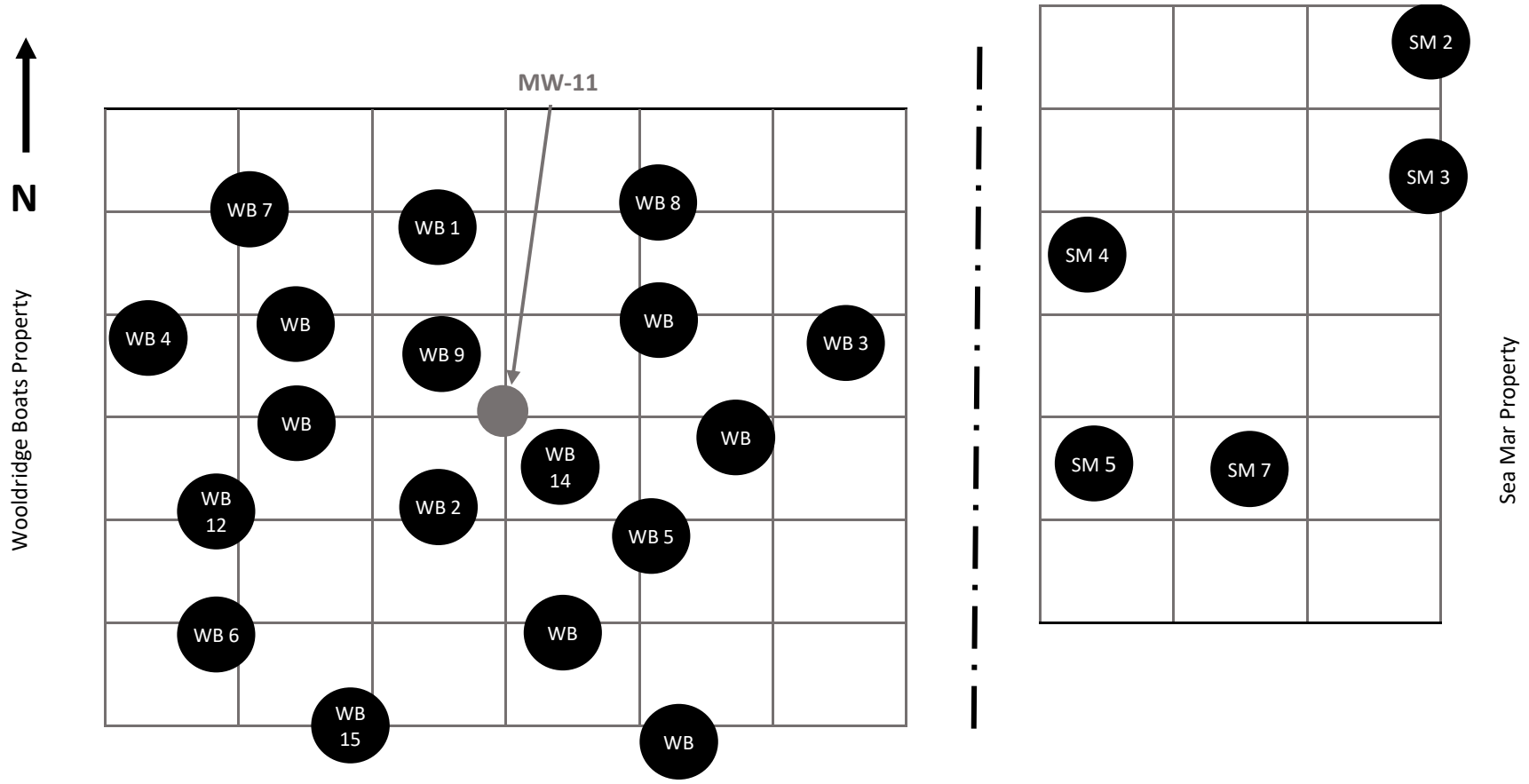

Table 4
Revised Groundwater Sampling Matrix
Beckwith & Kuffel, Inc.
Seattle, Washington

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	
MW-7	x	x		x	x	x	
MW-8	x	x		x	x	x	
MW-9	x	x		x	x	x	
MW-10							(c)
Wooldridge Property							
MW-11	x	x		x	x	x	
MW-12	x	x		x	x	x	
MW-13							(c)
Sea Mar Property							
SM-MW-8	x	?		?	x	x	(d)
SM-MW-11							(c)
SM-MW-17A	x	x		x	x	x	
SM-MW-18	x	x		x	x	x	
SM-MW-19							(c)
SM-MW-20							(c)
SM-MW-21	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 and 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

ATTACHMENT 1

Laboratory Analytical Data Report

Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

06 May 2024

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

RE: Beckwith and Kuffle (Beckwith and Kuffle)

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)
24D0295	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

24D0295

Chain-of-Custody Record

LANDAU ASSOCIATES

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

Date 4/11/24
Page 1 of 1

Turnaround Time:
Standard X
Accelerated

Project Name Beckwith and Kuffel Project No. 164S001.040.044
Project Location/Event Tukwila, WA / April 2024 GW Sampling
Sampler's Name Kalpana Prasad and Emerson Cole
Project Contact Clint Jacob
Send Results To C. Jacob, data@landauinc.com

Special Handling Requirements:
Shipment Method: Drop off
Stored on ice: (Yes) / No

Sample I.D.	Date	Time	Matrix	No. of Containers	TOC (SM 5310)	Nitrak and Sulfak *	AMEE (RSK-175) Δ	TCE, cDCE, VC (EPA 8260) Δ	MS/MSD	Observations/Comments
DUP1-240411	4/11/24	900	AQ	8	X	X	X	X	X	
MW-12-240411		929	AQ	8	X	X	X	X	X	
MW-11-240411		934	AQ	8	X	X	X	X	X	
MW-13-240411		1037	AQ	8	X	X	X	X	X	
MW-10-240411		1108	AQ	8	X	X	X	X	X	
MW-6-240411		1153	AQ	8	X	X	X	X	X	
MW-9-240411		1214	AQ	8	X	X	X	X	X	
MW-8-240411		1247	AQ	8	X	X	X	X	X	EVO 4/11
MW-7-240411		1308	AQ	8	X	X	X	X	X	
SM-MW-8-240411		1414	AQ	6			X	X		
SM-MW-17A-240411		1503	AQ	6	X	X	X	X		
SM-MW-18-240411		1548	AQ	8	X	X	X	X		
SM-MW-21-240411		1607	AQ	23°	X	X	X	X	X	
Trip Blanks		—	AQ	3				X		

