

2024 Annual Groundwater Monitoring Report

NuStar Vancouver Annex Terminal
5420 NW Fruit Valley Road
Vancouver, Washington

for

NuStar Terminals Operations Partnership, L.P.

February 28, 2025



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Prepared for:

NuStar Terminals Operations Partnership, L.P.

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1.0 INTRODUCTION

This groundwater monitoring report was prepared by GeoEngineers, Inc. (GeoEngineers) on behalf of NuStar Terminals Operations Partnership L.P. (NuStar) for groundwater monitoring conducted in 2024 at the NuStar Vancouver Annex Terminal located at 5420 NW Fruit Valley Road, Vancouver, Washington (the Facility). A location map for the Facility is provided on Figure 1; a site plan is provided on Figure 2.

1.1. Site Location, Description and History

Location. The Facility address is 5420 NW Fruit Valley Road, Vancouver, Washington 98660 (Latitude: N45° 39.70', Longitude: W122° 41.66'), as shown on Figure 1. The Facility is located on Clark County Tax Lot (TL) No. 147360.

Physical Features. Figure 2 is a site plan. The Facility is approximately 31 acres and is roughly rectangular, with dimensions of approximately 800 by 1,800 feet. The Facility is located in a mixed industrial-agricultural area and currently includes a tank farm consisting of seven large aboveground storage tanks (ASTs) contained in four containment areas; a covered truck loading rack; smaller ASTs containing fuel additives; a 42,000-gallon transmix AST; and several buildings used for equipment storage and offices. The large ASTs are used to store jet fuel and range in capacity size from 1,680,000 to 4,599,378 gallons. A former underground storage tank (UST) associated with a vapor recovery unit (VRU) was also located on the Facility and was removed in 2001. The VRU remains on site but is no longer used. The surface of the Facility is comprised of graveled areas and grass fields, with asphalt-paved roads providing access to the fueling areas, ASTs and office buildings.

Property History. Support Terminals Operating Partnership, L.P. (STOP) purchased the Facility from Cenex Harvest States Cooperative (Cenex) in 2003. In March 2008, NuStar acquired STOP. In May 2024, Sunoco LP acquired NuStar; however, the NuStar Terminals Operations Partnership L.P. operating entity remains the same.

The property was developed in 1957 as a truck loading terminal. It is unclear from the records if the Facility was developed by Cenex. Historically, chemicals and other products stored at the Facility included liquid fertilizers and refined petroleum products such as gasoline, diesel and kerosene, denatured alcohol and petroleum product additives. A transmix tank is present in the western portion of the Facility (Figure 2), and this is typically where waste (such as from tank-bottom cleanouts or the oil/water separator) would be stored prior to off-site disposal or recycling. The transmix tank is no longer in use. The southeast corner of the property is not used for terminal activities and was used historically as an orchard. The area currently is fenced and contains remnant fruit trees that are not harvested.

1.2. Regulatory and Investigatory History

Several investigations were performed at the Facility between 2003 and 2010, comprising a Remedial Investigation (RI) and Risk Assessment (RA) as documented in the Remedial Investigation and Risk Assessment Report (RI/RA Report) submitted to Washington State Department of Ecology (Ecology) in December 2010 (Ash Creek, 2010) and approved by Ecology on June 23, 2011. On July 12, 2012, NuStar submitted a draft Feasibility Study (FS) to Ecology in accordance with Agreed Order (AO) No. 09-TC-S DE5250 between Ecology and NuStar (Ash Creek, 2012). The draft FS proposed monitored natural attenuation to address residual hydrocarbon constituents in groundwater in the eastern portion of

the Facility. On October 16, 2013, Ecology provided NuStar with comments on the draft FS. In the months following receipt, NuStar held several meetings with Ecology to discuss Ecology's comments on the FS, as well as additional comments that were presented to NuStar in a February 4, 2014 meeting. The meetings culminated in a Final Project Coordinator's Decision (the "Decision") issued by Ecology on August 26, 2014, which established a series of steps for collecting additional data to support submittal of a revised FS.

Between 2014 and 2020, multiple soil and groundwater investigations were conducted as part of the Supplemental RI process. The additional data requested by Ecology included additional sitewide groundwater monitoring and additional groundwater investigation near historical borings SB-8 and SB-9 located in the western portion of the terminal as shown on Figure 2. Results of the additional investigation indicated the presence of petroleum hydrocarbons in groundwater at concentrations above Washington Model Toxics Control Act (MTCA) Method A Cleanup Levels in two apparently isolated areas in the vicinity of historical borings SB-8 and SB-9 (Apex, 2015). Eight additional monitoring wells (MW-5 through MW-10, MW-5D, and MW-8D) were installed at the locations shown on Figure 2 for continued groundwater monitoring. Additionally, a limited area of affected groundwater was identified in the central portion of the facility near the VRU and monitoring well MW-11 was installed to monitor this area. A pilot study was conducted in the vicinity of well MW-5 in 2017 to evaluate the efficacy of injecting chemical oxidants to address the petroleum hydrocarbons and to support preparation of the revised FS report (Cascadia, 2019).

In accordance with the Decision, a Supplemental RI and Revised FS report was submitted to Ecology on June 1, 2020. The report was revised per Ecology comments and resubmitted on October 23, 2020, for final approval. Ecology approved the report on October 30, 2020. The report detailed the aforementioned investigations conducted between 2014 and 2020, evaluated potential cleanup alternatives and provided a recommended cleanup action for the Facility. The approved cleanup actions include source area soil removal followed by installation of a groundwater recirculation system in two limited areas in the western portion of the Facility. The approved cleanup action also includes the injection of plume stabilization compounds to address the limited area of affected groundwater in the central area near the VRU. Institutional controls and soil management plans will be implemented in the limited area of affected soil in the eastern portion of the Facility near the truck loading areas. The approved cleanup action also includes continued routine groundwater monitoring at the Facility.

In December 2021, Ecology approved (Ecology 2021) a revised Monitoring Well Installation Work Plan (GeoEngineers 2021), which proposed installation of additional monitoring wells to supplement the existing well network to aid in monitoring remedial progress following implementation of the Cleanup Action Plan at the Facility (GeoEngineers 2022a). The well installations were completed in late January and early February 2022. A deep well (MW-6D) was installed near well MW-6 to form a shallow/deeper well pair. A shallow and deeper well pair (MW-12/MW-12D) were installed north of existing well MW-11 to monitor anticipated groundwater flow conditions in the vicinity of the VRU. As part of the event, wells MW-1, MW-11, MW-6D, MW-12 and MW-12D were surveyed (or resurveyed) to establish or confirm vertical controls at the Facility. A summary of the well installation activities was provided to Ecology in an additional well installation report on April 15, 2022 (GeoEngineers, 2022b).

Agreed Order DE 19602 for the cleanup action was approved in 2023 with an effective date of May 15, 2023. Agreed Order DE 19602 and associated Corrective Action Plan outline requirements for remediation at the Facility. In accordance with the approved Pilot Study and Aquifer Testing Work Plan, slug testing was conducted in wells MW-5 through MW-10 from October 23 through 26, 2023 to evaluate the

hydraulic conductivity in the first encountered groundwater zone on the western side of the property to aid in the design of the groundwater recirculation system. Additionally, injections of Liquid Activated Carbon (PetroFix®) were conducted in the VRU area in the vicinity of well MW-11 from October 30 through November 2, 2023. Completing the injections during the pilot study phase allows for collection of data to design additional injections, should additional mobilization be necessary to achieve remedial objectives in this area.

In total, more than 90 soil borings have been installed at the Facility, facilitating the collection and analysis of 115 soil samples and 108 grab groundwater samples. Sixteen monitoring wells have been installed over the course of the project, which have been monitored on a quarterly basis since 2017.

1.3. Geology and Hydrogeology

This section presents the geology and hydrogeology as discussed in the RI/RA Report (Ash Creek, 2010).

1.3.1. Geology

Regional Geology. The regional geology is summarized below and is based on reports prepared by Pacific Groundwater Group (PGG; 2001) and AMEC (2002). The vicinity of the Facility is dominated by three primary units: Recent Alluvial deposits, the Pleistocene Alluvial deposits and the Troutdale Formation.

The Recent Alluvial deposits are the upper unit with deposits approximately 55 feet thick and consist of fine-grained silt and sand within the areas investigated near Vancouver Lake. The Pleistocene Alluvial deposits are approximately 95 to 115 feet thick and consist of coarse-grained sand and gravel. The Pleistocene Alluvial deposits originate from alluvial deposits from the Columbia River and deposits from the catastrophic Missoula Floods. The Troutdale Formation underlies the Pleistocene Alluvial deposits and can be greater than 1,000 feet thick. It is made up of cemented sandy gravels and semi-consolidated sands, silts and clays.

Site Geology. During previous Facility investigations performed by others, soil borings have been installed to depths of up to 50 feet below ground surface (bgs) at the Facility. During a 2007 Facility investigation conducted by Ash Creek Associates (Ash Creek, 2007), one boring was completed to a depth of 72 feet bgs. Recent investigations in the western portion of the Facility included installing borings up to depths of 65 feet bgs.

The Recent Alluvial deposits underlying the western portion of the Facility consist of silt and silty clay with some fine sand to depths of approximately 20 to 25 feet bgs. Below 20 to 25 feet bgs, the Recent Alluvial deposits consist of layers of fine- to medium-grained sand to a depth of at least 65 feet bgs. On the eastern portion of the Facility, fine sand or sandy silt with variable layers of sand or silty sand is encountered to a depth of approximately 10 feet bgs. Below 10 feet bgs, the Recent Alluvial deposits in the eastern portion of the Facility consist of layers of fine- to medium-grained sand to a depth of approximately 50 to 60 feet bgs. The Pleistocene Alluvial deposits are encountered below the Recent Alluvial deposits and consist of sand and/or gravel layers of varying thicknesses.

1.3.2. Hydrogeology

Regional Hydrogeology. The regional aquifers, Recent Alluvial Aquifer (RAA), Pleistocene Alluvial Aquifer (PAA), and the aquifers of the Troutdale Formation, follow the regional geology discussed above. The

regional hydrogeology summarized below is based on reports prepared in support of Clark Public Utilities (CPU) South Lake Wellfield (PGG, 2001; PGG, 2009) and by Ash Creek (2008a and 2008b).

The RAA is unconfined and receives recharge directly from the land surface and/or surface water features. The PAA directly underlies the RAA and is a productive aquifer with high well yields (several thousand gallons per minute [gpm] without significant drawdown). The groundwater flow system is highly influenced by local surface water bodies. The Columbia River, Vancouver Lake, Vancouver Lake Flushing Channel and Lake River form natural hydrologic boundaries to the groundwater flow system. Tidal influences and seasonal variations in surface water runoff cause dynamic variation in the stage of the Columbia River and resulting adjustments in the stages of the other three connected surface water bodies. The groundwater flow system is also influenced by tidal and seasonal variations in the surface water bodies. Regionally, it is anticipated that groundwater within the RAA and PAA near the Facility would have a net gradient toward Vancouver Lake and the Columbia River.

Site Hydrogeology. In the west tank farm area, depth to first encountered groundwater is typically 16 to 20 feet bgs; in the eastern portion of the Facility, near the former truck loading area, depth to groundwater typically ranges from 13 to 32 feet bgs.

First encountered groundwater at the Facility corresponds to the silt and fine- to medium-grained sand of the RAA. Shallow groundwater flow at the Facility is typically, under static conditions, flat with a slight gradient (0.0002 foot per foot [ft/ft]) to the southeast (AMEC, 2002; SECOR, 2003; Ash Creek, 2009).

2.0 GROUNDWATER MONITORING – 2024

A comprehensive quarterly groundwater monitoring program was conducted in 2024 to monitor groundwater conditions at the Facility. The monitoring included the gauging and sampling of shallow monitoring wells MW-1 through MW-12, and deeper monitoring wells MW-5D, MW-6D, MW-8D, and MW-12D using the Standard Operating Procedures (SOPs) included as Appendix A. The quarterly events were conducted from February 14 through 15, May 14 through 15, August 13 through 14 and November 19 through 21, 2024.

2.1. Groundwater Elevation Measurements

Fluid level measurements were recorded to the nearest 0.01 foot from the surveyed top of monitoring well casing. Depth to groundwater was measured using an electronic water level indicator probe. Although separate phase hydrocarbons (SPH) have historically not been observed at the Facility, the wells are assessed using an electronic water/hydrocarbon interface probe to document their absence. As detailed in Sections 2.1.1 and 2.2.2, in 2024, SPH were observed for the first time in well MW-6. Additional assessments were conducted to confirm the SPH was not indicative of a new release at the site but, rather, was representative of historical residual hydrocarbons in the well MW-6 area.

Depth to groundwater and groundwater elevations for 2024 are provided in Table 1. Historical groundwater elevation data collected from 2007 through 2024 are included in Appendix B. Copies of the well gauging forms for the events conducted in 2024 are provided in Appendix C.

Figures 3 through 6 present groundwater elevation contour maps for each of the four quarterly monitoring events.

2.1.1. Separate Phase Hydrocarbons

Approximately 0.03 foot of SPH were observed in well MW-6 during the fourth quarter of 2024. Sheen and SPH have not previously been observed in any Facility wells, including well MW-6. The observation was made during drawdown measurements as the well was being purged and groundwater monitoring parameters recorded, rather than during the initial water level measurement. The product was removed from the well and a sample was collected for laboratory analysis. Based on a review of the analytical results and chromatographs from the product sample, GeoEngineers determined that the SPH were highly weathered and likely associated with the historical release that resulted in the known area of petroleum hydrocarbon contamination around well MW-6. The observation of SPH in well MW-6 during the fourth quarter of 2024 is discussed in greater detail in Section 2.2.2.

2.1.2. Groundwater Elevation

Consistent with previous years, the groundwater gradient was generally flat with a magnitude across the Facility that ranged between 0.0005 to 0.001 ft/ft in 2024. The following subsections discuss the depth to groundwater and groundwater gradients observed for each quarterly event.

2.1.2.1. First Quarter 2024

Depths to groundwater ranged from 15.79 to 29.29 feet bgs in wells located in the eastern portion of the Facility (wells MW-1 through MW-4, MW-11, and MW-12), corresponding to a range in groundwater elevations of 10.36 to 11.07 feet above Mean Sea Level (MSL) relative to North American Vertical Datum of 1988 (NAVD 88). Depths to groundwater in wells MW-5 through MW-10, located in the western area, ranged from 10.95 to 18.52 feet bgs, corresponding to elevations of 10.68 to 13.43 feet above MSL.

Figure 3 provides a groundwater elevation contour map for the groundwater measurements collected in February 2024 during the first quarter 2024 monitoring event. As shown on Figure 3, the groundwater gradients vary across the Facility. An apparent groundwater high is present in the eastern portion of the Facility near well MW-11, and groundwater lows are present in the southwestern area of the Facility and at well MW-2, southeast of well MW-11. West of well MW-11, the west-southwest groundwater gradient had a magnitude of approximately 0.0005 ft/ft. East of well MW-11, the southeast groundwater gradient had a magnitude of approximately 0.006 ft/ft.

2.1.2.2. Second Quarter 2024

Depths to groundwater ranged from 16.26 to 29.71 feet bgs in wells MW-1 through MW-4, MW-11, and MW-12, located in the eastern portion of the Facility, corresponding to a range in groundwater elevations of 10.42 to 10.69 feet above MSL. Depths to groundwater in wells MW-5 through MW-10, located in the western tank area, ranged from 11.30 to 18.94 feet bgs, corresponding to elevations of 10.31 to 10.47 feet above MSL.

Figure 4 provides a groundwater elevation contour map for the groundwater measurements collected in May 2024 during the second quarter 2024 monitoring event. As shown on Figure 4, the groundwater gradients vary across the Facility. An apparent groundwater high is present in the eastern portion of the Facility near well MW-11, and a groundwater low is present in the southwestern area of the Facility. The west-southwest groundwater gradient had a magnitude of approximately 0.0006 ft/ft.

2.1.2.3. Third Quarter 2024

Depths to groundwater ranged from 18.79 to 32.29 feet bgs in wells MW-1 through MW-4, MW-11, and MW-12 located in the eastern portion of the Facility, corresponding to a range in groundwater elevations of 7.82 to 8.33 feet above MSL. Depths to groundwater in wells MW-5 through MW-10, located in the western tank area, ranged from 14.06 to 21.44 feet bgs, corresponding to elevations ranging between 7.61 to 7.95 feet above MSL.

Figure 5 provides a groundwater elevation contour map for the groundwater measurements collected in August 2024 during the third quarter 2024 monitoring event. As shown on Figure 5, the groundwater gradient was to the west-southwest across most of the Facility, with a magnitude measuring approximately 0.0008 ft/ft. A groundwater elevation high is present near well MW-11 and a groundwater elevation low is present near well MW-7.

2.1.2.4. Fourth Quarter 2024

Depths to groundwater ranged from 17.37 to 30.79 feet bgs in wells MW-1 through MW-4, MW-11, and MW-12, located in the eastern portion of the Facility, corresponding to a range in groundwater elevations of 8.79 to 9.47 feet above MSL. Depths to groundwater in wells MW-5 through MW-10, located in the western tank area, ranged from 11.91 to 19.88 feet bgs, corresponding to elevations ranging between 9.51 to 9.76 feet above MSL.

Figure 6 provides a groundwater elevation contour map for the groundwater measurements collected in November 2024 during the fourth quarter 2024 groundwater monitoring event. As shown on Figure 6, the groundwater gradient was to the east across most of the Facility, with a magnitude measuring approximately 0.001 ft/ft. A groundwater elevation low is present near well MW-11.

2.1.3. Vertical Gradient Evaluation

Four shallow/deeper groundwater well pairs are used to evaluate vertical groundwater gradients at the Facility. These well pairs include MW-5/MW-5D, MW-6/MW-6D, MW-8/MW-8D and MW-12/MW-12D. In general, there was a downward vertical gradient during the second and third quarters of 2024, and a slight upward vertical gradient during the fourth quarter of 2024. There was no consistent vertical gradient during the first quarter of 2024. An evaluation of vertical gradients is presented in the following subsections.

2.1.3.1. MW-5/MW-5D Vertical Gradients

The vertical gradient between wells MW-5 and MW-5D was neutral or slightly downward during first, second, and third quarters with magnitudes of 0 ft/ft, -0.009 ft/ft, and -0.005 ft/ft, respectively. The vertical gradient between wells MW-5 and MW-5D was slightly upward during the fourth quarter with a magnitude of 0.004 ft/ft.

2.1.3.2. MW-6/MW-6D Vertical Gradients

The vertical gradient between wells MW-6 and MW-6D was slightly upward during the first, third, and fourth quarters of 2024 with a magnitude of 0.002 ft/ft, 0.001 ft/ft, and 0.004 ft/ft, respectively. The vertical gradient between wells MW-6 and MW-6D was slightly downward during the second quarter of 2024 with a magnitude of -0.003 ft/ft.

2.1.3.3. MW-8/MW-8D Vertical Gradients

The vertical gradient between wells MW-8 and MW-8D was slightly downward during the first, second, and third quarters of 2024, with magnitudes of -0.005 ft/ft, -0.008 ft/ft, and -0.009 ft/ft, respectively. There was no discernable vertical gradient between this well pair during the fourth quarter 2024 monitoring event.

2.1.3.4. MW-12/MW-12D Vertical Gradients

The vertical gradient between wells MW-12 and MW-12D was slightly downward during the first, second, and third quarters of 2024, with magnitudes of -0.015 ft/ft, -0.009 ft/ft, and -0.006 ft/ft, respectively. The vertical gradient between wells MW-12 and MW-12D was slightly upward during fourth quarter 2024 with a magnitude of 0.007 ft/ft.

As discussed in Section 1.3.2, groundwater levels are influenced by local surface water bodies including Vancouver Lake and the Columbia River. The quarterly depth-to-water readings in the well pairs have historically supported this conclusion, as the elevation data have consistently shown an upward vertical gradient at times when seasonal peak flow rates are occurring in the Columbia River (e.g., second quarter, April–June); however, spring runoff in 2024 was relatively consistent and Columbia River flow only peaked for a few days in mid-June, which was not captured by our groundwater monitoring.

2.2. Groundwater Sampling and Analysis

The following describes the field methods, analytical results, and quality assurance/quality control (QA/QC) procedures for groundwater sampling conducted at the Facility in 2024.

2.2.1. Methods and Procedures

Samples were collected from each well in accordance with the low-flow sampling SOPs provided in Appendix A. In summary, Facility monitoring wells were purged prior to sample collection, utilizing a peristaltic pump with the intake of the tubing placed midway within the saturated screened interval of the monitoring well. Monitoring wells were purged until field parameters (pH, conductivity, temperature, oxidation-reduction potential [ORP] and dissolved oxygen [DO]) stabilized. Following stabilization of parameters, groundwater samples were collected directly from the discharge tube of the peristaltic pump into laboratory-supplied containers. Field sampling forms are provided in Appendix C.

Samples were labeled and placed in iced-coolers for transport, under chain-of-custody protocol, to Apex Laboratories of Tigard, Oregon (Apex), for the following analyses:

- Benzene, toluene, ethylbenzene, and xylenes (BTEX), methyl tert-butyl ether (MTBE) and naphthalene by U.S. Environmental Protection Agency (EPA) Method 8260D; and
- Total petroleum hydrocarbons in the gasoline carbon range (TPHg) by Method NWTPH-Gx, and total petroleum hydrocarbons in the diesel carbon range (TPHd), and total petroleum hydrocarbons in the motor oil carbon range (TPHo) by Method NWTPH-Dx.

2.2.2. Separate-Phase Petroleum Hydrocarbons

As discussed in Section 2.1.1, approximately 0.03 foot of SPH was observed in well MW-6 on November 20, 2024. The SPH were removed from the well with a peristaltic pump to a laboratory-supplied container. GeoEngineers again gauged well MW-6 on November 21, 2024 and did not observe the presence of SPH

or sheen. Despite the absence of measurable product, following gauging, the quarterly groundwater sample was collected from well MW-6 on November 21, 2024, using sampling-through-product procedures¹.

The SPH sample was delivered to Apex on November 20, 2024. Apex completed a water extraction from the product sample due to the small amount of product available and analyzed the sample using gas chromatography and flame ionization detection (GC/FID). Based on the chromatogram, Apex concluded that the product sample contained a middle distillate such as diesel #2 (which has not been stored in the ASTs at the Annex since NuStar has been operating the Facility) or a similar fuel. Apex further concluded that the fuel had undergone substantial biological degradation. Correspondence with Apex regarding the sample is provided in Appendix G.

2.2.3. Analytical Results

Analytical results for the 2024 groundwater monitoring events are summarized in Table 2. Historical analytical groundwater data collected from 2007 through 2024 are tabulated in Appendix D. Copies of the laboratory analytical reports are contained in Appendix E.

Groundwater analytical results for 2024 for BTEX/naphthalene concentrations are displayed for each Facility monitoring well on Figure 7, and TPHg and TPHd concentrations are displayed on Figure 8.

Due to the presence of liquid activated carbon in groundwater at well MW-11 as a result of the remedial injections of PetroFix conducted in October 2023, special sampling and analysis procedures were utilized, as approved by Ecology², for samples collected from well MW-11. These approved procedures consist of adding alum to the sample matrix to flocculate the residual liquid activated carbon present in the water sample to allow the analytical process to proceed. The PetroFix injections performed in October 2023 are described in Section 1.2.

VRU Area (Shallow Wells MW-1 through MW-4, MW-11 and MW-12, and Deeper Well MW-12D)

TPHg, TPHd, TPHo, BTEX, MTBE and naphthalene were either non-detect or below Site Cleanup Levels in shallow wells MW-1 through MW-4 and MW-12, and deeper well MW-12D, with one exception. TPHd was detected at a concentration slightly above the Site Cleanup Levels in well MW-1 during the first quarter of 2024, but was not detected above laboratory reporting limits during the remainder of 2024. Well MW-11, located adjacent to the VRU and in the center of the PetroFix pilot study area, had no detections of TPHg, TPHd, TPHo, BTEX, MTBE, or naphthalene, with one exception. Benzene was detected at MW-11 during the third quarter of 2024 at a concentration of 0.00185 mg/L, which is less than the Site Cleanup Level of 0.005 mg/L.

¹ This procedure entails placing a clean PVC pipe with a plug at the base through the SPH/water interface in the well to approximately 1 to 2 feet below the interface, removing the plug to allow water in the well column to enter the PVC pipe, conducting low flow sampling procedures through the pipe followed by sample collection through the pipe. Using this technique isolates the SPH from the sample collection process allowing for a dissolved phase sample to be collected beneath the SPH/water layer while minimizing the ability for SPH to become entrained in the sample.

² In an email dated January 16, 2024, Ecology approved the use of alum in groundwater samples collected from well MW-11 to cause flocculation of liquid activated carbon. Ecology approval is attached in Appendix F.

As indicated above, a pilot study of PetroFix injections centered around well MW-11 was conducted in the VRU area in October 2023. Because liquid activated carbon remained suspended in groundwater at well MW-11 through 2024 and was observed at varying levels during each of the quarterly monitoring events, GeoEngineers utilized an approved process for sample analysis that allows the analytical laboratory to conduct the analysis in the presence of residual liquid activated carbon in the water column for samples collected from well MW-11 during 2024 (see Appendix F). Several factors influence the dissipation rate of suspended liquid activated carbon in groundwater, including the applied dose, soil type, and local groundwater gradient. Silts and clays sorb liquid activated carbon more rapidly than sands. The groundwater gradient at the site is relatively flat and soil in the VRU area consists of silts and fine sands, which suggest that the carbon may remain suspended in the water column for an extended period of time. Since the injections, TPHd, TPHg, BTEX, MTBE, and naphthalene have not been detected in samples from well MW-11, with one exception (benzene in the third quarter at a concentration of 0.00185 mg/L, well below the MTCA Method A Cleanup Level). These results are promising for PetroFix as a remedial technology for the Facility; however, at least 1 additional year of monitoring is needed to confirm these results.

Well MW-5 Area

BTEX, MTBE and TPHo were either not detected or were below Site Cleanup Levels in well MW-5. During historical monitoring of this area, TPHg, TPHd, and naphthalene were detected consistently in well MW-5 at concentrations above Site Cleanup Levels (see Appendix D). No petroleum hydrocarbon or related constituents were detected in shallow wells MW-8 or MW-9, demonstrating that the shallow extent of dissolved phase hydrocarbons remains limited around well MW-5.

TPHg was not detected above Site Cleanup Levels in deeper well MW-5D during 2024. TPHd was detected slightly above the Site Cleanup Level in well MW-5D in 2024; however, these results are consistent with the intermittent detections of TPHd in this well observed during past monitoring events (see Appendix D). BTEX, MTBE, and naphthalene were not detected in well MW-5D in 2024, supporting that the vertical extent of dissolved-phase petroleum hydrocarbons continues to be limited in the MW-5 area.

Well MW-6 Area

In groundwater samples from well MW-6, TPHo and MTBE were not detected above method reporting limits and toluene and xylenes were detected below Site Cleanup Levels. Consistent with previous results, TPHg, TPHd, benzene, ethylbenzene and naphthalene were detected above Site Cleanup Levels in 2024. Notably, the concentrations detected in well MW-6 during the fourth quarter event were consistent with both the historical and recent results from this well.

In deeper well MW-6D, TPHg, TPHo, BTEX, MTBE, and naphthalene were not detected above the method reporting limits; TPHd was detected during the first, second, and third quarters of 2024 but concentrations were below the Site Cleanup Level. The results from well MW-6D continue to demonstrate that the vertical extent of dissolved-phase petroleum hydrocarbons are limited in the well MW-6 area.

Despite the observation of SPH in well MW-6, the fourth quarter analytical results for wells MW-6 and MW-6D were consistent with observations in the wells since quarterly monitoring began in 2014 (see Appendix D). Based on Apex's determination that the product was highly degraded and a middle distillate such as diesel #2 (i.e., not jet fuel that is stored at the Facility), and the historical and recent analytical results from wells MW-6 and MW6D, GeoEngineers determined that the SPH encountered in well MW-6

during the fourth quarter of 2024 were due to an isolated pocket of SPH present in the subsurface as a result of historical Facility operations, and not the result of a recent release. Groundwater monitoring at well MW6 will continue in 2025, and any observations of sheen or SPH will be reported in the 2025 Annual Groundwater Monitoring Report.

Facility Compliance Wells (Shallow Wells MW-7 through MW-10 and Deeper Well MW-8D)

Shallow wells MW-7 through MW-10 and deeper well MW-8D are used to monitor groundwater conditions at the periphery of the Facility. TPH, BTEX, MTBE and naphthalene were non-detect in the compliance wells, consistent with historical results (Table 2; Appendix D).

2.2.4. Quality Assurance/Quality Control (QA/QC)

QA/QC samples consisted of field duplicate samples, field trip blanks, laboratory method blanks, matrix spike/matrix spike duplicates (MS/MSD), laboratory control samples (LCS) and surrogate spike samples. A QA/QC evaluation was conducted on the four quarters of data and a report of the results is contained in Appendix E. As detailed in the QA/QC report in Appendix E, the data quality objectives were met and the data are acceptable for use.

3.0 FUTURE WORK

Quarterly groundwater monitoring will continue in 2025. Following the completion of quarterly monitoring in 2025, an Annual 2025 Groundwater Monitoring Report will be prepared during the first quarter of 2026.

As previously discussed, a Cleanup Action Plan (GeoEngineers 2022a) for the Facility is currently being implemented under Agreed Order DE 19602. Work planned for 2025 includes the submittal of a Revised Well MW-5 Area Pilot Study Work Plan by September 30, 2025 following receipt of three additional rounds of quarterly monitoring data from the VRU area to better assess the potential applicability of the PetroFix remedial technology in the well MW-5 area.

4.0 REFERENCES

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- SECOR, 2003. Results of Phase II Environmental Site Assessment. June 6, 2003.
- Washington State Department of Ecology (Ecology), 2021. Email regarding RE: Nustar Annex – Revised Additional Well Installation Work Plan from Andrew Smith, Ecology, to Amanda Spencer, GeoEngineers. Dated December 22, 2021.

Table 1**Groundwater Elevation Data**

NuStar Terminals Operations Partnership, L.P.—Annex Terminal
Vancouver, Washington

Well Number	Date of Measurement	Top of Casing Elevation (feet above MSL)	Screened Interval (feet bgs)	Depth To SPH (feet)	Depth to Groundwater (feet)	SPH Thickness (feet)	Groundwater Elevation (feet)
MW-1	02/14/24	26.73	14.5-24.5	--	15.79	--	10.94
	05/14/24	26.73		--	16.26	--	10.47
	08/13/24	26.73		--	18.79	--	7.94
	11/19/24	26.73		--	17.37	--	9.36
MW-2	02/14/24	38.27	20-35	--	27.91	--	10.36
	05/14/24	38.27		--	27.85	--	10.42
	08/13/24	38.27		--	30.40	--	7.87
	11/19/24	38.27		--	28.80	--	9.47
MW-3	02/14/24	39.17	24.5-34.5	--	28.22	--	10.95
	05/14/24	39.17		--	28.65	--	10.52
	08/13/24	39.17		--	31.28	--	7.89
	11/19/24	39.17		--	29.71	--	9.46
MW-4	02/14/24	40.23	20-35	--	29.29	--	10.94
	05/14/24	40.23		--	29.71	--	10.52
	08/13/24	40.23		--	32.29	--	7.94
	11/19/24	40.23		--	30.79	--	9.44
MW-5	02/14/24	27.03	10-25	--	16.35	--	10.68
	05/14/24	27.03		--	16.56	--	10.47
	08/13/24	27.03		--	19.28	--	7.75
	11/19/24	27.03		--	17.40	--	9.63
MW-5D	02/14/24	26.71	35-45	--	16.02	--	10.69
	05/14/24	26.71		--	16.44	--	10.27
	08/13/24	26.71		--	19.08	--	7.63
	11/19/24	26.71		--	17.00	--	9.71
MW-6	02/14/24	27.33	10-25	--	16.66	--	10.67
	05/14/24	27.33		--	16.99	--	10.34
	08/13/24	27.33		--	19.69	--	7.64
	11/19/24	27.33		--	17.71	--	9.62
MW-6D	02/14/24	27.59	35-45	--	16.88	--	10.71
	05/14/24	27.59		--	17.31	--	10.28
	08/13/24	27.59		--	19.93	--	7.66
	11/19/24	27.59		--	17.87	--	9.72
MW-7	02/14/24	21.67	10-25	--	10.95	--	10.72
	05/14/24	21.67		--	11.30	--	10.37
	08/13/24	21.67		--	14.06	--	7.61
	11/19/24	21.67		--	11.91	--	9.76

Well Number	Date of Measurement	Top of Casing Elevation (feet above MSL)	Screened Interval (feet bgs)	Depth To SPH (feet)	Depth to Groundwater (feet)	SPH Thickness (feet)	Groundwater Elevation (feet)
MW-8	02/14/24	27.68	10-25	--	16.85	--	10.83
	05/14/24	27.68		--	17.22	--	10.46
	08/13/24	27.68		--	19.81	--	7.87
	11/19/24	27.68		--	17.98	--	9.70
MW-8D	02/14/24	27.87	35-45	--	17.15	--	10.72
	05/14/24	27.87		--	17.59	--	10.28
	08/13/24	27.87		--	20.21	--	7.66
	11/19/24	27.87		--	18.17	--	9.70
MW-9	02/14/24	29.39	10-25	--	18.52	--	10.87
	05/14/24	29.39		--	18.94	--	10.45
	08/13/24	29.39		--	21.44	--	7.95
	11/19/24	29.39		--	19.88	--	9.51
MW-10	02/14/24	28.71	10-25	--	17.96	--	10.75
	05/14/24	28.71		--	18.40	--	10.31
	08/13/24	28.71		--	21.00	--	7.71
	11/19/24	28.71		--	19.04	--	9.67
MW-11	02/14/24	27.41	10-25	--	16.34	--	11.07
	05/14/24	27.41		--	16.72	--	10.69
	08/13/24	27.41		--	19.08	--	8.33
	11/19/24	27.41		--	18.62	--	8.79
MW-12	02/14/24	33.12	18-33	--	22.07	--	11.05
	05/14/24	33.12		--	22.64	--	10.48
	08/13/24	33.12		--	25.30	--	7.82
	11/19/24	33.12		--	23.78	--	9.34
MW-12D	02/14/24	32.06	45-55	--	21.37	--	10.69
	05/14/24	32.06		--	21.81	--	10.25
	08/13/24	32.06		--	24.38	--	7.68
	11/19/24	32.06		--	22.54	--	9.52

Notes:

1. Survey elevations determined by Bluedot Group surveying, November 2017. The following wells were surveyed by MacKay Sposito on 2/7/22: MW-1, MW-6D, MW-11, MW-12, MW-12D.
2. Reference elevation (i.e., top of casing) relative to NAVD 88 (North American Vertical Datum of 1988), feet above mean sea level.
3. feet above MSL = feet above mean sea level.
4. NS = Not surveyed
5. -- = SPH (separate phase hydrocarbons) not measured/observed.
6. bgs = below ground surface.
7. The following wells were surveyed by MacKay Sposito on 2/7/22: MW-1, MW-6D, MW-11, MW-12, MW-12D.