- [ ] 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

* EPA 300.0, 48hr hold for Nitrak

Δ VOAs with HCl

o Nitrak / Sulfak consolidated into 2-1L bottles for MS/MSD

Relinquished by	Received by	Relinquished by	Received by
Signature	Signature	Signature	Signature
Printed Name Kalpana Prasad	Printed Name Matthew Rea	Printed Name	Printed Name
Company Landau Associates	Company Area	Company	Company
Date 4/11/24 Time 1745	Date 04/12/24 Time 07:57	Date Time	Date Time

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

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DUP1-240411	24D0295-01	Water	11-Apr-2024 09:00	12-Apr-2024 07:57
MW-12-240411	24D0295-02	Water	11-Apr-2024 09:29	12-Apr-2024 07:57
MW-11-240411	24D0295-03	Water	11-Apr-2024 09:34	12-Apr-2024 07:57
MW-13-240411	24D0295-04	Water	11-Apr-2024 10:37	12-Apr-2024 07:57
MW-10-240411	24D0295-05	Water	11-Apr-2024 11:08	12-Apr-2024 07:57
MW-6-240411	24D0295-06	Water	11-Apr-2024 11:53	12-Apr-2024 07:57
MW-9-240411	24D0295-07	Water	11-Apr-2024 12:14	12-Apr-2024 07:57
MW-8-240411	24D0295-08	Water	11-Apr-2024 12:47	12-Apr-2024 07:57
MW-7-240411	24D0295-09	Water	11-Apr-2024 13:08	12-Apr-2024 07:57
SM-MW-8-240411	24D0295-10	Water	11-Apr-2024 14:14	12-Apr-2024 07:57
SM-MW-17A-240411	24D0295-11	Water	11-Apr-2024 15:03	12-Apr-2024 07:57
SM-MW-18-240411	24D0295-12	Water	11-Apr-2024 15:48	12-Apr-2024 07:57
SM-MW-21-240411	24D0295-13	Water	11-Apr-2024 16:07	12-Apr-2024 07:57
TRIP BLANKS	24D0295-14	Water	11-Apr-2024 09:00	12-Apr-2024 07:57

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

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.

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.

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. Samples were re-analyzed with the same matrix effects.

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

Landau Associates, Inc.	Project:	Beckwith and Kuffle	
130 2nd Avenue S.	Project Number:	Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager:	Clint Jacob	06-May-2024 13:13

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limitsn with the exception of analytes flagged on the associated forms.

The sample duplicate relative percent difference (RPD) were within advisory control limits.

WORK ORDER

24D0295

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:** Beckwith and Kuffle

Preservation Confirmation

Container ID	Container Type	pH	
24D0295-01 A	HDPE NM, 1000 mL		
24D0295-01 B	Glass NM, Amber, 500 mL, 9N H2SO4	< 2	pass
24D0295-01 C	VOA Vial, Clear, 40 mL, HCL		
24D0295-01 D	VOA Vial, Clear, 40 mL, HCL		
24D0295-01 E	VOA Vial, Clear, 40 mL, HCL		
24D0295-01 F	VOA Vial, Clear, 40 mL, HCL		
24D0295-01 G	VOA Vial, Clear, 40 mL, HCL		
24D0295-01 H	VOA Vial, Clear, 40 mL, HCL		
24D0295-02 A	HDPE NM, 1000 mL		
24D0295-02 B	Glass NM, Amber, 500 mL, 9N H2SO4	< 2	pass
24D0295-02 C	VOA Vial, Clear, 40 mL, HCL		
24D0295-02 D	VOA Vial, Clear, 40 mL, HCL		
24D0295-02 E	VOA Vial, Clear, 40 mL, HCL		
24D0295-02 F	VOA Vial, Clear, 40 mL, HCL		
24D0295-02 G	VOA Vial, Clear, 40 mL, HCL		
24D0295-02 H	VOA Vial, Clear, 40 mL, HCL		
24D0295-03 A	HDPE NM, 1000 mL		
24D0295-03 B	Glass NM, Amber, 500 mL, 9N H2SO4	< 2	pass
24D0295-03 C	VOA Vial, Clear, 40 mL, HCL		
24D0295-03 D	VOA Vial, Clear, 40 mL, HCL		
24D0295-03 E	VOA Vial, Clear, 40 mL, HCL		
24D0295-03 F	VOA Vial, Clear, 40 mL, HCL		
24D0295-03 G	VOA Vial, Clear, 40 mL, HCL		
24D0295-03 H	VOA Vial, Clear, 40 mL, HCL		
24D0295-04 A	HDPE NM, 1000 mL		
24D0295-04 B	Glass NM, Amber, 500 mL, 9N H2SO4	< 2	pass
24D0295-04 C	VOA Vial, Clear, 40 mL, HCL		
24D0295-04 D	VOA Vial, Clear, 40 mL, HCL		
24D0295-04 E	VOA Vial, Clear, 40 mL, HCL		
24D0295-04 F	VOA Vial, Clear, 40 mL, HCL		
24D0295-04 G	VOA Vial, Clear, 40 mL, HCL		
24D0295-04 H	VOA Vial, Clear, 40 mL, HCL		
24D0295-05 A	HDPE NM, 1000 mL		
24D0295-05 B	Glass NM, Amber, 500 mL, 9N H2SO4	< 2	pass

Reviewed By Date

WORK ORDER

24D0295

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:** Beckwith and Kuffle

24D0295-05 C	VOA Vial, Clear, 40 mL, HCL	
24D0295-05 D	VOA Vial, Clear, 40 mL, HCL	
24D0295-05 E	VOA Vial, Clear, 40 mL, HCL	
24D0295-05 F	VOA Vial, Clear, 40 mL, HCL	
24D0295-05 G	VOA Vial, Clear, 40 mL, HCL	
24D0295-05 H	VOA Vial, Clear, 40 mL, HCL	
24D0295-06 A	HDPE NM, 1000 mL	
24D0295-06 B	Glass NM, Amber, 500 mL, 9N H2SO4	<2 pass
24D0295-06 C	VOA Vial, Clear, 40 mL, HCL	
24D0295-06 D	VOA Vial, Clear, 40 mL, HCL	
24D0295-06 E	VOA Vial, Clear, 40 mL, HCL	
24D0295-06 F	VOA Vial, Clear, 40 mL, HCL	
24D0295-06 G	VOA Vial, Clear, 40 mL, HCL	
24D0295-06 H	VOA Vial, Clear, 40 mL, HCL	
24D0295-07 A	HDPE NM, 1000 mL	
24D0295-07 B	Glass NM, Amber, 500 mL, 9N H2SO4	<2 pass
24D0295-07 C	VOA Vial, Clear, 40 mL, HCL	
24D0295-07 D	VOA Vial, Clear, 40 mL, HCL	
24D0295-07 E	VOA Vial, Clear, 40 mL, HCL	
24D0295-07 F	VOA Vial, Clear, 40 mL, HCL	
24D0295-07 G	VOA Vial, Clear, 40 mL, HCL	
24D0295-07 H	VOA Vial, Clear, 40 mL, HCL	
24D0295-08 A	HDPE NM, 1000 mL	
24D0295-08 B	Glass NM, Amber, 500 mL, 9N H2SO4	<2 pass
24D0295-08 C	VOA Vial, Clear, 40 mL, HCL	
24D0295-08 D	VOA Vial, Clear, 40 mL, HCL	
24D0295-08 E	VOA Vial, Clear, 40 mL, HCL	
24D0295-08 F	VOA Vial, Clear, 40 mL, HCL	
24D0295-08 G	VOA Vial, Clear, 40 mL, HCL	
24D0295-08 H	VOA Vial, Clear, 40 mL, HCL	
24D0295-09 A	HDPE NM, 1000 mL	
24D0295-09 B	Glass NM, Amber, 500 mL, 9N H2SO4	<2 pass
24D0295-09 C	VOA Vial, Clear, 40 mL, HCL	
24D0295-09 D	VOA Vial, Clear, 40 mL, HCL	
24D0295-09 E	VOA Vial, Clear, 40 mL, HCL	
24D0295-09 F	VOA Vial, Clear, 40 mL, HCL	

Reviewed By

Date

WORK ORDER

24D0295

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:** Beckwith and Kuffle

24D0295-09 G	VOA Vial, Clear, 40 mL, HCL	
24D0295-09 H	VOA Vial, Clear, 40 mL, HCL	
24D0295-10 A	VOA Vial, Clear, 40 mL, HCL	
24D0295-10 B	VOA Vial, Clear, 40 mL, HCL	
24D0295-10 C	VOA Vial, Clear, 40 mL, HCL	
24D0295-10 D	VOA Vial, Clear, 40 mL, HCL	
24D0295-10 E	VOA Vial, Clear, 40 mL, HCL	
24D0295-10 F	VOA Vial, Clear, 40 mL, HCL	
24D0295-11 A	VOA Vial, Clear, 40 mL, HCL	
24D0295-11 B	VOA Vial, Clear, 40 mL, HCL	
24D0295-11 C	VOA Vial, Clear, 40 mL, HCL	
24D0295-11 D	VOA Vial, Clear, 40 mL, HCL	
24D0295-11 E	VOA Vial, Clear, 40 mL, HCL	
24D0295-11 F	VOA Vial, Clear, 40 mL, HCL	
24D0295-11 G	HDPE NM, 1000 mL	
24D0295-11 H	Glass NM, Amber, 500 mL, 9N H2SO4	< 2 pass
24D0295-12 A	VOA Vial, Clear, 40 mL, HCL	
24D0295-12 B	VOA Vial, Clear, 40 mL, HCL	
24D0295-12 C	VOA Vial, Clear, 40 mL, HCL	
24D0295-12 D	VOA Vial, Clear, 40 mL, HCL	
24D0295-12 E	VOA Vial, Clear, 40 mL, HCL	
24D0295-12 F	VOA Vial, Clear, 40 mL, HCL	
24D0295-12 G	HDPE NM, 1000 mL	
24D0295-12 H	Glass NM, Amber, 500 mL, 9N H2SO4	< 2 pass
24D0295-13 A	VOA Vial, Clear, 40 mL, HCL	
24D0295-13 B	VOA Vial, Clear, 40 mL, HCL	
24D0295-13 C	VOA Vial, Clear, 40 mL, HCL	
24D0295-13 D	VOA Vial, Clear, 40 mL, HCL	
24D0295-13 E	VOA Vial, Clear, 40 mL, HCL	
24D0295-13 F	VOA Vial, Clear, 40 mL, HCL	
24D0295-13 G	VOA Vial, Clear, 40 mL, HCL	
24D0295-13 H	VOA Vial, Clear, 40 mL, HCL	
24D0295-13 I	VOA Vial, Clear, 40 mL, HCL	
24D0295-13 J	VOA Vial, Clear, 40 mL, HCL	
24D0295-13 K	VOA Vial, Clear, 40 mL, HCL	
24D0295-13 L	VOA Vial, Clear, 40 mL, HCL	

Reviewed By

Date

WORK ORDER

24D0295

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:** Beckwith and Kuffle

24D0295-13 M	VOA Vial, Clear, 40 mL, HCL		
24D0295-13 N	VOA Vial, Clear, 40 mL, HCL		
24D0295-13 O	VOA Vial, Clear, 40 mL, HCL		
24D0295-13 P	VOA Vial, Clear, 40 mL, HCL		
24D0295-13 Q	VOA Vial, Clear, 40 mL, HCL		
24D0295-13 R	VOA Vial, Clear, 40 mL, HCL		
24D0295-13 S	HDPE NM, 1000 mL		
24D0295-13 T	HDPE NM, 1000 mL		
24D0295-13 U	Glass NM, Amber, 500 mL, 9N H2SO4	< 2	pass
24D0295-13 V	Glass NM, Amber, 500 mL, 9N H2SO4	< 2	pass
24D0295-13 W	Glass NM, Amber, 500 mL, 9N H2SO4	< 2	pass
24D0295-14 A	VOA Vial, Clear, 40 mL, HCL		
24D0295-14 B	VOA Vial, Clear, 40 mL, HCL		
24D0295-14 C	VOA Vial, Clear, 40 mL, HCL		

VO
Preservation Confirmed By

04/12/2024
Date

Reviewed By

Date

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Landau Project Name: Beckwith + Kuffel

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

Assigned ARI Job No: 24D0295 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) 1.1 oc 0.9 oc

Time 07:57

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 509708

Cooler Accepted by: MD Date: 04/12/24 Time: 07:57

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	04/09/2024	

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

Samples Logged by: VD Date: 04/12/2024 Time: 08:59 Labels checked by: _____

***** 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:

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

DUP1-240411
24D0295-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 09:00
Instrument: NT3 Analyst: PKC — Analyzed: 04/15/2024 19:18

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-01 D
Preparation Batch: BMD0329 — Sample Size: 10 mL
Prepared: 04/12/2024 — 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	5.71	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	156	ug/L	E
Trichloroethene	79-01-6	1	0.07	0.20	32.7	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.8*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