Table 2

Summary of Analytical Result—Monitoring Well:
 NuStar Terminals Operations Partnership, L.P. —Annex Terminal
 Vancouver, Washington

Well Number	Sample Date	TPHg Gasoline (mg/L)	TPHd Diesel (mg/L)	TPHo Heavy Oil (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	Naphthalene (mg/L)
MW-1	2/14/2024	<0.100	0.511 F-11	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/14/2024	<0.100	0.302 F-11	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/13/2024	<0.100	0.405 F-11	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/20/2024	<0.100	0.236 F-11	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
MW-2	2/14/2024	<0.100	<0.0800	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/15/2024	<0.100	<0.0800	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/14/2024	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/20/2024	<0.100	<0.0808	<0.162	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
MW-3	2/15/2024	<0.100	<0.0833	<0.167	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/14/2024	<0.100	<0.0784	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/14/2024	<0.100	0.0801 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/19/2024	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
MW-4	2/14/2024	<0.100	0.198 F-11	<0.167	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/15/2024	<0.100	0.117 F-11	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/14/2024	<0.100	0.136 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/19/2024	<0.100	0.188 F-11	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
MW-5	2/15/2024	24.5	1.46 F-18	<0.155	<0.002	<0.01	0.114	0.453	<0.01	1.75
	2/15/24 DUP	25.4	1.32 F-18	<0.157	<0.002	<0.01	0.106	0.436	<0.01	1.88
	5/14/2024	22.7	1.30 F-18	<0.151	<0.002	<0.01	0.113	0.397	<0.01	1.70
	5/14/2024 DUP	22.6	1.40 F-18	<0.158	<0.002	<0.01	0.115	0.394	<0.01	1.67
	8/13/2024	16.7	2.17 F-18	<0.155	<0.004	<0.020	0.118	0.315	<0.020	1.71
	8/13/2024 DUP	16.4	1.86 F-18	<0.160	<0.004	<0.020	0.121	0.315	<0.020	1.68
	11/20/2024	14.5	1.64 F-18	<0.154	<0.004	<0.020	0.147	0.208	<0.020	1.82
11/20/2024 DUP	15.2	1.49 F-18	<0.155	<0.004	<0.020	0.144	0.228	<0.020	1.92	
MW-5D	2/15/2024	<0.100	<0.0784	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/14/2024	0.185	0.533 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/13/2024	0.508	0.552 F-20	<0.158	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/20/2024	<0.100	0.382 F-11	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005

Well Number	Sample Date	TPHg Gasoline (mg/L)	TPHd Diesel (mg/L)	TPHo Heavy Oil (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	Naphthalene (mg/L)
MW-6	2/14/2024	16.2	4.27 F-20	<0.157	0.258	0.0216	1.71	0.138	<0.010	0.525
	5/15/2024	15.1	4.13 F-20	<0.155	0.217	<0.025	2.51	0.123	<0.025	0.460
	8/14/2024	13.4	4.37 F-20	<0.152	0.143	<0.025	1.42	0.092	<0.025	0.416
	11/21/2024	14.5	2.31 F-20	<1.60	0.163	<0.025	1.16	0.195	<0.025	0.217
MW-6D	2/14/2024	<0.100	0.269 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/15/2024	<0.100	0.198 F-11	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/14/2024	<0.100	0.151 F-11	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/20/2024	<0.100	<0.0792	<0.158	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
MW-7	2/14/2024	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/14/2024	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/13/2024	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/19/2024	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
MW-8	2/14/2024	<0.100	<0.0816 DCNT	<0.163 DCNT	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/14/2024	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/13/2024	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/19/2024	<0.100	<0.0784	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
MW-8D	2/15/2024	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/14/2024	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/13/2024	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/19/2024	<0.100	<0.0784	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
MW-9	2/14/2024	<0.100	<0.0784	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/14/2024	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/13/2024	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/19/2024	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
MW-10	2/14/2024	<0.100	<0.0792	<0.158	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/14/2024	<0.100	<0.0784	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/13/2024	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/20/2024	<0.100	<0.0800	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
MW-11	2/15/2024 (unprocessed)	<0.200 A	<0.0842	<0.168	<0.0004 A	<0.002 A	<0.001 A	<0.003 A	<0.002 A	<0.01 A
	2/15/2024	<0.200 A, B	<0.0777 PRO	<0.155 PRO	<0.002 A	<0.010 A	<0.005 A	<0.015 A	<0.01 A	<0.05 A
	2/15/2024 DUP	<0.200 A, B	<0.0769 PRO	<0.154 PRO	<0.0004 A	<0.002 A	<0.001 A	<0.003 A	<0.002 A	<0.01 A
	5/15/2024	<1.00 B	<0.0816 PRO	<0.163 PRO	<0.002 A	<0.010 A	<0.005 A	<0.0150 A	<0.010 A	<0.050 A
	5/15/2024 DUP	<1.00 B	<0.0769 PRO	<0.154 PRO	<0.002 A	<0.010 A	<0.005 A	<0.0150 A	<0.010 A	<0.050 A
	8/14/2024	<0.500 B	<0.0777 FILT1	<0.155 FILT1	0.00185 A	<0.005 A	<0.0025 A	<0.0075 A	<0.005 A	<0.025 A
	8/14/2024 DUP	<0.500 B	<0.0755 FILT1	<0.151 FILT1	<0.001 A	<0.005 A	<0.0025 A	<0.0075 A	<0.005 A	<0.025 A
	11/20/2024	<0.500 A, B	<0.0808 PRO	<0.162 PRO	<0.001 A	<0.005 A	<0.0025 A	<0.0075 A	<0.005 A	<0.025 A
11/20/2024 DUP	<0.500 A, B	<0.0769 PRO, *	<0.154 PRO, *	<0.001 A	<0.005 A	<0.0025 A	<0.0075 A	<0.005 A	<0.025 A	

Well Number	Sample Date	TPHg Gasoline (mg/L)	TPHd Diesel (mg/L)	TPHo Heavy Oil (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	Naphthalene (mg/L)
MW-12	2/15/2024	<0.100	0.176 F-11	<0.158	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/14/2024	<0.100 A	0.0867 F-11	<0.165	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/13/2024	<0.100 A	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/19/2024	<0.100	<0.0800	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
MW-12D	2/15/2024	<0.100	<0.0792	<0.158	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/15/2024	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/13/2024	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/19/2024	<0.100	<0.0825	<0.165	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
Site Cleanup Level		0.8	0.5	0.5	0.005	1	0.7	1	0.02	0.16

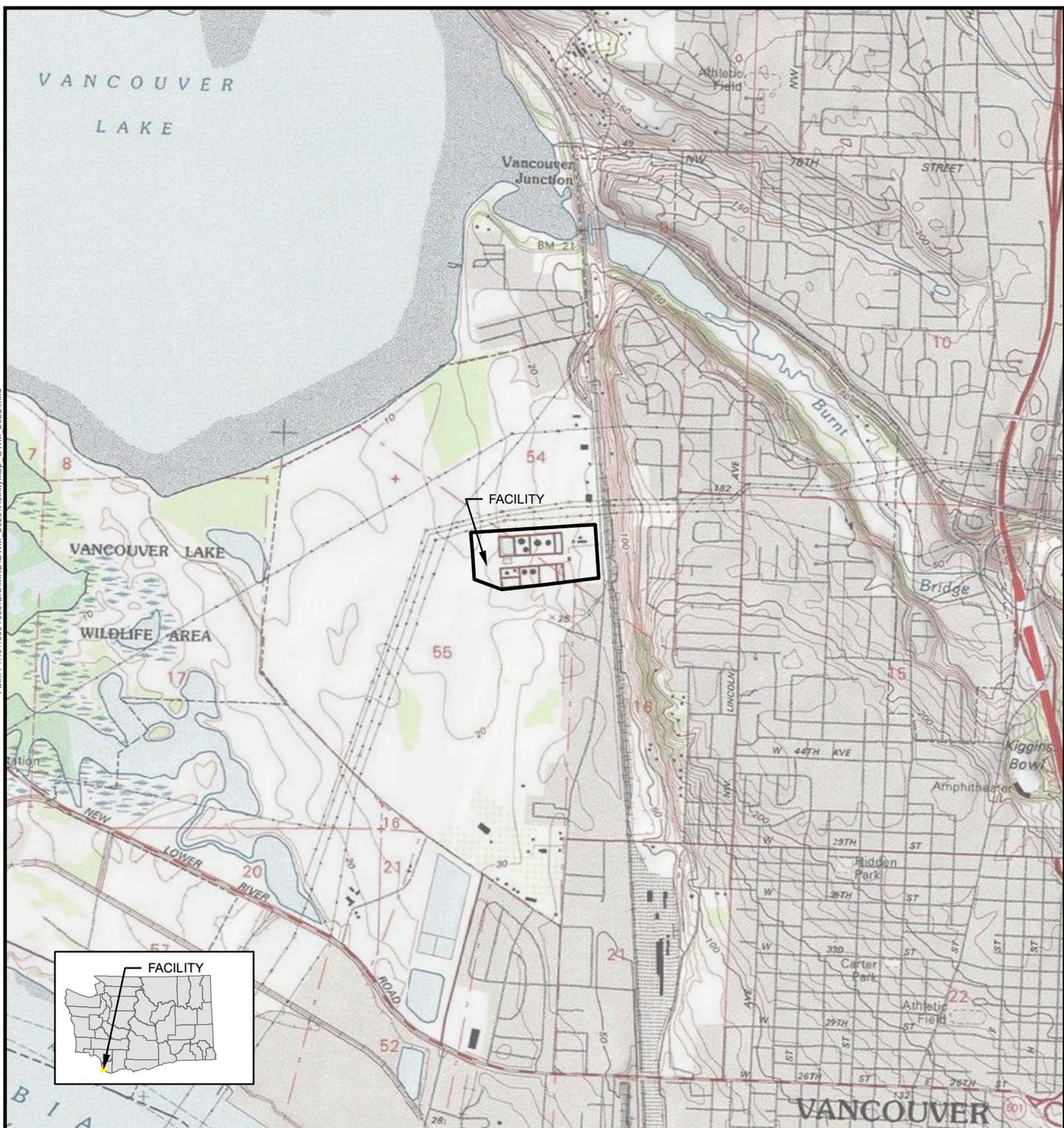
Notes:

1. TPHg = Total petroleum hydrocarbons in gasoline carbon range by NW-TPHg method.
2. TPHd = Total petroleum hydrocarbons in diesel carbon range by NW-TPHd method.
3. TPHo = Total petroleum hydrocarbons in heavy oil carbon range NW-TPHd method.
4. **Bold** values represent concentration that exceeds Site Cleanup Level.
5. mg/L (ppm) = Milligrams per liter (parts per million).
6. Site Cleanup Levels are defined for groundwater in Table 2 of the March 2023 Final Cleanup Action Plan, associated with Agreed Order No. DE 19602.
7. < = Not detected at or above the specified laboratory method reporting limit (MRL).
8. bgs = below ground surface
9. Special sampling procedures were utilized for samples collected from well MW-11 during 2024, as described in report section 2.2.2, and as approved by Ecology in an email sent on January 16, 2024, included in Appendix F.

Notes on Quality Assurance/Quality Control Data Qualifiers

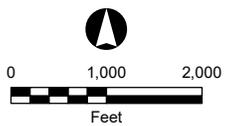
- DCNT = Sample decanted due to the presence of sediment. Sample bottle not rinsed with solvent.
- F-11 = The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
- F-18 = Result for Diesel (Diesel Range Organics, C12-C24) is due to overlap from Gasoline or a Gasoline Range product.
- F-20 = Result for Diesel is estimated due to overlap from Gasoline Range Organics or other volatile organic compounds (VOCs).
- FILT1 = Sample was lab filtered and acid preserved prior to analysis. See sample preparation section of report for date and time of filtration.
- H-02 = This sample was extracted outside of the recommended holding time.
- PRO = Sample has undergone sample processing prior to extraction and analysis.
- R-04 = Reporting levels elevated due to preparation and/or analytical dilution necessary for analysis.
- A-01 = Sample was originally extracted within hold time with failing surrogate. Out of hold extraction confirms sample is non-detect.
- * = Data flagged A-01, H-02
- A = Data Flagged R-04
- B = Sample containers contained aluminum sulfate to cause flocculation of liquid activated carbon. High concentrations of liquid activated carbon can damage laboratory equipment and result in inaccurate analysis.

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Print Date: 1/6/2023
Approved By:
Produced By: estrandhagen
Project:



Source: USGS Map obtained from Esri ArcGIS Online

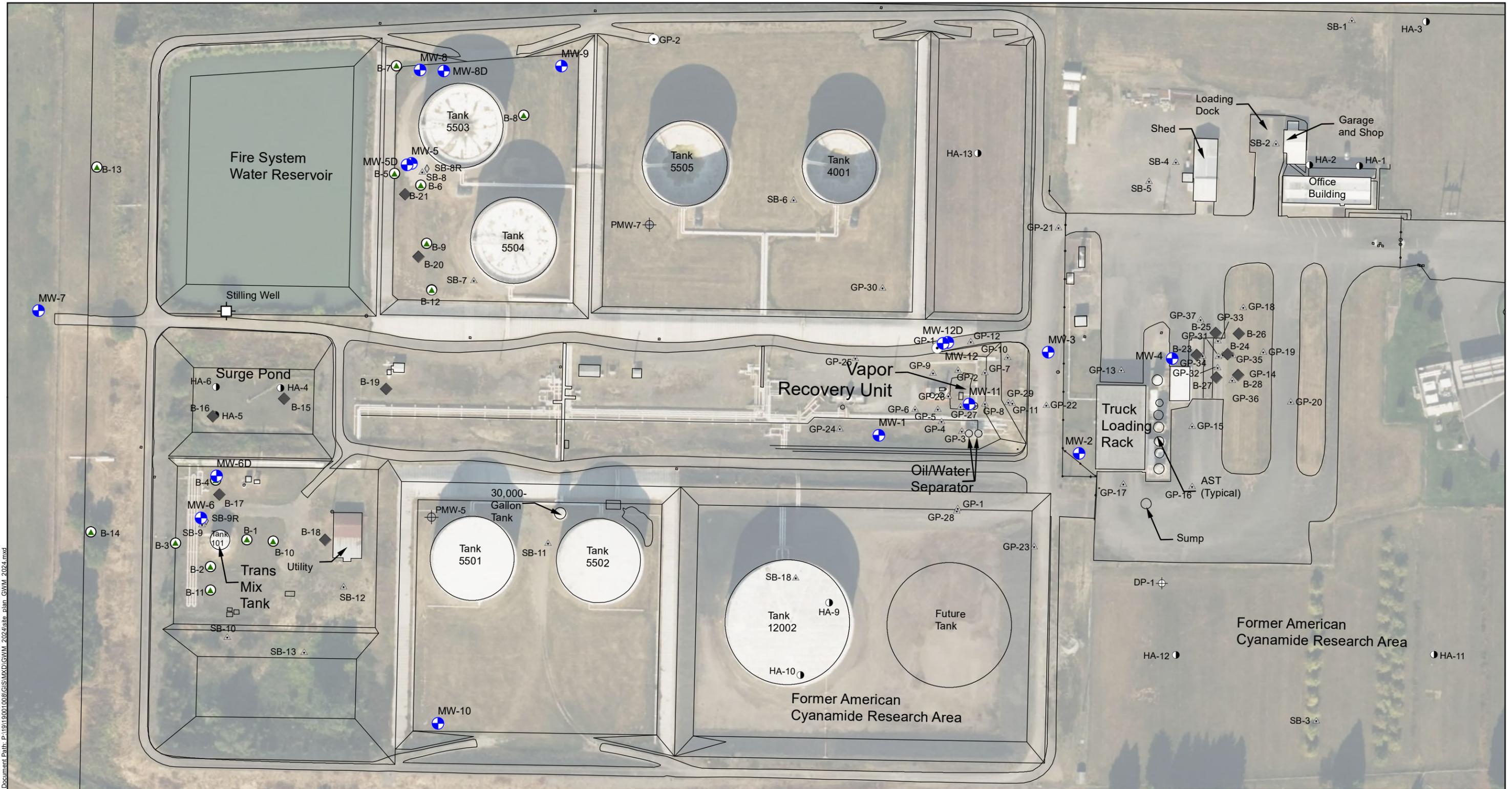
 Facility Boundary



Facility Location Map
2023 Groundwater Monitoring Report
NuStar Terminals Operations Partnership L.P. - Annex Terminal
Vancouver, Washington

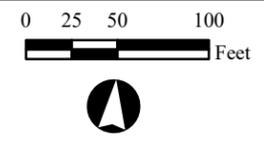


Figure
1



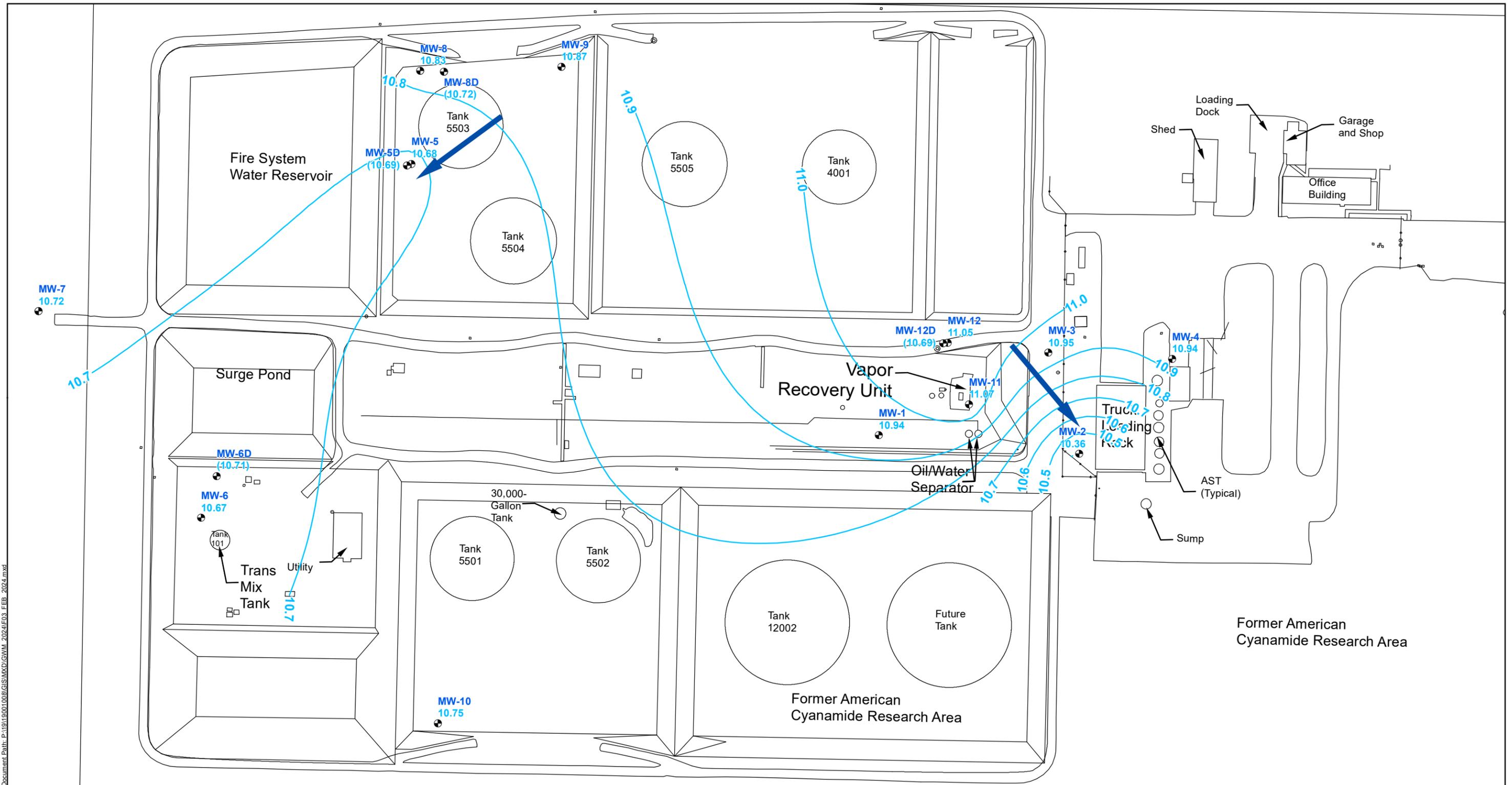
Notes:
 NOTE: Base map completed from a number of sources including but not limited to: Figure VAN1-21-002 provided by NuStar (1/8/2007) and a Monitoring Well Survey by Statewide Land Surveying, Inc (10/30/2007).
 Locations of roads and containments are approximate.
 Source:
 Aerial from Mapbox.

- Groundwater Monitoring Well Location (MW-5D, MW-6D, MW-8D and MW-12D are Deep Monitoring Well Locations)
- ⊕ Stilling Well
- ⊕ Grab Groundwater Sample Location
- Historical Hand Auger Location (Approximate)
- ⊕ Deeper Direct-Push Geoprobe Location
- ▲ Historical Direct-Push Boring Location (Approximate)
- ⊕ Historical Temporary Well Location (Approximate)
- ◆ Soil Boring Location (2014)
- ▲ Soil Boring Location (2015)
- ◆ Soil Boring Location (2019)



Site Plan
 2024 Groundwater Monitoring Report
 NuStar Terminals Operations Partnership L.P. - Annex Terminal
 Vancouver, Washington

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<p>MW-1</p>  <p>Groundwater Monitoring Well Location</p>	<p>10.7</p> <p>(10.71)</p>	<p>Groundwater Elevation in Feet Above Mean Sea Limit (MSL)</p> <p>Well Groundwater Elevation in Feet MSL (Not Used for Contouring)</p>
<p></p> <p>Groundwater Elevation Contour (Dashed Where Inferred)</p>		
<p></p> <p>Inferred Groundwater Flow Direction</p>		

Notes:

1. Base map completed from a number of sources including but not limited to; Figure VAN1-21-002 provided by NuStar (1/8/2007) and a Monitoring Well Survey by Statewide Land Surveying, Inc (10/30/2007).
2. Locations of roads and containments are approximate.
3. Wells MW-1 through MW-12 are shallow wells screened across first encountered groundwater. Wells MW-5D, MW-6D, MW-8D, and MW-12D are deeper monitoring well locations and not used for contouring.

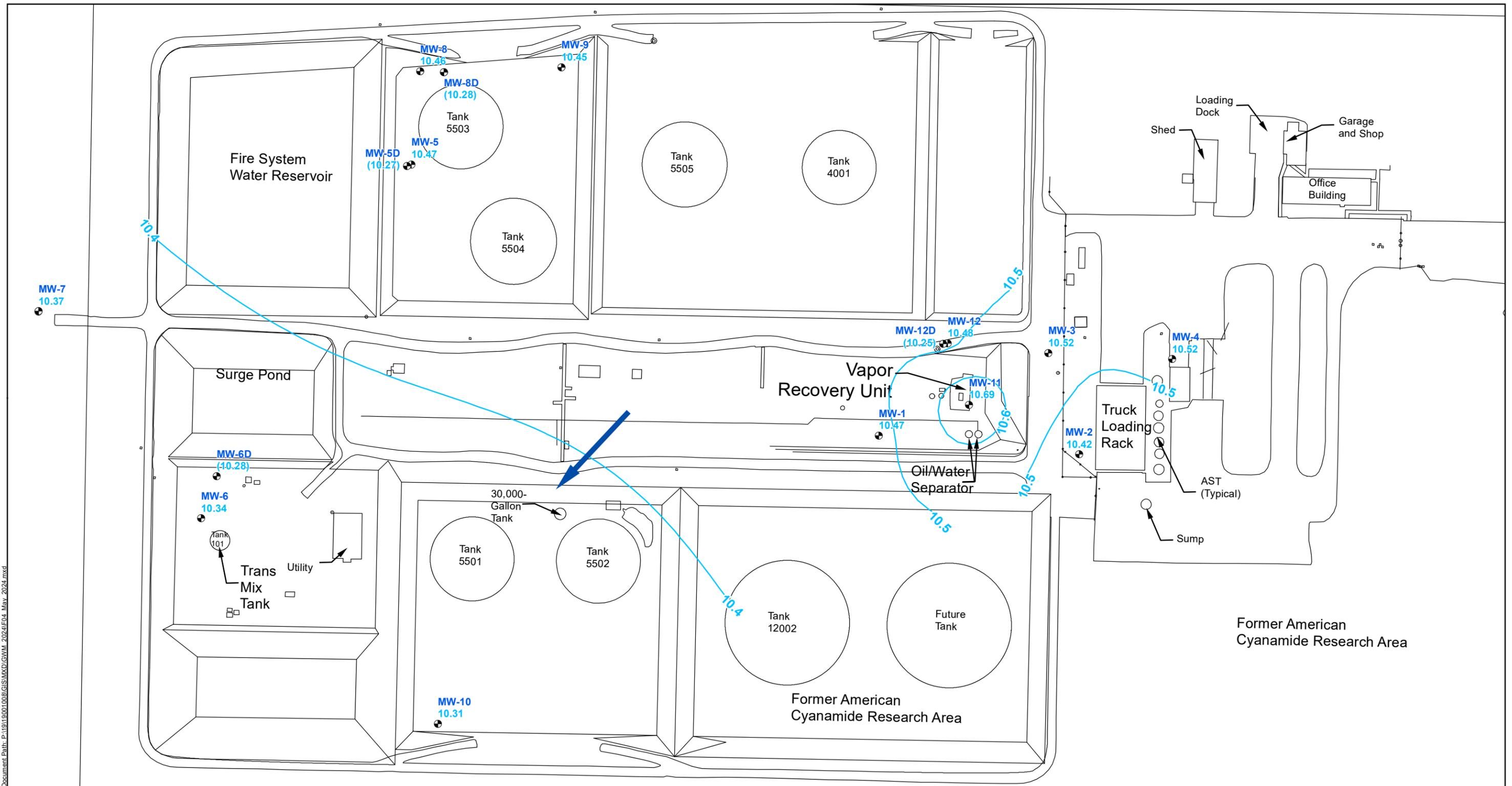


Groundwater Elevation Contour Map February 2024

2024 Groundwater Monitoring Report
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Vancouver, Washington



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MW-1 Groundwater Monitoring Well Location

Groundwater Elevation Contour (Dashed Where Inferred)

Inferred Groundwater Flow Direction

10.34 Groundwater Elevation in Feet Above Mean Sea Limit (MSL)

(10.28) Well Groundwater Elevation in Feet MSL (Not Used for Contouring)

Notes:

1. Base map completed from a number of sources including but not limited to; Figure VAN1-21-002 provided by NuStar (1/8/2007) and a Monitoring Well Survey by Statewide Land Surveying, Inc (10/30/2007).
2. Locations of roads and containments are approximate.
3. Wells MW-1 through MW-12 are shallow wells screened across first encountered groundwater. Wells MW-5D, MW-6D, MW-8D, and MW-12D are deeper monitoring well locations and not used for contouring.

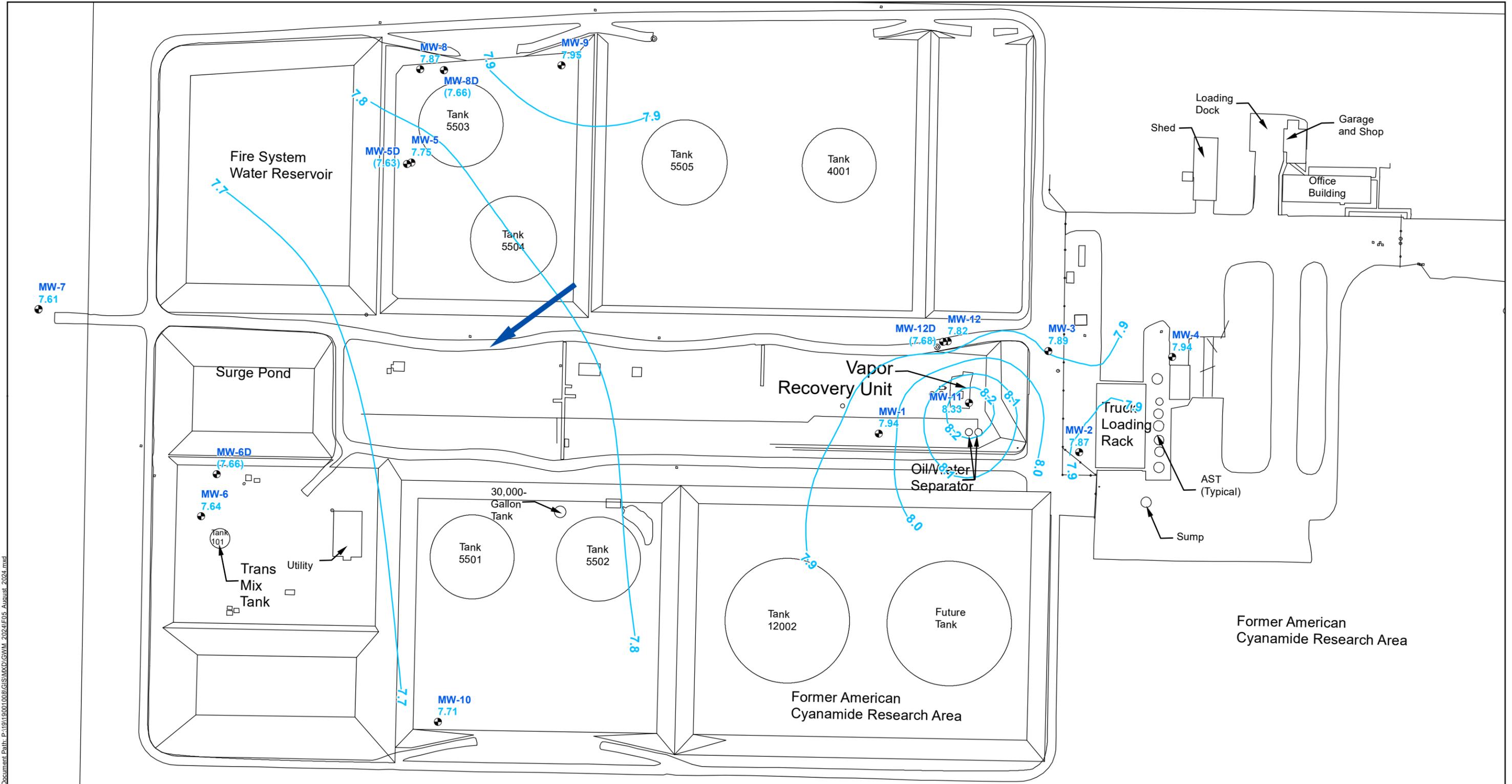
0 25 50 100 Feet

DRAFT

Groundwater Elevation Contour Map
May 2024

2024 Groundwater Monitoring Report
 NuStar Terminals Operations Partnership L.P. - Annex Terminal
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<p>MW-1</p> <p>Groundwater Monitoring Well Location</p>	<p>7.64</p> <p>Groundwater Elevation in Feet Above Mean Sea Limit (MSL)</p>
<p></p> <p>Groundwater Elevation Contour (Dashed Where Inferred)</p>	<p>(7.66)</p> <p>Well Groundwater Elevation in Feet MSL (Not Used for Contouring)</p>
<p></p> <p>Inferred Groundwater Flow Direction</p>	

Notes:

1. Base map completed from a number of sources including but not limited to; Figure VAN1-21-002 provided by NuStar (1/8/2007) and a Monitoring Well Survey by Statewide Land Surveying, Inc (10/30/2007).
2. Locations of roads and containments are approximate.
3. Wells MW-1 through MW-12 are shallow wells screened across first encountered groundwater. Wells MW-5D, MW-6D, MW-8D, and MW-12D are deeper monitoring well locations and not used for contouring.

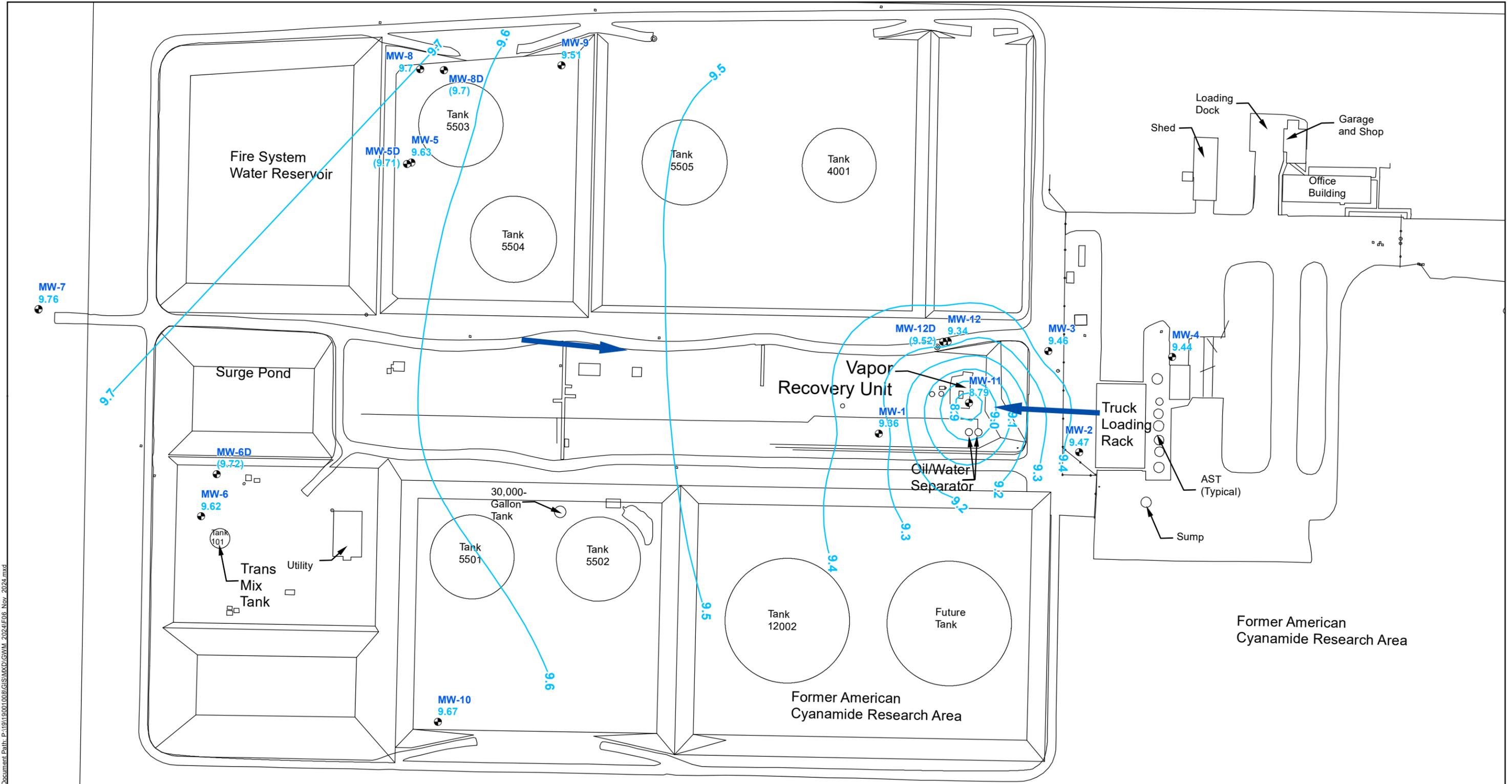
0 25 50 100 Feet

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Groundwater Elevation Contour Map
August 2024

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 NuStar Terminals Operations Partnership L.P. - Annex Terminal
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Document Path: P:\1919001\008\GIS\MXD\GWM_2024\F06_Nov_2024.mxd



MW-1 Groundwater Monitoring Well Location

Groundwater Elevation Contour (Dashed Where Inferred)

9.62 Groundwater Elevation in Feet Above Mean Sea Limit (MSL)

(9.73) Well Groundwater Elevation in Feet MSL (Not Used for Contouring)

← Inferred Groundwater Flow Direction

Notes:

1. Base map completed from a number of sources including but not limited to; Figure VAN1-21-002 provided by NuStar (1/8/2007) and a Monitoring Well Survey by Statewide Land Surveying, Inc (10/30/2007).
2. Locations of roads and containments are approximate.
3. Wells MW-1 through MW-12 are shallow wells screened across first encountered groundwater. Wells MW-5D, MW-6D, MW-8D, and MW-12D are deeper monitoring well locations and not used for contouring.