DUP1-240411

24D0295-01 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 09:00

Instrument: FID6 Analyst: LH — Analyzed: 04/18/2024 12:16

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-01 H

Preparation Batch: BMD0477 — Sample Size: 10 mL

Prepared: 04/18/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	7340	ug/L	
Ethane	74-84-0	1	1.23	9.05	ug/L	
Ethene	74-85-1	1	1.14	6.63	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*56.9*	*%*	*

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

DUP1-240411

24D0295-01 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 09:00

Instrument: IC930 Analyst: EJK — Analyzed: 04/12/2024 16:42

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-01 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

DUP1-240411

24D0295-01 (Water)

Wet Chemistry

Method: SM 5310 B-11 — Sampled: 04/11/2024 09:00
Instrument: TOC-LCSH Analyst: RMS — Analyzed: 05/03/2024 06:59

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-01 B
Preparation Batch: BME0092 — Sample Size: 20 mL
Prepared: 05/02/2024 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	8.27	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

DUP1-240411

24D0295-01RE1 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 09:00

Instrument: NT3 Analyst: PKC — Analyzed: 04/16/2024 13:20

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-01RE1 F

Preparation Batch: BMD0395 — Sample Size: 2 mL

Prepared: 04/16/2024 — 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	8.12	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.41	1.00	280	ug/L	
Trichloroethene	79-01-6	1	0.35	1.00	46.7	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*104*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.1*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

DUP1-240411

24D0295-01RE1 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 09:00

Instrument: FID6 Analyst: LH — Analyzed: 04/18/2024 15:17

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-01RE1 G

Preparation Batch: BMD0477 — Sample Size: 10 mL

Prepared: 04/18/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	6550	ug/L	
Ethane	74-84-0	1	1.23	7.91	ug/L	
Ethene	74-85-1	1	1.14	6.06	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*56.1*	*%*	*

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

DUP1-240411

24D0295-01RE3 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 09:00

Instrument: IC930 Analyst: EJK — Analyzed: 04/20/2024 15:39

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-01RE3 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	10	1.00	1.00	43.8	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-12-240411

24D0295-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 09:29

Instrument: NT3 Analyst: PKC — Analyzed: 04/15/2024 19:40

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-02 D

Preparation Batch: BMD0329 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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	0.18	ug/L	J
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	6.17	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	0.37	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*109*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.8*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-12-240411

24D0295-02 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 09:29

Instrument: FID6 Analyst: LH — Analyzed: 04/18/2024 12:34

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-02 C

Preparation Batch: BMD0477 — Sample Size: 10 mL

Prepared: 04/18/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	17500	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 %*	*71.8*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-12-240411

24D0295-02 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 09:29

Instrument: IC930 Analyst: EJK — Analyzed: 04/12/2024 17:02

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-02 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-12-240411

24D0295-02 (Water)

Wet Chemistry

Method: SM 5310 B-11 — Sampled: 04/11/2024 09:29

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 05/03/2024 07:22

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-02 B

Preparation Batch: BME0092 — Sample Size: 20 mL

Prepared: 05/02/2024 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	6.83	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-12-240411

24D0295-02RE2 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 09:29

Instrument: IC930 Analyst: EJK — Analyzed: 04/19/2024 09:05

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-02RE2 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	5.45	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-11-240411

24D0295-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 09:34

Instrument: NT3 Analyst: PKC — Analyzed: 04/15/2024 20:05

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-03 D

Preparation Batch: BMD0329 — Sample Size: 1 mL

Prepared: 04/12/2024 — 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	6.60	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.81	2.00	302	ug/L	
Trichloroethene	79-01-6	1	0.70	2.00	39.4	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*107*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.0*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-11-240411

24D0295-03 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 09:34

Instrument: FID6 Analyst: LH — Analyzed: 04/18/2024 12:52

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-03 F

Preparation Batch: BMD0477 — Sample Size: 10 mL

Prepared: 04/18/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	6360	ug/L	
Ethane	74-84-0	1	1.23	7.18	ug/L	
Ethene	74-85-1	1	1.14	5.48	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*49.7*	*%*	*

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-11-240411

24D0295-03 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 09:34

Instrument: IC930 Analyst: EJK — Analyzed: 04/12/2024 17:22

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-03 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-11-240411

24D0295-03 (Water)

Wet Chemistry

Method: SM 5310 B-11 — Sampled: 04/11/2024 09:34

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 05/03/2024 07:40

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-03 B

Preparation Batch: BME0092 — Sample Size: 20 mL

Prepared: 05/02/2024 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	8.33	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-11-240411

24D0295-03RE1 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 09:34

Instrument: FID6 Analyst: LH — Analyzed: 04/18/2024 15:35

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-03RE1 G

Preparation Batch: BMD0477 — Sample Size: 10 mL

Prepared: 04/18/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	7140	ug/L	
Ethane	74-84-0	1	1.23	7.73	ug/L	
Ethene	74-85-1	1	1.14	6.14	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*57.3*	*%*	*

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-11-240411

24D0295-03RE3 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 09:34

Instrument: IC930 Analyst: EJK — Analyzed: 04/20/2024 16:19

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-03RE3 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	10	1.00	1.00	41.7	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-13-240411

24D0295-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 10:37

Instrument: NT3 Analyst: PKC — Analyzed: 04/16/2024 12:33

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-04 E

Preparation Batch: BMD0395 — Sample Size: 10 mL

Prepared: 04/16/2024 — 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	0.09	ug/L	J
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*112*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.5*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-13-240411

24D0295-04 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 10:37

Instrument: FID6 Analyst: LH — Analyzed: 04/18/2024 13:10

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-04 F

Preparation Batch: BMD0477 — Sample Size: 10 mL

Prepared: 04/18/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	802	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 %*	*74.4*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-13-240411

24D0295-04 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 10:37

Instrument: IC930 Analyst: EJK — Analyzed: 04/12/2024 17:42

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-04 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-13-240411

24D0295-04 (Water)

Wet Chemistry

Method: SM 5310 B-11 — Sampled: 04/11/2024 10:37

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 05/03/2024 08:03

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-04 B

Preparation Batch: BME0092 — Sample Size: 20 mL

Prepared: 05/02/2024 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	4.51	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-13-240411

24D0295-04RE3 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 10:37

Instrument: IC930 Analyst: EJK — Analyzed: 04/20/2024 16:39

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-04RE3 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	18	1.80	1.80	78.3	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-10-240411