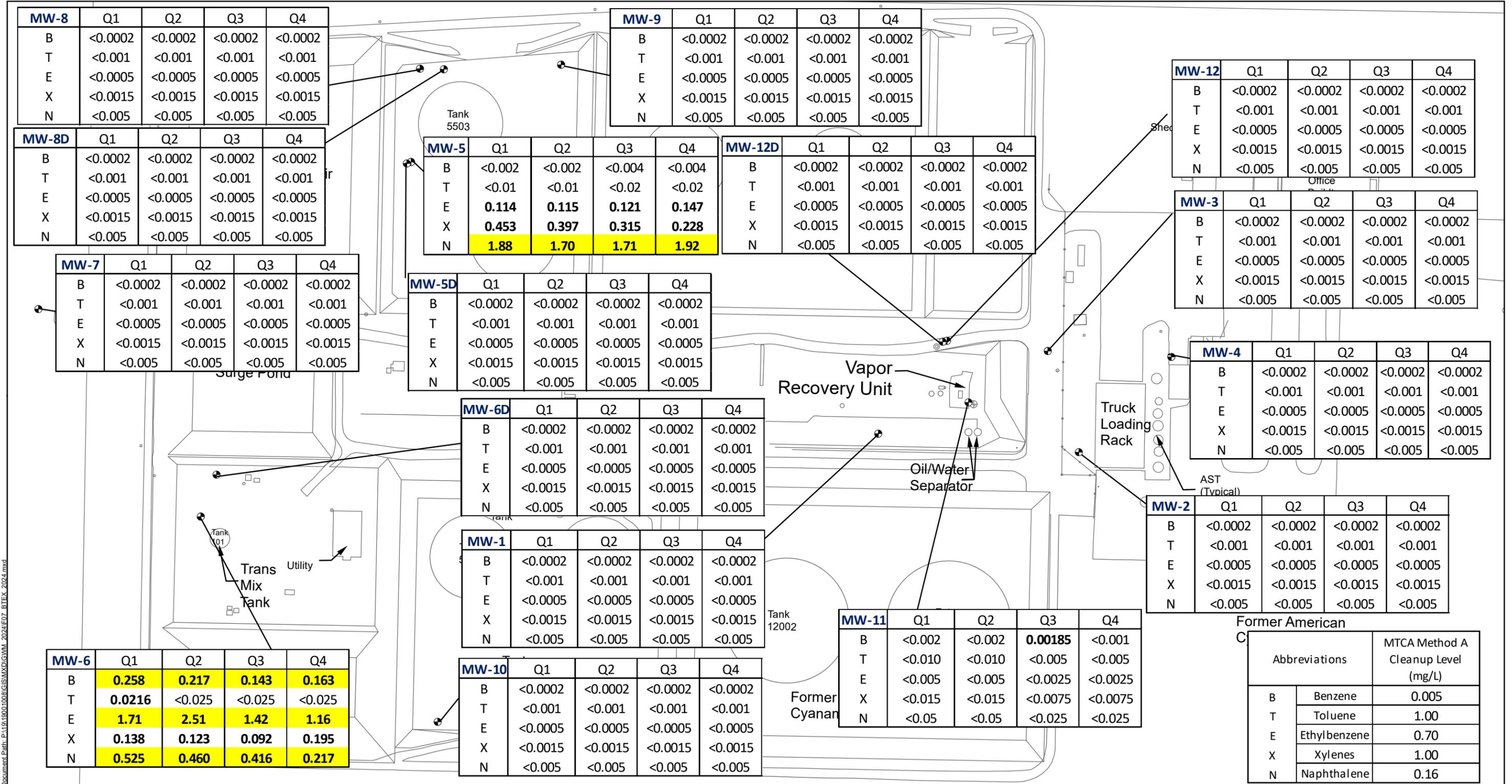


Groundwater Elevation Contour Map November 2024

2024 Groundwater Monitoring Report
NuStar Terminals Operations Partnership L.P. - Annex Terminal
Vancouver, Washington



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MW-6	Q1	Q2	Q3	Q4
B	0.258	0.217	0.143	0.163
T	0.0216	<0.025	<0.025	<0.025
E	1.71	2.51	1.42	1.16
X	0.138	0.123	0.092	0.195
N	0.525	0.460	0.416	0.217

MW-5	Q1	Q2	Q3	Q4
B	<0.002	<0.002	<0.004	<0.004
T	<0.01	<0.01	<0.02	<0.02
E	0.114	0.115	0.121	0.147
X	0.453	0.397	0.315	0.228
N	1.88	1.70	1.71	1.92

MW-7	Q1	Q2	Q3	Q4
B	<0.0002	<0.0002	<0.0002	<0.0002
T	<0.001	<0.001	<0.001	<0.001
E	<0.0005	<0.0005	<0.0005	<0.0005
X	<0.0015	<0.0015	<0.0015	<0.0015
N	<0.005	<0.005	<0.005	<0.005

MW-5D	Q1	Q2	Q3	Q4
B	<0.0002	<0.0002	<0.0002	<0.0002
T	<0.001	<0.001	<0.001	<0.001
E	<0.0005	<0.0005	<0.0005	<0.0005
X	<0.0015	<0.0015	<0.0015	<0.0015
N	<0.005	<0.005	<0.005	<0.005

MW-6D	Q1	Q2	Q3	Q4
B	<0.0002	<0.0002	<0.0002	<0.0002
T	<0.001	<0.001	<0.001	<0.001
E	<0.0005	<0.0005	<0.0005	<0.0005
X	<0.0015	<0.0015	<0.0015	<0.0015
N	<0.005	<0.005	<0.005	<0.005

MW-1	Q1	Q2	Q3	Q4
B	<0.0002	<0.0002	<0.0002	<0.0002
T	<0.001	<0.001	<0.001	<0.001
E	<0.0005	<0.0005	<0.0005	<0.0005
X	<0.0015	<0.0015	<0.0015	<0.0015
N	<0.005	<0.005	<0.005	<0.005

MW-10	Q1	Q2	Q3	Q4
B	<0.0002	<0.0002	<0.0002	<0.0002
T	<0.001	<0.001	<0.001	<0.001
E	<0.0005	<0.0005	<0.0005	<0.0005
X	<0.0015	<0.0015	<0.0015	<0.0015
N	<0.005	<0.005	<0.005	<0.005

MW-11	Q1	Q2	Q3	Q4
B	<0.002	<0.002	0.00185	<0.001
T	<0.010	<0.010	<0.005	<0.005
E	<0.005	<0.005	<0.0025	<0.0025
X	<0.015	<0.015	<0.0075	<0.0075
N	<0.05	<0.05	<0.025	<0.025

MW-2	Q1	Q2	Q3	Q4
B	<0.0002	<0.0002	<0.0002	<0.0002
T	<0.001	<0.001	<0.001	<0.001
E	<0.0005	<0.0005	<0.0005	<0.0005
X	<0.0015	<0.0015	<0.0015	<0.0015
N	<0.005	<0.005	<0.005	<0.005

MW-4	Q1	Q2	Q3	Q4
B	<0.0002	<0.0002	<0.0002	<0.0002
T	<0.001	<0.001	<0.001	<0.001
E	<0.0005	<0.0005	<0.0005	<0.0005
X	<0.0015	<0.0015	<0.0015	<0.0015
N	<0.005	<0.005	<0.005	<0.005

MW-3	Q1	Q2	Q3	Q4
B	<0.0002	<0.0002	<0.0002	<0.0002
T	<0.001	<0.001	<0.001	<0.001
E	<0.0005	<0.0005	<0.0005	<0.0005
X	<0.0015	<0.0015	<0.0015	<0.0015
N	<0.005	<0.005	<0.005	<0.005

MW-12	Q1	Q2	Q3	Q4
B	<0.0002	<0.0002	<0.0002	<0.0002
T	<0.001	<0.001	<0.001	<0.001
E	<0.0005	<0.0005	<0.0005	<0.0005
X	<0.0015	<0.0015	<0.0015	<0.0015
N	<0.005	<0.005	<0.005	<0.005

MW-9	Q1	Q2	Q3	Q4
B	<0.0002	<0.0002	<0.0002	<0.0002
T	<0.001	<0.001	<0.001	<0.001
E	<0.0005	<0.0005	<0.0005	<0.0005
X	<0.0015	<0.0015	<0.0015	<0.0015
N	<0.005	<0.005	<0.005	<0.005

MW-8	Q1	Q2	Q3	Q4
B	<0.0002	<0.0002	<0.0002	<0.0002
T	<0.001	<0.001	<0.001	<0.001
E	<0.0005	<0.0005	<0.0005	<0.0005
X	<0.0015	<0.0015	<0.0015	<0.0015
N	<0.005	<0.005	<0.005	<0.005

MW-8D	Q1	Q2	Q3	Q4
B	<0.0002	<0.0002	<0.0002	<0.0002
T	<0.001	<0.001	<0.001	<0.001
E	<0.0005	<0.0005	<0.0005	<0.0005
X	<0.0015	<0.0015	<0.0015	<0.0015
N	<0.005	<0.005	<0.005	<0.005

Abbreviations		MTCA Method A Cleanup Level (mg/L)
B	Benzene	0.005
T	Toluene	1.00
E	Ethylbenzene	0.70
X	Xylenes	1.00
N	Naphthalene	0.16

MW-6	Q1	Q2	Q3	Q4
B	0.258	0.217	0.143	0.163
T	0.0216	<0.025	<0.025	<0.025
E	1.71	2.51	1.42	1.16
X	0.138	0.123	0.092	0.195
N	0.525	0.460	0.416	0.217

Notes:
 1. Base map completed from a number of sources including but not limited to; Figure VAN1-21-002 provided by NuStar (1/8/2007) and a Monitoring Well Survey by Statewide Land Surveying, Inc (10/30/2007).
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BTEX and Naphthalene in Groundwater - 2024

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 NuStar Terminals Operations Partnership L.P. - Annex Terminal
 Vancouver, Washington



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MW-8	Q1	Q2	Q3	Q4
TPH-g	<0.100	<0.100	<0.100	<0.100
TPH-d	<0.0816	<0.0769	<0.0755	<0.0784

MW-9	Q1	Q2	Q3	Q4
TPH-g	<0.100	<0.100	<0.100	<0.100
TPH-d	<0.0784	<0.0755	<0.0777	<0.0769

MW-8D	Q1	Q2	Q3	Q4
TPH-g	<0.100	<0.100	<0.100	<0.100
TPH-d	<0.0777	<0.0777	<0.0777	<0.0784

MW-5	Q1	Q2	Q3	Q4
TPH-g	25.4	22.7	16.7	15.2
TPH-d	1.46	1.40	2.17	1.64

MW-12	Q1	Q2	Q3	Q4
TPH-g	<0.100	<0.100	<0.100	<0.100
TPH-d	0.176	0.0867	<0.0769	<0.0800

MW-5D	Q1	Q2	Q3	Q4
TPH-g	<0.100	0.185	0.508	<0.100
TPH-d	<0.0784	0.533	0.552	0.382

MW-12D	Q1	Q2	Q3	Q4
TPH-g	<0.100	<0.100	<0.100	<0.100
TPH-d	<0.0792	<0.0777	<0.0777	<0.0825

MW-7	Q1	Q2	Q3	Q4
TPH-g	<0.100	<0.100	<0.100	<0.100
TPH-d	<0.0769	<0.0769	<0.0762	<0.0762

MW-6D	Q1	Q2	Q3	Q4
TPH-g	<0.100	<0.100	<0.100	<0.100
TPH-d	0.269	0.198	0.151	<0.0792

MW-1	Q1	Q2	Q3	Q4
TPH-g	<0.100	<0.100	<0.100	<0.100
TPH-d	0.511	0.302	0.405	0.236

MW-3	Q1	Q2	Q3	Q4
TPH-g	<0.100	<0.100	<0.100	<0.100
TPH-d	<0.0833	<0.0784	0.0801	<0.0762

MW-4	Q1	Q2	Q3	Q4
TPH-g	<0.100	<0.100	<0.100	<0.100
TPH-d	0.198	0.117	0.136	0.188

MW-11	Q1	Q2	Q3	Q4
TPH-g	<0.200	<1.00	<0.500	<0.500
TPH-d	<0.0777	<0.0816	<0.0777	<0.0808

MW-2	Q1	Q2	Q3	Q4
TPH-g	<0.100	<0.100	<0.100	<0.100
TPH-d	<0.0800	<0.0800	<0.0762	<0.0808

MW-6	Q1	Q2	Q3	Q4
TPH-g	16.2	15.1	13.4	14.5
TPH-d	4.27	4.13	4.37	2.31

MW-10	Q1	Q2	Q3	Q4
TPH-g	<0.100	<0.100	<0.100	<0.100
TPH-d	<0.0792	<0.0784	<0.0762	<0.0800

Abbreviations		MTCA Method A Cleanup Level (mg/L)
TPH-g	Total Petroleum Hydrocarbons Gasoline-Range	0.800
TPH-d	Total Petroleum Hydrocarbons Diesel-Range	0.500

Groundwater Monitoring Well Location					
Location Sampled	MW-6	Q1	Q2	Q3	Q4
Analyte Sampled	TPH-g	16.2	15.1	13.4	14.5
	TPH-d	4.27	4.13	4.37	2.31

Quarterly Period
Analyte Concentrations in mg/L
Highlighted Concentrations Exceed Site Cleanup Levels
< = Non-Detected

1. Base map completed from a number of sources including but not limited to: Figure VAN1-21-002 provided by NuStar (1/8/2007) and a Monitoring Well Survey by Statewide Land Surveying, Inc (10/30/2007).
2. Locations of roads and containments are approximate.
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TPHg and TPHd in Groundwater - 2024

2024 Groundwater Monitoring Report
NuStar Terminals Operations Partnership L.P. - Annex Terminal
Vancouver, Washington



APPENDIX A
Standard Operating Procedures

FIELD NOTES AND DOCUMENTATION

1. PURPOSE AND SCOPE

This Standard Operating Procedure (SOP) describes the methods for documenting environmental field activities. The purpose of establishing SOPs for field notes and documentation is to establish a consistent method and format for the use and control of documentation generated during daily field activities. Field notes and records are intended to provide sufficient information that can be used to recreate the field activities, as well as, the collection of environmental data. Information placed in these documents and/or records shall be factual, detailed and objective.

2. EQUIPMENT AND MATERIALS

The following materials are necessary for this procedure:

- Bound field books;
- Black waterproof and/or indelible ink pens; and
- Field forms.

3. METHODOLOGY

This SOP primarily includes the documentation procedures for the field logbooks. However, procedures discussed in this SOP are applicable to all other types of field documentation collected, and should be universal in application. Details of other field records and forms (e.g. boring logs, sample labels, chain of custody records, and waste containment labels are discussed in the specific SOP associated with that field activity (e.g. borehole drilling, sample handling, investigative derived waste), and not covered in detail in this SOP.

Field Logbooks:

Field personnel will keep accurate written records of their daily activities in a bound logbook that will be sufficient to recreate the project field activities without reliance on memory. This information will be recorded in chronological order. All entries will be legible, written in black waterproof or indelible ink, and contain accurate and inclusive documentation of field activities, including field data observations, deviations from project plans, problems encountered, and actions taken to solve the problem. Each page of the field logbook will be consecutively numbered, signed and dated by the field author(s). Pages should not be removed for any reason.

There should be no blank lines on a page. A single blank line or a partial blank line (such as at the end of a paragraph) should be lined to the end of the page. If only part of a page is used, the remainder of the page should have an "X" drawn across it.

In addition to documenting field activities, field logbooks will include the following:

- Date and time of activities,
- Site location,
- Purpose of site visit,
- Site and weather conditions,

- Personnel present, including sampling crew, facility/site personnel and representatives (including site arrival and departure times),
- Subcontractors present,
- Regulatory agencies and their representatives (including phone numbers, site arrival and departure times),
- Level of health and safety protection,
- Sampling methodology and information,
- Sample locations (sketches are helpful),
- Source of sample(s), sample identifications, sample container types and preservatives used, and lot numbers for bottles and preservatives (if applicable and if not recorded on other forms or in a sample control logbook),
- A chronological description of the field observations and events,
- Specific considerations associated with sample acquisition (e.g., field parameter measurements, field screening data, HASP monitoring data, etc.) (if not recorded on another form),
- Wastes generated, containment units (including volumes, matrix, etc), and storage location (if not recorded on another form),
- Field quality assurance/quality control samples collection, preparation, and origin (if not recorded on other forms or in a sample control logbook),
- The manufacturer, model and serial number of field instruments (e.g., PID, water quality, etc.) shall be recorded, if not using a calibration form. Also, source lot # and expiration date of standard shall be recorded if calibrated in the field.
- Well construction materials, water source(s), and other materials used on-site (if not recorded on another form).
- Sample conditions that could potentially affect the sample results,
- If deviating from plan, clearly state the reason(s) for deviation,
- Persons contacted and topics discussed,
- Documentation of exclusion zone set-up and location,
- Documentation of decontamination procedures, and
- Daily Summary.

Field situations vary widely. No general rules can specify the extent of information that must be entered in a logbook. However, records should contain sufficient information so that someone can reconstruct the field activity without relying on the collector's memory. Language used shall be objective, factual, and free of personal opinions. Hypothesis for observed phenomena may be

FIELD NOTES AND DOCUMENTATION

recorded, however, they must be clearly indicated as such and only relate to the subject observation.

Logbooks will be assigned to a specific sampling team. If it is necessary to transfer the log book to alternative team member during field work, the person relinquishing the log book will sign and date the log book at the time of transfer.

Field logbooks should consist of a bound book, in which the insertion or removal of pages will be visibly noticeable after the logbook has been assembled. Logbooks can be prepared by gluing or laminating pages together either at the left side or top of the page. If inclement weather is expected, logbooks may have plastic laminated front and back covers to protect the interior pages, and should not be broken apart for coping. Loose-leaf binding, such as comb binding is not considered hard binding. To maintain the integrity of the logbook, pages should be consecutively numbered prior to use. Logbook pages can be of any format, and may include blank pages for recording or field forms that are used for specific tasks. As an alternative, commercially bound and consecutive page numbered field logbooks may also be used.

Additional Field Forms/Records:

Additional field records may be required for each specific field event. The use of these records and examples are described in other SOPs specific for the activity (e.g. Borehole Logging SOP, Groundwater Sampling and Purging SOP, etc.). These other records may include:

- Borehole Logs during drilling,
- Well Construction and Development records,
- Groundwater Purge and Sample Collection Records,
- Water Level Monitoring,
- Investigation Derived Waste (IDW) Tracking Records,
- Instrument Calibration Records, and
- Health and Safety Monitoring Records and sign-off sheets.

Prior to field activities, the field sampling personnel will coordinate with the Project Manager, or designee, to determine which additional records will be required for the specific field task. These additional records will be maintained in a field file or a three-ring notebook throughout the duration of the field activities, or included in a specially prepared site-specific notebook. If the field notebook is being created, the forms may be part of the laminated book.

Corrections:

If an error is made in the field, logbook corrections will be made by drawing a single line through the error, entering the correct information, and initialing and dating the change. Materials that obliterate the original information, such as correction fluids and/or mark-out tapes, are prohibited. All corrections will be initialed and dated. Some projects require that a brief reason for the change must also be added where the correction was made. Ask the Project Manager, if this requirement is necessary.

FIELD NOTES AND DOCUMENTATION

Documentation Reviews:

Periodically, the Project Manager, or designee, will review the field logbooks pertaining to the activities under their supervision. The elements of this review will include technical content, consistency, and compliance with the project plans and SOPs. Discrepancies and errors identified during the review should be resolved between reviewer and author of the field documentation. Corrections and/or additions of information shall be initialed and dated by the field author or reviewer.

Low Flow Groundwater Sampling

1. PURPOSE AND SCOPE

The objective of this standard operating procedure (SOP) is to define the methods and requirements for collection of groundwater samples from monitoring wells applying low flow protocols. Low flow sampling is a technique for collecting samples that does not require the removal of large volumes of water and therefore does not overly agitate the water, suspend particles, or potentially aspirate VOCs. Typical flow rates for low flow sampling should range from 0.1 L/min to 0.5 L/min depending on site characteristics. The groundwater monitoring activities will consist of measuring water levels, purging and sampling groundwater, and measuring groundwater field parameters. This procedure is applicable during all Cascadia Associates, LLC low flow groundwater sampling activities.

2. EQUIPMENT AND MATERIALS

The following materials are necessary for this procedure:

- Traffic cones, tools, keys, and buckets/drums;
- Water quality meter with calibration solutions (record daily calibration/calibration check in field notes);
- Sampling equipment (water level indicator, pump, tubing);
- Laboratory-supplied sample containers (Consult the project-specific sampling and analysis plan (SAP) for sampling requirements);
- Field documentation materials;
- Decontamination materials; and
- Personal protective equipment (consult the site-specific Health and Safety Plan).

3. METHODOLOGY

Water Levels:

Water levels in the wells will be measured and recorded for the purpose of determining groundwater elevations and gradient. The wells will be opened and the water level allowed to equilibrate before the measurements are taken. Measurements of the depth to water will be made to the nearest 0.01 foot using an electronic water level indicator.

Purging:

Purge using low-flow sampling equipment (e.g., peristaltic or bladder pump) at a rate no greater than the recharge rate of the groundwater to prevent water table drawdown. Unless specified otherwise in the project-specific SAP the sample tubing/pump will be lowered to the middle of the screened interval. Groundwater field parameters (pH, electrical conductivity, and temperature) will be measured using a water quality meter and flow cell connected to the discharge tubing of the sample pump to assess the effectiveness of purging. Purging will be considered complete when the water quality parameters (i.e., pH, temperature, and specific conductance) stabilize within 10 percent for three consecutive 3-minute intervals. Consult the

Low Flow Groundwater Sampling

project-specific SAP for additional parameters and stabilization criteria. Purge water will be placed in Department of Transportation (DOT) approved drums.

Sample Collection:

After the purging of each well is complete, collect groundwater samples for chemical analyses using the same pump used for the well purging.

Low Yield Sampling Procedure:

If a well pumps dry during purging discontinue measurement of water quality parameters. Collect groundwater samples once the water level recovers to 90 percent of the pre-purge water column. Contact project manager in the event of slow recharge conditions. Always collect samples for VOC analysis as soon after recharge as possible.

APPENDIX B
Historical Groundwater Elevation Data

Appendix B

Groundwater Elevation Data

NuStar Terminals Operations Partnership, L.P.—Annex Terminal

Vancouver, Washington

Well Number	Date of Measurement	Top of Casing Elevation (feet above MSL)	Screened Interval (feet bgs)	Depth To SPH (feet)	Depth to Groundwater (feet)	SPH Thickness (feet)	Groundwater Elevation (feet)
MW-1	05/14/02	NS	14.5 - 24.5	--	16.00	--	NS
	05/25/07	26.66		--	14.92	--	11.74
	08/24/07	26.66		--	18.67	--	7.99
	11/26/07	26.66		--	17.91	--	8.75
	02/27/08	26.66		--	16.92	--	9.74
	03/30/10	26.66		--	17.09	--	9.57
	09/01/10	26.66		--	19.19	--	7.47
	12/16/14	26.66		--	16.19	--	10.47
	03/25/15	26.66		--	15.25	--	11.41
	06/24/15	26.66		--	18.43	--	8.23
	09/15/15	26.66		--	19.05	--	7.61
	11/30/17	26.72		--	16.16	--	10.56
	02/28/18	26.72		--	15.07	--	11.65
	05/29/18	26.72		--	8.43	--	18.29
	08/30/18	26.72		--	18.37	--	8.35
	02/18/19	26.72		--	16.51	--	10.21
	05/20/19	26.72		--	13.22	--	13.50
	08/28/19	26.72		--	19.04	--	7.68
	11/18/19	26.72		--	18.64	--	8.08
	02/24/20	26.72		--	16.26	--	10.46
	06/01/20	26.72		--	12.97	--	13.75
	08/17/20	26.72		--	18.19	--	8.53
	11/16/20	26.72		--	17.59	--	9.13
	02/25/21	26.72		--	14.52	--	12.20
	05/04/21	26.72		--	17.08	--	9.64
	08/10/21	26.72		--	19.77	--	6.95
	11/16/21	26.72		--	16.74	--	9.98
	02/14/22	26.73		--	17.11	--	9.62
	05/16/22	26.73		--	13.65	--	13.08
	08/15/22	26.73		--	16.92	--	9.81
11/16/22	26.73		--	18.43	--	8.30	
02/15/23	26.73		--	17.85	--	8.88	
05/10/23	26.73		--	12.85	--	13.88	
08/09/23	26.73		--	18.47	--	8.26	
11/20/23	26.73		--	18.06	--	8.67	
02/14/24	26.73		--	15.79	--	10.94	
05/14/24	26.73		--	16.26	--	10.47	
08/13/24	26.73		--	18.79	--	7.94	
11/19/24	26.73		--	17.37	--	9.36	
MW-2	05/14/02	NS	20 - 35	--	27.46	--	NS
	05/25/07	38.21		--	26.46	--	11.75
	08/24/07	38.21		--	30.17	--	8.04
	11/26/07	38.21		--	29.42	--	8.79
	02/27/08	38.21		--	28.50	--	9.71
	03/30/10	38.21		--	28.66	--	9.55
	09/01/10	38.21		--	30.74	--	7.47
	12/16/14	38.21		--	27.77	--	10.44
	03/25/15	38.21		--	26.79	--	11.42
	06/24/15	38.21		--	30.05	--	8.16
	09/15/15	38.21		--	30.65	--	7.56
	11/30/17	38.27		--	27.66	--	10.61
	02/28/18	38.27		--	26.70	--	11.57
	05/29/18	38.27		--	19.96	--	18.31
08/30/18	38.27		--	29.94	--	8.33	
02/18/19	38.27		--	28.04	--	10.23	

Please refer to notes at end of table.

Appendix B

Groundwater Elevation Data

NuStar Terminals Operations Partnership, L.P.—Annex Terminal

Vancouver, Washington

Well Number	Date of Measurement	Top of Casing Elevation (feet above MSL)	Screened Interval (feet bgs)	Depth To SPH (feet)	Depth to Groundwater (feet)	SPH Thickness (feet)	Groundwater Elevation (feet)
MW-2 (cont'd)	05/20/19	38.27	20 - 35	--	24.73	--	13.54
	08/28/19	38.27		--	30.63	--	7.64
	11/18/19	38.27		--	30.16	--	8.11
	02/24/20	38.27		--	27.91	--	10.36
	06/01/20	38.27		--	24.51	--	13.76
	08/17/20	38.27		--	29.81	--	8.46
	11/16/20	38.27		--	29.01	--	9.26
	02/25/21	38.27		--	27.11	--	11.16
	05/04/21	38.27		--	28.59	--	9.68
	08/10/21	38.27		--	30.34	--	7.93
	11/16/21	38.27		--	28.13	--	10.14
	02/14/22	38.27		--	28.76	--	9.51
	05/16/22	38.27		--	25.15	--	13.12
	08/15/22	38.27		--	28.52	--	9.75
	11/16/22	38.27		--	30.05	--	8.22
	02/15/23	38.27		--	29.50	--	8.77
	05/10/23	38.27		--	24.47	--	13.80
08/09/23	38.27		--	30.12	--	8.15	
11/20/23	38.27		--	29.59	--	8.68	
02/14/24	38.27		--	27.91	--	10.36	
05/14/24	38.27		--	27.85	--	10.42	
08/13/24	38.27		--	30.40	--	7.87	
11/19/24	38.27		--	28.80	--	9.47	
MW-3	05/14/02	NS	24.5 - 34.5	--	28.15	--	NS
	05/25/07	39.11		--	27.17	--	11.94
	08/24/07	39.11		--	31.04	--	8.07
	11/06/07	39.11		--	30.36	--	8.75
	02/27/08	39.11		--	28.71	--	10.40
	03/30/10	39.11		--	29.55	--	9.56
	09/01/10	39.11		--	31.65	--	7.46
	12/16/14	39.11		--	28.54	--	10.57
	03/25/15	39.11		--	27.72	--	11.39
	06/24/15	39.11		--	30.85	--	8.26
	09/15/15	39.11		--	31.52	--	7.59
	11/30/17	39.17		--	28.61	--	10.56
	02/28/18	39.17		--	27.18	--	11.99
	05/29/18	39.17		--	20.91	--	18.26
	08/30/18	39.17		--	30.80	--	8.37
	02/18/19	39.17		--	28.94	--	10.23
	05/20/19	39.17		--	26.03	--	13.14
	08/28/19	39.17		--	31.51	--	7.66
	11/18/19	39.17		--	31.06	--	8.11
	02/24/20	39.17		--	28.76	--	10.41
	06/01/20	39.17		--	25.73	--	13.44
	08/17/20	39.17		--	30.53	--	8.64
	11/16/20	39.17		--	29.88	--	9.29
02/25/21	39.17		--	27.91	--	11.26	
05/04/21	39.17		--	29.47	--	9.70	
08/10/21	39.17		--	31.22	--	7.95	
11/16/21	39.17		--	29.06	--	10.11	
02/14/22	39.17		--	29.60	--	9.57	
05/16/22	39.17		--	26.42	--	12.75	
08/15/22	39.17		--	29.33	--	9.84	
11/16/22	39.17		--	30.98	--	8.19	
02/15/23	39.17		--	30.38	--	8.79	

Please refer to notes at end of table.

Appendix B

Groundwater Elevation Data

NuStar Terminals Operations Partnership, L.P.—Annex Terminal

Vancouver, Washington

Well Number	Date of Measurement	Top of Casing Elevation (feet above MSL)	Screened Interval (feet bgs)	Depth To SPH (feet)	Depth to Groundwater (feet)	SPH Thickness (feet)	Groundwater Elevation (feet)
MW-3 (cont'd)	05/10/23	39.17	24.5 - 34.5	--	25.85	--	13.32
	08/09/23	39.17		--	31.26	--	7.91
	11/20/23	39.17		--	30.51	--	8.66
	02/14/24	39.17		--	28.22	--	10.95
	05/14/24	39.17		--	28.65	--	10.52
	08/13/24	39.17		--	31.28	--	7.89
	11/19/24	39.17		--	29.71	--	9.46
MW-4	05/14/02	NS	20 - 35	--	29.40	--	NS
	05/25/07	40.17		--	28.35	--	11.82
	08/24/07	40.17		--	32.12	--	8.05
	11/06/07	40.17		--	31.40	--	8.77
	02/27/08	40.17		--	30.40	--	9.77
	03/30/10	40.17		--	30.77	--	9.40
	09/01/10	40.17		--	32.62	--	7.55
	12/16/14	40.17		--	29.63	--	10.54
	03/25/15	40.17		--	28.76	--	11.41
	06/24/15	40.17		--	31.92	--	8.25
	09/15/15	40.17		--	32.61	--	7.56
	11/30/17	40.23		--	29.59	--	10.64
	02/28/18	40.23		--	28.60	--	11.63
	05/29/18	40.23		--	21.88	--	18.35
	08/30/18	40.23		--	31.86	--	8.37
	02/18/19	40.23		--	30.04	--	10.19
	05/20/19	40.23		--	26.74	--	13.49
	08/28/19	40.23		--	32.59	--	7.64
	11/18/19	40.23		--	32.09	--	8.14
	02/24/20	40.23		--	29.77	--	10.46
	06/01/20	40.23		--	26.46	--	13.77
	08/17/20	40.23		--	31.78	--	8.45
	11/16/20	40.23		--	31.09	--	9.14
	02/25/21	40.23		--	29.01	--	11.22
	05/04/21	40.23		--	30.52	--	9.71
	08/10/21	40.23		--	32.30	--	7.93
	11/16/21	40.23		--	30.11	--	10.12
	02/14/22	40.23		--	30.67	--	9.56
05/16/22	40.23	--	27.17	--	13.06		
08/15/22	40.23	--	30.43	--	9.80		
11/16/22	40.23	--	31.88	--	8.35		
02/15/23	40.23	--	31.37	--	8.86		
05/10/23	40.23	--	26.31	--	13.92		
08/09/23	40.23	--	32.05	--	8.18		
11/20/23	40.23	--	31.52	--	8.71		
02/14/24	40.23	--	29.29	--	10.94		
05/14/24	40.23	--	29.71	--	10.52		
08/13/24	40.23	--	32.29	--	7.94		
11/19/24	40.23	--	30.79	--	9.44		
MW-5	12/16/14	27.03	10 - 25	--	16.60	--	10.43
	03/25/15	27.03		--	15.37	--	11.66
	06/24/15	27.03		--	18.89	--	8.14
	09/15/15	27.03		--	19.35	--	7.68
	10/23/17	27.03		--	17.82	--	9.21
	11/30/17	27.03		--	16.39	--	10.64
	02/28/18	27.03		--	15.41	--	11.62
	05/29/18	27.03		--	8.68	--	18.35
08/30/18	27.03	--	18.55	--	8.48		

Please refer to notes at end of table.

Appendix B

Groundwater Elevation Data

NuStar Terminals Operations Partnership, L.P.—Annex Terminal

Vancouver, Washington

Well Number	Date of Measurement	Top of Casing Elevation (feet above MSL)	Screened Interval (feet bgs)	Depth To SPH (feet)	Depth to Groundwater (feet)	SPH Thickness (feet)	Groundwater Elevation (feet)
MW-5 (cont'd)	02/18/19	27.03	10 - 25	--	16.70	--	10.33
	05/20/19	27.03		--	13.19	--	13.84
	08/28/19	27.03		--	19.31	--	7.72
	11/18/19	27.03		--	18.92	--	8.11
	02/24/20	27.03		--	17.00	--	10.03
	06/01/20	27.03		--	13.21	--	13.82
	08/17/20	27.03		--	18.39	--	8.64
	11/16/20	27.03		--	17.48	--	9.55
	02/25/21	27.03		--	15.83	--	11.20
	05/04/21	27.03		--	17.42	--	9.61
	08/10/21	27.03		--	18.98	--	8.05
	11/16/21	27.03		--	16.80	--	10.23
	02/14/22	27.03		--	17.48	--	9.55
	05/16/22	27.03		--	13.55	--	13.48
	08/15/22	27.03		--	17.28	--	9.75
	11/16/22	27.03		--	19.00	--	8.03
	02/15/23	27.03		--	18.34	--	8.69
	05/10/23	27.03		--	12.93	--	14.10
	08/09/23	27.03		--	18.90	--	8.13
	11/20/23	27.03		--	18.51	--	8.52
02/14/24	27.03		--	16.35	--	10.68	
05/14/24	27.03		--	16.56	--	10.47	
08/13/24	27.03		--	19.28	--	7.75	
11/19/24	27.03		--	17.40	--	9.63	
MW-5D	10/24/17	26.71	35 - 45	--	17.50	--	9.21
	11/30/17	26.71		--	16.21	--	10.50
	02/28/18	26.71		--	15.20	--	11.51
	05/29/18	26.71		--	8.37	--	18.34
	08/30/18	26.71		--	18.51	--	8.20
	02/18/19	26.71		--	16.43	--	10.28
	05/20/19	26.71		--	12.72	--	13.99
	08/28/19	26.71		--	19.01	--	7.70
	11/18/19	26.71		--	18.62	--	8.09
	02/24/20	26.71		--	16.62	--	10.09
	06/01/20	26.71		--	12.63	--	14.08
	08/17/20	26.71		--	18.13	--	8.58
	11/16/20	26.71		--	17.02	--	9.69
	02/25/21	26.71		--	15.63	--	11.08
	05/04/21	26.71		--	17.05	--	9.66
	08/10/21	26.71		--	18.64	--	8.07
	11/16/21	26.71		--	16.50	--	10.21
	02/14/22	26.71		--	17.29	--	9.42
	05/16/22	26.71		--	13.13	--	13.58
	08/15/22	26.71		--	16.93	--	9.78
11/16/22	26.71		--	18.86	--	7.85	
02/15/23	26.71		--	18.15	--	8.56	
05/10/23	26.71		--	12.27	--	14.44	
08/09/23	26.71		--	18.63	--	8.08	
11/20/23	26.71		--	18.27	--	8.44	
02/14/24	26.71		--	16.02	--	10.69	
05/14/24	26.71		--	16.44	--	10.27	
08/13/24	26.71		--	19.08	--	7.63	
11/19/24	26.71		--	17.00	--	9.71	
MW-6	12/16/14	27.33	10 - 25	--	16.93	--	10.40
	03/25/15	27.33		--	15.73	--	11.60

Please refer to notes at end of table.

Appendix B

Groundwater Elevation Data

NuStar Terminals Operations Partnership, L.P.—Annex Terminal

Vancouver, Washington

Well Number	Date of Measurement	Top of Casing Elevation (feet above MSL)	Screened Interval (feet bgs)	Depth To SPH (feet)	Depth to Groundwater (feet)	SPH Thickness (feet)	Groundwater Elevation (feet)
MW-6 (cont'd)	06/24/15	27.33	10 - 25	--	19.34	--	7.99
	09/15/15	27.33		--	19.70	--	7.63
	10/24/17	27.33		--	18.12	--	9.21
	11/30/17	27.33		--	16.71	--	10.62
	02/28/18	27.33		--	15.77	--	11.56
	05/29/18	27.33		--	9.03	--	18.30
	08/30/18	27.33		--	18.99	--	8.34
	02/18/19	27.33		--	16.99	--	10.34
	05/20/19	27.33		--	13.56	--	13.77
	08/28/19	27.33		--	19.66	--	7.67
	11/18/19	27.33		--	19.31	--	8.02
	02/24/20	27.33		--	17.14	--	10.19
	06/01/20	27.33		--	13.45	--	13.88
	08/17/20	27.33		--	18.77	--	8.56
	11/16/20	27.33		--	17.78	--	9.55
	02/25/21	27.33		--	16.16	--	11.17
	05/04/21	27.33		--	17.72	--	9.61
	08/10/21	27.33		--	19.39	--	7.94
	11/16/21	27.33		--	17.09	--	10.24
	02/14/22	27.33		--	17.84	--	9.49
	05/16/22	27.33		--	13.90	--	13.43
	08/15/22	27.33		--	17.57	--	9.76
	11/16/22	27.33		--	19.42	--	7.91
	02/15/23	27.33		--	18.71	--	8.62
	05/10/23	27.33		--	12.98	--	14.35
	08/09/23	27.33		--	19.37	--	7.96
	11/20/23	27.33		--	18.80	--	8.53
02/14/24	27.33		--	16.66	--	10.67	
05/14/24	27.33		--	16.99	--	10.34	
08/13/24	27.33		--	19.69	--	7.64	
11/19/24	27.33		--	17.71	--	9.62	
MW-6D	02/14/22	27.59	35 - 45	--	18.17	--	9.42
	05/16/22	27.59		--	14.06	--	13.53
	08/15/22	27.59		--	17.82	--	9.77
	11/16/22	27.59		--	19.75	--	7.84
	02/15/23	27.59		--	19.05	--	8.54
	05/10/23	27.59		--	13.10	--	14.49
	08/09/23	27.59		--	19.69	--	7.90
	11/20/23	27.59		--	19.13	--	8.46
	02/14/24	27.59		--	16.88	--	10.71
	05/14/24	27.59		--	17.31	--	10.28
	08/13/24	27.59		--	19.93	--	7.66
11/19/24	27.59		--	17.87	--	9.72	
MW-7	11/30/2017	21.67	10 - 25	--	11.12	--	10.55
	2/28/2018	21.67		--	10.19	--	11.48
	5/29/2018	21.67		--	3.4	--	18.27
	08/30/18	21.67		--	13.26	--	8.41
	02/18/19	21.67		--	11.41	--	10.26
	05/20/19	21.67		--	7.73	--	13.94
	08/28/19	21.67		--	13.99	--	7.68
	11/18/19	21.67		--	13.76	--	7.91
	02/24/20	21.67		--	11.49	--	10.18
	06/01/20	21.67		--	7.10	--	14.57
08/17/20	21.67		--	13.11	--	8.56	

Please refer to notes at end of table.