24D0295-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 11:08

Instrument: NT3 Analyst: PKC — Analyzed: 04/15/2024 20:49

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-05 D

Preparation Batch: BMD0329 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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	0.11	ug/L	J
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*107*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*102*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-10-240411

24D0295-05 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 11:08

Instrument: FID6 Analyst: LH — Analyzed: 04/18/2024 13:28

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-05 F

Preparation Batch: BMD0477 — Sample Size: 10 mL

Prepared: 04/18/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	2.11	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 %*	*88.8*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-10-240411

24D0295-05 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 11:08

Instrument: IC930 Analyst: EJK — Analyzed: 04/12/2024 18:02

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-05 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-10-240411

24D0295-05 (Water)

Wet Chemistry

Method: SM 5310 B-11 — Sampled: 04/11/2024 11:08

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 05/03/2024 08:25

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-05 B

Preparation Batch: BME0092 — Sample Size: 20 mL

Prepared: 05/02/2024 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.43	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-10-240411

24D0295-05RE3 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 11:08

Instrument: IC930 Analyst: EJK — Analyzed: 04/20/2024 16:58

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-05RE3 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	16	1.60	1.60	66.8	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-6-240411

24D0295-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 11:53

Instrument: NT3 Analyst: PKC — Analyzed: 04/15/2024 21:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-06 C

Preparation Batch: BMD0329 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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	10.3	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	10.0	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*115*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.3*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-6-240411

24D0295-06 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 11:53

Instrument: FID6 Analyst: LH — Analyzed: 04/19/2024 08:10

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-06 F

Preparation Batch: BMD0514 — Sample Size: 10 mL

Prepared: 04/19/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	323	ug/L	
Ethane	74-84-0	1	1.23	1.40	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 %*	*97.9*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-6-240411

24D0295-06 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 11:53

Instrument: IC930 Analyst: EJK — Analyzed: 04/12/2024 18:22

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-06 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-6-240411

24D0295-06 (Water)

Wet Chemistry

Method: SM 5310 B-11 — Sampled: 04/11/2024 11:53

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 05/03/2024 08:43

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-06 B

Preparation Batch: BME0092 — Sample Size: 20 mL

Prepared: 05/02/2024 — 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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-6-240411

24D0295-06RE3 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 11:53
Instrument: IC930 Analyst: EJK — Analyzed: 04/20/2024 17:18

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-06RE3 A
Preparation Batch: BMD0366 — Sample Size: 10 mL
Prepared: 04/12/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	7	0.700	0.700	31.6	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-9-240411

24D0295-07 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 12:14

Instrument: NT3 Analyst: PKC — Analyzed: 04/15/2024 21:33

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-07 E

Preparation Batch: BMD0329 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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	0.74	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	8.24	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	2.28	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*115*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.7*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-9-240411

24D0295-07 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 12:14
Instrument: FID6 Analyst: LH — Analyzed: 04/19/2024 08:28

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-07 F
Preparation Batch: BMD0514 — Sample Size: 10 mL
Prepared: 04/19/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	6330	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 %*	*81.3*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-9-240411

24D0295-07 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 12:14

Instrument: IC930 Analyst: EJK — Analyzed: 04/12/2024 18:42

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-07 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-9-240411

24D0295-07 (Water)

Wet Chemistry

Method: SM 5310 B-11 — Sampled: 04/11/2024 12:14

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 05/03/2024 09:01

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-07 B

Preparation Batch: BME0092 — Sample Size: 20 mL

Prepared: 05/02/2024 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	7.39	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-9-240411

24D0295-07RE3 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 12:14

Instrument: IC930 Analyst: EJK — Analyzed: 04/20/2024 17:38

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-07RE3 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	3	0.300	0.300	14.6	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-8-240411

24D0295-08 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 12:47

Instrument: NT3 Analyst: PKC — Analyzed: 04/16/2024 15:48

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-08 C

Preparation Batch: BMD0395 — Sample Size: 10 mL

Prepared: 04/16/2024 — 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	1.16	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	1.97	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	0.33	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*112*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.3*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-8-240411

24D0295-08 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 12:47

Instrument: FID6 Analyst: LH — Analyzed: 04/19/2024 08:46

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-08 F

Preparation Batch: BMD0514 — Sample Size: 10 mL

Prepared: 04/19/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	12300	ug/L	
Ethane	74-84-0	1	1.23	30.6	ug/L	
Ethene	74-85-1	1	1.14	6.57	ug/L	
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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-8-240411

24D0295-08 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 12:47
Instrument: IC930 Analyst: EJK — Analyzed: 04/12/2024 19:02

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-08 A
Preparation Batch: BMD0366 — Sample Size: 10 mL
Prepared: 04/12/2024 — 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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-8-240411

24D0295-08 (Water)

Wet Chemistry

Method: SM 5310 B-11 — Sampled: 04/11/2024 12:47

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 05/03/2024 09:20

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-08 B

Preparation Batch: BME0092 — Sample Size: 20 mL

Prepared: 05/02/2024 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	8.14	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-8-240411

24D0295-08RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 12:47

Instrument: IC930 Analyst: EJK — Analyzed: 04/19/2024 12:26

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-08RE1 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	1.62	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-7-240411

24D0295-09 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 13:08

Instrument: NT3 Analyst: PKC — Analyzed: 04/15/2024 22:20

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-09 E

Preparation Batch: BMD0329 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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	4.89	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	5.47	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	0.08	ug/L	J
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*120*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.3*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-7-240411

24D0295-09 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 13:08

Instrument: FID6 Analyst: LH — Analyzed: 04/19/2024 09:04

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-09 F

Preparation Batch: BMD0514 — Sample Size: 10 mL

Prepared: 04/19/2024 — 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	27.9	ug/L	
Ethene	74-85-1	1	1.14	7.25	ug/L	
Acetylene	74-86-2	1	1.06	ND	ug/L	U
Surrogate: Propane			*62-122 %*	*85.6*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-7-240411

24D0295-09 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 13:08

Instrument: IC930 Analyst: EJK — Analyzed: 04/12/2024 19:22

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-09 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-7-240411

24D0295-09 (Water)

Wet Chemistry

Method: SM 5310 B-11 — Sampled: 04/11/2024 13:08

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 05/03/2024 09:43

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-09 B

Preparation Batch: BME0092 — Sample Size: 20 mL

Prepared: 05/02/2024 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	4.99	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

MW-7-240411

24D0295-09RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 13:08

Instrument: IC930 Analyst: EJK — Analyzed: 04/19/2024 12:46

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-09RE1 A

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	5.22	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-8-240411

24D0295-10 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 14:14

Instrument: NT3 Analyst: PKC — Analyzed: 04/15/2024 22:42

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-10 B

Preparation Batch: BMD0329 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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	3.59	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	8.56	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*102*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*97.9*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-8-240411

24D0295-10 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 14:14

Instrument: FID6 Analyst: LH — Analyzed: 04/18/2024 13:46

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-10 A

Preparation Batch: BMD0477 — Sample Size: 10 mL

Prepared: 04/18/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	3.19	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 %*	*93.3*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-17A-240411

24D0295-11 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 15:03

Instrument: NT3 Analyst: PKC — Analyzed: 04/15/2024 23:04

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-11 A

Preparation Batch: BMD0329 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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	0.11	ug/L	J
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*116*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-17A-240411

24D0295-11 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 15:03

Instrument: FID6 Analyst: LH — Analyzed: 04/19/2024 09:22

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-11 E

Preparation Batch: BMD0514 — Sample Size: 10 mL

Prepared: 04/19/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	8260	ug/L	
Ethane	74-84-0	1	1.23	9.42	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 %*	*89.7*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-17A-240411

24D0295-11 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 15:03

Instrument: IC930 Analyst: EJK — Analyzed: 04/12/2024 19:42

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-11 G

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-17A-240411

24D0295-11 (Water)

Wet Chemistry

Method: SM 5310 B-11 — Sampled: 04/11/2024 15:03

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 05/03/2024 10:01

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-11 H

Preparation Batch: BME0092 — Sample Size: 20 mL

Prepared: 05/02/2024 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	2.92	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-17A-240411

24D0295-11RE1 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 15:03

Instrument: IC930 Analyst: EJK — Analyzed: 04/19/2024 13:06

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-11RE1 G

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	1	0.100	0.100	0.851	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-18-240411

24D0295-12 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 15:48

Instrument: NT3 Analyst: PKC — Analyzed: 04/15/2024 23:27

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-12 C

Preparation Batch: BMD0329 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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	0.12	ug/L	J
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	44.6	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	6.99	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*118*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.4*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-18-240411

24D0295-12 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 15:48

Instrument: FID6 Analyst: LH — Analyzed: 04/19/2024 09:59

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-12 D

Preparation Batch: BMD0514 — Sample Size: 10 mL

Prepared: 04/19/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	8400	ug/L	
Ethane	74-84-0	1	1.23	28.4	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 %*	*78.4*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-18-240411

24D0295-12 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 15:48

Instrument: IC930 Analyst: EJK — Analyzed: 04/12/2024 21:03

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-12 G

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-18-240411

24D0295-12 (Water)

Wet Chemistry

Method: SM 5310 B-11 — Sampled: 04/11/2024 15:48

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 05/03/2024 11:04

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-12 H

Preparation Batch: BME0092 — Sample Size: 20 mL

Prepared: 05/02/2024 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	4.91	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-18-240411

24D0295-12RE3 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 15:48

Instrument: IC930 Analyst: EJK — Analyzed: 04/20/2024 17:58

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-12RE3 G

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	27	2.70	2.70	116	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-21-240411

24D0295-13 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 16:07

Instrument: NT3 Analyst: PKC — Analyzed: 04/16/2024 12:55

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-13 G

Preparation Batch: BMD0395 — Sample Size: 10 mL

Prepared: 04/16/2024 — 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	2.21	ug/L	
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	16.0	ug/L	
Trichloroethene	79-01-6	1	0.07	0.20	0.55	ug/L	
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*108*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.5*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-21-240411

24D0295-13 (Water)

Dissolved Gases

Method: EPA RSK-175 — Sampled: 04/11/2024 16:07

Instrument: FID6 Analyst: LH — Analyzed: 04/18/2024 14:04

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-13 B

Preparation Batch: BMD0477 — Sample Size: 10 mL

Prepared: 04/18/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Methane	74-82-8	1	0.65	4580	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 %*	*89.3*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-21-240411

24D0295-13 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 16:07

Instrument: IC930 Analyst: EJK — Analyzed: 04/12/2024 21:23

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-13 S

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-21-240411

24D0295-13 (Water)

Wet Chemistry

Method: SM 5310 B-11 — Sampled: 04/11/2024 16:07

Instrument: TOC-LCSH Analyst: RMS — Analyzed: 05/03/2024 11:26

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-13 U

Preparation Batch: BME0092 — Sample Size: 20 mL

Prepared: 05/02/2024 — Final Volume: 20 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Organic Carbon		1	0.50	0.50	1.83	mg/L	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

SM-MW-21-240411

24D0295-13RE3 (Water)

Wet Chemistry

Method: EPA 300.0 — Sampled: 04/11/2024 16:07

Instrument: IC930 Analyst: EJK — Analyzed: 04/20/2024 19:18

Sample Preparation: Preparation Method: No Prep Wet Chem — Extract ID: 24D0295-13RE3 S

Preparation Batch: BMD0366 — Sample Size: 10 mL

Prepared: 04/12/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Sulfate	14808-79-8	7	0.700	0.700	33.4	mg/L	D

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

TRIP BLANKS

24D0295-14 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 04/11/2024 09:00

Instrument: NT3 Analyst: PKC — Analyzed: 04/15/2024 15:46

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24D0295-14 C

Preparation Batch: BMD0329 — Sample Size: 10 mL

Prepared: 04/12/2024 — 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 %*	*101*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*98.1*	*%*	

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0329 - 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 (BMD0329-BLK1)				Prepared: 15-Apr-2024 Analyzed: 15-Apr-2024 15:24							
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	4.84			ug/L	*5.00*		*96.7*	*80-129*			
Surrogate: Toluene-d8	5.07			ug/L	*5.00*		*101*	*80-120*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0329 - 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
LCS (BMD0329-BS1)				Prepared: 15-Apr-2024 Analyzed: 15-Apr-2024 14:18							
Vinyl Chloride	9.55	0.08	0.20	ug/L	10.0		95.5	66-133			
cis-1,2-Dichloroethene	9.75	0.08	0.20	ug/L	10.0		97.5	80-121			
Trichloroethene	9.46	0.07	0.20	ug/L	10.0		94.6	80-120			
Surrogate: 1,2-Dichloroethane-d4	4.95			ug/L	*5.00*		*99.0*	*80-129*			
Surrogate: Toluene-d8	4.95			ug/L	*5.00*		*98.9*	*80-120*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0329 - 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
LCS Dup (BMD0329-BSD1)					Prepared: 15-Apr-2024 Analyzed: 15-Apr-2024 14:40						
Vinyl Chloride	9.48	0.08	0.20	ug/L	10.0		94.8	66-133	0.75	30	
cis-1,2-Dichloroethene	9.58	0.08	0.20	ug/L	10.0		95.8	80-121	1.79	30	
Trichloroethene	9.62	0.07	0.20	ug/L	10.0		96.2	80-120	1.68	30	
Surrogate: 1,2-Dichloroethane-d4	4.77			ug/L	*5.00*		*95.5*	*80-129*			
Surrogate: Toluene-d8	5.09			ug/L	*5.00*		*102*	*80-120*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Volatile Organic Compounds - Quality Control