Appendix B

Groundwater Elevation Data

NuStar Terminals Operations Partnership, L.P.—Annex Terminal

Vancouver, Washington

Well Number	Date of Measurement	Top of Casing Elevation (feet above MSL)	Screened Interval (feet bgs)	Depth To SPH (feet)	Depth to Groundwater (feet)	SPH Thickness (feet)	Groundwater Elevation (feet)
MW-7 (cont'd)	11/16/20	21.67	10 - 25	--	12.01	--	9.66
	02/25/21	21.67		--	10.53	--	11.14
	05/04/21	21.67		--	12.07	--	9.60
	08/10/21	21.67		--	13.59	--	8.08
	11/16/21	21.67		--	11.41	--	10.26
	02/14/22	21.67		--	12.23	--	9.44
	05/16/22	21.67		--	8.14	--	13.53
	08/15/22	21.67		--	11.92	--	9.75
	11/16/22	21.67		--	13.80	--	7.87
	02/15/23	21.67		--	12.86	--	8.81
	05/10/23	21.67		--	7.19	--	14.48
	08/09/23	21.67		--	13.88	--	7.79
	11/20/23	21.67		--	13.22	--	8.45
	02/14/24	21.67		--	10.95	--	10.72
	05/14/24	21.67		--	11.30	--	10.37
	08/13/24	21.67		--	14.06	--	7.61
11/19/24	21.67		--	11.91	--	9.76	
MW-8	11/30/2017	27.68	10 - 25	--	16.91	--	10.77
	2/28/2017	27.68		--	16.01	--	11.67
	5/29/2018	27.68		--	9.31	--	18.37
	08/30/18	27.68		--	19.22	--	8.46
	02/18/19	27.68		--	17.28	--	10.40
	05/20/19	27.68		--	13.93	--	13.75
	08/28/19	27.68		--	19.94	--	7.74
	11/18/19	27.68		--	19.57	--	8.11
	02/24/20	27.68		--	17.38	--	10.30
	06/01/20	27.68		--	13.82	--	13.86
	08/17/20	27.68		--	19.04	--	8.64
	11/16/20	27.68		--	18.11	--	9.57
	02/25/21	27.68		--	16.44	--	11.24
	05/04/21	27.68		--	17.98	--	9.70
	08/10/21	27.68		--	19.64	--	8.04
	11/16/21	27.68		--	17.67	--	10.01
	02/14/22	27.68		--	18.08	--	9.60
	05/16/22	27.68		--	14.3	--	13.38
	08/15/22	27.68		--	17.82	--	9.86
	11/16/22	27.68		--	19.59	--	8.09
02/15/23	27.68		--	18.91	--	8.77	
05/10/23	27.68		--	13.6	--	14.08	
08/09/23	27.68		--	19.66	--	8.02	
11/20/23	27.68		--	18.99	--	8.69	
02/14/24	27.68		--	16.85	--	10.83	
05/14/24	27.68		--	17.22	--	10.46	
08/13/24	27.68		--	19.81	--	7.87	
11/19/24	27.68		--	17.98	--	9.70	
MW-8D	11/30/2017	27.87	35 - 45	--	17.36	--	10.51
	2/28/2018	27.87		--	16.35	--	11.52
	5/29/2018	27.87		--	9.53	--	18.34
	08/30/18	27.87		--	19.41	--	8.46
	02/18/19	27.87		--	17.59	--	10.28
	05/20/19	27.87		--	13.9	--	13.97
	08/28/19	27.87		--	20.21	--	7.66
	11/18/19	27.87		--	19.80	--	8.07
	02/24/20	27.87		--	17.79	--	10.08
06/01/20	27.87		--	13.80	--	14.07	

Please refer to notes at end of table.

Appendix B

Groundwater Elevation Data

NuStar Terminals Operations Partnership, L.P.—Annex Terminal

Vancouver, Washington

Well Number	Date of Measurement	Top of Casing Elevation (feet above MSL)	Screened Interval (feet bgs)	Depth To SPH (feet)	Depth to Groundwater (feet)	SPH Thickness (feet)	Groundwater Elevation (feet)
MW-8D (cont'd)	08/17/20	27.87	35 - 45	--	19.29	--	8.58
	11/16/20	27.87		--	18.22	--	9.65
	02/25/21	27.87		--	16.76	--	11.11
	05/04/21	27.87		--	18.24	--	9.63
	08/10/21	27.87		--	19.80	--	8.07
	11/16/21	27.87		--	17.42	--	10.45
	02/14/22	27.87		--	18.43	--	9.44
	05/16/22	27.87		--	14.32	--	13.55
	08/15/22	27.87		--	18.09	--	9.78
	11/16/22	27.87		--	19.99	--	7.88
	02/15/23	27.87		--	19.28	--	8.59
	05/10/23	27.87		--	13.44	--	14.43
	08/09/23	27.87		--	19.85	--	8.02
	11/20/23	27.87		--	19.40	--	8.47
	02/14/24	27.87		--	17.15	--	10.72
	05/14/24	27.87		--	17.59	--	10.28
08/13/24	27.87	--	20.21	--	7.66		
11/19/24	27.87	--	18.17	--	9.70		
MW-9	11/30/2017	29.39	10 - 25	--	18.78	--	10.61
	2/28/2018	29.39		--	17.79	--	11.60
	5/29/2018	29.39		--	11.09	--	18.30
	08/30/18	29.39		--	21.04	--	8.35
	02/18/19	29.39		--	19.13	--	10.26
	05/20/19	29.39		--	14.63	--	14.76
	08/28/19	29.39		--	21.74	--	7.65
	11/18/19	29.39		--	21.28	--	8.11
	02/24/20	29.39		--	21.08	--	8.31
	06/01/20	29.39		--	15.53	--	13.86
	08/17/20	29.39		--	20.89	--	8.50
	11/16/20	29.39		--	20.07	--	9.32
	02/25/21	29.39		--	18.15	--	11.24
	05/04/21	29.39		--	19.69	--	9.70
	08/10/21	29.39		--	21.45	--	7.94
	11/16/21	29.39		--	19.27	--	10.12
	02/14/22	29.39		--	19.84	--	9.55
	05/16/22	29.39		--	16.1	--	13.29
	08/15/22	29.39		--	19.58	--	9.81
	11/16/22	29.39		--	21.2	--	8.19
02/15/23	29.39	--	20.58	--	8.81		
05/10/23	29.39	--	15.29	--	14.10		
08/09/23	29.39	--	21.21	--	8.18		
11/20/23	29.39	--	20.7	--	8.69		
02/14/24	29.39	--	18.52	--	10.87		
05/14/24	29.39	--	18.94	--	10.45		
08/13/24	29.39	--	21.44	--	7.95		
11/19/24	29.39	--	19.88	--	9.51		
MW-10	11/30/2017	28.71	10 - 25	--	18.16	--	10.55
	2/28/2018	28.71		--	17.19	--	11.52
	5/29/2018	28.71		--	10.38	--	18.33
	08/30/18	28.71		--	20.3	--	8.41
	02/18/19	28.71		--	18.42	--	10.29
	05/20/19	28.71		--	14.76	--	13.95
	08/28/19	28.71		--	21.02	--	7.69
	11/18/19	28.71		--	20.67	--	8.04

Please refer to notes at end of table.

Appendix B

Groundwater Elevation Data

NuStar Terminals Operations Partnership, L.P.—Annex Terminal

Vancouver, Washington

Well Number	Date of Measurement	Top of Casing Elevation (feet above MSL)	Screened Interval (feet bgs)	Depth To SPH (feet)	Depth to Groundwater (feet)	SPH Thickness (feet)	Groundwater Elevation (feet)
MW-10 (cont'd)	02/24/20	28.71	10 - 25	--	18.57	--	10.14
	06/01/20	28.71		--	14.68	--	14.03
	08/17/20	28.71		--	20.17	--	8.54
	11/16/20	28.71		--	19.09	--	9.62
	02/25/21	28.71		--	17.8	--	10.91
	05/04/21	28.71		--	19.06	--	9.65
	08/10/21	28.71		--	20.74	--	7.97
	11/16/21	28.71		--	18.48	--	10.23
	05/16/22	28.71		--	15.2	--	13.51
	08/15/22	28.71		--	18.93	--	9.78
	11/16/22	28.71		--	20.78	--	7.93
	02/15/23	28.71		--	20.08	--	8.63
	05/10/23	28.71		--	14.31	--	14.40
	08/09/23	28.71		--	20.79	--	7.92
	11/20/23	28.71		--	20.19	--	8.52
	02/14/24	28.71		--	17.96	--	10.75
	05/14/24	28.71		--	18.4	--	10.31
	08/13/24	28.71		--	21	--	7.71
11/19/24	28.71		--	19.04	--	9.67	
MW-11	02/18/19	NS	10 - 25	--	17.27	--	NS
	05/20/19	NS		--	14.32	--	NS
	08/28/19	NS		--	19.55	--	NS
	11/18/19	NS		--	19.36	--	NS
	02/24/20	NS		--	16.28	--	NS
	06/01/20	NS		--	13.95	--	NS
	08/17/20	NS		--	18.58	--	NS
	11/16/20	NS		--	18.70	--	NS
	02/25/21	NS		--	15.91	--	NS
	05/04/21	NS		--	17.79	--	NS
	08/10/21	NS		--	19.31	--	NS
	11/16/21	NS		--	17.75	--	NS
	02/14/22	27.41		--	17.28	--	10.13
	05/16/22	27.41		--	14.76	--	12.65
	08/15/22	27.41		--	17.43	--	9.98
	11/16/22	27.41		--	19.03	--	8.38
	02/15/23	27.41		--	18.27	--	9.14
	02/15/23	27.41		--	18.27	--	9.14
	05/10/23	27.41		--	14.03	--	13.38
	08/09/23	27.41		--	19.05	--	8.36
11/20/23	27.41		--	18.67	--	8.74	
02/14/24	27.41		--	16.34	--	11.07	
05/14/24	27.41		--	16.72	--	10.69	
08/13/24	27.41		--	19.08	--	8.33	
11/19/24	27.41		--	18.62	--	8.79	

Please refer to notes at end of table.

Appendix B

Groundwater Elevation Data

NuStar Terminals Operations Partnership, L.P.—Annex Terminal

Vancouver, Washington

Well Number	Date of Measurement	Top of Casing Elevation (feet above MSL)	Screened Interval (feet bgs)	Depth To SPH (feet)	Depth to Groundwater (feet)	SPH Thickness (feet)	Groundwater Elevation (feet)
MW-12	02/14/22	33.12	18 - 33	--	23.47	--	9.65
	05/16/22	33.12		--	20.29	--	12.83
	08/15/22	33.12		--	23.33	--	9.79
	11/16/22	33.12		--	25.04	--	8.08
	02/15/23	33.12		--	24.35	--	8.77
	05/10/23	33.12		--	19.59	--	13.53
	08/09/23	33.12		--	24.95	--	8.17
	11/20/23	33.12		--	24.58	--	8.54
	02/14/24	33.12		--	22.07	--	11.05
	05/14/24	33.12		--	22.64	--	10.48
	08/13/24	33.12		--	25.30	--	7.82
	11/19/24	33.12		--	23.78	--	9.34
MW-12D	02/14/22	32.06	45 - 55	--	22.66	--	9.40
	05/16/22	32.06		--	18.78	--	13.28
	08/15/22	32.06		--	22.37	--	9.69
	11/16/22	32.06		--	24.11	--	7.95
	02/15/23	32.06		--	23.46	--	8.60
	05/10/23	32.06		--	17.92	--	14.14
	08/09/23	32.06		--	24.01	--	8.05
	11/20/23	32.06		--	23.60	--	8.46
	02/14/24	32.06		--	21.37	--	10.69
	05/14/24	32.06		--	21.81	--	10.25
	08/13/24	32.06		--	24.38	--	7.68
	11/19/24	32.06		--	22.54	--	9.52

Notes:

1. Survey elevations determined by Bluedot Group surveying, November 2017. The following wells were surveyed by MacKay Sposito on 2/7/22: MW-1, MW-6D, MW-11, MW-12, MW-12D.
2. Reference elevation (i.e., top of casing) relative to NAVD 88, feet above mean sea level.
3. feet above MSL = feet above mean sea level.
4. NS = Not surveyed
5. -- = SPH not measured/observed.
6. bgs = below ground surface.

APPENDIX C
Field Gauging and Sampling Forms

WELL GAUGING DATA SHEET

Vannex

GEOENGINEERS



Client: NuStar	Job Number:	
Project: 1A24 Gwm	Date:	2/14/24
Weather:	Sampler:	CW
	Time In/Out:	

WATER LEVEL DATA

Well I.D.	Time	Depth to Water (feet)	Depth to Well Bottom (feet)	Notes/Other Remarks
MW-1	0940	15.79		
MW-2	0852	27.66		
MW-3	0903	28.22		
MW-4	0815	29.29		
MW-5				
MW-5D				
MW-6				
MW-6D				
MW-7				
MW-8				
MW-8D				
MW-9				
MW-10		17.96		
MW-11	0949	16.34		
MW-12	0923	22.07		
MW-12D	0917	21.37		

WELL GAUGING DATA SHEET

GEOENGINEERS



Vannetta	Job Number:	19001-008-09
Client: Mustar	Date:	2/14/24
Project: 1024 GMM	Sampler:	SR
Weather:	Time In/Out:	

WATER LEVEL DATA

Well I.D.	Time	Depth to Water (feet)	Depth to Well Bottom (feet)	Notes/Other Remarks
MW-1				
MW-2				
MW-3				
MW-4				
MW-5	0857	16.35		
MW-5D	0853	16.02		
MW-6	0934	16.66		
MW-6D	0930	16.88		
MW-7	0926	10.95		
MW-8	0905	16.85		
MW-8D	0907	17.15		
MW-9	0912	18.52		
MW-10	0941	17.96		
MW-11				
MW-12				
MW-12D				

WELL MONITORING DATA SHEET



Well ID:	MW-3	Job Number:	19001-008-09
Client:	NuStar Vancouver Annex	Date:	2/15/24
Project:	1Q24 GWM	Sampler:	SR / CW
Weather:	Cloudy - 42°	Time In/Out:	-

WELL DATA

Monument Type:	Flush-mount / Stick-up Other: -	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	-	Free Product Thickness:	--
Well Cap Lock Present:	Yes No	Depth to Water:	28.44	Water Column Length:	--
Comments:	-	Screened Interval:	--	Purge Volume:	--

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	Peristaltic / Bladder Pump	Pump Intake Depth:	Mid-Screen
Sampling Method:	Low Flow	Tubing Material & Type:	LDPE 0.25" Skip Bond NEW / DEDICATED

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0823			0.30	28.44	12.4	5.2	136.1	6.36	130.9	clear
0826			0.30	28.45	12.6	4.21	136.3	6.26	147.2	↓
0829			0.30	28.45	12.4	3.79	136.6	6.21	157.3	
0833			0.30	28.44	12.5	3.42	136.3	6.19	161.9	
0836			0.30	28.44	12.5	3.45	136.2	6.20	162.7	

PURGING DATA

Sample ID:	MW-3	Sampling Flow Rate:	0.30	Analytical Laboratory:	Apex
Sample Time:	0836	Final Depth to Water:	28.44	Did Well Dewater:	No
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID

2 x 1 L	HCl	Dx	-	-	-	-	-
3 x VOA	HCl	VOCs	-	-	-	-	-

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-4	Job Number:	19001-008-09
Client:	NuStar Vancouver Annex	Date:	2/14/24
Project:	1Q24 GWM	Sampler:	SR / GW
Weather:	Rain - 40°	Time In/Out:	

WELL DATA

Monument Type:	Flush-mount/Stick-up Other: -	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	-	Free Product Thickness:	--
Well Cap Lock Present:	Yes No	Depth to Water:	29.29	Water Column Length:	--
Comments:		Screened Interval:	--	Purge Volume:	--

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)	
Water height multipliers (gal):	1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:	Peristaltic / Bladder Pump				Pump Intake Depth:	Mid-Screen				
Sampling Method:	Low Flow				Tubing Material & Type:	LDPE 0.25" / Skip Bond			NEW / DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1337	-	-	0.30	29.29	12.3	3.50	323.3	6.14	184.4	clear
1340	-	-	0.30	29.30	12.2	3.47	323.3	6.16	184.1	↓
1343	-	-	0.30	29.30	12.2	3.41	323.7	6.19	182.3	
1346	-	-	0.30	29.30	12.3	3.36	323.7	6	182.5	

PURGING DATA

Sample ID:	MW-4	Sampling Flow Rate:	0.30	Analytical Laboratory:	Apex	
Sample Time:	1346	Final Depth to Water:	29.28	Did Well Dewater:	NO	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx	-	-	-	-
3 x VOA	HCl	VOCs	-	-	-	-

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-5	Job Number:	19001-008-09
Client:	NuStar Vancouver Annex	Date:	2/15/24
Project:	1Q24 GWM	Sampler:	SB / CW
Weather:	Cloudy, 40°F	Time In/Out:	0800 /

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	25	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	16.34	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:	Peristaltic Bladder Pump	Pump Intake Depth:	20	Mid-Screen:	NEW / DEDICATED
Sampling Method:	Low Flow	Tubing Material & Type:	LDPE 0.25" Skip Bond		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0818			0.20	16.80	11.8	1.27	724	6.97	-63	Crew
0821			↓	17.07	13.2	0.36	750	6.83	-78	↓
0824			↓	17.36	13.5	0.24	743	6.86	-87	↓
0827			↓	17.51	13.1	0.22	742	6.88	-91	↓
0830			↓	17.72	13.2	0.20	750	6.90	-96	↓

PURGING DATA

Sample ID:	MW-5	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex
Sample Time:	0830	Final Depth to Water:	17.84	Did Well Dewater:	No
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
2 x 1 L	HCl	Dx			
3 x VOA	HCl	VOCs			

NOTES/ADDITIONAL COMMENTS

DUP Sample collected

WELL MONITORING DATA SHEET



Well ID:	MW-SD	Job Number:	19001-008-09
Client:	NuStar Vancouver Annex	Date:	2/18/24
Project:	1Q24 GWM	Sampler:	SB/CW
Weather:	Cloudy, 40°F	Time In/Out:	0900

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	45	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	16.13	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:	Peristaltic/Bladder Pump	Pump Intake Depth:	40'	Mid-Screen
Sampling Method:	Low Flow	Tubing Material & Type:	LDPE 0.25" / Skip Bond	NEW / DEDICATED

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0903				16.13	12.8	6.36	142	7.18	0.6	Crew
0906				↓	13.2	4.27	164	7.24	19	↓
0909				↓	13.2	3.83	164	7.20	29	↓
0912				↓	13.1	3.77	170	7.17	34	↓
0915				↓	13.1	3.42	171	7.14	38	↓

PURGING DATA

Sample ID:	MW-SD	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	0915	Final Depth to Water:	16.13	Did Well Dewater:	NO	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOCs				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	NW-6	Job Number:	19001-008-09
Client:	NuStar Vancouver Annex	Date:	2/14/24
Project:	1Q24 GWM	Sampler:	SB/CW
Weather:	Cloudy, 40° F	Time In/Out:	1:40

WELL DATA

Monument Type:	Flush-mount / <u>Stick-up</u>	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	25	Free Product Thickness:	--
Monument Condition:	<u>Good</u>	Depth to Water:	16.66	Water Column Length:	--
Well Cap Lock Present:	<u>Yes</u> No	Screened Interval:	--	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:		<u>Peristaltic / Bladder Pump</u>			Pump Intake Depth:		21				Mid-Screen	
Sampling Method:		Low Flow			Tubing Material & Type:		LDPE 0.25" / Skip Bond		NEW / DEDICATED			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks		
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV			
1145			0.20	16.73	10.8	1.40	667	6.70	-95	Clear		
1148			0.20	16.99	12.5	0.63	685	6.65	-94	↓		
1151			0.20	17.02	12.7	0.32	690	6.67	-97	↓		
1154			0.20	17.02	12.8	0.24	692	6.67	-98	↓		

PURGING DATA

Sample ID:	NW-6	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	1154	Final Depth to Water:	17.02	Did Well Dewater:	<u>Yes</u>	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOCs				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-7	Job Number:	19001-008-09
Client:	NuStar Vancouver Annex	Date:	2/14/24
Project:	1Q24 GWM	Sampler:	SB/CW
Weather:	Cloudy 50°F	Time In/Out:	1010/1050

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	25'	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	10.95	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:	Peristaltic / Bladder Pump	Pump Intake Depth:	18'	Mid-Screen
Sampling Method:	Low Flow	Tubing Material & Type:	LDPE 0.25" / Skip Bond	NEW / DEDICATED

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1024			0.20	11.04	12.3	1.90	610	6.80	125	clear
1027			0.20	11.09	12.8	0.76	580	6.51	127.4	
1030			0.20	11.09	12.9	0.42	565	6.50	3.9	
1033			↓	↓	13.1	0.25	563	6.52	-0.3	
1036			↓	↓	13.1	0.22	563	6.58	-3.5	

PURGING DATA

Sample ID:	MW-7	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex
Sample Time:	1036	Final Depth to Water:	11.09	Did Well Dewater:	NA
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
2 x 1 L	HCl	Dx			
3 x VOA	HCl	VOCs			

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET

GEOENGINEERS	Well ID: <u>MW-80</u>	Job Number: <u>14001-008-09</u>
	Client: <u>Norstar / Unnisa</u>	Date: <u>2/15/24</u>
	Project: <u>1224 GWS</u>	Sampler: <u>SR</u>
	Weather: <u>Cloudy, 40°F</u>	Time In/Out: <u>—</u>

WELL DATA

Monument Type: <u>Flush-mount / Stick-up</u> <small>Other: <u>Geo</u></small>	Well Diameter: <u>2"</u>	Depth to Free Product: <u>—</u>
Monument Condition: <u>Geo</u>	Well Depth: <u>45</u>	Free Product Thickness: <u>—</u>
Well Cap Lock Present: <u>Yes</u> No	Depth to Water: <u>17.2</u>	Water Column Length: <u>—</u>
	Screened Interval: <u>35'-45'</u>	Purge Volume: <u>—</u>

Comments: _____

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method: <u>per Ring</u>				Pump Intake Depth: <u>40</u>						
Sampling Method: <u>Low Flow</u>				Tubing Material & Type: <u>LDPE 1/4"</u>						
				<u>NEW</u> / DEDICATED						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (mg/L)	ORP (mV)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5 °C	+/-5%	+/-0.5 ppm	+/-20 mV	
<u>0954</u>			<u>17.22</u>	<u>0.70</u>	<u>11.9760</u>	<u>11.9</u>	<u>144</u>	<u>1.28</u>	<u>31</u>	<u>Clear</u>
<u>0957</u>			<u>17.22</u>	<u>0.70</u>	<u>7.58</u>	<u>12.1</u>	<u>151</u>	<u>0.31</u>	<u>18/21</u>	
<u>1000</u>			↓	↓	<u>7.57</u>	<u>12.1</u>	<u>152</u>	<u>0.22</u>	<u>17</u>	
<u>1003</u>			↓	↓	<u>7.59</u>	<u>12.2</u>	<u>152</u>	<u>0.18</u>	<u>14</u>	↓

PURGING DATA

Sample ID: <u>MW-80</u>	Sampling Flow Rate: <u>0.20</u>	Analytical Laboratory: <u>Apex</u>				
Sample Time: <u>1003</u>	Final Depth to Water: <u>17.2</u>	Did Well Dewater: <u>NO</u>				
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
<u>2x 1 L</u>	<u>HCl</u>	<u>DA</u>				
<u>3x VO/A</u>	<u>HCl</u>	<u>Gx/VOLs</u>				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-9	Job Number:	19001-008-09
Client:	NuStar Vancouver Annex	Date:	2/14/24
Project:	1Q24 GWM	Sampler:	88/CW
Weather:	(cloudy, 40°F)	Time In/Out:	12:15/

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	25'	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	18.50'	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	Peristaltic / Bladder Pump	Pump Intake Depth:	22'	Mid-Screen
Sampling Method:	Low Flow	Tubing Material & Type:	LOPE 0.25" / Skip Bond	NEW / DEDICATED

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1223			0.26	18.50	12.0	9.13	138	7.07	-16	Clear
1226					12.9	9.00	126	6.81	26	
1229					12.9	9.44	127	6.57	52	
1232					12.8	9.34	127	6.59	70	
1238					12.8	9.28	127	6.50	75	
1238					12.8	9.14	126	6.48	81	

PURGING DATA

Sample ID:	MW-9	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	1238	Final Depth to Water:	18.50	Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOCs				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	<u>MW-10</u>	Job Number:	19001-008-09
Client:	NuStar Vancouver Annex	Date:	<u>2/14/24</u>
Project:	1Q24 GWM	Sampler:	SR / <u>CW</u>
Weather:	<u>Overcast -40°</u>	Time In/Out:	

WELL DATA

Monument Type:	<u>Flush-mount / Stick-up</u> Other: <u>-</u>	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	<u>Good</u>	Well Depth:	<u>-</u>	Free Product Thickness:	--
Well Cap Lock Present:	<u>Yes</u> No	Depth to Water:	<u>17.96</u>	Water Column Length:	--
Comments:	<u>-</u>	Screened Interval:	--	Purge Volume:	--

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	<u>Peristaltic / Bladder Pump</u>				Pump Intake Depth:	Mid-Screen				
Sampling Method:	Low Flow				Tubing Material & Type:	<u>LDPE 0.25" / Skip Bond</u>			<u>NEW</u> / DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
<u>1030</u>	<u>-</u>	<u>-</u>	<u>0.30</u>	<u>17.97</u>	<u>12.8</u>	<u>9.39</u>	<u>120.0</u>	<u>6.44</u>	<u>170.6</u>	<u>clear</u>
<u>1033</u>	<u>-</u>	<u>-</u>	<u>0.30</u>	<u>17.98</u>	<u>12.7</u>	<u>9.42</u>	<u>118.9</u>	<u>6.40</u>	<u>174.3</u>	↓
<u>1036</u>	<u>-</u>	<u>-</u>	<u>0.30</u>	<u>17.98</u>	<u>12.7</u>	<u>9.49</u>	<u>117.0</u>	<u>6.36</u>	<u>179.0</u>	
<u>1039</u>	<u>-</u>	<u>-</u>	<u>0.30</u>	<u>17.98</u>	<u>12.8</u>	<u>9.51</u>	<u>116.4</u>	<u>6.35</u>	<u>181.6</u>	

PURGING DATA

Sample ID:	<u>MW-10</u>	Sampling Flow Rate:	<u>0.30</u>	Analytical Laboratory:	Apex	
Sample Time:	<u>1039</u>	Final Depth to Water:	<u>17.97</u>	Did Well Dewater:	<u>No</u>	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
3 x VOA	HCl	VOCs	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-11	Job Number:	14001-004-09
Client:	MUSTAR America	Date:	2/16/12
Project:	1024 GWM	Sampler:	PR
Weather:	Cloudy 40F	Time In/Out:	→

WELL DATA

Monument Type:	<input checked="" type="checkbox"/> Flush-mount/Stick-up <input type="checkbox"/> Other:	Well Diameter:	2"	Depth to Free Product:	/
Monument Condition:	Good	Well Depth:	25	Free Product Thickness:	/
Well Cap Lock Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth to Water:	16.02	Water Column Length:	/
Comments:		Screened Interval:	-	Purge Volume:	/

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	PP	Pump Intake Depth:	MS							
Sampling Method:	LF	Tubing Material & Type:	LDPE							
			<input checked="" type="checkbox"/> NEW / <input type="checkbox"/> DEDICATED							
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	DTW (btc)	Purge Rate (L/min)	pH	Temp (°C)	Cond (µS/cm)	DO (mg/L)	ORP (mV)	Clarity/Color Other Remarks
					+/-0.1	+/-0.5 °C	+/-5%	+/-0.5 ppm	+/-20 mV	
1045			16.30	0.20	7.00	12.7	299	1.05	85.2	Slight turb
1048			16.33	0.20	6.64	13.7	308	0.49	57	↓
1051			16.33	0.20	6.88	13.7	310	0.30	61	↓
1054			↓	↓	6.54	14.0	305	0.24	67	↓
1057			↓	↓	6.53	14.0	302	0.22	69	↓

PURGING DATA

Sample ID:	MW-11	Sampling Flow Rate:	0.20	Analytical Laboratory:	Aper	
Sample Time:	1057	Final Depth to Water:	16.33	Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4Z x 1L	HCl	DR	/	/	/	MW-11 DUP
4Z x 1L	N/A	DR	/	/	/	MW-11 (Alum/Filtered) DUP
6Z x VOA	HCl + Alum	6Z/VOCS	/	/	/	"
6Z x VOA	HCl	6Z/VOCS	/	/	/	MW-11 DUP

NOTES/ADDITIONAL COMMENTS

Slight dark tint to water, no odor. 2 Types samples collected with Pops for both Standard samples & samples with unpreserved 1L umbars and VOAs with Alum added.

WELL MONITORING DATA SHEET



Well ID:	MW-12	Job Number:	19001-008-09
Client:	NuStar Vancouver Annex	Date:	2/15/24
Project:	1Q24 GWM	Sampler:	SR / CS
Weather:	Cloudy - 40°	Time In/Out:	

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other: -	Well Depth:	-	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	22.15	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Comments: -

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	Peristaltic / Bladder Pump	Pump Intake Depth:	Mid-Screen
Sampling Method:	Low Flow	Tubing Material & Type:	LDPE 0.25" / Skip Bond / NEW / DEDICATED

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0943	-	-	0.30	22.15	14.0	7.10	165.9	6.30	157.5	clear
0946	-	-	0.30	22.15	14.2	6.91	173.2	6.29	152.2	↓
0949	-	-	0.30	22.16	14.3	6.60	172.8	6.29	152.9	
0952	-	-	0.30	22.15	14.2	6.47	172.3	6.29	153.8	

PURGING DATA

Sample ID:	MW-12	Sampling Flow Rate:	0.30	Analytical Laboratory:	Apex
Sample Time:	0952	Final Depth to Water:	22.15	Did Well Dewater:	No
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID

2 x 1 L	HCl	Dx	-	-	-	-	-
3 x VOA	HCl	VOCs	-	-	-	-	-

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-12D	Job Number:	19001-008-09
Client:	NuStar Vancouver Annex	Date:	2/15/24
Project:	1Q24 GWM	Sampler:	SR / CW
Weather:	Pt-Cloudy - 40°	Time In/Out:	

WELL DATA

Monument Type:	Flush-mount/Stick-up Other: -	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	-	Free Product Thickness:	--
Well Cap Lock Present:	Yes No	Depth to Water:	21.41	Water Column Length:	--
Screened Interval:	--	Purge Volume:	--		

Comments: -

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	Peristaltic / Bladder Pump				Pump Intake Depth:	Mid-Screen				
Sampling Method:	Low Flow				Tubing Material & Type:	LDPE 0.25" Skip Bond		NEW / DEDICATED		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1022	-	-	0.30	21.41	13.2	0.79	214.9	7.12	70.1	clear
1025	-	-	0.30	21.41	13.2	0.53	214.8	7.15	57.4	↓
1028	-	-	0.30	21.41	13.3	0.41	216.7	7.16	46.1	
1031	-	-	0.30	21.41	13.3	0.31	216.9	7.17	19.9	
1034	-	-	0.30	21.41	13.2	0.31	217.4	7.17	13.7	
1037	-	-	0.30	21.41	13.2	0.27	217.1	7.18	8.9	

PURGING DATA

Sample ID:	MW-12D	Sampling Flow Rate:	0.30	Analytical Laboratory:	Apex	
Sample Time:	1037	Final Depth to Water:	21.41	Did Well Dewater:	no	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOCs				

NOTES/ADDITIONAL COMMENTS

WELL GAUGING DATA SHEET

GEOENGINEERS



Client: <i>Nusrat Vanna</i>	Job Number:
Project: <i>2024</i>	Date: <i>5/14/24</i>
Weather: <i>Sunny 50°</i>	Sampler: <i>CW</i>
	Time In/Out:

WATER LEVEL DATA

Well I.D.	Time	Depth to Water (feet)	Depth to Well Bottom (feet)	Notes/Other Remarks
MW-1	<i>0824</i>	<i>16.26</i>		
MW-2	<i>0738</i> <i>744</i>	<i>29.71</i> <i>27.85</i>		
MW-3	<i>0754</i>	<i>28.65</i>		
MW-4	<i>0744</i> <i>738</i>	<i>27.85</i> <i>29.71</i>		
MW-5				
MW-5D				
MW-6				
MW-6D				
MW-7				
MW-8				
MW-8D				
MW-9				
MW-10	<i>0831</i>	<i>18.40</i>		
MW-11	<i>0816</i>	<i>16.72</i>		
MW-12	<i>0808</i>	<i>22.64</i>		
MW-12D	<i>0804</i>	<i>21.81</i>		

WELL GAUGING DATA SHEET



Client: <i>Nuska</i>	Job Number: <i>15001-008-13</i>
Project: <i>Area (MW) 20</i>	Date: <i>5/14/24</i>
Weather: <i>24</i>	Sampler: <i>SR</i>
	Time In/Out:

WATER LEVEL DATA

Well I.D.	Time	Depth to Water (feet)	Depth to Well Bottom (feet)	Notes/Other Remarks
MW-1				
MW-2				
MW-3				
MW-4				
MW-5	<i>07:50</i>	<i>16.56</i>	<i>-</i>	<i>1</i>
MW-5D	<i>07:47</i>	<i>16.44</i>	<i>-</i>	<i>1</i>
MW-6	<i>8:06</i>	<i>16.99</i>	<i>-</i>	<i>1</i>
MW-6D	<i>8:03</i>	<i>17.31</i>	<i>-</i>	<i>1</i>
MW-7	<i>10:02</i>	<i>11.30</i>	<i>-</i>	<i>1</i>
MW-8	<i>7:40</i>	<i>17.22</i>	<i>-</i>	<i>1</i>
MW-8D	<i>7:42</i>	<i>17.59</i>	<i>-</i>	<i>1</i>
MW-9	<i>7:44</i>	<i>18.94</i>	<i>-</i>	<i>1</i>
MW-10				
MW-11				
MW-12				
MW-12D				

WELL MONITORING DATA SHEET



Well ID:	MW-1	Job Number:	19001-008-13
Client:	Vancouver Annex	Date:	5/14/24
Project:	2Q24 GWM	Sampler:	SR / (CW)
Weather:	Sunny - 65°	Time In/Out:	

WELL DATA

Monument Type:	Flush-mount/Stick-up Other: -	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	--	Free Product Thickness:	--
Well Cap Lock Present:	Yes No	Depth to Water:	16.26	Water Column Length:	--
Comments:	-				