Batch BMD0395 - 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 (BMD0395-BLK1)				Prepared: 16-Apr-2024 Analyzed: 16-Apr-2024 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	5.09			ug/L	*5.00*		*102*	*80-129*			
Surrogate: Toluene-d8	4.86			ug/L	*5.00*		*97.3*	*80-120*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0395 - 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
LCS (BMD0395-BS1)				Prepared: 16-Apr-2024 Analyzed: 16-Apr-2024 11:05							
Vinyl Chloride	9.35	0.08	0.20	ug/L	10.0		93.5	66-133			
cis-1,2-Dichloroethene	9.53	0.08	0.20	ug/L	10.0		95.3	80-121			
Trichloroethene	9.03	0.07	0.20	ug/L	10.0		90.3	80-120			
Surrogate: 1,2-Dichloroethane-d4	4.96			ug/L	*5.00*		*99.2*	*80-129*			
Surrogate: Toluene-d8	4.95			ug/L	*5.00*		*99.0*	*80-120*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0395 - 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
LCS Dup (BMD0395-BSD1)					Prepared: 16-Apr-2024 Analyzed: 16-Apr-2024 11:27						
Vinyl Chloride	9.79	0.08	0.20	ug/L	10.0		97.9	66-133	4.53	30	
cis-1,2-Dichloroethene	10.5	0.08	0.20	ug/L	10.0		105	80-121	9.48	30	
Trichloroethene	9.63	0.07	0.20	ug/L	10.0		96.3	80-120	6.39	30	
Surrogate: 1,2-Dichloroethane-d4	5.11			ug/L	*5.00*		*102*	*80-129*			
Surrogate: Toluene-d8	5.06			ug/L	*5.00*		*101*	*80-120*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0395 - 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 (BMD0395-MS1)	**Source: 24D0295-13**			Prepared: 16-Apr-2024 Analyzed: 16-Apr-2024 16:10							
Vinyl Chloride	9.85	0.08	0.20	ug/L	10.0	2.21	76.4	66-133			
cis-1,2-Dichloroethene	23.1	0.08	0.20	ug/L	10.0	16.0	70.8	80-121			*
Trichloroethene	8.04	0.07	0.20	ug/L	10.0	0.55	74.9	80-120			*
Surrogate: 1,2-Dichloroethane-d4	5.58			ug/L	*5.00*	*5.41*	*112*	*80-129*			
Surrogate: Toluene-d8	5.02			ug/L	*5.00*	*4.97*	*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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0395 - 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 (BMD0395-MSD1)	**Source: 24D0295-13**			Prepared: 16-Apr-2024 Analyzed: 16-Apr-2024 16:33							
Vinyl Chloride	11.4	0.08	0.20	ug/L	10.0	2.21	92.2	66-133	14.90	30	
cis-1,2-Dichloroethene	25.7	0.08	0.20	ug/L	10.0	16.0	97.2	80-121	10.80	30	
Trichloroethene	9.36	0.07	0.20	ug/L	10.0	0.55	88.1	80-120	15.10	30	
Surrogate: 1,2-Dichloroethane-d4	5.74			ug/L	*5.00*	*5.41*	*115*	*80-129*			
Surrogate: Toluene-d8	5.01			ug/L	*5.00*	*4.97*	*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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BMD0477 - 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 (BMD0477-BLK1)				Prepared: 18-Apr-2024 Analyzed: 18-Apr-2024 07:34						
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	1800		ug/L	*1800*		*99.9*	*62-122*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BMD0477 - 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
LCS (BMD0477-BS1)				Prepared: 18-Apr-2024 Analyzed: 18-Apr-2024 06:58						
Methane	771	0.65	ug/L	656		117	80-120			
Ethane	1360	1.23	ug/L	1230		111	80-120			
Ethene	1200	1.14	ug/L	1150		104	80-120			
Acetylene	1620	1.06	ug/L	1060		153	73-123			*
Surrogate: Propane	1850		ug/L	*1800*		*103*	*62-122*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BMD0477 - 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
LCS Dup (BMD0477-BSD1)				Prepared: 18-Apr-2024 Analyzed: 18-Apr-2024 07:16						
Methane	753	0.65	ug/L	656		115	80-120	2.36	30	
Ethane	1340	1.23	ug/L	1230		109	80-120	1.82	30	
Ethene	1180	1.14	ug/L	1150		102	80-120	1.91	30	
Acetylene	1610	1.06	ug/L	1060		152	73-123	0.26	30	*
Surrogate: Propane	1760		ug/L	*1800*		*97.8*	*62-122*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BMD0477 - 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
Duplicate (BMD0477-DUP1)	**Source: 24D0295-13**		Prepared: 18-Apr-2024 Analyzed: 18-Apr-2024 14:40							
Methane	ND	0.65	ug/L		4580					U
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	1650		ug/L	*1800*	*1610*	*91.6*	*62-122*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BMD0477 - 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 (BMD0477-MS1)	**Source: 24D0295-13**		Prepared: 18-Apr-2024 Analyzed: 18-Apr-2024 15:53							
Methane	5660	0.65	ug/L	656	4580	163	80-120			*
Ethane	1210	1.23	ug/L	1230	ND	98.4	80-120			
Ethene	1050	1.14	ug/L	1150	ND	91.7	80-120			
Acetylene	1410	1.06	ug/L	1060	ND	133	73-123			*
Surrogate: Propane	1610		ug/L	*1800*	*1610*	*89.5*	*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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BMD0477 - 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 Dup (BMD0477-MSD1)	**Source: 24D0295-13**		Prepared: 18-Apr-2024 Analyzed: 18-Apr-2024 16:11							
Methane	2430	0.65	ug/L	656	4580	-329	80-120	79.90	30	*
Ethane	1190	1.23	ug/L	1230	ND	96.7	80-120	1.81	30	
Ethene	1040	1.14	ug/L	1150	ND	90.1	80-120	1.72	30	
Acetylene	1380	1.06	ug/L	1060	ND	130	73-123	2.45	30	*
Surrogate: Propane	1570		ug/L	*1800*	*1610*	*87.4*	*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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Dissolved Gases - Quality Control

Batch BMD0514 - 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 (BMD0514-BLK1)				Prepared: 19-Apr-2024 Analyzed: 19-Apr-2024 07:34						
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	1850		ug/L	*1800*		*103*	*62-122*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BMD0514 - 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
LCS (BMD0514-BS1)				Prepared: 19-Apr-2024 Analyzed: 19-Apr-2024 06:58						
Methane	767	0.65	ug/L	656		117	80-120			
Ethane	1350	1.23	ug/L	1230		110	80-120			
Ethene	1190	1.14	ug/L	1150		103	80-120			
Acetylene	1650	1.06	ug/L	1060		156	73-123			*
Surrogate: Propane	1940		ug/L	*1800*		*108*	*62-122*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BMD0514 - 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
LCS Dup (BMD0514-BSD1)				Prepared: 19-Apr-2024 Analyzed: 19-Apr-2024 07:16						
Methane	735	0.65	ug/L	656		112	80-120	4.25	30	
Ethane	1290	1.23	ug/L	1230		105	80-120	4.81	30	
Ethene	1130	1.14	ug/L	1150		98.4	80-120	4.75	30	
Acetylene	1560	1.06	ug/L	1060		147	73-123	5.91	30	*
Surrogate: Propane	1880		ug/L	*1800*		*104*	*62-122*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Dissolved Gases - Quality Control

Batch BMD0514 - 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
Duplicate (BMD0514-DUP1)	**Source: 24D0295-11**		Prepared: 19-Apr-2024 Analyzed: 19-Apr-2024 09:40							
Methane	8450	0.65	ug/L		8260			2.20	30	
Ethane	9.97	1.23	ug/L		9.42			5.63	30	
Ethene	ND	1.14	ug/L		ND					U
Acetylene	ND	1.06	ug/L		ND					U
Surrogate: Propane	1590		ug/L	*1800*	*1620*	*88.5*	*62-122*			

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BMD0366 - EPA 300.0

Instrument: IC930 Analyst: EJK

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMD0366-BLK1)				Prepared: 12-Apr-2024 Analyzed: 13-Apr-2024 00:03							
Nitrate-N	ND	0.100	0.100	mg/L							U
Sulfate	ND	0.100	0.100	mg/L							U
LCS (BMD0366-BS1)				Prepared: 12-Apr-2024 Analyzed: 13-Apr-2024 01:23							
Nitrate-N	5.02	0.100	0.100	mg/L	5.00		100	90-110			
LCS (BMD0366-BS2)				Prepared: 12-Apr-2024 Analyzed: 19-Apr-2024 08:25							
Sulfate	4.55	0.100	0.100	mg/L	5.00		91.0	90-110			
Duplicate (BMD0366-DUP1)		**Source: 24D0295-13**		Prepared: 12-Apr-2024 Analyzed: 12-Apr-2024 21:43							
Nitrate-N	ND	0.100	0.100	mg/L		ND					U
Duplicate (BMD0366-DUP4)		**Source: 24D0295-13RE3**		Prepared: 12-Apr-2024 Analyzed: 20-Apr-2024 19:37							
Sulfate	34.1	0.800	0.800	mg/L		33.4			2.02	20	D
Matrix Spike (BMD0366-MS1)		**Source: 24D0295-13**		Prepared: 12-Apr-2024 Analyzed: 12-Apr-2024 22:03							
Nitrate-N	1.89	0.100	0.100	mg/L	2.00	ND	94.6	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike (BMD0366-MS4)		**Source: 24D0295-13RE3**		Prepared: 12-Apr-2024 Analyzed: 20-Apr-2024 19:57							
Sulfate	62.9	1.40	1.40	mg/L	30.0	33.4	98.4	75-125			D
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BMD0366-MSD1)		**Source: 24D0295-13**		Prepared: 12-Apr-2024 Analyzed: 12-Apr-2024 22:23							
Nitrate-N	1.91	0.100	0.100	mg/L	2.00	ND	95.6	75-125	1.05	20	
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BMD0366-MSD4)		**Source: 24D0295-13RE3**		Prepared: 12-Apr-2024 Analyzed: 20-Apr-2024 20:17							
Sulfate	60.9	1.40	1.40	mg/L	30.0	33.4	91.8	75-125	3.17	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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

Analysis by: Analytical Resources, LLC

Wet Chemistry - Quality Control

Batch BME0092 - SM 5310 B-11

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 (BME0092-BLK1)				Prepared: 02-May-2024 Analyzed: 03-May-2024 05:34							
Total Organic Carbon	ND	0.50	0.50	mg/L							U
LCS (BME0092-BS1)				Prepared: 02-May-2024 Analyzed: 03-May-2024 05:56							
Total Organic Carbon	20.98	0.50	0.50	mg/L	20.00		105	90-110			
Duplicate (BME0092-DUP1)		**Source: 24D0295-13**		Prepared: 02-May-2024 Analyzed: 03-May-2024 11:48							
Total Organic Carbon	1.80	0.50	0.50	mg/L		1.83			1.93	20	
Matrix Spike (BME0092-MS1)		**Source: 24D0295-13**		Prepared: 02-May-2024 Analyzed: 03-May-2024 12:11							
Total Organic Carbon	21.20	0.50	0.50	mg/L	20.00	1.83	96.9	75-125			
Recovery limits for target analytes in MS/MSD QC samples are advisory only.											
Matrix Spike Dup (BME0092-MSD1)		**Source: 24D0295-13**		Prepared: 02-May-2024 Analyzed: 03-May-2024 12:31							
Total Organic Carbon	21.50	0.50	0.50	mg/L	20.00	1.83	98.4	75-125	1.41	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: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

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-Trifluoroeth	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

Landau Associates, Inc.	Project: Beckwith and Kuffle	
130 2nd Avenue S.	Project Number: Beckwith and Kuffle	**Reported:**
Edmonds WA, 98020	Project Manager: Clint Jacob	06-May-2024 13:13

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
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

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

EPA RSK-175 in Water

Methane	NELAP
Ethane	NELAP
Ethene	NELAP
Acetylene	NELAP

SM 5310 B-11 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
WADOE	WA Dept of Ecology	C558	06/30/2024
WA-DW	Ecology - Drinking Water	C558	06/30/2024

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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.
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.