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)	
Water height multipliers (gal):	1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:	Peristaltic/Bladder Pump				Pump Intake Depth:	Mid-Screen				
Sampling Method:	Low Flow				Tubing Material & Type:	LDPE 0.25" / Skip Bond		NEW / DEDICATED		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1205	-	-	0.20	16.26	14.8	1.31	429.9	5.97	147.2	Clear
1208	-	-	0.20	16.26	14.8	1.32	437.7	5.97	163.9	↓
1211	-	-	0.20	16.26	14.9	1.33	436.2	5.98	176.2	
1214	-	-	0.20	16.26	14.8	1.34	442.4	5.97	178.6	

PURGING DATA

Sample ID:	MW-1	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	1214	Final Depth to Water:	16.26	Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx	-	-	-	-
3 x VOA	HCl	VOCs	✓	✓	✓	✓

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-3	Job Number:	19001-008-13
Client:	Vancouver Annex	Date:	5/14/24
Project:	2Q24 GWM	Sampler:	SR / CW
Weather:	Sunny -65°	Time In/Out:	

WELL DATA

Monument Type:	Flush-mount/Stick-up Other: -	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	--	Free Product Thickness:	--
Well Cap Lock Present:	Yes No	Depth to Water:		Water Column Length:	--
Comments:	-	Screened Interval:	--	Purge Volume:	--

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	Peristaltic / Bladder Pump				Pump Intake Depth:	Mid-Screen				
Sampling Method:	Low Flow				Tubing Material & Type:	LDPE 0.25"/ Skip Bond		NEW / DEDICATED		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1314	-	-	0.20		18.5	2.50	133.0	6.23	147.8	clear
1317	-	-	0.20		18.6	2.31	131.7	6.21	161.2	↓
1320	-	-	0.20		18.8	1.96	129.7	6.17	172.8	
1323	-	-	0.20		18.7	1.72	129.9	6.16	175.2	
1326	-	-	0.20		18.7	1.56	130.2	6.16	177.9	

PURGING DATA

Sample ID:	MW-3	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	1326	Final Depth to Water:		Did Well Dewater:	no	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx	-	-	-	-
3 x VOA	HCl	VOCs	-	-	-	-

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	<i>MW-4</i>	Job Number:	19001-008-13
Client:	Vancouver Annex	Date:	<i>5/15/24</i>
Project:	2Q24 GWM	Sampler:	SR <i>(CW)</i>
Weather:	<i>Sunny - 60°</i>	Time In/Out:	

WELL DATA

Monument Type:	<i>Flush-mount/Stick-up</i> Other: <i>-</i>	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	<i>Good</i>	Well Depth:	--	Free Product Thickness:	--
Well Cap Lock Present:	<i>Yes</i> No	Depth to Water:	<i>29.81</i>	Water Column Length:	--
Comments:	<i>-</i>	Screened Interval:	--	Purge Volume:	--

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):
 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:	<i>Peristaltic</i> / Bladder Pump				Pump Intake Depth:	Mid-Screen				
Sampling Method:	Low Flow				Tubing Material & Type:	<i>DPE 0.25"</i> Skip Bond		<i>NEW</i> / DEDICATED		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
<i>0754</i>	<i>-</i>	<i>-</i>	<i>0.20</i>	<i>29.81</i>	<i>14.6</i>	<i>2.66</i>	<i>287.9</i>	<i>6.30</i>	<i>186.9</i>	<i>clear</i>
<i>0757</i>	<i>-</i>	<i>-</i>	<i>0.20</i>	<i>29.81</i>	<i>14.6</i>	<i>2.61</i>	<i>288.2</i>	<i>6.29</i>	<i>187.2</i>	
<i>0800</i>	<i>-</i>	<i>-</i>	<i>0.20</i>	<i>29.81</i>	<i>14.7</i>	<i>2.58</i>	<i>288.7</i>	<i>6.29</i>	<i>187.6</i>	<i>↓</i>

PURGING DATA

Sample ID:	<i>MW-4</i>	Sampling Flow Rate:	<i>0.20</i>	Analytical Laboratory:	Apex
Sample Time:	<i>0800</i>	Final Depth to Water:	<i>29.81</i>	Did Well Dewater:	<i>No</i>
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
2 x 1 L	HCl	Dx	<i>-</i>	<i>-</i>	<i>-</i>
3 x VOA	HCl	VOCs	<i>-</i>	<i>-</i>	<i>-</i>

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-5	Job Number:	19001-008-13
Client:	Vancouver Annex	Date:	5/14/24
Project:	2Q24 GWM	Sampler:	SB/CW
Weather:	Sm. 65°F	Time In/Out:	1230

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	--	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	17.0	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	Peristaltic / Bladder Pump	Pump Intake Depth:	2'	Mid-Screen:	NEW / DEDICATED
Sampling Method:	Low Flow	Tubing Material & Type:	LDPE 0.25" / Skip Bond		

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1244			0.15	17.0	15.2	0.42	796	6.98	-31	Clear
1248			0.10	17.43	15.5	0.25	794	6.92	-43	↓
1250			0.10	17.50	15.8	0.18	794	6.90	-50	
1253			0.10	17.58	16.1	0.17	796	6.90	-55	
1256			0.10	17.66	15.9	0.16	794	6.80	-59	

PURGING DATA

Sample ID:	MW-5	Sampling Flow Rate:	0.10	Analytical Laboratory:	Apex	
Sample Time:	1256	Final Depth to Water:	17.89	Did Well Dewater:	Yes	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				DUP
3 x VOA	HCl	VOCs				
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOAs				

NOTES/ADDITIONAL COMMENTS

DUP

WELL MONITORING DATA SHEET



Well ID:	MW-8	Job Number:	19001-008-13
Client:	Vancouver Annex	Date:	5/14/24
Project:	2Q24 GWM	Sampler:	CB/CW
Weather:	Sm. 65°F	Time In/Out:	1040/

WELL DATA

Monument Type:	Flush-mount / Stick-up Other:	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	--	Free Product Thickness:	--
Well Cap Lock Present:	Yes No	Depth to Water:	17.22	Water Column Length:	--
Screened Interval:	--	Purge Volume:	--		

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:		Peristaltic / Bladder Pump			Pump Intake Depth:		Mid-Screen			
Sampling Method:		Low Flow			Tubing Material & Type:		NEW / DEDICATED			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1050			0.10	17.89	12.5	7.19	171	6.77	40	Clear
1053			0.10	18.05	12.6	6.95	170	6.70	42	
1056			0.10	18.15	12.6	6.81	174	6.64	46	
1059			0.10	18.23	12.6	6.87	177	6.58	51	
1102			0.10	18.32	12.5	6.93	182	6.54	55	

PURGING DATA

Sample ID:	MW-8	Sampling Flow Rate:	0.10	Analytical Laboratory:	Apex	
Sample Time:	1102	Final Depth to Water:	18.60	Did Well Dewater:	NO	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOCs				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-8D	Job Number:	19001-008-13
Client:	Vancouver Annex	Date:	5/14/24
Project:	2Q24 GWM	Sampler:	SB/CW
Weather:	Sm, 65F	Time In/Out:	1130

WELL DATA

Monument Type:	<u>Flush-mount</u> /Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	--	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	17.52	Water Column Length:	--
Well Cap Lock Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Screened Interval:	--	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	<u>Peristaltic</u> /Bladder Pump				Pump Intake Depth:	75.40		Mid-Screen		
Sampling Method:	Low Flow				Tubing Material & Type:	LDPE 0.25"/Skip Bond		<u>NEW</u>	DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1134			0.20	17.52	13.0	1.87	162	6.93	39	clear
1137			0.20	17.52	13.0	0.23	164	7.07	27	↓
1140			0.20	17.52	13.0	0.22	164	7.09	25	↓
1143			0.20	17.52	13.1	0.16	163	7.14	20	↓

PURGING DATA

Sample ID:	MW-8D	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	1143	Final Depth to Water:	17.52	Did Well Dewater:	NO	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOCs				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-9	Job Number:	19001-008-13
Client:	Vancouver Annex	Date:	5/14/24
Project:	2Q24 GWM	Sampler:	SR/CW
Weather:	Sm, 60°F	Time In/Out:	9:00

WELL DATA

Monument Type:	Flush-mount/Stick-up Other:	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	--	Free Product Thickness:	--
Well Cap Lock Present:	Yes No	Depth to Water:		Water Column Length:	--
Comments:		Screened Interval:	--	Purge Volume:	--

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:	Peristaltic / Bladder Pump				Pump Intake Depth:	22'				
Sampling Method:	Low Flow				Tubing Material & Type:	LDPE 0.25" / Skip Bond			NEW / DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
9:10			0.20	18.96	14.1	9.45	152	7.18	47	clear
9:13			0.24	18.96	13.8	8.77	138	6.67	61	
9:16			↓	18.96	13.8	8.94	138	6.55	68	
9:19			↓	↓	13.8	8.85	137	6.42	78	
9:22			↓	↓	13.8	8.78	136	6.37	83	
9:25			↓	↓	13.8	8.77	136	6.35	84	

PURGING DATA

Sample ID:	MW-9	Sampling Flow Rate:	0.24	Analytical Laboratory:	Apex	
Sample Time:	9:25	Final Depth to Water:	18.96	Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOCs				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-10	Job Number:	19001-008-13
Client:	Vancouver Annex	Date:	5/14/24
Project:	2Q24 GWM	Sampler:	SR / CW
Weather:	Sunny - 55°	Time In/Out:	

WELL DATA

Monument Type:	Flush-mount/Stick-up Other: -	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	--	Free Product Thickness:	--
Well Cap Lock Present:	Yes No	Depth to Water:	18.40	Water Column Length:	--
Comments:	-	Screened Interval:	--	Purge Volume:	--

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	Peristaltic Bladder Pump		Pump Intake Depth:	Mid-Screen						
Sampling Method:	Low Flow		Tubing Material & Type:	LDPE 0.25" / Skip Bond	NEW / DEDICATED					
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0925	-	-	0.20	18.40	13.4	9.35	115.1	6.40	199.9	Clear
0928	-	-	0.20	18.40	13.5	9.32	115.7	6.30	214.7	↓
0931	-	-	0.20	18.40	13.5	9.32	115.9	6.25	220.4	
0934	-	-	0.20	18.40	13.5	9.32	115.9	6.24	222.3	

PURGING DATA

Sample ID:	MW-10	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	0934	Final Depth to Water:	18.40	Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx	-	-	-	-
3 x VOA	HCl	VOCs	-	-	-	-

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-11	Job Number:	19001-008-13
Client:	Vancouver Annex	Date:	8/15/27
Project:	2Q24 GWM	Sampler:	SB/CW
Weather:	Sun 65°F	Time In/Out:	0900

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	--	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	16.77	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	Peristaltic / Bladder Pump				Pump Intake Depth:	211 Mid-Screen				
Sampling Method:	Low Flow				Tubing Material & Type:	LDPE 0.25" Skip Bond		NEW / DEDICATED		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
9:20			0.20	16.77	15.0	0.43	328	6.99	17	Water is grey
9:23			0.20	17.15	14.9	0.23	298	6.85	15	
9:26			↓	17.20	14.9	0.17	282	6.76	15	
9:29			↓	17.22	14.9	0.15	264	6.70	16	
9:32			↓	17.23	14.9	0.15	253	6.66	16	
9:35			↓	17.23	14.9	0.13	249	6.61	17	
9:38			↓	17.23	14.9	0.12	243	6.58	19	

PURGING DATA

Sample ID:	MW-11	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	9:38	Final Depth to Water:		Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOCs				
2 x 1 L						DUP
3 x VOA						DUP

NOTES/ADDITIONAL COMMENTS

Water is slightly pinked from well initially, appears grey.
 Cannot see the sun through a VOA used to check transparency

DUP
2

WELL MONITORING DATA SHEET



Well ID:	MW-12	Job Number:	19001-008-13
Client:	Vancouver Annex	Date:	5/14/24
Project:	2Q24 GWM	Sampler:	SR / CW
Weather:	Sunny 55°	Time In/Out:	

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other: -	Well Depth:	--	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	22.64	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Comments: ✓

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:	Peristaltic Bladder Pump		Pump Intake Depth:	Mid-Screen						
Sampling Method:	Low Flow		Tubing Material & Type:	LDPE 0.25" / Skip Bond		NEW / DEDICATED				
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1021	-	-	0.20	22.68	15.3	5.20	157.7	6.10	226.7	clear
1024	-	-	0.20	22.64	15.3	5.06	159.0	6.12	225.2	↓
1027	-	-	0.20	22.69	15.3	4.91	158.9	6.13	224.7	
1030	-	-	0.20	22.70	15.3	4.84	158.4	6.13	224.3	

PURGING DATA

Sample ID:	MW-12	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	1030	Final Depth to Water:	22.66	Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx	-	-	-	-
3 x VOA	HCl	VOCs	-	-	-	-

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-12D	Job Number:	19001-008-13
Client:	Vancouver Annex	Date:	5/14/24
Project:	2Q24 GWM	Sampler:	SR/CW
Weather:	Sunny - 58°	Time In/Out:	

WELL DATA

Monument Type:	Flush-mount/Stick-up Other: -	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	--	Free Product Thickness:	--
Well Cap Lock Present:	Yes No	Depth to Water:	21.81	Water Column Length:	--
Screened Interval:	--	Purge Volume:	--		

Comments: -

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):
 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:		Peristaltic Bladder Pump			Pump Intake Depth:		Mid-Screen			
Sampling Method:		Low Flow			Tubing Material & Type:		LDPE 0.25" / Skip Bond		NEW / DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1104	-	-	0.20	21.80	15.5	1.16	210.1	7.06	173.3	clear
1107	-	-	0.20	21.80	15.5	0.98	210.7	7.07	164.7	↓
1110	-	-	0.20	21.80	15.5	0.81	214.8	7.08	134.0	
1113	-	-	0.20	21.80	15.5	0.63	216.9	7.10	116.1	
1116	-	-	0.20	21.80	15.5	0.44	217.6	7.12	106.1	
1119	-	-	0.20	21.80	15.4	0.40	217.9	7.13	99.8	

PURGING DATA

Sample ID:	MW-12D	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	1119	Final Depth to Water:	21.80	Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx	-	-	-	-
3 x VOA	HCl	VOCs	-	-	-	-

NOTES/ADDITIONAL COMMENTS

WELL GAUGING DATA SHEET



Client: Sunco Vannex	Job Number: 19001-008
Project: 3024 Gwm	Date: 8/13/24
Weather: Cloudy 65°	Sampler: CW
	Time In/Out:

WATER LEVEL DATA

Well I.D.	Time	Depth to Water (feet)	Depth to Well Bottom (feet)	Notes/Other Remarks
MW-1	0758	18.79	24.5	
MW-2	0734	30.40	35	
MW-3	0739	31.28	34.5	
MW-4	0728	32.29	34.5 35	
MW-5				
MW-5D				
MW-6				
MW-6D				
MW-7				
MW-8				
MW-8D				
MW-9				
MW-10	0809	21.00	25	
MW-11	0802	19.08	25	
MW-12	0748	25.30	33	
MW-12D	0751	24.38	55	

WELL GAUGING DATA SHEET

<p style="font-size: 2em; margin: 0;">3Q24</p> <p style="font-size: 3em; margin: 0;">GEOENGINEERS</p>		Job Number:	
	Client: <i>Sandco</i>	Date:	<i>8/13/24</i>
	Project: <i>Annex GMM</i>	Sampler:	<i>Sam Russell</i>
	Weather: <i>cloudy</i>	Time In/Out:	

WATER LEVEL DATA

Well I.D.	Time	Depth to Water (feet)	Depth to Well Bottom (feet)	Notes/Other Remarks
MW-1				
MW-2				
MW-3				
MW-4				
MW-5	<i>0810</i>	<i>19.28</i>		
MW-5D	<i>0807</i>	<i>19.08</i>		
MW-6	<i>0740</i>	<i>19.69</i>		
MW-6D	<i>0730</i>	<i>19.93</i>	-	
MW-7	<i>0910</i>	<i>14.06</i>		
MW-8	<i>0759</i>	<i>19.81</i>		
MW-8D	<i>0802</i>	<i>20.21</i>		
MW-9	<i>0753</i>	<i>21.44</i>	-	
MW-10				
MW-11				
MW-12				
MW-12D				

WELL MONITORING DATA SHEET



Well ID:	MW-1	Job Number:	19001-008
Client:	Vancouver Annex	Date:	8/13/24
Project:	3Q24 GWM	Sampler:	SR/CW
Weather:	Cloudy - 65°	Time In/Out:	-

WELL DATA

Monument Type:	Flush-mount/Stick-up Other: -	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	--	Free Product Thickness:	--
Well Cap Lock Present:	Yes No	Depth to Water:	18.79	Water Column Length:	--
Comments:	-				
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	Peristaltic Bladder Pump		Pump Intake Depth:	Mid-Screen						
Sampling Method:	Low Flow			Tubing Material & Type:	LDPE 0.25" / Skip Bond		(NEW) / DEDICATED			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1220	-	-	0.30	18.88	15.4	2.14	581	5.61	194.0	clear
1223	-	-	0.30	18.88	15.3	2.10	578	5.63	195.8	
1226	-	-	0.30	18.88	15.4	2.01	557	5.65	196.0	↓
1229	-	-	0.30	18.88	15.3	1.86	544	5.65	196.5	

PURGING DATA

Sample ID:	MW-1	Sampling Flow Rate:	0.30	Analytical Laboratory:	Apex	
Sample Time:	1229	Final Depth to Water:		Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx	1	1	1	1
3 x VOA	HCl	VOCs	1	1	1	1

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET

GEOENGINEERS	Well ID:	MW-2	Job Number:	19001-008
	Client:	Vancouver Annex	Date:	8/14/24
	Project:	3Q24 GWM	Sampler:	SR/CW
	Weather:	P+ Cloudy - 70°	Time In/Out:	-

WELL DATA

Monument Type:	Flush-mount / Stick-up Other: -	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	--	Free Product Thickness:	--
Well Cap Lock Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth to Water:	30.40	Water Column Length:	--
Comments:					

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:		Peristaltic / Bladder Pump			Pump Intake Depth:		Mid-Screen			
Sampling Method:		Low Flow			Tubing Material & Type:		LDPE 0.25" / 8kip Bond		NEW / DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0931	-	-	0.35	*	15.5	2.62	179.4	6.25	146.9	clear
0934	-	-	0.35		14.9	2.01	177.9	6.28	149.0	
0937	-	-	0.35		14.7	1.52	175.2	6.35	147.9	
0940	-	-	0.35		14.5	1.18	174.9	6.39	145.2	
0943	-	-	0.35		14.6	0.96	174.5	6.41	143.6	
0946	-	-	0.35		14.5	0.82	174.4	6.44	141.9	

PURGING DATA

Sample ID:	MW-2	Sampling Flow Rate:	0.35	Analytical Laboratory:	Apex	
Sample Time:	0946	Final Depth to Water:		Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx	1	1	1	1
3 x VOA	HCl	VOCs	1	1	1	1

NOTES/ADDITIONAL COMMENTS

* Unable to measure DTW due to low water level

WELL MONITORING DATA SHEET



Well ID:	MW-3	Job Number:	19001-008
Client:	Vancouver Annex	Date:	8/14/24
Project:	3Q24 GWM	Sampler:	SR / CW
Weather:	Cloudy - 65°	Time In/Out:	-

WELL DATA

Monument Type:	Flush-mount / Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other: -	Well Depth:	--	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	31.28	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Comments: -

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:		Peristaltic Bladder Pump			Pump Intake Depth:		Mid-Screen			
Sampling Method:		Low Flow			Tubing Material & Type:		LDPE 0.25"	Skip Bond	NEW	DEDICATED
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0757	-	-	0.30	*	14.9	4.31	159.4	6.28	143.4	clear
0800	-	-	0.30		14.7	4.27	157.7	6.14	150.9	
0803	-	-	0.30		14.7	4.19	157.3	6.09	156.7	
0806	-	-	0.30		14.7	4.22	157.0	6.07	161.0	
0809	-	-	0.30		14.7					

PURGING DATA

Sample ID:	MW-3	Sampling Flow Rate:	0.30	Analytical Laboratory:	Apex
Sample Time:	0809	Final Depth to Water:	31.49	Did Well Dewater:	MS
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
2 x 1 L	HCl	Dx			
3 x VOA	HCl	VOCs			

NOTES/ADDITIONAL COMMENTS

Not enough water above bladder pump to measure DTW

WELL MONITORING DATA SHEET



Well ID:	MW-4	Job Number:	19001-008
Client:	Vancouver Annex	Date:	8/14/28
Project:	3Q24 GWM	Sampler:	SR / CW
Weather:	Cloudy - 68°	Time In/Out:	-

WELL DATA

Monument Type:	Flush-mount / Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other: -	Well Depth:	--	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	32.29	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Comments: -

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:		Peristaltic / Bladder Pump			Pump Intake Depth:		Mid-Screen			
Sampling Method:		Low Flow			Tubing Material & Type:		LDPE 0.25" / Skip Bond		NEW / DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0848	-	-	0.35	*	15.4	4.31	365.7	6.03	169.8	clear
0851	-	-	0.35		15.1	4.04	364.7	6.04	172.5	
0854	-	-	0.35		15.1	3.95	364.1	6.05	171.6	
0857	-	-	0.35		15.2	3.86	364.4	6.06	169.4	
0900	-	-	0.35	+	15.2	3.83	364.8	6.07	167.6	

PURGING DATA

Sample ID:	MW-4	Sampling Flow Rate:	0.35	Analytical Laboratory:	Apex	
Sample Time:	0900	Final Depth to Water:	32.40	Did Well Dewater:	NO	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOCs				

NOTES/ADDITIONAL COMMENTS

Unable to measure DTW - pump top is above water

WELL MONITORING DATA SHEET



Well ID:	MW-5	Job Number:	19001-008
Client:	Vancouver Annex	Date:	8/13/24
Project:	3Q24 GWM	Sampler:	SR (CW)
Weather:	Cloudy - 70°	Time In/Out:	-

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other: -	Well Depth:	--	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	19.28	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Comments: -

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:		Peristaltic/Bladder Pump			Pump Intake Depth:		Mid-Screen			
Sampling Method:		Low Flow			Tubing Material & Type:		LDPE 0.25" / Skip Bond		NEW / DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1314	-	-	0.30	20.20	15.4	1.07	863	6.70	-79.9	clear
1317	-	-	0.30	20.82	15.2	0.50	862	6.70	-95.4	
1320	-	-	0.30	21.24	15.4	0.40	864	6.70	-99.5	
1323	-	-	0.30	21.30	15.5	0.35	866	6.70	-103.4	

PURGING DATA

Sample ID:	MW-5	Sampling Flow Rate:	0.30	Analytical Laboratory:	Apex	
Sample Time:	1323	Final Depth to Water:		Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4x1L 4x1L	HCl	Dx	1	1	1	MW-5 DUP
6xVOA 6xVOA	HCl	VOCs	1	1	1	MW-5 DUP

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET

GEOENGINEERS	Well ID: <u>MW-5D</u>	Job Number: <u>19001-008</u>
	Client: <u>Vancouver Annex</u>	Date: <u>8/12/24</u>
	Project: <u>3Q24 GWM</u>	Sampler: <u>SR / CW</u>
	Weather: <u>Cloudy, 65°F</u>	Time In/Out: <u></u>

WELL DATA

Monument Type: <u>Flush-mount / Stick-up</u>	Well Diameter: <u>2"</u>	Depth to Free Product: <u>--</u>
Other: <u></u>	Well Depth: <u>--</u>	Free Product Thickness: <u>--</u>
Monument Condition: <u>Good</u>	Depth to Water: <u>38-45"</u>	Water Column Length: <u>--</u>
Well Cap Lock Present: <u>Yes</u> No	Screened Interval: <u>19.16</u>	Purge Volume: <u>--</u>

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method: <u>Peristaltic / Bladder Pump</u>		Pump Intake Depth: <u>40</u>		Mid-Screen: <u>NEW</u>						
Sampling Method: <u>Low Flow</u>		Tubing Material & Type: <u>LDPE 0.25"</u>		Skip Bond: <u></u>						
				DEDICATED: <u></u>						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
<u>1304</u>			<u>0.20</u>	<u>19.16</u>	<u>15.4</u>	<u>1.86</u>	<u>596</u>	<u>6.93</u>	<u>-64</u>	<u>clear</u>
<u>1307</u>			<u>0.20</u>	<u>19.16</u>	<u>15.0</u>	<u>0.35</u>	<u>727</u>	<u>6.97</u>	<u>-67</u>	
<u>1310</u>			<u>0.20</u>	<u>19.16</u>	<u>14.9</u>	<u>0.24</u>	<u>857</u>	<u>6.96</u>	<u>-66</u>	
<u>1313</u>			<u>0.20</u>	<u>19.16</u>	<u>14.9</u>	<u>0.21</u>	<u>916</u>	<u>6.96</u>	<u>-65</u>	
<u>1316</u>			<u>0.20</u>	<u>19.16</u>	<u>14.8</u>	<u>0.19</u>	<u>975</u>	<u>6.96</u>	<u>-63</u>	
<u>1319</u>			<u>0.20</u>	<u>19.16</u>	<u>14.8</u>	<u>0.17</u>	<u>1000</u>	<u>6.97</u>	<u>-62</u>	
<u>1322</u>			<u>0.20</u>	<u>19.16</u>	<u>14.8</u>	<u>0.17</u>	<u>1007</u>	<u>6.98</u>	<u>-61</u>	

PURGING DATA

Sample ID: <u>MW-5D</u>	Sampling Flow Rate: <u>0.20</u>	Analytical Laboratory: <u>Apex</u>
Sample Time: <u>1322</u>	Final Depth to Water: <u>19.16</u>	Did Well Dewater: <u>No</u>
No. of Containers/Type	Preservative	Analysis/Method
<u>2 x 1 L</u>	<u>HCl</u>	<u>Dx</u>
<u>3 x VOA</u>	<u>HCl</u>	<u>VOCs</u>

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-6	Job Number:	19001-008
Client:	Vancouver Annex	Date:	8/14/24
Project:	3Q24 GWM	Sampler:	SR / CW
Weather:	Mostly sunny - 73°	Time In/Out:	-

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	--	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	19.69	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Comments: -

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:		Peristaltic Bladder Pump			Pump Intake Depth:		Mid-Screen			
Sampling Method:		Low Flow			Tubing Material & Type:		LDPE 0.25" / Skip Bond		NEW / DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1032	-	-	0.30	20.40	14.9	0.78	703	6.43	-74.2	clear
1035	-	-	0.30	20.59	15.0	0.70	703	6.44	-80.5	↓
1038	-	-	0.30	20.67	15.0	0.42	708	6.46	-87.9	
1041	-	-	0.30	20.72	14.9	0.36	711	6.46	-90.3	
1044	-	-	0.30	20.73	14.9	0.31	712	6.46	-91.4	

PURGING DATA

Sample ID:	MW-6	Sampling Flow Rate:	0.30	Analytical Laboratory:	Apex	
Sample Time:	1044	Final Depth to Water:	20.58	Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOCs				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET

GEOENGINEERS	Well ID: <u>MW-6D</u>	Job Number: <u>19001-008</u>
	Client: <u>Vancouver Annex</u>	Date: <u>8/14/21</u>
	Project: <u>3Q24 GWM</u>	Sampler: <u>SR</u> CW
	Weather: <u>Sunny 68°F</u>	Time In/Out:

WELL DATA

Monument Type:	Flush-mount/ Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other: <u>/</u>	Well Depth:	--	Free Product Thickness:	--
Monument Condition:	<u>Good</u>	Depth to Water:	<u>20.12</u>	Water Column Length:	--
Well Cap Lock Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Screened Interval:	<u>35-45</u>	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:		<u>Peristaltic / Bladder Pump</u>			Pump Intake Depth:		Mid-Screen			
Sampling Method:		<u>Low Flow</u>			Tubing Material & Type:		<u>LDPE 0.25" / Skip Bond</u>		<u>NEW</u> DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
<u>1004</u>			<u>0.20</u>	<u>20.14</u>	<u>16.3</u>	<u>4.23</u>	<u>256</u>	<u>7.02</u>	<u>-67</u>	<u>Clear</u>
<u>1007</u>			<u>0.20</u>	<u>20.14</u>	<u>15.4</u>	<u>0.67</u>	<u>278</u>	<u>7.07</u>	<u>-68</u>	<u>↓</u>
<u>1010</u>			<u>0.20</u>	<u>20.14</u>	<u>15.4</u>	<u>0.41</u>	<u>283</u>	<u>7.15</u>	<u>-66</u>	<u>↓</u>
<u>1013</u>			<u>0.20</u>	<u>20.14</u>	<u>15.4</u>	<u>0.36</u>	<u>281</u>	<u>7.16</u>	<u>-63</u>	<u>↓</u>

PURGING DATA

Sample ID:	<u>MW-6D</u>	Sampling Flow Rate:	<u>0.20</u>	Analytical Laboratory:	Apex	
Sample Time:	<u>1013</u>	Final Depth to Water:	<u>20.14</u>	Did Well Dewater:	<u>No</u>	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOCs				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-8D	Job Number:	19001-008
Client:	Vancouver Annex	Date:	8/13/24
Project:	3Q24 GWM	Sampler:	62 / CW
Weather:	Rain, 60°F	Time In/Out:	

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	--	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	20.21	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	35-45	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:		Peristaltic / Bladder Pump			Pump Intake Depth:		20.2				Mid-Screen	
Sampling Method:		Low Flow			Tubing Material & Type:		LDPE 0.25" / Skip Bond		NEW / DEDICATED			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks		
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV			
1023			0.20	20.31	13.7	8.58	130	7.27	-58	Elev		
1026			0.20	20.33	13.6	7.34	127	7.22	-59	↓		
1029			0.20	20.33	13.5	7.31	127	7.22	-60	↓		
1032			0.20	20.33	13.5	7.16	127	7.23	-60	↓		

PURGING DATA

Sample ID:	MW-8D	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	1032	Final Depth to Water:	20.33	Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOCs				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET

GEOENGINEERS	Well ID: <u>MW-9</u>	Job Number: 19001-008
	Client: Vancouver Annex	Date: <u>8/13/24</u>
	Project: 3Q24 GWM	Sampler: <u>SP/CW</u>
	Weather: <u>cloudy 65°F</u>	Time In/Out:

WELL DATA

Monument Type: <u>Flush-mount/Stick-up</u>	Well Diameter: 2"	Depth to Free Product: --
Other: <u>Good</u>	Well Depth: --	Free Product Thickness: --
Monument Condition: <u>Good</u>	Depth to Water: <u>21.47</u>	Water Column Length: --
Well Cap Lock Present: <u>Yes</u> No	Screened Interval: <u>W-25</u>	Purge Volume: --

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method: <u>Peristaltic Bladder Pump</u>		Pump Intake Depth: <u>24</u>		Mid-Screen						
Sampling Method: <u>Low Flow</u>		Tubing Material & Type: <u>LDPE 0.25" / Skip Bond</u>		<u>NEW</u> DEDICATED						
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
<u>1212</u>			<u>0.20</u>	<u>21.49</u>	<u>15.3</u>	<u>6.29</u>	<u>145</u>	<u>6.30</u>	<u>-55</u>	<u>Clear</u>
<u>1215</u>			<u>0.20</u>	<u>21.49</u>	<u>14.4</u>	<u>7.14</u>	<u>139</u>	<u>6.31</u>	<u>-56</u>	<u>↓</u>
<u>1218</u>			<u>0.20</u>	<u>21.49</u>	<u>14.4</u>	<u>7.13</u>	<u>140</u>	<u>6.31</u>	<u>-56</u>	<u>↓</u>
<u>1221</u>			<u>0.20</u>	<u>21.49</u>	<u>14.4</u>	<u>7.47</u>	<u>140</u>	<u>6.31</u>	<u>-56</u>	<u>↓</u>

PURGING DATA

Sample ID: <u>MW-9</u>	Sampling Flow Rate: <u>0.20</u>	Analytical Laboratory: Apex
Sample Time: <u>1221</u>	Final Depth to Water: <u>21.49</u>	Did Well Dewater: <u>No</u>
No. of Containers/Type	Preservative	Analysis/Method
2 x 1 L	HCl	Dx
3 x VOA	HCl	VOCs

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-10	Job Number:	19001-008
Client:	Vancouver Annex	Date:	8/13/24
Project:	3Q24 GWM	Sampler:	SR/CW
Weather:	Cloudy - 65°	Time In/Out:	

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	--	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	21.00	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	--	Purge Volume:	--

Comments: -

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	Peristaltic / Bladder Pump	Pump Intake Depth:	Mid-Screen
Sampling Method:	Low Flow	Tubing Material & Type:	LDPE 0.25" Skip Bond NEW / DEDICATED

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0904	-	-	0.30	21.06	14.2	9.03	127.5	6.24	142.4	clear
0907	-	-	0.30	21.05	14.3	9.24	127.0	6.16	158.8	↓
0910	-	-	0.30	21.05	14.2	9.15	127.0	6.14	168.6	
0913	-	-	0.30	21.06	14.1	9.07	127.1	6.14	173.8	
0916	-	-	0.30	21.05	14.0	8.98	127.0	6.15	177.9	

PURGING DATA

Sample ID:	MW-10	Sampling Flow Rate:	0.30	Analytical Laboratory:	Apex	
Sample Time:	0916	Final Depth to Water:		Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx				
3 x VOA	HCl	VOCs	1	1	1	1

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-11	Job Number:	19001-008
Client:	Vancouver Annex	Date:	8/14/24
Project:	3Q24 GWM	Sampler:	SB/CW
Weather:	Cloudy 60°F	Time In/Out:	

WELL DATA

Monument Type:	<u>Flush-mount</u> /Stick-up Other:	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	25	Free Product Thickness:	--
Well Cap Lock Present:	<u>Yes</u> No	Depth to Water:	19.3	Water Column Length:	--
Comments:		Screened Interval:	10 - 25	Purge Volume:	--

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	<u>Peristaltic</u> / Bladder Pump				Pump Intake Depth:	27				
Sampling Method:	Low Flow				Tubing Material & Type:	<u>LDPE 0.25</u> / Skip Bond			<u>NEW</u> / DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0800			0.20	20.70	15.4	0.79	253	6.72	-65	Black dirt
0803			0.10	20.95	15.3	0.60	289	6.81	-69	
0806				21.35	15.8	1.45	325	6.89	-68	
0809				21.35	15.3	0.41	371	6.96	-65	
0812				21.47	15.6	0.47	403	7.01	-64	
0815				21.60	15.7	0.60	428	7.02	-64	
0818				21.66	15.7	0.96	454	7.13	-62	
0821				21.73	15.7	1.17	468	7.13	-61	
0824				21.78	15.8	1.40	472	7.15	-61	

PURGING DATA

Sample ID:	MW-11	Sampling Flow Rate:	0.10 LPM		Analytical Laboratory:	Apex
Sample Time:	0824	Final Depth to Water:	21.65		Did Well Dewater:	NO
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl None	Dx				
3 x VOA	HCl	VOCs				
2x1 L	None	Pa				
3x VOA	HCl	VOCs				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-12 D	Job Number:	19001-008
Client:	Vancouver Annex	Date:	8/13/24
Project:	3Q24 GWM	Sampler:	SR CW
Weather:	Cloudy - 65°	Time In/Out:	-

WELL DATA

Monument Type:	Flush-mount/Stick-up Other: -	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	--	Free Product Thickness:	--
Well Cap Lock Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Depth to Water:	24.38	Water Column Length:	--
Comments:	-				
Well Cap Lock Present:	Screened Interval: -- Purge Volume: --				

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)				
Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters

PURGING DATA

Purge Method:	Peristaltic Bladder Pump				Pump Intake Depth:	Mid-Screen				
Sampling Method:	Low Flow				Tubing Material & Type:	LDPE 0.25" / Skip Bond		NEW / DEDICATED		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1057	-	-	0.30	24.52	15.9	1.40	227.2	6.82	86.1	clear
1100	-	-	0.30	24.52	15.8	0.70	230.5	6.86	22.7	↓
1103	-	-	0.30	24.53	15.7	0.48	231.1	6.90	7.2	
1106	-	-	0.30	24.53	15.7	0.43	231.8	6.90	3.1	
1109	-	-	0.30	24.52	15.6	0.38	231.3	6.91	-0.6	

PURGING DATA

Sample ID:	MW-12 D	Sampling Flow Rate:	0.30	Analytical Laboratory:	Apex	
Sample Time:	1109	Final Depth to Water:	24.48	Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCl	Dx	1	7	1	1
3 x VOA	HCl	VOCs				

NOTES/ADDITIONAL COMMENTS

WELL GAUGING DATA SHEET



Client: <i>Sonaco</i>	Job Number: <i>19001-005-13</i>
Project: <i>Amex 4094 GW</i>	Date: <i>11/19/24</i>
Weather: <i>45°F (cloudy)</i>	Sampler: <i>SR / CW</i>
	Time In/Out: <i>-</i>

WATER LEVEL DATA

<i>CW</i> Well I.D.	Time	Depth to Water (feet)	Depth to Well Bottom (feet)	Notes/Other Remarks
<i> </i> MW-1	<i>0833</i>	<i>17.37</i>	<i>-</i>	
<i> </i> MW-2	<i>0803</i>	<i>28.80</i>	<i>-</i>	
<i> </i> MW-3	<i>0808</i>	<i>29.71</i>	<i>-</i>	
<i>↓</i> MW-4	<i>0757</i>	<i>30.79</i>	<i>-</i>	
<i>SR</i> MW-5	<i>0816</i>	<i>17.40</i>	<i>-</i>	
<i> </i> MW-5D	<i>0820</i>	<i>17.00</i>	<i>-</i>	
<i> </i> MW-6	<i>0830</i>	<i>17.71</i>	<i>-</i>	
<i> </i> MW-6D	<i>0828</i>	<i>17.87</i>	<i>-</i>	
<i> </i> MW-7	<i>0852</i>	<i>11.91</i>	<i>-</i>	
<i> </i> MW-8	<i>0808</i>	<i>17.98</i>	<i>-</i>	
<i> </i> MW-8D	<i>0807</i>	<i>18.17</i>	<i>-</i>	
<i>↓</i> MW-9	<i>0756</i>	<i>19.88</i>	<i>-</i>	
<i>CW</i> MW-10	<i>0814</i>	<i>19.04</i>	<i>-</i>	
<i> </i> MW-11	<i>0829</i>	<i>18.62</i>	<i>-</i>	
<i> </i> MW-12	<i>0825</i>	<i>23.78</i>	<i>-</i>	
<i>↓</i> MW-12D	<i>0822</i>	<i>22.54</i>	<i>-</i>	

WELL MONITORING DATA SHEET



Well ID:	MW-2	Job Number:	19001-008-13
Client:	Sunoco	Date:	11/20/24
Project:	Annex 4Q24 GWm	Sampler:	SR / <u>CW</u>
Weather:	Sunny, 47°F	Time In/Out:	-

WELL DATA

Monument Type:	<u>Flush-mount</u> / Stick-up Other:	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	-	Free Product Thickness:	--
Well Cap Lock Present:	<u>Yes</u> No	Depth to Water:	28.74	Water Column Length:	--
Comments:		Screened Interval:	-	Purge Volume:	--

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)	
Water height multipliers (gal):	1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:	Peristaltic / <u>Bladder Pump</u>				Pump Intake Depth:	Mid-Screen				
Sampling Method:	Low Flow				Tubing Material & Type:	LDPE 0.25" / <u>Skip Bond</u>		NEW / DEDICATED		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0841			0.25	28.74	6.2	2.24	174.8	6.37	171.5	Clear
0844			↓	↓	10.5	1.37	176.1	6.30	173.1	↓
0847			↓	↓	10.3	1.34	175.9	6.27	170.5	↓
0850			↓	↓	10.2	1.38	176.2	6.25	169.2	↓

PURGING DATA

Sample ID:	MW-2	Sampling Flow Rate:	0.25	Analytical Laboratory:	Apex	
Sample Time:	0850	Final Depth to Water:	28.74	Did Well Dewater:	NO	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2x 1L 3x WA	HCl ↓	Dx VOCs				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-5	Job Number:	19001-008-13
Client:	Sunoco	Date:	11/20/24
Project:	Annex 4Q24 GWm	Sampler:	SR/CW
Weather:	40°F, Windy	Time In/Out:	0740

WELL DATA

Monument Type:	Flush-mount/Stick-up Other:	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	25'	Free Product Thickness:	--
Well Cap Lock Present:	Yes No	Depth to Water:	17.14	Water Column Length:	--
Comments:		Screened Interval:	10-25	Purge Volume:	--

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)	
Water height multipliers (gal):	1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:	Peristaltic / Bladder Pump				Pump Intake Depth:	Mid-Screen				
Sampling Method:	Low Flow				Tubing Material & Type:	LDPE 0.25 / Skip Bond		NEW / DEDICATED		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0750			0.20	17.94	13.8	6.61	877	7.94	-19	Clear
0753				18.23		1.05	879	7.93	-18	
0756				18.43		0.61	883	7.94	-16	
0759				18.56		0.44	885	7.94	-15	
0802				18.73	13.9	0.36	890	7.95	-14	
0805			0.10	18.67	13.5	0.30	890	7.97	-12	
0808			0.15	18.69	13.6	0.27	891	7.96	-11	
0811			0.15	18.72	13.6	0.25	894	7.97	-9	

PURGING DATA

Sample ID:		Sampling Flow Rate:		Analytical Laboratory:	Apex
Sample Time:		Final Depth to Water:	18.85	Did Well Dewater:	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-5D	Job Number:	19001-008-13
Client:	Sunoco	Date:	11/20
Project:	Annex 4Q24 GWm	Sampler:	SR/CW
Weather:		Time In/Out:	

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	45'	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	16.78	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	35-45	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:	Peristaltic / Bladder Pump				Pump Intake Depth:	Mid-Screen				
Sampling Method:	Low Flow				Tubing Material & Type:	LDPE 0.25" / Skip Bond		NEW / DEDICATED		
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0900			0.20	16.78	13.0	1.08	803	8.08	22.6	Clear
0903			↓	↓	12.9	0.49	806	8.08	21.8	↓
0906			↓	↓	12.9	0.38	801	8.09	21.4	↓
0909			↓	↓	13.0	0.31	802	8.10	21.3	↓

PURGING DATA

Sample ID:	MW-5D	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	0909	Final Depth to Water:	16.78	Did Well Dewater:	No	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1L	HCl	Dx				
3 x VOA	↓	VOCS				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-6	Job Number:	19001-008-13
Client:	Sunoco	Date:	11/21/24
Project:	Annex 4Q24 GWm	Sampler:	(SR) CW
Weather:	Cloudy, 40°F	Time In/Out:	8:45/

WELL DATA

Monument Type:	Flush-mount/ <u>Stick-up</u>	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	25'	Free Product Thickness:	--
Monument Condition:	<u>Good</u>	Depth to Water:	17.94	Water Column Length:	--
Well Cap Lock Present:	<u>Yes</u> No	Screened Interval:	10-25	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal): 1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:		Peristaltic / Bladder Pump			Pump Intake Depth:		Mid-Screen			
Sampling Method:		Low Flow			Tubing Material & Type:		LDPE 0.25" / Skip Bond <u>NEW</u> / DEDICATED			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0906			0.20	17.70	13.1	2.83	726	7.93	21	Odor, Chew
0909				17.82	13.0	0.97	727	7.91	18	
0912				17.87	13.3	0.57	726	7.88	18	
0915				17.91	13.3	0.57	726	7.88	17	
0918				17.93	13.3	0.33	726	7.87	17	
0921			↓	17.96	13.3	0.30	727	7.87	17	↓

PURGING DATA

Sample ID:	MW-6	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	0921	Final Depth to Water:	17.94	Did Well Dewater:	<u>NO</u>	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1L	HCl	Dx				
3 x 10A	↓	VOCS				

NOTES/ADDITIONAL COMMENTS

Sampling through product procedures used. No free product observed in well.

WELL MONITORING DATA SHEET



Well ID:	MW-7	Job Number:	19001-008-13
Client:	Sunoco	Date:	11/19/24
Project:	Annex 4Q24 GWm	Sampler:	SR / CW
Weather:	-	Time In/Out:	0850 /

WELL DATA

Monument Type:	<u>Flush-mount</u> / Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	25	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	11.9	Water Column Length:	--
Well Cap Lock Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Screened Interval:	10-25	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:		Peristaltic / Bladder Pump			Pump Intake Depth:		Mid-Screen			
Sampling Method:		Low Flow			Tubing Material & Type:		LDPE 0.25" / Skip Bond		NEW / DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0933			0.20	12.04	12.1	10.47	599	7.86	23	Clear
0936			↓	12.07	12.9	1.22	612	7.75	35	↓
0939			↓	12.07	12.9	0.67	612	7.75	↓	↓
0942			↓	12.07	12.9	0.51	612	7.74	↓	↓
0945			↓	12.07	13.0	0.39	612	7.74	↓	↓

PURGING DATA

Sample ID:	MW-7	Sampling Flow Rate:	0.20	Analytical Laboratory:	Apex	
Sample Time:	0945	Final Depth to Water:	12.07	Did Well Dewater:	10	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1 L	HCL	Dx				
3 x VOA	↓	VOCS				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-8	Job Number:	19001-008-13
Client:	Sunoco	Date:	11/19/24
Project:	Annex 4Q24 GWm	Sampler:	8/CW
Weather:	Rain, 50°F	Time In/Out:	1100/

WELL DATA

Monument Type:	Flush-mount/Stick-up Other:	Well Diameter:	2"	Depth to Free Product:	--
Monument Condition:	Good	Well Depth:	25	Free Product Thickness:	--
Well Cap Lock Present:	Yes No	Depth to Water:	17.96	Water Column Length:	--
Comments:		Screened Interval:	10-25	Purge Volume:	--

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)	
Water height multipliers (gal):	1-inch well = 0.041 2-inch = 0.162 4-inch = 0.653 1 gal = 3.785 liters

PURGING DATA

Purge Method:	Peristaltic / Bladder Pump	Pump Intake Depth:	Mid-Screen
Sampling Method:	Low Flow	Tubing Material & Type:	LDPE 0.25" / Skip Bond NEW / DEDICATED

Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1107	X	X	0.70	18.24	12.1	15.4	281	7.42	28	Clear
1110			0.70	19.22	12.5	4.62	290	7.29	43	
1113			0.10	19.47	12.2	3.56	291	7.28	44	
1116				19.66	12.0	3.65	291	7.26	43	
1119				19.78	11.7	3.87	291	7.25	42	
1122				19.89	—	—	—	—	—	—

PURGING DATA

Sample ID:	MW-8	Sampling Flow Rate:	0.10	Analytical Laboratory:	Apex
Sample Time:	1122	Final Depth to Water:		Did Well Dewater:	No
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-9	Job Number:	19001-008-13
Client:	Sunoco	Date:	11/19/24
Project:	Annex 4Q24 GWm	Sampler:	89 / CW
Weather:		Time In/Out:	

WELL DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	25'	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	19.88	Water Column Length:	--
Well Cap Lock Present:	Yes No	Screened Interval:	10-25	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:		Peristaltic / Bladder Pump			Pump Intake Depth:		Mid-Screen			
Sampling Method:		Low Flow			Tubing Material & Type:		LDPE 0.25" / Skip Bond			
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1025	X	X	0.70	19.88	12.6	7.73	145	7.81	40	Clear
1028	↓	↓	↓	↓	12.8	6.14	133	7.61	41	↓
1031	↓	↓	↓	↓	12.9	5.90	130	7.85	↓	↓
1034	↓	↓	↓	↓	13.0	5.78	129	7.52	↓	↓

PURGING DATA

Sample ID:	MW-9	Sampling Flow Rate:	0.70	Analytical Laboratory:	Apex
Sample Time:	1034	Final Depth to Water:	19.88	Did Well Dewater:	No
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD Duplicate ID
2 x 1L	HCl	Dx			
3 x VOA	↓	VOCS			

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-10	Job Number:	19001-008-13
Client:	Sunoco	Date:	11/20/24
Project:	Annex 4Q24 GWm	Sampler:	SR / <u>GW</u>
Weather:	Pt. Sunny - 45 °F	Time In/Out:	-

WELL-DATA

Monument Type:	Flush-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	25	Free Product Thickness:	--
Monument Condition:	<u>Good</u>	Depth to Water:	19.04	Water Column Length:	--
Well Cap Lock Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Screened Interval:	-	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:		Peristaltic / Bladder Pump			Pump Intake Depth:		Mid-Screen			
Sampling Method:		Low Flow			Tubing Material & Type:		LDPE 0.25" / Skip Bond		NEW / DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
0757	X	X	0.25	18.42	12.6	9.71	128	6.38	152	Clear
0800	↓	↓	↓	18.94	↓	9.60	127	6.37	159	↓
0803	↓	↓	↓	18.94	↓	9.58	127	6.36	162	↓
0806	↓	↓	↓	18.95	↓	9.57	127	6.37	165	↓

PURGING DATA

Sample ID:	MW-10	Sampling Flow Rate:	0.25	Analytical Laboratory:	Apex	
Sample Time:	0806	Final Depth to Water:	18.93	Did Well Dewater:	16	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
2 x 1L	HCl	Dx				
3 x 10A	↓	Vol's.				

NOTES/ADDITIONAL COMMENTS

WELL MONITORING DATA SHEET



Well ID:	MW-11	Job Number:	19001-008-13
Client:	Sunoco	Date:	11/20/24
Project:	Annex 4Q24 GWm	Sampler:	SB / CW
Weather:	Pt. cloudy - 57°F	Time In/Out:	-

WELL DATA

Monument Type:	Flugh-mount/Stick-up	Well Diameter:	2"	Depth to Free Product:	--
	Other:	Well Depth:	25'	Free Product Thickness:	--
Monument Condition:	Good	Depth to Water:	18.81	Water Column Length:	--
Well Cap Lock Present:	<input checked="" type="checkbox"/> Yes No	Screened Interval:	10-25	Purge Volume:	--

Comments:

Purge Volume = (Water Height) X (Multiplier) X (# Casing Volumes)

Water height multipliers (gal):	1-inch well = 0.041	2-inch = 0.162	4-inch = 0.653	1 gal = 3.785 liters
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PURGING DATA

Purge Method:		<input checked="" type="checkbox"/> Peristaltic Bladder Pump			Pump Intake Depth:		Mid-Screen			
Sampling Method:		Low Flow			Tubing Material & Type:		LDPE 0.25" / Skip Bond		<input checked="" type="checkbox"/> NEW / DEDICATED	
Time	Volume Purged (liters)	Cumulative Volume Purged (liters)	Purge Rate (L/min)	DTW (btc)	Temp (°C)	DO (mg/L)	Cond (µS/cm)	pH	ORP (mV)	Clarity/Color Other Remarks
					+/-0.5 °C	+/-0.5 ppm	+/-5%	+/-0.1	+/-20 mV	
1103	X	X	0.25	18.84	14.7	1.10	434	6.98	141.7	Gray to Black
1106	↓	↓	↓	19.21	14.7	0.72	437	6.97	140.0	↓
1109	↓	↓	↓	19.88	14.8	0.62	441	6.96	138.7	↓
1112	↓	↓	↓	20.43	14.8	0.70	445	6.95	138.1	↓

PURGING DATA

Sample ID:	MW-11 / MW-11 DUP	Sampling Flow Rate:	0.25	Analytical Laboratory:	Apex	
Sample Time:	1112	Final Depth to Water:	21.20	Did Well Dewater:	NO	
No. of Containers/Type	Preservative	Analysis/Method	Field Filtered	Filter Size	MS/MSD	Duplicate ID
4 X 1L	Unpreserved	Px				
6 X WA	HCl + Alum	VOCs				

NOTES/ADDITIONAL COMMENTS

APPENDIX D
Historical Groundwater Analytical Data

Appendix D

Summary of Analytical Results - Monitoring Wells NuStar Terminals Operations Partnership, L.P.—Annex Terminal Vancouver, Washington

Well Number	Sample Date	TPHg Gasoline (mg/L)	TPHd Diesel (mg/L)	TPHo Heavy Oil (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	Naphthalene (mg/L)
MW-1	05/14/02	<0.080	0.455 ⁵	<0.500	<0.0005	<0.0005	<0.0005	<0.001	--	--
	05/19/03	--	--	--	<0.001	<0.001	<0.001	<0.002	--	--
	05/25/07	<0.080	<0.238	<0.476	<0.0002	<0.0005	<0.0005	<0.001	--	--
	08/24/07	<0.1	<0.238	<0.476	<0.001	<0.002	<0.002	<0.006	--	--
	11/26/07	<0.080	<0.236	<0.472	<0.001	<0.002	<0.002	<0.006	--	--
	02/27/08	<0.080	<0.294	<0.588	<0.0005	<0.0005	<0.0005	<0.001	--	--
	03/31/10	<0.250	<0.250	<0.500	<0.0005	<0.0005	<0.0005	<0.0015	--	--
	09/01/10	<0.250	<0.250	<0.500	<0.0005	<0.0005	<0.0005	<0.0015	--	--
	12/16/14	<0.250	<0.250	<0.500	<0.0005	<0.0005	<0.0005	<0.0005	--	--
	03/25/15	<0.250	<0.046	<0.093	<0.0005	<0.0005	<0.0005	<0.001	--	--
	06/24/15	<0.250	<0.100	<0.250	<0.0005	<0.0005	<0.0005	<0.001	--	--
	09/15/15	<0.250	<0.130	<0.340	<0.0005	<0.0005	0.0015	0.0022	--	--
	02/19/19	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.00015	<0.001	--
	05/20/19	<0.05	<0.0374	<0.0748	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	--
	08/29/19	<0.05	<0.0374	<0.0748	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	<0.002
	11/19/19	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/25/2020	<0.100	0.201	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	6/2/2020	<0.100	0.212	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/19/2020	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/17/2020	<0.100	0.0998	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	2/26/2021	<0.100	0.313 F-11	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/5/2021	<0.100	0.152 F-11	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	8/11/2021	<0.100	0.250 F-11	<0.381	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/17/2021	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/15/2022	<0.100	0.532 F-11	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	5/17/2022	<0.100	0.209 F-11	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/16/2022	<0.100	0.261 F-11	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/17/2022	<0.100	0.193 F-11	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/15/2023	<0.100	0.354 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/11/2023	<0.100	0.111 F-11	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
8/9/2023	<0.100	0.302 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004	
11/20/2023	<0.100	0.257 F-11	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
2/14/2024	<0.100	0.511 F-11	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
5/14/2024	<0.100	0.302 F-11	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
8/13/2024	<0.100	0.405 F-11	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
11/20/2024	<0.100	0.236 F-11	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
MW-2	05/14/02	41.4	<0.250	<0.500	4.35	2.68	1.84	8.72	--	--
	05/19/03	--	--	--	0.534	0.00975	0.194	0.876	--	--
	05/25/07	0.439	<0.238	<0.476	0.071	0.00114	0.0361	0.0453	--	--
	08/24/07	0.102	<0.238	<0.476	<0.001	<0.002	<0.002	<0.006	--	--
	11/26/07	<0.080	<0.236	<0.472	<0.001	<0.002	<0.002	<0.006	--	--
	02/27/08	0.0817	<0.294	<0.588	0.005	<0.0005	<0.0005	<0.001	--	--
	03/31/10	<0.250	<0.250	<0.500	<0.0005	<0.0005	<0.0005	<0.0015	--	--
	09/01/10	<0.250	<0.250	<0.500	0.0016	<0.0005	<0.0005	<0.0015	--	--
	12/16/14	<0.250	<0.250	<0.500	<0.0005	<0.0005	<0.0005	<0.0005	--	--
	03/25/15	<0.250	<0.046	<0.091	<0.0005	<0.0005	<0.0005	<0.001	--	--
	06/24/15	<0.250	<0.100	<0.250	<0.0005	<0.0005	<0.0005	<0.001	--	--
	09/15/15	<0.250	0.17 D	0.37	<0.0005	<0.0005	<0.0005	<0.001	--	--
	02/19/19	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.00015	0.00121	--
	05/20/19	<0.05	<0.0377	<0.0755	<0.0001	<0.0005	<0.00025	<0.00075	0.0031	--
	08/29/19	<0.05	<0.0377	<0.0755	<0.0001	<0.0005	0.00069	<0.00075	0.00125	<0.002
	11/19/19	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/25/2020	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	6/2/2020	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	0.00774	<0.002
	8/18/2020	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	0.00521	<0.002
	11/17/2020	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	0.00243	<0.004
2/25/2021	<0.100	<0.0792	<0.158	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002	
5/5/2021	<0.100	<0.0748	<0.15	<0.0002	<0.001	<0.0005	<0.0015	0.0053	<0.004	
8/10/2021	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	0.0113	<0.004	
11/17/2021	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	.00278	<0.002	
2/15/2022	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004	
5/17/2022	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	0.016	<0.002	
8/16/2022	<0.100	0.0781	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002	

Please refer to notes at end of table.

Appendix D

Summary of Analytical Results - Monitoring Wells NuStar Terminals Operations Partnership, L.P.—Annex Terminal Vancouver, Washington

Well Number	Sample Date	TPHg Gasoline (mg/L)	TPHd Diesel (mg/L)	TPHo Heavy Oil (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	Naphthalene (mg/L)
MW-2 (cont'd)	11/17/2022	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	0.00361	<0.002
	2/16/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	0.00373	<0.002
	5/10/2023	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	0.00678	<0.002
	8/10/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/21/2023	<0.100	0.0997 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	0.00278	<0.005
	2/14/2024	<0.100	<0.0800	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/15/2024	<0.100	<0.0800	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/14/2024	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/20/2024	<0.100	<0.0808	<0.162	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	MW-3	05/14/02	4.5	<0.250	<0.500	0.0419	0.0096	0.293	0.521	--
05/19/03		--	--	--	0.0908	0.0097	0.338	0.5382	--	--
05/25/07		0.361	<0.238	<0.476	<0.0005	<0.0005	0.0132	0.0145	--	--
08/24/07		<0.1	<0.238	<0.476	<0.001	<0.002	<0.002	<0.006	--	--
11/26/07		<0.080	<0.236	<0.472	0.0011	<0.002	0.0066	<0.006	--	--
02/27/08		2.14	0.387 ⁶	<0.500	<0.0005	<0.0005	0.17	0.17	--	--
2/27/2008 DUP		1.85	0.342	<0.485	0.0011	<0.0005	0.19	0.2	--	--
03/31/10		2.10	<0.250	<0.500	<0.0005	<0.0005	0.018	0.021	--	--
3/31/2010 DUP		1.90	<0.250	<0.500	<0.0015	<0.0015	0.018	0.020	--	--
09/01/10		<0.250	<0.250	<0.500	<0.0005	<0.0005	<0.0005	<0.0015	--	--
9/1/2010 DUP		<0.250	<0.250	<0.500	<0.0005	<0.0005	<0.0005	<0.0015	--	--
12/16/14		<0.250	<0.250	<0.500	<0.0005	<0.0005	<0.0005	<0.0005	--	--
03/25/15		<0.418	<0.046	<0.092	<0.0005	<0.0005	<0.0005	<0.001	--	--
06/24/15		<0.250	0.120	<0.026	<0.0005	<0.0005	<0.0005	<0.001	--	--
09/15/15		<0.250	0.140	<0.250	<0.0008	<0.0008	<0.0008	<0.001	--	--
02/18/19		<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.00015	<0.001	--
05/20/19		<0.05	<0.0377	<0.0755	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	--
08/29/19		--	--	--	--	--	--	--	--	--
11/19/19		0.114	<0.0769	<0.154	<0.0002	<0.001	0.00661	0.0113	<0.001	<0.002
2/25/2020		<0.100	0.0955	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
6/2/2020		<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
8/18/2020		<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
11/17/2020		<0.100	<0.0748	<0.15	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
2/25/2021		<0.100	<0.0792	<0.158	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
5/5/2021		<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
8/10/2021		<0.100	<0.187	<0.374	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
11/17/2021		<0.100	<0.190	<0.381	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
2/14/2022		<0.100	0.104	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
5/17/2022		<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
8/16/2022		<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
11/17/2022		<0.100	0.0803 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
2/16/2023		<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
5/10/2023	<0.100	0.0838 F-11	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002	
8/10/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004	
11/21/2023	<0.100	0.0875 F-11	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
2/15/2024	<0.100	<0.0833	<0.167	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
5/14/2024	<0.100	<0.0784	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
8/14/2024	<0.100	0.0801 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
11/19/2024	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
MW-4	05/14/02	<0.080	0.358 ⁵	<0.500	<0.0005	<0.0005	<0.0005	<0.001	--	--
	05/19/03	--	--	--	<0.001	<0.001	<0.001	<0.002	--	--
	05/25/07	<0.080	<0.238	<0.476	<0.0002	<0.0005	<0.0005	<0.001	--	--
	08/24/07	<0.1	<0.238	<0.476	<0.001	<0.002	<0.002	<0.006	--	--
	11/26/07	<0.080	<0.236	<0.472	<0.001	<0.002	<0.002	<0.006	--	--
	02/27/08	<0.080	<0.248	<0.495	<0.0005	<0.0005	<0.0005	<0.001	--	--
	03/31/10	<0.250	<0.250	<0.500	<0.0005	<0.0005	<0.0005	<0.0015	--	--
	09/01/10	<0.250	<0.250	<0.500	<0.0005	<0.0005	<0.0005	<0.0015	--	--
	12/16/14	<0.250	<0.250	<0.500	<0.0005	<0.0005	<0.0005	<0.0005	--	--
	03/25/15	<0.250	0.074	<0.091	<0.0005	<0.0005	<0.0005	<0.001	--	--
	06/24/15	<0.250	<0.099	<0.250	<0.0005	<0.0005	<0.0005	<0.001	--	--
	09/15/15	<0.250	<0.130	<0.340	<0.0005	<0.0005	<0.0005	<0.001	--	--
	02/18/19	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.00150	<0.001	--
	05/20/19	<0.05	<0.0377	<0.0755	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	--
08/29/19	--	--	--	--	--	--	--	--	--	

Please refer to notes at end of table.

Appendix D

Summary of Analytical Results - Monitoring Wells NuStar Terminals Operations Partnership, L.P.—Annex Terminal Vancouver, Washington

Well Number	Sample Date	TPHg Gasoline (mg/L)	TPHd Diesel (mg/L)	TPHo Heavy Oil (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	Naphthalene (mg/L)
MW-4 (cont'd)	11/19/19	<0.100	<0.0784	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/25/2020	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	6/2/2020	<0.100	0.0914	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/18/2020	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/17/2020	<0.100	0.0783	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	2/26/2021	<0.100	<0.08	<0.16	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/5/2021	<0.100	<0.0748	<0.15	<0.0002	<0.001	0.00073	0.00181	<0.001	<0.004
	8/10/2021	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/17/2021	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/15/2022	<0.100	0.107	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	5/17/2022	<0.100	0.114 F-11	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/16/2022	<0.100	0.0867 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/17/2022	<0.100	0.0905 F-11	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/16/2023	<0.100	0.0790 F-11	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/10/2023	<0.100	0.199 F-11	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/10/2023	<0.100	0.0809 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/21/2023	<0.100	0.164 F-11	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	2/14/2024	<0.100	0.198 F-11	<0.167	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/15/2024	<0.100	0.117 F-11	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
8/14/2024	<0.100	0.136 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
11/19/2024	<0.100	0.188 F-11	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
MW-5	12/16/14	15	0.350	<0.500	0.00070	0.00066	0.12	1.2	--	--
	12/16/2014 DUP	15	<0.250	<0.500	0.00088	0.00081	0.18	1.3	--	--
	03/25/15	18.1	<0.045	<0.091	<0.00050	0.00061	0.218	1.45	--	--
	3/25/2015 DUP	17.2	<0.046	<0.092	0.0005	0.00065	0.236	1.22	--	--
	06/24/15	15	0.33 D	<0.250	<0.0012	<0.0012	0.228	1.51	--	--
	6/24/2015 DUP	16.8	0.560 D	<0.250	<0.0012	<0.0012	0.232	1.49	--	--
	09/15/15	17.3	0.82 D	<0.34	<0.00050	0.00060	0.289	1.92	--	--
	07/11/16	19.4	0.310	<0.29	<0.00084	0.00100	0.215	1.17	--	--
	10/23/17	7.93 J	1.26	<0.25	<0.0010	0.00117	0.174	0.99	--	--
	11/30/17	11.3	1.63	<0.25	<0.0250	<0.0250	0.187	1.21	--	--
	11/30/17 DUP	10.9	1.75	<0.25	<0.0010	0.00112	0.187	1.48	--	--
	02/28/18	9.86	1.77	<0.25	<0.0010	0.00115	0.145	0.877	--	--
	05/29/18	13.2	2.20	<0.25	<0.0010	0.00130	0.271	1.15	--	--
	08/30/18	18.6	0.819 F-18	<0.151	<0.00200	<0.0100	0.190	0.936	--	--
	8/30/2018 DUP	20.8	0.631 F-18	<0.151	<0.00200	<0.0100	0.212	1.06	--	--
	02/18/19	29.2	1.06 F-18	<0.151	<0.00200	<0.0100	0.187	1.06	<0.010	--
	05/21/19	22	0.722	<0.0784	<0.002	<0.01	0.252	1.04	<0.010	--
	08/28/19	24.8	0.963	<0.0769	<0.002	<0.01	0.239	1.1	<0.01	2.07
	8/28/2019 DUP	21.7	0.879	<0.0769	<0.002	<0.01	0.179	0.836	<0.01	1.44
	11/18/19	23.5	0.771	<0.152	<0.004	<0.02	0.257	1.19	<0.02	1.62
	11/18/2019 DUP	20.0	0.696	<0.152	<0.01	<0.05	0.284	1.46	<0.05	1.51
	2/24/2020	23.4	2.40	<0.154	<0.004	<0.02	0.176	0.809	<0.02	1.52
	6/1/2020	12.7	2.04	0.193	<0.004	<0.02	0.244	0.844	<0.02	1.29
	8/17/2020	18.8	2.17 F-18	<0.377	<0.002	<0.01	0.154	0.704	<0.01	1.4
	8/17/2020 DUP	22.6	2.1 F-18	<0.377	<0.002	<0.01	0.21	0.94	<0.01	1.74
	11/16/2020	18.5	1.92 F-18	<0.151	<0.004	<0.02	0.206	1.05	<0.02	1.42
	2/25/2021	27.5	1.82 F-18	<0.15	0.0026 Q-42	<0.01	0.13	0.626	<0.01	1.55
	2/25/2021 DUP	27.2	2.14 F-18	<0.163	<0.002	<0.01	0.127	0.616	<0.01	1.55
	5/4/2021	15.8	2.09 F-20	<0.151	<0.01	<0.05	0.108	0.458	<0.05	1.31
	8/10/2021	15.2	2.59 F-13, F-20	<0.381	<0.00024 R-06	<0.0012 R-06	0.135	0.628	<0.001	1.36
	11/16/2021	13.9	2.15 F-18	<0.381	<0.000220 R-06	0.00116	.197	0.610	<0.001	1.43
	11/16/2021 DUP	11.5	1.84	<0.381	<0.000220	0.00117	0.164	0.468	<0.001	1.19
	2/14/2022	18.8	2.02 F-20	<0.151	<0.00027	<0.0015	0.132	0.565	<0.01	1.57
2/14/2022 DUP	17.6	2.50 F-20	<0.151	<0.002	<0.01	0.132	0.555	<0.01	1.50	
5/16/2022	19.9	2.12 F-18	<0.151	<0.00028	<0.0016	0.142	0.543	<0.02	1.71	
8/15/2022	27.1	1.65 F-18	<0.151	<0.002	<0.01	0.137	0.616	<0.01	1.57	
8/15/2022 DUP	26.9	2.04 F-13	<0.154	<0.002	<0.01	0.14	0.620	<0.01	1.58	
11/16/2022	17.9	2.14 F-20	<0.154	<0.004	<0.02	0.21	0.820	<0.02	1.78	
11/17/2022 DUP	17.4	1.77 F-20	<0.151	<0.004	<0.02	0.229	0.837	<0.02	1.65	
2/16/2023	24.7	1.15 F-18	<0.154	<0.002	<0.01	0.140	0.628	<0.01	1.70	
5/10/2023	21.7	1.91 A-01	<0.152	<0.002	<0.01	0.164	0.451	<0.01	1.43	
5/10/2023 DUP	19.6	2.00 A-01	<0.151	<0.002	<0.01	0.154	0.441	<0.01	1.35	

Please refer to notes at end of table.

Appendix D

Summary of Analytical Results - Monitoring Wells NuStar Terminals Operations Partnership, L.P.—Annex Terminal Vancouver, Washington

Well Number	Sample Date	TPHg Gasoline (mg/L)	TPHd Diesel (mg/L)	TPHo Heavy Oil (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	Naphthalene (mg/L)
MW-5 (cont'd)	8/9/2023	17.9	1.64 F-18	<0.154	<0.002	<0.01	0.158	0.522	<0.01	1.84
	11/21/2023	17.4	1.90 F-13, F-20	<0.151	<0.002	<0.01	0.16	0.488	<0.01	1.40
	11/21/2023 DUP	17.2	2.19 F-13, F-20	<0.154	<0.002	<0.01	0.165	0.504	<0.01	1.42
	2/15/2024	24.5	1.46 F-18	<0.155	<0.002	<0.01	0.114	0.453	<0.01	1.75
	2/15/24 DUP	25.4	1.32 F-18	<0.157	<0.002	<0.01	0.106	0.436	<0.01	1.88
	5/14/2024	22.7	1.30 F-18	<0.151	<0.002	<0.01	0.113	0.397	<0.01	1.70
	5/14/2024 DUP	22.6	1.40 F-18	<0.158	<0.002	<0.01	0.115	0.394	<0.01	1.67
	8/13/2024	16.7	2.17 F-18	<0.155	<0.004	<0.020	0.118	0.315	<0.020	1.71
	8/13/2024 DUP	16.4	1.86 F-18	<0.160	<0.004	<0.020	0.121	0.315	<0.020	1.68
	11/20/2024	14.5	1.64 F-18	<0.154	<0.004	<0.020	0.147	0.208	<0.020	1.82
11/20/2024 DUP	15.2	1.49 F-18	<0.155	<0.004	<0.020	0.144	0.228	<0.020	1.92	
MW-5D	10/24/17	0.42	0.147 J	<0.25	<0.0010	<0.0010	0.00138	0.00296 J	-	-
	11/30/17	0.41	0.49	<0.25	<0.0010	<0.0010	<0.0010	<0.0030	-	-
	02/28/18	0.589	0.249	<0.25	<0.0010	<0.0010	0.00508	0.00204	-	-
	05/29/18	0.68	<0.38	<0.38	<0.0010	<0.0010	0.00220	<0.0030	-	-
	08/30/18	0.673	<0.0755	<0.151	<0.000200	<0.00100	<0.00050	<0.00150	-	-
	02/18/19	0.165	<0.0748	<0.150	<0.000200	<0.00100	<0.00050	<0.00150	<0.001	-
	05/21/19	<0.05	<0.0377	<0.0755	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	-
	08/28/19	0.309	<0.0374	<0.0748	<0.0001	<0.0005	0.00078	<0.00075	<0.0005	<0.002
	11/18/19	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/24/2020	<0.100	0.109	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	6/1/2020	<0.100	0.0974	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/17/2020	<0.100	<0.187	<0.374	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/16/2020	0.200	<0.0748	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	2/25/2021	0.126	0.24 F-11 F-20	<0.154	<0.0002	<0.001	0.00093	<0.0015	<0.001	<0.002
	5/4/2021	0.208	0.158 F-11F-20	<0.152	<0.0002	<0.001	0.00359	<0.0015	<0.001	<0.002
	8/10/2021	<0.100	0.470	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/16/2021	<0.100	<0.190	<0.381	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/14/2022	0.188	0.562	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	5/16/2022	1.26	0.253 F-11 F-20	<0.151	<0.0002	<0.001	0.0116	0.00231	<0.001	<0.002
	6/23/2022	0.319	<0.190	<0.381	-	-	-	-	-	-
	8/15/2022	<0.100	0.151 F-11	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/16/2022	0.295	0.552 F-11	<0.154	<0.0002	<0.001	0.0179	<0.0015	<0.001	<0.002
	2/15/2023	0.203	0.594	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/11/2023	1.03	0.160 F-11, F-20	<0.154	<0.0002	<0.001	0.0177	0.0076	<0.001	0.00385
	8/9/2023	0.383	0.677 F-11	<0.155	<0.0002	<0.001	0.0053	<0.0015	<0.001	<0.004
	11/21/2023	0.169	0.737 F-11	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	2/15/2024	<0.100	<0.0784	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
5/14/2024	0.185	0.533 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
8/13/2024	0.508	0.552 F-20	<0.158	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
11/20/2024	<0.100	0.382 F-11	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
MW-6	12/16/14	15	<0.250	<0.500	0.47	0.065	1.3	2.6	-	-
	03/25/15	13.7	0.047	<0.092	0.516	0.0756	1.40	2.26	-	-
	06/24/15	17.7	1.2 D	<0.250	0.423	0.0582	1.58	1.92	-	-
	09/15/15	15.1	0.54 D	<0.34	0.306	0.0672	1.23	1.92	-	-
	9/15/2015 DUP	14	0.44 D	<0.35	0.328	0.0684	1.32	2.07	-	-
	07/11/16	15.5	0.23	<0.28	0.358	0.0616	1.63	1.82	-	-
	10/24/17	7.73	5.07	0.111 J	0.194	0.051	1.51	1.29	-	-
	10/24/17 DUP	4.19 J	8.96 QJ	1.19 QJ	0.153	0.046	1.18	1.04	-	-
	11/30/17	9.42	7.44	0.69	2.223	0.053	1.71	1.12	-	-
	02/28/18	7.72	3.57	0.152	0.256	0.0423	1.44	0.735	-	-
	05/29/18	1.5	9.30	0.570	0.23	0.0444	1.38	0.891	-	-
	08/30/18	20.1	1.24 F-18	<0.151	0.212	0.0452	1.59	1.15	-	-
	02/18/19	18.2	2.15 F-20	<0.151	0.249	0.0408	1.74	0.577	<0.010	-
	05/20/19	20	1.23	<0.0755	0.218	0.0426	1.86	0.937	<0.010	-
	08/29/19	16.8	1.64	<0.0755	0.177	0.0394	1.69	0.585	<0.01	0.561
	11/19/19	6.30	1.95	<0.150	0.0712	<0.02	0.709	0.127	<0.02	0.163
	2/25/2020	15.6	4.02	<0.769	0.19	0.0308	1.74	0.420	<0.02	0.340
	2/25/2020 DUP	14.8	4.35	<0.769	0.186	0.0288	1.68	0.405	<0.02	0.329
	6/1/2020	11.3	6.92	<0.15	0.163	0.0286	1.74	0.363	<0.01	0.433
	8/17/2020	14.9	2.66 F-20	<0.377	0.166	0.0345	1.79	0.370	<0.01	0.316
11/17/2020	12.5	4.62 F-20	<0.154	0.149	0.0248	1.85	0.207	<0.02	0.279	
11/17/2020 DUP	13.7	6.93 F-20	<0.157	0.163	0.032	2.08	0.398	<0.02	0.315	

Please refer to notes at end of table.

Appendix D

Summary of Analytical Results - Monitoring Wells NuStar Terminals Operations Partnership, L.P.—Annex Terminal Vancouver, Washington

Well Number	Sample Date	TPHg Gasoline (mg/L)	TPHd Diesel (mg/L)	TPHo Heavy Oil (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	Naphthalene (mg/L)
MW-6 (cont'd)	2/25/2021	15.2	5.66 F-11 F-20	<0.154	0.23	0.0325	1.86	0.263	<0.01	0.371
	5/5/2021	11.2	5.83 F-20	<0.152	0.152	<0.05	1.75	0.186	<0.05	0.248
	8/11/2021	14.0	6.07 F-20	<0.377	0.175	0.0287	1.88	0.327	<0.001	0.384
	8/11/2021 DUP	13.8	6.36 F-20	<0.377	0.174	0.0289	1.89	0.312	<0.001	0.386
	11/17/2021	11.1	8.27	<0.388	0.181	0.0223	1.50	0.208	<0.001	0.281
	2/15/2022	12.4	8.65 F-20	<0.150	0.22	0.0315	1.76	0.201	<0.001	0.268
	5/17/2022	11.2	8.45F-20	<0.151	0.201	<0.050	1.59	0.176	<0.05	0.257
	05/17/2022 DUP	10.7	8.49 F-20	<0.151	0.171	<0.05	1.45	0.162	<0.05	0.246
	8/17/2022	14.8	9.18	<0.151	0.231	0.028	1.89	0.163	<0.01	0.344
	11/17/2022	14.1	7.66 F-20	<0.154	0.228	0.0225	1.79	0.151	<0.010	0.379
	11/17/2022 DUP	11.7	7.43 F-11, F-20	<0.151	0.17	0.0242	1.74	0.181	<0.020	0.389
	2/15/2023	16.6	6.93 F-11, F-20	<0.154	0.196	0.0258	1.93	0.151	<0.010	0.452
	2/15/2023 DUP	15.7	7.05 F-11, F-20	<0.154	0.193	0.0243	1.90	0.164	<0.010	0.433
	5/10/2023	17.5	7.59 F-11, F-20	<0.154	0.194	0.0238	1.77	0.296	<0.010	0.416
	8/10/2023	15.1	4.69	<0.151	0.206	0.0248	1.75	0.195	<0.010	0.478
	8/10/2023 DUP	13.6	4.47 F-11, F-20	<0.154	0.193	0.0216	1.60	0.18	<0.010	0.448
	11/21/2023	14.3	5.63 F-20	<0.154	0.217	0.0218	1.86	0.128	<0.010	0.430
	11/21/2023 DUP	14.8	6.97 F-20	<0.154	0.223	0.0218	1.90	0.139	<0.010	0.452
	2/14/2024	16.2	4.27 F-20	<0.157	0.258	0.0216	1.71	0.138	<0.010	0.525
	5/15/2024	15.1	4.13 F-20	<0.155	0.217	<0.025	2.51	0.123	<0.025	0.460
8/14/2024	13.4	4.37 F-20	<0.152	0.143	<0.025	1.42	0.092	<0.025	0.416	
11/21/2024	14.5	2.31 F-20	<1.60	0.163	<0.025	1.16	0.195	<0.025	0.217	
MW-6D	2/15/2022	<0.100	0.448 F-11	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	5/17/2022	<0.100	0.151 F-11	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/16/2022	<0.100	0.220 F-11	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/17/2022	<0.100	0.0794 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/15/2023	<0.100	0.402 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/10/2023	0.123	0.717	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/10/2023	<0.100	0.205 F-11	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/21/2023	<0.100	0.250 F-11	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	2/14/2024	<0.100	0.269 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/15/2024	<0.100	0.198 F-11	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/14/2024	<0.100	0.151 F-11	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/20/2024	<0.100	<0.0792	<0.158	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
MW-7	07/11/16	<0.250	<0.19	<0.29	<0.00050	<0.00050	<0.00050	<0.00015	-	-
	02/19/19	<0.100	<0.0748	<0.150	<0.0002	<0.001	<0.0005	<0.00015	<0.001	-
	05/20/19	<0.05	<0.0377	<0.0755	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	-
	08/28/19	<0.05	<0.0388	<0.0777	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	<0.002
	11/18/19	<0.100	<0.0748	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/24/2020	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	6/1/2020	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/17/2020	<0.100	<0.187	<0.374	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/16/2020	<0.100	<0.0748	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	2/25/2021	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/4/2021	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	8/10/2021	<0.100	<0.190	<0.381	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/16/2021	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/14/2022	<0.100	<0.0748	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	5/16/2022	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/15/2022	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/16/2022	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/15/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/10/2023	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
8/9/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004	
11/20/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
2/14/2024	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
5/14/2024	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
8/13/2024	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
11/19/2024	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	

Please refer to notes at end of table.

Appendix D

Summary of Analytical Results - Monitoring Wells NuStar Terminals Operations Partnership, L.P.—Annex Terminal Vancouver, Washington

Well Number	Sample Date	TPHg Gasoline (mg/L)	TPHd Diesel (mg/L)	TPHo Heavy Oil (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	Naphthalene (mg/L)
MW-8	07/11/16	<0.250	<0.19	<0.29	<0.00050	<0.00050	<0.00050	<0.00015	--	--
	7/11/16 DUP	<0.250	<0.19	<0.29	<0.00050	<0.00050	<0.00050	<0.00015	--	--
	02/18/19	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.00015	<0.001	--
	05/21/19	<0.05	<0.0374	<0.0748	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	--
	08/28/19	<0.05	<0.0412	<0.0825	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	<0.002
	11/18/19	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/24/2020	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	6/1/2020	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/17/2020	<0.100	<0.187	<0.374	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/16/2020	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	2/25/2021	<0.100	<0.0833	<0.167	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/4/2021	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	8/10/2021	<0.100	<0.190	<0.381	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/16/2021	<0.100	<0.192	<0.385	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/14/2022	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	5/16/2022	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/17/2022	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/16/2022	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.005	<0.0015	<0.001	<0.002
	2/15/2023	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/10/2023	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
8/9/2023	<0.100	<0.0792	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004	
11/20/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
2/14/2024	<0.100	<0.0816 DCNT	<0.163 DCNT	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
5/14/2024	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
8/13/2024	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
11/19/2024	<0.100	<0.0784	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
MW-8D	02/18/19	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.00015	<0.001	--
	05/21/19	<0.05	<0.0374	<0.0748	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	--
	08/28/19	<0.05	<0.0377	<0.0755	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	<0.002
	11/18/19	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/24/2020	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	6/1/2020	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/17/2020	<0.100	<0.189	<0.374	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/16/2020	<0.100	<0.0748	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	2/25/2021	<0.100	<0.0833	<0.167	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/4/2021	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	8/10/2021	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/16/2021	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/14/2022	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	5/16/2022	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/15/2022	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/16/2022	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/16/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	0.00334
5/10/2023	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002	
8/9/2023	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004	
11/20/2023	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
2/15/2024	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
5/14/2024	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
8/13/2024	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
11/19/2024	<0.100	<0.0784	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
MW-9	07/11/16	<0.250	<0.19	<0.29	<0.00050	<0.00050	<0.00050	<0.00015	--	--
	02/18/19	<0.100	<0.0748	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	--
	05/21/19	<0.05	<0.0374	<0.0748	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	--
	08/28/19	<0.05	<0.0374	<0.0748	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	<0.002
	11/18/19	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/24/2020	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	6/2/2020	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/17/2020	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/16/2020	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	2/25/2021	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
5/4/2021	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004	

Please refer to notes at end of table.

Appendix D

Summary of Analytical Results - Monitoring Wells NuStar Terminals Operations Partnership, L.P.—Annex Terminal Vancouver, Washington

Well Number	Sample Date	TPHg Gasoline (mg/L)	TPHd Diesel (mg/L)	TPHo Heavy Oil (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	Naphthalene (mg/L)
MW-9 (cont'd)	8/11/2021	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/16/2021	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/14/2022	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	5/16/2022	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/17/2022	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/16/2022	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/15/2023	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/10/2023	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/10/2023	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/20/2023	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	2/14/2024	<0.100	<0.0784	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/14/2024	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/13/2024	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
11/19/2024	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
MW-10	07/11/16	<0.250	<0.19	<0.29	<0.00050	<0.00050	<0.00050	<0.00015	--	--
	02/19/19	<0.100	<0.0748	<0.150	<0.0002	<0.001	<0.0005	<0.00015	<0.001	--
	05/21/19	<0.05	<0.0377	<0.0755	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	--
	08/29/19	<0.05	<0.0374	<0.0748	<0.0001	<0.0005	<0.00025	<0.00075	<0.0005	<0.002
	11/19/19	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/24/2020	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	6/1/2020	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/19/2020	<0.100	<0.187	<0.374	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/16/2020	<0.100	<0.0748	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	2/26/2021	<0.100	<0.0792	<0.158	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/5/2021	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	8/11/2021	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/17/2021	<0.100	<0.189	<0.377	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	2/15/2022	<0.100	<0.0748	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	5/17/2022	<0.100	<0.0755	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/17/2022	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/17/2022	<0.100	<0.0769	<0.154	<0.0002	<0.001	0.00052	<0.0015	<0.001	<0.002
	2/15/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/10/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/9/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/20/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
2/14/2024	<0.100	<0.0792	<0.158	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
5/14/2024	<0.100	<0.0784	<0.157	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
8/13/2024	<0.100	<0.0762	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
11/20/2024	<0.100	<0.0800	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
MW-11	02/19/19	0.727	<0.0748	<0.150	0.00162	0.00176	0.083	0.0652	<0.001	--
	05/21/19	3.05	<0.0374	<0.0748	0.0643	0.00843	0.359	0.0355	<0.0005	--
	08/29/19	17.4	0.094	<0.0748	0.0038	0.24	1.18	2.52	<0.005	0.121
	11/19/19	45.0	0.239	<0.151	0.0526	0.159	4.33	7.73	<0.02	0.414
	2/25/2020	2.65	0.341	<0.154	0.00397	<0.01	0.292	0.257	<0.01	0.0257
	6/2/2020	1.59	0.129	<0.15	0.0232	<0.0025	0.352	0.0812	<0.0025	0.0225
	6/2/2020 DUP	1.62	<0.0755	<0.151	0.022	<0.0025	0.353	0.083	<0.0025	0.022
	8/19/2020	13.9 R	<0.187	<0.374	0.00337	0.175 R	0.817 R	2.93 R	<0.001	0.0906 R
	8/19/2020 DUP	22.9 R	0.23 F-18	<0.377	0.00541	0.268 R	1.36 R	4.81 R	<0.001	0.145 R
	11/17/2020	23.3	0.298 F-20	<0.151	0.0359	0.0705	2.18	3.31	<0.001	0.207
	2/26/2021	3.42	0.152 F-11 F-20	<0.151	0.0044	0.00563	0.37	0.594	<0.001	0.0575
	5/5/2021	49.4	0.598 F-11F-20	<0.151	0.025	0.62	4.54	10.8	<0.05	0.287
	5/5/2021 DUP	49.6	0.644 F-11F-20	<0.151	0.0245	0.62	4.53	10.6	<0.05	0.284
	8/11/2021	41.4	0.673 F-11, F-20	<0.381	0.00902	0.196	2.58	8.6	<0.001	<0.2
	11/17/2021	2.26	<0.189	<0.377	0.0218	0.00502	0.544	0.0218	<0.001	<0.2
	2/15/2022	8.17	0.424 F-11	<0.150	0.00674	0.0337	0.643	1.54	<0.001	0.118
	2/15/2022 DUP	8.23	0.425 F-11	<0.150	0.00689	0.0372	0.576	1.41	<0.001	0.119
	05/17/2022	0.423	<0.0762	<0.152	0.0057	<0.001	0.0718	0.00391	<0.001	0.00268
	05/17/2022 DUP	0.451	<0.0762	<0.152	0.00593	<0.001	0.076	0.00444	<0.001	0.003
	8/16/2022	<0.100	0.0920 F-11	<0.151	<0.0002	<0.001	0.00098	<0.0015	<0.001	<0.002
	8/16/2022 DUP	<0.100	0.0887 F-11	<0.151	<0.0002	<0.001	0.00061	<0.0015	<0.001	<0.002
11/17/2022	22.8	0.501 F-11, F-20	<0.151	0.0102	0.104	2.13	4.15	<0.02	0.158	
2/15/2023	76.0	0.720 F-11, F-20	<0.154	0.0235	0.138	5.01	13.2	<0.05	0.302 Q-54	
2/15/2023 DUP	78.8	0.814 F-11, F-20	<0.154	0.0274	0.169	3.96 V-01	9.97 V-01	<0.001	0.379 Q-54a	

Please refer to notes at end of table.

Appendix D

Summary of Analytical Results - Monitoring Wells NuStar Terminals Operations Partnership, L.P.—Annex Terminal Vancouver, Washington

Well Number	Sample Date	TPHg Gasoline (mg/L)	TPHd Diesel (mg/L)	TPHo Heavy Oil (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	Naphthalene (mg/L)
MW-11 (cont'd)	5/11/2023	4.81	0.108 F-11, F-20	<0.152	0.0135	<0.01	0.762	0.0843	<0.01	<0.02 Q-54a
	5/11/2023 DUP	4.89	0.121 F-11, F-20	<0.154	0.0138	<0.01	0.790	0.0849	<0.01	<0.02 Q-54a
	8/10/2023	58.0	0.496 F-11, F-20	<0.154	0.0122	0.419	3.60	13.90	<0.01	
	8/10/2023 DUP	62.4	0.532 F-11, F-20	<0.154	0.0119	0.440	3.760	14.00	<0.01	0.420
	2/15/2024	<0.200 A	<0.0777 PRO	<0.155 PRO	<0.002 A	<0.010 A	<0.005 A	<0.015 A	<0.01 A	<0.05 A
	2/15/2024 DUP	<0.200 A	<0.0769 PRO	<0.154 PRO	<0.0004 A	<0.002 A	<0.001 A	<0.003 A	<0.002 A	<0.01 A
	5/15/2024	<1.00 B	<0.0816 PRO	<0.163 PRO	<0.002 A	<0.010 A	<0.005 A	<0.0150 A	<0.010 A	<0.050 A
	5/15/2024 DUP	<1.00 B	<0.0769 PRO	<0.154 PRO	<0.002 A	<0.010 A	<0.005 A	<0.0150 A	<0.010 A	<0.050 A
	8/14/2024	<0.500 B	<0.0777 FILT1	<0.155 FILT1	0.00185 A	<0.005 A	<0.0025 A	<0.0075 A	<0.005 A	<0.025 A
	8/14/2024 DUP	<0.500 B	<0.0755 FILT1	<0.151 FILT1	<0.001 A	<0.005 A	<0.0025 A	<0.0075 A	<0.005 A	<0.025 A
	11/20/2024	<0.500 A, B	<0.0808 PRO	<0.162 PRO	<0.001 A	<0.005 A	<0.0025 A	<0.0075 A	<0.005 A	<0.025 A
11/20/2024 DUP	<0.500 A, B	<0.0769 PRO, *	<0.154 PRO,	<0.001 A	<0.005 A	<0.0025 A	<0.0075 A	<0.005 A	<0.025 A	
MW-12	2/15/2022	<0.100	0.127 F-11	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	5/18/2022	<0.100	0.189 F-11	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/16/2022	<0.100	0.0822 F-11	<0.152	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/17/2022	0.132	0.112 F-11	<0.154	<0.0002	<0.001	<0.0005	0.00659	<0.001	0.00574
	2/16/2023	<0.100	0.126 F-11	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/10/2023	<0.100	0.0949 F-11	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/9/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/20/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	2/15/2024	<0.100	0.176 F-11	<0.158	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/14/2024	<0.100 A	0.0867 F-11	<0.165	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/13/2024	<0.100 A	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	11/19/2024	<0.100	<0.0800	<0.160	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
MW-12D	2/15/2022	<0.100	0.155	<0.150	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	5/18/2022	<0.100	0.107 F-11	<0.151	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/16/2022	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	11/17/2022	<0.100	0.119 F-11	<0.154	0.00035	<0.001	0.0044	<0.0015	<0.001	<0.002
	2/16/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	5/11/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.002
	8/9/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.004
	11/20/2023	<0.100	<0.0769	<0.154	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	2/15/2024	<0.100	<0.0792	<0.158	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	5/15/2024	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
	8/13/2024	<0.100	<0.0777	<0.155	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005
11/19/2024	<0.100	<0.0825	<0.165	<0.0002	<0.001	<0.0005	<0.0015	<0.001	<0.005	
Site Cleanup Level		0.8	0.5	0.5	0.005	1	0.7	1	0.02	0.16

Notes:

1. TPHg = Total petroleum hydrocarbons in gasoline carbon range by NW-TPHg method.
2. TPHd = Total petroleum hydrocarbons in diesel carbon range by NW-TPHd method with silica gel cleanup.
3. TPHho = Total petroleum hydrocarbons ion heavy oil carbon range NW-TPHd method with silica gel cleanup.
4. **Bold** values represent concentration that exceeds Site Cleanup Level.
5. Analysis completed without silica gel cleanup. Lab detected hydrocarbons with non-petroleum peaks or elution pattern that suggests the presence of biogenic interference.
6. Hydrocarbon pattern most closely resembles a blend of heavy gas-/light diesel-range components.
7. mg/L (ppm) = Milligrams per liter (parts per million).
8. Site Cleanup Levels are defined for groundwater in Table 2 of the March 2023 Final Cleanup Action Plan, associated with Agreed Order No. DE 19602.
9. < = Not detected at or above the specified laboratory method reporting limit (MRL).
10. bgs = below ground surface
11. - = Sample not analyzed for constituent.

Quality Assurance/Quality Control Data Qualifiers

- J = Reported result is an estimated value.
- J- = Reported result is estimated and biased low.
- Q = Sample prepared and/or analyzed outside of recommended holding time. Result is considered biased low.
- F-11 = The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
- F-18 = Result for Diesel (Diesel Range Organics, C12-C24) is due to overlap from Gasoline or a Gasoline Range product.
- F-20 = Result for Diesel is estimated due to overlap from Gasoline Range Organics or other volatile organic compounds (VOCs).
- D = Laboratory report noted discreet peaks that are not indicative of diesel. The laboratory chemist confirmed the peaks were from non-petroleum organic material.
- R = The relative percent difference between the sample and duplicate sample is above 30%.
- DCNT = Sample decanted due to the presence of sediment. Sample bottle not rinsed with solvent.
- FILT1 = Sample was lab filtered and acid preserved prior to analysis. See sample preparation section of report for date and time of filtration.
- H-02 = This sample was extracted outside of the recommended holding time.
- PRO = Sample has undergone sample processing prior to extraction and analysis.
- R-04 = Reporting levels elevated due to preparation and/or analytical dilution necessary for analysis.
- * = Data flagged A-01, H-02
- A = Data Flagged R-04

APPENDIX E
Laboratory Results and Data Quality Review



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Monday, March 4, 2024

Philip Cordell
GeoEngineers - Portland
5820 S Kelly Ave Unit B
Portland, OR 97239

RE: A4B1224 - Nustar Vannex GWM 1Q24 - 19001-008

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4B1224, which was received by the laboratory on 2/15/2024 at 2:12:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: DAuvil@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information				
<u>Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.</u>				
(See Cooler Receipt Form for details)				
Cooler #1	5.9	degC	Cooler #2	
Cooler #3	3.9	degC		

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: <u>Nustar Vannex GWM 1Q24</u> Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	A4B1224-01	Water	02/14/24 11:36	02/15/24 14:12
MW-2	A4B1224-02	Water	02/14/24 12:40	02/15/24 14:12
MW-3	A4B1224-03	Water	02/15/24 08:36	02/15/24 14:12
MW-4	A4B1224-04	Water	02/14/24 13:46	02/15/24 14:12
MW-5	A4B1224-05	Water	02/15/24 08:30	02/15/24 14:12
MW-5 DUP	A4B1224-06	Water	02/15/24 08:30	02/15/24 14:12
MW-6	A4B1224-07	Water	02/14/24 11:54	02/15/24 14:12
MW-5D	A4B1224-08	Water	02/15/24 09:15	02/15/24 14:12
MW-6D	A4B1224-09	Water	02/14/24 11:18	02/15/24 14:12
MW-7	A4B1224-10	Water	02/14/24 10:36	02/15/24 14:12
MW-8	A4B1224-11	Water	02/14/24 13:12	02/15/24 14:12
MW-8D	A4B1224-12	Water	02/15/24 10:03	02/15/24 14:12
MW-9	A4B1224-13	Water	02/14/24 12:38	02/15/24 14:12
MW-10	A4B1224-14	Water	02/14/24 10:39	02/15/24 14:12
MW-11	A4B1224-15	Water	02/15/24 10:57	02/15/24 14:12
MW-11 (Alum/Filtered)	A4B1224-17	Water	02/15/24 10:57	02/15/24 14:12
MW-11 (Alum/Filtered) DUP	A4B1224-18	Water	02/15/24 10:57	02/15/24 14:12
MW-12	A4B1224-19	Water	02/15/24 09:52	02/15/24 14:12
MW-12D	A4B1224-20	Water	02/15/24 10:39	02/15/24 14:12
MW-11 (Alum/Filtered)	A4B1224-21	Water	02/15/24 10:57	02/15/24 14:12
MW-11 (Alum/Filtered) DUP	A4B1224-22	Water	02/15/24 10:57	02/15/24 14:12

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM IQ24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-1 (A4B1224-01)				Matrix: Water		Batch: 24B0725		
Diesel	0.511	---	0.0800	mg/L	1	02/21/24 22:50	NWTPH-Dx LL	F-11
Oil	ND	---	0.160	mg/L	1	02/21/24 22:50	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 80 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/21/24 22:50</i>	<i>NWTPH-Dx LL</i>	
MW-2 (A4B1224-02)				Matrix: Water		Batch: 24B0725		
Diesel	ND	---	0.0800	mg/L	1	02/21/24 23:10	NWTPH-Dx LL	
Oil	ND	---	0.160	mg/L	1	02/21/24 23:10	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 78 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/21/24 23:10</i>	<i>NWTPH-Dx LL</i>	
MW-3 (A4B1224-03)				Matrix: Water		Batch: 24B0725		
Diesel	ND	---	0.0833	mg/L	1	02/21/24 23:51	NWTPH-Dx LL	
Oil	ND	---	0.167	mg/L	1	02/21/24 23:51	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 82 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/21/24 23:51</i>	<i>NWTPH-Dx LL</i>	
MW-4 (A4B1224-04)				Matrix: Water		Batch: 24B0725		
Diesel	0.198	---	0.0833	mg/L	1	02/22/24 00:12	NWTPH-Dx LL	F-11
Oil	ND	---	0.167	mg/L	1	02/22/24 00:12	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 85 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/22/24 00:12</i>	<i>NWTPH-Dx LL</i>	
MW-5 (A4B1224-05)				Matrix: Water		Batch: 24B0725		
Diesel	1.46	---	0.0777	mg/L	1	02/22/24 00:53	NWTPH-Dx LL	F-18
Oil	ND	---	0.155	mg/L	1	02/22/24 00:53	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 78 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/22/24 00:53</i>	<i>NWTPH-Dx LL</i>	
MW-5 DUP (A4B1224-06)				Matrix: Water		Batch: 24B0725		
Diesel	1.32	---	0.0784	mg/L	1	02/22/24 01:14	NWTPH-Dx LL	F-18
Oil	ND	---	0.157	mg/L	1	02/22/24 01:14	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 76 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/22/24 01:14</i>	<i>NWTPH-Dx LL</i>	
MW-6 (A4B1224-07)				Matrix: Water		Batch: 24B0725		
Diesel	4.27	---	0.0784	mg/L	1	02/22/24 01:55	NWTPH-Dx LL	F-20
Oil	ND	---	0.157	mg/L	1	02/22/24 01:55	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 84 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/22/24 01:55</i>	<i>NWTPH-Dx LL</i>	

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM IQ24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-5D (A4B1224-08)			Matrix: Water			Batch: 24B0725		
Diesel	ND	---	0.0784	mg/L	1	02/22/24 03:38	NWTPH-Dx LL	
Oil	ND	---	0.157	mg/L	1	02/22/24 03:38	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 72 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/22/24 03:38</i>	<i>NWTPH-Dx LL</i>	
MW-6D (A4B1224-09)			Matrix: Water			Batch: 24B0725		
Diesel	0.269	---	0.0769	mg/L	1	02/22/24 04:19	NWTPH-Dx LL	F-11
Oil	ND	---	0.154	mg/L	1	02/22/24 04:19	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 85 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/22/24 04:19</i>	<i>NWTPH-Dx LL</i>	
MW-7 (A4B1224-10)			Matrix: Water			Batch: 24B0725		
Diesel	ND	---	0.0769	mg/L	1	02/22/24 04:40	NWTPH-Dx LL	
Oil	ND	---	0.154	mg/L	1	02/22/24 04:40	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 73 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/22/24 04:40</i>	<i>NWTPH-Dx LL</i>	
MW-8 (A4B1224-11)			Matrix: Water			Batch: 24B0725		DCNT
Diesel	ND	---	0.0816	mg/L	1	02/22/24 05:21	NWTPH-Dx LL	
Oil	ND	---	0.163	mg/L	1	02/22/24 05:21	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 83 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/22/24 05:21</i>	<i>NWTPH-Dx LL</i>	
MW-8D (A4B1224-12)			Matrix: Water			Batch: 24B0725		
Diesel	ND	---	0.0777	mg/L	1	02/22/24 05:48	NWTPH-Dx LL	
Oil	ND	---	0.155	mg/L	1	02/22/24 05:48	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 74 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/22/24 05:48</i>	<i>NWTPH-Dx LL</i>	
MW-9 (A4B1224-13)			Matrix: Water			Batch: 24B0725		
Diesel	ND	---	0.0784	mg/L	1	02/22/24 06:29	NWTPH-Dx LL	
Oil	ND	---	0.157	mg/L	1	02/22/24 06:29	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 83 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/22/24 06:29</i>	<i>NWTPH-Dx LL</i>	
MW-10 (A4B1224-14)			Matrix: Water			Batch: 24B0725		
Diesel	ND	---	0.0792	mg/L	1	02/22/24 06:50	NWTPH-Dx LL	
Oil	ND	---	0.158	mg/L	1	02/22/24 06:50	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 88 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/22/24 06:50</i>	<i>NWTPH-Dx LL</i>	

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-11 (A4B1224-15)				Matrix: Water		Batch: 24B0725		DCNT
Diesel	ND	---	0.0842	mg/L	1	02/22/24 07:31	NWTPH-Dx LL	
Oil	ND	---	0.168	mg/L	1	02/22/24 07:31	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 54 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>02/22/24 07:31</i>	<i>NWTPH-Dx LL</i>
MW-12 (A4B1224-19)				Matrix: Water		Batch: 24B0725		
Diesel	0.176	---	0.0792	mg/L	1	02/22/24 07:52	NWTPH-Dx LL	F-11
Oil	ND	---	0.158	mg/L	1	02/22/24 07:52	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 85 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>02/22/24 07:52</i>	<i>NWTPH-Dx LL</i>
MW-12D (A4B1224-20)				Matrix: Water		Batch: 24B0725		
Diesel	ND	---	0.0792	mg/L	1	02/22/24 09:19	NWTPH-Dx LL	
Oil	ND	---	0.158	mg/L	1	02/22/24 09:19	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 82 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>02/22/24 09:19</i>	<i>NWTPH-Dx LL</i>

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ANALYTICAL SAMPLE RESULTS

Dissolved Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes	
MW-11 (Alum/Filtered) (A4B1224-21)				Matrix: Water		Batch: 24B0725		PRO	
Diesel	ND	---	0.0777	mg/L	1	02/22/24 09:39	NWTPH-Dx (Diss)		
Oil	ND	---	0.155	mg/L	1	02/22/24 09:39	NWTPH-Dx (Diss)		
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 46 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>02/22/24 09:39</i>	<i>NWTPH-Dx (Diss)</i>	<i>S-06</i>
MW-11 (Alum/Filtered) DUP (A4B1224-22)				Matrix: Water		Batch: 24B0725		PRO	
Diesel	ND	---	0.0769	mg/L	1	02/22/24 10:00	NWTPH-Dx (Diss)		
Oil	ND	---	0.154	mg/L	1	02/22/24 10:00	NWTPH-Dx (Diss)		
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 51 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>02/22/24 10:00</i>	<i>NWTPH-Dx (Diss)</i>	

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-1 (A4B1224-01RE1)			Matrix: Water			Batch: 24B0607		
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/20/24 19:53	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 91 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 19:53</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>105 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 19:53</i>	<i>NWTPH-Gx (MS)</i>	
MW-2 (A4B1224-02RE1)			Matrix: Water			Batch: 24B0607		
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/20/24 20:18	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 90 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 20:18</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>105 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 20:18</i>	<i>NWTPH-Gx (MS)</i>	
MW-3 (A4B1224-03RE1)			Matrix: Water			Batch: 24B0607		
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/20/24 20:43	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 91 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 20:43</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>107 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 20:43</i>	<i>NWTPH-Gx (MS)</i>	
MW-4 (A4B1224-04RE1)			Matrix: Water			Batch: 24B0607		
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/20/24 21:08	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 91 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 21:08</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>106 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 21:08</i>	<i>NWTPH-Gx (MS)</i>	
MW-5 (A4B1224-05)			Matrix: Water			Batch: 24B0665		
Gasoline Range Organics	24.5	---	1.00	mg/L	10	02/20/24 19:00	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 103 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 19:00</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>106 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 19:00</i>	<i>NWTPH-Gx (MS)</i>	
MW-5 DUP (A4B1224-06)			Matrix: Water			Batch: 24B0665		
Gasoline Range Organics	25.4	---	1.00	mg/L	10	02/20/24 19:55	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 100 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 19:55</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>105 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 19:55</i>	<i>NWTPH-Gx (MS)</i>	
MW-6 (A4B1224-07)			Matrix: Water			Batch: 24B0665		
Gasoline Range Organics	16.2	---	1.00	mg/L	10	02/20/24 20:22	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 100 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 20:22</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>103 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 20:22</i>	<i>NWTPH-Gx (MS)</i>	

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-5D (A4B1224-08)			Matrix: Water			Batch: 24B0665		
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/20/24 14:27	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 107 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 14:27</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>112 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 14:27</i>	<i>NWTPH-Gx (MS)</i>	
MW-6D (A4B1224-09)			Matrix: Water			Batch: 24B0665		
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/20/24 14:55	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 104 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 14:55</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>111 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 14:55</i>	<i>NWTPH-Gx (MS)</i>	
MW-7 (A4B1224-10)			Matrix: Water			Batch: 24B0665		
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/20/24 16:44	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 106 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 16:44</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>108 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 16:44</i>	<i>NWTPH-Gx (MS)</i>	
MW-8 (A4B1224-11)			Matrix: Water			Batch: 24B0665		
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/20/24 18:33	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 105 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 18:33</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>110 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 18:33</i>	<i>NWTPH-Gx (MS)</i>	
MW-8D (A4B1224-12)			Matrix: Water			Batch: 24B0665		
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/20/24 17:11	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 103 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 17:11</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>107 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 17:11</i>	<i>NWTPH-Gx (MS)</i>	
MW-9 (A4B1224-13)			Matrix: Water			Batch: 24B0665		
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/20/24 17:38	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 103 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 17:38</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>108 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 17:38</i>	<i>NWTPH-Gx (MS)</i>	
MW-10 (A4B1224-14)			Matrix: Water			Batch: 24B0665		
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/20/24 18:05	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 104 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>02/20/24 18:05</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>109 %</i>	<i>50-150 %</i>	<i>1</i>	<i>02/20/24 18:05</i>	<i>NWTPH-Gx (MS)</i>	

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 ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-11 (A4B1224-15RE1)				Matrix: Water		Batch: 24B0707		R-04
Gasoline Range Organics	ND	---	0.200	mg/L	2	02/21/24 13:27	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		02/21/24 13:27	NWTPH-Gx (MS)	
<i>1,4-Difluorobenzene (Sur)</i>		<i>111 %</i>		<i>50-150 %</i>		02/21/24 13:27	NWTPH-Gx (MS)	
MW-11 (Alum/Filtered) (A4B1224-17RE1)				Matrix: Water		Batch: 24B0607		R-04
Gasoline Range Organics	ND	---	0.200	mg/L	2	02/20/24 21:33	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 67 %</i>		<i>Limits: 50-150 %</i>		02/20/24 21:33	NWTPH-Gx (MS)	
<i>1,4-Difluorobenzene (Sur)</i>		<i>107 %</i>		<i>50-150 %</i>		02/20/24 21:33	NWTPH-Gx (MS)	
MW-11 (Alum/Filtered) DUP (A4B1224-18RE1)				Matrix: Water		Batch: 24B0707		R-04
Gasoline Range Organics	ND	---	0.200	mg/L	2	02/21/24 13:54	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		02/21/24 13:54	NWTPH-Gx (MS)	
<i>1,4-Difluorobenzene (Sur)</i>		<i>112 %</i>		<i>50-150 %</i>		02/21/24 13:54	NWTPH-Gx (MS)	
MW-12 (A4B1224-19)				Matrix: Water		Batch: 24B0607		
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/20/24 21:58	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 90 %</i>		<i>Limits: 50-150 %</i>		02/20/24 21:58	NWTPH-Gx (MS)	
<i>1,4-Difluorobenzene (Sur)</i>		<i>108 %</i>		<i>50-150 %</i>		02/20/24 21:58	NWTPH-Gx (MS)	
MW-12D (A4B1224-20)				Matrix: Water		Batch: 24B0607		
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/20/24 22:23	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 88 %</i>		<i>Limits: 50-150 %</i>		02/20/24 22:23	NWTPH-Gx (MS)	
<i>1,4-Difluorobenzene (Sur)</i>		<i>107 %</i>		<i>50-150 %</i>		02/20/24 22:23	NWTPH-Gx (MS)	

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Darrell Auvil, Client Services Manager

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-1 (A4B1224-01RE1)			Matrix: Water			Batch: 24B0607		
Benzene	ND	---	0.200	ug/L	1	02/20/24 19:53	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	02/20/24 19:53	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	02/20/24 19:53	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	02/20/24 19:53	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	02/20/24 19:53	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	02/20/24 19:53	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>02/20/24 19:53</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 19:53</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>97 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 19:53</i>	<i>EPA 8260D</i>
MW-2 (A4B1224-02RE1)			Matrix: Water			Batch: 24B0607		
Benzene	ND	---	0.200	ug/L	1	02/20/24 20:18	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	02/20/24 20:18	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	02/20/24 20:18	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	02/20/24 20:18	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	02/20/24 20:18	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	02/20/24 20:18	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>02/20/24 20:18</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 20:18</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 20:18</i>	<i>EPA 8260D</i>
MW-3 (A4B1224-03RE1)			Matrix: Water			Batch: 24B0607		
Benzene	ND	---	0.200	ug/L	1	02/20/24 20:43	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	02/20/24 20:43	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	02/20/24 20:43	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	02/20/24 20:43	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	02/20/24 20:43	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	02/20/24 20:43	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>02/20/24 20:43</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 20:43</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 20:43</i>	<i>EPA 8260D</i>
MW-4 (A4B1224-04RE1)			Matrix: Water			Batch: 24B0607		
Benzene	ND	---	0.200	ug/L	1	02/20/24 21:08	EPA 8260D	

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ANALYTICAL REPORT

Apex Laboratories, LLC

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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-4 (A4B1224-04RE1)			Matrix: Water			Batch: 24B0607		
Toluene	ND	---	1.00	ug/L	1	02/20/24 21:08	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	02/20/24 21:08	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	02/20/24 21:08	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	02/20/24 21:08	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	02/20/24 21:08	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>02/20/24 21:08</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>106 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 21:08</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>97 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 21:08</i>	<i>EPA 8260D</i>
MW-5 (A4B1224-05)			Matrix: Water			Batch: 24B0665		
Benzene	ND	---	2.00	ug/L	10	02/20/24 19:00	EPA 8260D	
Toluene	ND	---	10.0	ug/L	10	02/20/24 19:00	EPA 8260D	
Ethylbenzene	114	---	5.00	ug/L	10	02/20/24 19:00	EPA 8260D	
Xylenes, total	453	---	15.0	ug/L	10	02/20/24 19:00	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	10.0	ug/L	10	02/20/24 19:00	EPA 8260D	
Naphthalene	1750	---	50.0	ug/L	10	02/20/24 19:00	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 106 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>02/20/24 19:00</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 19:00</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>93 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 19:00</i>	<i>EPA 8260D</i>
MW-5 DUP (A4B1224-06)			Matrix: Water			Batch: 24B0665		
Benzene	ND	---	2.00	ug/L	10	02/20/24 19:55	EPA 8260D	
Toluene	ND	---	10.0	ug/L	10	02/20/24 19:55	EPA 8260D	
Ethylbenzene	106	---	5.00	ug/L	10	02/20/24 19:55	EPA 8260D	
Xylenes, total	436	---	15.0	ug/L	10	02/20/24 19:55	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	10.0	ug/L	10	02/20/24 19:55	EPA 8260D	
Naphthalene	1880	---	50.0	ug/L	10	02/20/24 19:55	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>02/20/24 19:55</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 19:55</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>94 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 19:55</i>	<i>EPA 8260D</i>
MW-6 (A4B1224-07)			Matrix: Water			Batch: 24B0665		
Benzene	258	---	2.00	ug/L	10	02/20/24 20:22	EPA 8260D	
Toluene	21.6	---	10.0	ug/L	10	02/20/24 20:22	EPA 8260D	

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-6 (A4B1224-07)			Matrix: Water			Batch: 24B0665		
Xylenes, total	138	---	15.0	ug/L	10	02/20/24 20:22	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	10.0	ug/L	10	02/20/24 20:22	EPA 8260D	
Naphthalene	525	---	50.0	ug/L	10	02/20/24 20:22	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>02/20/24 20:22</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 20:22</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>97 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 20:22</i>	<i>EPA 8260D</i>
MW-6 (A4B1224-07RE1)			Matrix: Water			Batch: 24B0707		
Ethylbenzene	1710	---	50.0	ug/L	100	02/21/24 12:59	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 108 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>02/21/24 12:59</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/21/24 12:59</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/21/24 12:59</i>	<i>EPA 8260D</i>
MW-5D (A4B1224-08)			Matrix: Water			Batch: 24B0665		
Benzene	ND	---	0.200	ug/L	1	02/20/24 14:27	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	02/20/24 14:27	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	02/20/24 14:27	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	02/20/24 14:27	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	02/20/24 14:27	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	02/20/24 14:27	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 109 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>02/20/24 14:27</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 14:27</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>95 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 14:27</i>	<i>EPA 8260D</i>
MW-6D (A4B1224-09)			Matrix: Water			Batch: 24B0665		
Benzene	ND	---	0.200	ug/L	1	02/20/24 14:55	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	02/20/24 14:55	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	02/20/24 14:55	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	02/20/24 14:55	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	02/20/24 14:55	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	02/20/24 14:55	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 109 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>02/20/24 14:55</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 14:55</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 14:55</i>	<i>EPA 8260D</i>

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-7 (A4B1224-10)			Matrix: Water			Batch: 24B0665		
Benzene	ND	---	0.200	ug/L	1	02/20/24 16:44	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	02/20/24 16:44	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	02/20/24 16:44	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	02/20/24 16:44	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	02/20/24 16:44	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	02/20/24 16:44	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 108 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>02/20/24 16:44</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>99 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/20/24 16:44</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>93 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/20/24 16:44</i>	<i>EPA 8260D</i>	
MW-8 (A4B1224-11)			Matrix: Water			Batch: 24B0665		
Benzene	ND	---	0.200	ug/L	1	02/20/24 18:33	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	02/20/24 18:33	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	02/20/24 18:33	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	02/20/24 18:33	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	02/20/24 18:33	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	02/20/24 18:33	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 109 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>02/20/24 18:33</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>100 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/20/24 18:33</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>96 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/20/24 18:33</i>	<i>EPA 8260D</i>	
MW-8D (A4B1224-12)			Matrix: Water			Batch: 24B0665		
Benzene	ND	---	0.200	ug/L	1	02/20/24 17:11	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	02/20/24 17:11	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	02/20/24 17:11	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	02/20/24 17:11	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	02/20/24 17:11	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	02/20/24 17:11	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 108 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>02/20/24 17:11</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>101 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/20/24 17:11</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>96 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/20/24 17:11</i>	<i>EPA 8260D</i>	
MW-9 (A4B1224-13)			Matrix: Water			Batch: 24B0665		

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-9 (A4B1224-13)			Matrix: Water			Batch: 24B0665		
Benzene	ND	---	0.200	ug/L	1	02/20/24 17:38	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	02/20/24 17:38	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	02/20/24 17:38	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	02/20/24 17:38	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	02/20/24 17:38	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	02/20/24 17:38	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 107 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>02/20/24 17:38</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>101 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/20/24 17:38</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>95 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/20/24 17:38</i>	<i>EPA 8260D</i>	
MW-10 (A4B1224-14)			Matrix: Water			Batch: 24B0665		
Benzene	ND	---	0.200	ug/L	1	02/20/24 18:05	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	02/20/24 18:05	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	02/20/24 18:05	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	02/20/24 18:05	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	02/20/24 18:05	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	02/20/24 18:05	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 108 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>02/20/24 18:05</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>100 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/20/24 18:05</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>95 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/20/24 18:05</i>	<i>EPA 8260D</i>	
MW-11 (A4B1224-15RE1)			Matrix: Water			Batch: 24B0707		R-04
Benzene	ND	---	0.400	ug/L	2	02/21/24 13:27	EPA 8260D	
Toluene	ND	---	2.00	ug/L	2	02/21/24 13:27	EPA 8260D	
Ethylbenzene	ND	---	1.00	ug/L	2	02/21/24 13:27	EPA 8260D	
Xylenes, total	ND	---	3.00	ug/L	2	02/21/24 13:27	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	2.00	ug/L	2	02/21/24 13:27	EPA 8260D	
Naphthalene	ND	---	10.0	ug/L	2	02/21/24 13:27	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 109 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>02/21/24 13:27</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>101 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/21/24 13:27</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>110 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/21/24 13:27</i>	<i>EPA 8260D</i>	
MW-11 (Alum/Filtered) (A4B1224-17)			Matrix: Water			Batch: 24B0610		R-04
Benzene	ND	---	2.00	ug/L	10	02/19/24 22:05	EPA 8260D	

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-11 (Alum/Filtered) (A4B1224-17)				Matrix: Water		Batch: 24B0610		R-04
Toluene	ND	---	10.0	ug/L	10	02/19/24 22:05	EPA 8260D	
Ethylbenzene	ND	---	5.00	ug/L	10	02/19/24 22:05	EPA 8260D	
Xylenes, total	ND	---	15.0	ug/L	10	02/19/24 22:05	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	10.0	ug/L	10	02/19/24 22:05	EPA 8260D	
Naphthalene	ND	---	50.0	ug/L	10	02/19/24 22:05	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 110 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>02/19/24 22:05</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/19/24 22:05</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/19/24 22:05</i>	<i>EPA 8260D</i>
MW-11 (Alum/Filtered) DUP (A4B1224-18RE1)				Matrix: Water		Batch: 24B0707		R-04
Benzene	ND	---	0.400	ug/L	2	02/21/24 13:54	EPA 8260D	
Toluene	ND	---	2.00	ug/L	2	02/21/24 13:54	EPA 8260D	
Ethylbenzene	ND	---	1.00	ug/L	2	02/21/24 13:54	EPA 8260D	
Xylenes, total	ND	---	3.00	ug/L	2	02/21/24 13:54	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	2.00	ug/L	2	02/21/24 13:54	EPA 8260D	
Naphthalene	ND	---	10.0	ug/L	2	02/21/24 13:54	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 109 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>02/21/24 13:54</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/21/24 13:54</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/21/24 13:54</i>	<i>EPA 8260D</i>
MW-12 (A4B1224-19)				Matrix: Water		Batch: 24B0607		
Benzene	ND	---	0.200	ug/L	1	02/20/24 21:58	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	02/20/24 21:58	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	02/20/24 21:58	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	02/20/24 21:58	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	02/20/24 21:58	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	02/20/24 21:58	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>02/20/24 21:58</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 21:58</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>97 %</i>		<i>80-120 %</i>		<i>1</i>	<i>02/20/24 21:58</i>	<i>EPA 8260D</i>
MW-12D (A4B1224-20)				Matrix: Water		Batch: 24B0607		
Benzene	ND	---	0.200	ug/L	1	02/20/24 22:23	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	02/20/24 22:23	EPA 8260D	

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
			Matrix: Water			Batch: 24B0607		
MW-12D (A4B1224-20)								
Ethylbenzene	ND	---	0.500	ug/L	1	02/20/24 22:23	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	02/20/24 22:23	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	02/20/24 22:23	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	02/20/24 22:23	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 105 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>02/20/24 22:23</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>105 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/20/24 22:23</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>95 %</i>	<i>80-120 %</i>	<i>1</i>	<i>02/20/24 22:23</i>	<i>EPA 8260D</i>	

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0725 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (24B0725-BLK1)			Prepared: 02/21/24 11:09 Analyzed: 02/21/24 21:27									
<u>NWTPH-Dx LL</u>												
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 80 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
Blank (24B0725-BLK2)			Prepared: 02/21/24 11:09 Analyzed: 02/21/24 21:48									
<u>NWTPH-Dx LL</u>												
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 79 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS (24B0725-BS1)			Prepared: 02/21/24 11:09 Analyzed: 02/21/24 22:08									
<u>NWTPH-Dx LL</u>												
Diesel	0.233	---	0.0800	mg/L	1	0.500	---	47	36-132%	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 84 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS Dup (24B0725-BSD1)			Prepared: 02/21/24 11:09 Analyzed: 02/21/24 22:29									
<u>NWTPH-Dx LL</u>												
Diesel	0.259	---	0.0800	mg/L	1	0.500	---	52	36-132%	11	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 83 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0725 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (24B0725-BLK1)			Prepared: 02/21/24 11:09			Analyzed: 02/21/24 21:27						
<u>NWTPH-Dx (Diss)</u>												
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 80 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
Blank (24B0725-BLK2)			Prepared: 02/21/24 11:09			Analyzed: 02/21/24 21:48						
<u>NWTPH-Dx (Diss)</u>												
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 79 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS (24B0725-BS1)			Prepared: 02/21/24 11:09			Analyzed: 02/21/24 22:08						
<u>NWTPH-Dx (Diss)</u>												
Diesel	0.233	---	0.0800	mg/L	1	0.500	---	47	36-132%	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 84 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS Dup (24B0725-BSD1)			Prepared: 02/21/24 11:09			Analyzed: 02/21/24 22:29						
<u>NWTPH-Dx (Diss)</u>												
Diesel	0.259	---	0.0800	mg/L	1	0.500	---	52	36-132%	11	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 83 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
---	--	---

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0607 - EPA 5030C						Water						
Blank (24B0607-BLK1)			Prepared: 02/20/24 15:58 Analyzed: 02/20/24 19:03									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 88 %	Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)			103 %	50-150 %		"						
LCS (24B0607-BS2)			Prepared: 02/20/24 15:58 Analyzed: 02/20/24 18:38									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.550	---	0.100	mg/L	1	0.500	---	110	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 95 %	Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)			104 %	50-150 %		"						
Duplicate (24B0607-DUP1)			Prepared: 02/20/24 15:58 Analyzed: 02/21/24 04:12									
<u>QC Source Sample: Non-SDG (A4B1270-04)</u>												
Gasoline Range Organics	15.6	---	10.0	mg/L	100	---	13.1	---	---	18	30%	
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 92 %	Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)			115 %	50-150 %		"						

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---	--	--

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0610 - EPA 5030C						Water						
Blank (24B0610-BLK1)			Prepared: 02/19/24 08:16 Analyzed: 02/19/24 12:32									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>107 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (24B0610-BS2)			Prepared: 02/19/24 08:16 Analyzed: 02/19/24 11:56									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.494	---	0.100	mg/L	1	0.500	---	99	80-120%	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 97 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>103 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24B0610-DUP1)			Prepared: 02/19/24 08:16 Analyzed: 02/19/24 18:27									
<u>QC Source Sample: Non-SDG (A4B1226-01)</u>												
Gasoline Range Organics	ND	---	1.00	mg/L	10	---	ND	---	---	---	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 104 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>110 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24B0610-DUP2)			Prepared: 02/19/24 08:16 Analyzed: 02/20/24 00:21									
<u>QC Source Sample: MW-4 (A4B1224-04)</u>												
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	1.00	mg/L	10	---	ND	---	---	---	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 106 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>113 %</i>		<i>50-150 %</i>		<i>"</i>						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0665 - EPA 5030C						Water						
Blank (24B0665-BLK1)			Prepared: 02/20/24 09:08 Analyzed: 02/20/24 11:44									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 102 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>111 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (24B0665-BS2)			Prepared: 02/20/24 09:08 Analyzed: 02/20/24 11:16									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.506	---	0.100	mg/L	1	0.500	---	101	80-120%	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>106 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24B0665-DUP1)			Prepared: 02/20/24 09:08 Analyzed: 02/20/24 19:27									
<u>QC Source Sample: MW-5 (A4B1224-05)</u>												
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	23.1	---	1.00	mg/L	10	---	24.5	---	---	6	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 102 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>104 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24B0665-DUP2)			Prepared: 02/20/24 09:08 Analyzed: 02/20/24 21:16									
<u>QC Source Sample: MW-11 (A4B1224-15)</u>												
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	2.00	mg/L	20	---	ND	---	---	---	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>106 %</i>		<i>50-150 %</i>		<i>"</i>						

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Darrell Auvil, Client Services Manager

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
---	--	--

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0707 - EPA 5030C						Water						
Blank (24B0707-BLK1)			Prepared: 02/21/24 09:00 Analyzed: 02/21/24 12:32									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 102 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>111 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (24B0707-BS2)			Prepared: 02/21/24 09:00 Analyzed: 02/21/24 12:05									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.488	---	0.100	mg/L	1	0.500	---	98	80-120%	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>105 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24B0707-DUP1)			Prepared: 02/21/24 10:16 Analyzed: 02/21/24 16:37									
<u>QC Source Sample: Non-SDG (A4B1323-01)</u>												
Gasoline Range Organics	ND	---	5.00	mg/L	50	---	ND	---	---	---	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>108 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24B0707-DUP2)			Prepared: 02/21/24 10:16 Analyzed: 02/21/24 22:59									
<u>QC Source Sample: Non-SDG (A4B1323-04)</u>												
Gasoline Range Organics	ND	---	5.00	mg/L	50	---	4.87	---	---	***	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>105 %</i>		<i>50-150 %</i>		<i>"</i>						

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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
---	--	--

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0607 - EPA 5030C						Water						
Blank (24B0607-BLK1)			Prepared: 02/20/24 15:58 Analyzed: 02/20/24 19:03									
<u>EPA 8260D</u>												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 103 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>"</i>						
LCS (24B0607-BS1)			Prepared: 02/20/24 15:58 Analyzed: 02/20/24 18:13									
<u>EPA 8260D</u>												
Benzene	20.5	---	0.200	ug/L	1	20.0	---	102	80-120%	---	---	
Toluene	19.1	---	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
Ethylbenzene	19.8	---	0.500	ug/L	1	20.0	---	99	80-120%	---	---	
Xylenes, total	59.6	---	1.50	ug/L	1	60.0	---	99	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	23.3	---	1.00	ug/L	1	20.0	---	116	80-120%	---	---	
Naphthalene	16.8	---	5.00	ug/L	1	20.0	---	84	80-120%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>93 %</i>		<i>80-120 %</i>		<i>"</i>						
Duplicate (24B0607-DUP1)			Prepared: 02/20/24 15:58 Analyzed: 02/21/24 04:12									
<u>QC Source Sample: Non-SDG (A4B1270-04)</u>												
Benzene	ND	---	20.0	ug/L	100	---	ND	---	---	---	30%	
Toluene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
Xylenes, total	ND	---	150	ug/L	100	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Naphthalene	ND	---	500	ug/L	100	---	ND	---	---	---	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 109 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>"</i>						

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
---	--	--

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0607 - EPA 5030C						Water						
Duplicate (24B0607-DUP1)						Prepared: 02/20/24 15:58 Analyzed: 02/21/24 04:12						
QC Source Sample: Non-SDG (A4B1270-04)												
<i>Surr: 4-Bromofluorobenzene (Surr)</i>		<i>Recovery: 95 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
Matrix Spike (24B0607-MS1)						Prepared: 02/20/24 15:58 Analyzed: 02/21/24 00:28						
QC Source Sample: Non-SDG (A4B1281-02)												
EPA 8260D												
Benzene	23.4	---	0.200	ug/L	1	20.0	ND	117	79-120%	---	---	
Toluene	21.3	---	1.00	ug/L	1	20.0	ND	107	80-121%	---	---	
Ethylbenzene	22.1	---	0.500	ug/L	1	20.0	ND	110	79-121%	---	---	
Xylenes, total	66.9	---	1.50	ug/L	1	60.0	ND	111	79-121%	---	---	
Methyl tert-butyl ether (MTBE)	25.9	---	1.00	ug/L	1	20.0	ND	130	71-124%	---	---	NR
Naphthalene	16.9	---	5.00	ug/L	1	20.0	ND	84	61-128%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>90 %</i>		<i>80-120 %</i>		<i>"</i>						

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0610 - EPA 5030C						Water						
Blank (24B0610-BLK1)			Prepared: 02/19/24 08:16 Analyzed: 02/19/24 12:32									
<u>EPA 8260D</u>												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>"</i>						
LCS (24B0610-BS1)			Prepared: 02/19/24 08:16 Analyzed: 02/19/24 10:53									
<u>EPA 8260D</u>												
Benzene	19.9	---	0.200	ug/L	1	20.0	---	100	80-120%	---	---	
Toluene	18.6	---	1.00	ug/L	1	20.0	---	93	80-120%	---	---	
Ethylbenzene	19.9	---	0.500	ug/L	1	20.0	---	99	80-120%	---	---	
Xylenes, total	57.7	---	1.50	ug/L	1	60.0	---	96	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	18.3	---	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
Naphthalene	17.7	---	5.00	ug/L	1	20.0	---	88	80-120%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 103 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>"</i>						
Duplicate (24B0610-DUP1)			Prepared: 02/19/24 08:16 Analyzed: 02/19/24 18:27									
<u>QC Source Sample: Non-SDG (A4B1226-01)</u>												
Benzene	ND	---	2.00	ug/L	10	---	ND	---	---	---	30%	
Toluene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
Xylenes, total	ND	---	15.0	ug/L	10	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Naphthalene	ND	---	50.0	ug/L	10	---	ND	---	---	---	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 108 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>"</i>						

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
---	--	--

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0665 - EPA 5030C												
Water												
Blank (24B0665-BLK1)												
Prepared: 02/20/24 09:08 Analyzed: 02/20/24 11:44												
EPA 8260D												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	---
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	---
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	---
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	---
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	---	---	---	---	---	---	---
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	---
Isopropylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
Surr: 1,4-Difluorobenzene (Surr) Recovery: 109 % Limits: 80-120 % Dilution: 1x												
Toluene-d8 (Surr) 101 % 80-120 % "												
4-Bromofluorobenzene (Surr) 96 % 80-120 % "												

LCS (24B0665-BS1)												
Prepared: 02/20/24 09:08 Analyzed: 02/20/24 10:49												
EPA 8260D												
Benzene	20.5	---	0.200	ug/L	1	20.0	---	102	80-120%	---	---	---
Toluene	18.6	---	1.00	ug/L	1	20.0	---	93	80-120%	---	---	---
Ethylbenzene	20.3	---	0.500	ug/L	1	20.0	---	102	80-120%	---	---	---
Xylenes, total	58.2	---	1.50	ug/L	1	60.0	---	97	80-120%	---	---	---
Methyl tert-butyl ether (MTBE)	16.8	---	1.00	ug/L	1	20.0	---	84	80-120%	---	---	---
Naphthalene	16.5	---	5.00	ug/L	1	20.0	---	82	80-120%	---	---	---
1,2-Dibromoethane (EDB)	20.2	---	0.500	ug/L	1	20.0	---	101	80-120%	---	---	---
1,2-Dichloroethane (EDC)	21.4	---	0.400	ug/L	1	20.0	---	107	80-120%	---	---	---
Isopropylbenzene	20.2	---	1.00	ug/L	1	20.0	---	101	80-120%	---	---	---
1,2,4-Trimethylbenzene	20.0	---	1.00	ug/L	1	20.0	---	100	80-120%	---	---	---
1,3,5-Trimethylbenzene	20.3	---	1.00	ug/L	1	20.0	---	102	80-120%	---	---	---
Surr: 1,4-Difluorobenzene (Surr) Recovery: 105 % Limits: 80-120 % Dilution: 1x												
Toluene-d8 (Surr) 98 % 80-120 % "												
4-Bromofluorobenzene (Surr) 92 % 80-120 % "												

Duplicate (24B0665-DUP1)												
Prepared: 02/20/24 09:08 Analyzed: 02/20/24 19:27												

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---	--	--

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0665 - EPA 5030C												
Water												
Duplicate (24B0665-DUP1) Prepared: 02/20/24 09:08 Analyzed: 02/20/24 19:27												
QC Source Sample: MW-5 (A4B1224-05)												
EPA 8260D												
Benzene	ND	---	2.00	ug/L	10	---	ND	---	---	---	30%	
Toluene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Ethylbenzene	110	---	5.00	ug/L	10	---	114	---	---	3	30%	
Xylenes, total	432	---	15.0	ug/L	10	---	453	---	---	5	30%	
Methyl tert-butyl ether (MTBE)	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Naphthalene	1690	---	50.0	ug/L	10	---	1750	---	---	3	30%	
1,2-Dibromoethane (EDB)	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
Isopropylbenzene	139	---	10.0	ug/L	10	---	142	---	---	2	30%	
1,2,4-Trimethylbenzene	743	---	10.0	ug/L	10	---	764	---	---	3	30%	
1,3,5-Trimethylbenzene	932	---	10.0	ug/L	10	---	958	---	---	3	30%	
<i>Surr: 1,4-Difluorobenzene (Surr) Recovery: 104 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr) 102 % 80-120 % "</i>												
<i>4-Bromofluorobenzene (Surr) 95 % 80-120 % "</i>												

Duplicate (24B0665-DUP2) Prepared: 02/20/24 09:08 Analyzed: 02/20/24 21:16												
QC Source Sample: MW-11 (A4B1224-15)												
EPA 8260D												
Benzene	ND	---	4.00	ug/L	20	---	ND	---	---	---	30%	
Toluene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	10.0	ug/L	20	---	ND	---	---	---	30%	
Xylenes, total	ND	---	30.0	ug/L	20	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Naphthalene	ND	---	100	ug/L	20	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	10.0	ug/L	20	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	8.00	ug/L	20	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
<i>Surr: 1,4-Difluorobenzene (Surr) Recovery: 107 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr) 100 % 80-120 % "</i>												

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0665 - EPA 5030C						Water						
Duplicate (24B0665-DUP2)						Prepared: 02/20/24 09:08 Analyzed: 02/20/24 21:16						
QC Source Sample: MW-11 (A4B1224-15)												
<i>Surr: 4-Bromofluorobenzene (Surr)</i>						<i>Recovery: 97 % Limits: 80-120 % Dilution: 1x</i>						
Matrix Spike (24B0665-MS1)						Prepared: 02/20/24 09:08 Analyzed: 02/20/24 22:11						
QC Source Sample: Non-SDG (A4B1277-01)												
EPA 8260D												
Benzene	21.6	---	0.200	ug/L	1	20.0	ND	108	79-120%	---	---	
Toluene	19.2	---	1.00	ug/L	1	20.0	ND	96	80-121%	---	---	
Ethylbenzene	20.5	---	0.500	ug/L	1	20.0	ND	103	79-121%	---	---	
Xylenes, total	56.6	---	1.50	ug/L	1	60.0	ND	94	79-121%	---	---	
Methyl tert-butyl ether (MTBE)	17.7	---	1.00	ug/L	1	20.0	ND	89	71-124%	---	---	
Naphthalene	11.4	---	5.00	ug/L	1	20.0	ND	57	61-128%	---	---	Q-01
1,2-Dibromoethane (EDB)	20.6	---	0.500	ug/L	1	20.0	ND	103	77-121%	---	---	
1,2-Dichloroethane (EDC)	21.4	---	0.400	ug/L	1	20.0	ND	107	73-128%	---	---	
Isopropylbenzene	19.4	---	1.00	ug/L	1	20.0	ND	97	72-131%	---	---	
1,2,4-Trimethylbenzene	17.1	---	1.00	ug/L	1	20.0	ND	86	76-124%	---	---	
1,3,5-Trimethylbenzene	17.9	---	1.00	ug/L	1	20.0	ND	90	75-124%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>						<i>Recovery: 105 % Limits: 80-120 % Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>						<i>97 % 80-120 % "</i>						
<i>4-Bromofluorobenzene (Surr)</i>						<i>95 % 80-120 % "</i>						

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0707 - EPA 5030C						Water						
Blank (24B0707-BLK1)			Prepared: 02/21/24 09:00 Analyzed: 02/21/24 12:32									
<u>EPA 8260D</u>												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	---
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	---
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	---
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	---
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 109 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		101 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		96 %		80-120 %		"						
<hr/>												
LCS (24B0707-BS1)			Prepared: 02/21/24 09:00 Analyzed: 02/21/24 11:10									
<u>EPA 8260D</u>												
Benzene	20.3	---	0.200	ug/L	1	20.0	---	102	80-120%	---	---	---
Toluene	18.4	---	1.00	ug/L	1	20.0	---	92	80-120%	---	---	---
Ethylbenzene	19.9	---	0.500	ug/L	1	20.0	---	100	80-120%	---	---	---
Xylenes, total	56.6	---	1.50	ug/L	1	60.0	---	94	80-120%	---	---	---
Methyl tert-butyl ether (MTBE)	17.6	---	1.00	ug/L	1	20.0	---	88	80-120%	---	---	---
Naphthalene	16.3	---	5.00	ug/L	1	20.0	---	81	80-120%	---	---	---
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 105 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		98 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		94 %		80-120 %		"						
<hr/>												
Duplicate (24B0707-DUP1)			Prepared: 02/21/24 10:16 Analyzed: 02/21/24 16:37									
<u>QC Source Sample: Non-SDG (A4B1323-01)</u>												
Benzene	ND	---	10.0	ug/L	50	---	ND	---	---	---	---	30%
Toluene	ND	---	50.0	ug/L	50	---	ND	---	---	---	---	30%
Ethylbenzene	ND	---	25.0	ug/L	50	---	ND	---	---	---	---	30%
Xylenes, total	ND	---	75.0	ug/L	50	---	ND	---	---	---	---	30%
Methyl tert-butyl ether (MTBE)	ND	---	50.0	ug/L	50	---	ND	---	---	---	---	30%
Naphthalene	ND	---	250	ug/L	50	---	ND	---	---	---	---	30%
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 108 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		101 %		80-120 %		"						

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM IQ24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24B0707 - EPA 5030C												
Water												
Duplicate (24B0707-DUP1) Prepared: 02/21/24 10:16 Analyzed: 02/21/24 16:37												
QC Source Sample: Non-SDG (A4B1323-01)												
Surr: 4-Bromofluorobenzene (Surr) Recovery: 96 % Limits: 80-120 % Dilution: 1x												
Duplicate (24B0707-DUP2) Prepared: 02/21/24 10:16 Analyzed: 02/21/24 22:59												
QC Source Sample: Non-SDG (A4B1323-04)												
Benzene	120	---	10.0	ug/L	50	---	117	---	---	2	30%	
Toluene	145	---	50.0	ug/L	50	---	142	---	---	2	30%	
Ethylbenzene	76.0	---	25.0	ug/L	50	---	71.5	---	---	6	30%	
Xylenes, total	380	---	75.0	ug/L	50	---	343	---	---	10	30%	
Methyl tert-butyl ether (MTBE)	ND	---	50.0	ug/L	50	---	ND	---	---	---	30%	
Naphthalene	ND	---	250	ug/L	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr) Recovery: 105 % Limits: 80-120 % Dilution: 1x												
Toluene-d8 (Surr) 100 % 80-120 % "												
4-Bromofluorobenzene (Surr) 95 % 80-120 % "												
Matrix Spike (24B0707-MS1) Prepared: 02/21/24 10:16 Analyzed: 02/21/24 15:16												
QC Source Sample: Non-SDG (A4B1329-02)												
EPA 8260D												
Benzene	22.1	---	0.200	ug/L	1	20.0	ND	111	79-120%	---	---	
Toluene	19.8	---	1.00	ug/L	1	20.0	ND	99	80-121%	---	---	
Ethylbenzene	48.4	---	0.500	ug/L	1	20.0	25.7	114	79-121%	---	---	
Xylenes, total	64.8	---	1.50	ug/L	1	60.0	2.31	104	79-121%	---	---	
Methyl tert-butyl ether (MTBE)	18.4	---	1.00	ug/L	1	20.0	ND	92	71-124%	---	---	
Naphthalene	24.5	---	5.00	ug/L	1	20.0	4.03	102	61-128%	---	---	
Surr: 1,4-Difluorobenzene (Surr) Recovery: 106 % Limits: 80-120 % Dilution: 1x												
Toluene-d8 (Surr) 97 % 80-120 % "												
4-Bromofluorobenzene (Surr) 97 % 80-120 % "												

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24B0725</u>							
A4B1224-01	Water	NWTPH-Dx LL	02/14/24 11:36	02/21/24 11:09	1000mL/2mL	1000mL/2mL	1.00
A4B1224-02	Water	NWTPH-Dx LL	02/14/24 12:40	02/21/24 11:09	1000mL/2mL	1000mL/2mL	1.00
A4B1224-03	Water	NWTPH-Dx LL	02/15/24 08:36	02/21/24 11:09	960mL/2mL	1000mL/2mL	1.04
A4B1224-04	Water	NWTPH-Dx LL	02/14/24 13:46	02/21/24 11:09	960mL/2mL	1000mL/2mL	1.04
A4B1224-05	Water	NWTPH-Dx LL	02/15/24 08:30	02/21/24 11:09	1030mL/2mL	1000mL/2mL	0.97
A4B1224-06	Water	NWTPH-Dx LL	02/15/24 08:30	02/21/24 11:09	1020mL/2mL	1000mL/2mL	0.98
A4B1224-07	Water	NWTPH-Dx LL	02/14/24 11:54	02/21/24 11:09	1020mL/2mL	1000mL/2mL	0.98
A4B1224-08	Water	NWTPH-Dx LL	02/15/24 09:15	02/21/24 11:09	1020mL/2mL	1000mL/2mL	0.98
A4B1224-09	Water	NWTPH-Dx LL	02/14/24 11:18	02/21/24 11:09	1040mL/2mL	1000mL/2mL	0.96
A4B1224-10	Water	NWTPH-Dx LL	02/14/24 10:36	02/21/24 11:09	1040mL/2mL	1000mL/2mL	0.96
A4B1224-11	Water	NWTPH-Dx LL	02/14/24 13:12	02/21/24 11:09	980mL/2mL	1000mL/2mL	1.02
A4B1224-12	Water	NWTPH-Dx LL	02/15/24 10:03	02/21/24 11:09	1030mL/2mL	1000mL/2mL	0.97
A4B1224-13	Water	NWTPH-Dx LL	02/14/24 12:38	02/21/24 11:09	1020mL/2mL	1000mL/2mL	0.98
A4B1224-14	Water	NWTPH-Dx LL	02/14/24 10:39	02/21/24 11:09	1010mL/2mL	1000mL/2mL	0.99
A4B1224-15	Water	NWTPH-Dx LL	02/15/24 10:57	02/21/24 11:09	950mL/2mL	1000mL/2mL	1.05
A4B1224-19	Water	NWTPH-Dx LL	02/15/24 09:52	02/21/24 11:09	1010mL/2mL	1000mL/2mL	0.99
A4B1224-20	Water	NWTPH-Dx LL	02/15/24 10:39	02/21/24 11:09	1010mL/2mL	1000mL/2mL	0.99

Dissolved Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24B0725</u>							
A4B1224-21	Water	NWTPH-Dx (Diss)	02/15/24 10:57	02/21/24 11:09	1030mL/2mL	1000mL/2mL	0.97
A4B1224-22	Water	NWTPH-Dx (Diss)	02/15/24 10:57	02/21/24 11:09	1040mL/2mL	1000mL/2mL	0.96

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030C

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24B0607</u>							
A4B1224-01RE1	Water	NWTPH-Gx (MS)	02/14/24 11:36	02/20/24 16:20	5mL/5mL	5mL/5mL	1.00
A4B1224-02RE1	Water	NWTPH-Gx (MS)	02/14/24 12:40	02/20/24 16:20	5mL/5mL	5mL/5mL	1.00
A4B1224-03RE1	Water	NWTPH-Gx (MS)	02/15/24 08:36	02/20/24 16:20	5mL/5mL	5mL/5mL	1.00
A4B1224-04RE1	Water	NWTPH-Gx (MS)	02/14/24 13:46	02/20/24 16:20	5mL/5mL	5mL/5mL	1.00
A4B1224-17RE1	Water	NWTPH-Gx (MS)	02/15/24 10:57	02/20/24 16:20	5mL/5mL	5mL/5mL	1.00

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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SAMPLE PREPARATION INFORMATION

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030C

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A4B1224-19	Water	NWTPH-Gx (MS)	02/15/24 09:52	02/20/24 16:20	5mL/5mL	5mL/5mL	1.00
A4B1224-20	Water	NWTPH-Gx (MS)	02/15/24 10:39	02/20/24 16:20	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24B0665</u>							
A4B1224-05	Water	NWTPH-Gx (MS)	02/15/24 08:30	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-06	Water	NWTPH-Gx (MS)	02/15/24 08:30	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-07	Water	NWTPH-Gx (MS)	02/14/24 11:54	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-08	Water	NWTPH-Gx (MS)	02/15/24 09:15	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-09	Water	NWTPH-Gx (MS)	02/14/24 11:18	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-10	Water	NWTPH-Gx (MS)	02/14/24 10:36	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-11	Water	NWTPH-Gx (MS)	02/14/24 13:12	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-12	Water	NWTPH-Gx (MS)	02/15/24 10:03	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-13	Water	NWTPH-Gx (MS)	02/14/24 12:38	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-14	Water	NWTPH-Gx (MS)	02/14/24 10:39	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24B0707</u>							
A4B1224-15RE1	Water	NWTPH-Gx (MS)	02/15/24 10:57	02/21/24 10:16	5mL/5mL	5mL/5mL	1.00
A4B1224-18RE1	Water	NWTPH-Gx (MS)	02/15/24 10:57	02/21/24 10:16	5mL/5mL	5mL/5mL	1.00

Selected Volatile Organic Compounds by EPA 8260D

Prep: EPA 5030C

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24B0607</u>							
A4B1224-01RE1	Water	EPA 8260D	02/14/24 11:36	02/20/24 16:20	5mL/5mL	5mL/5mL	1.00
A4B1224-02RE1	Water	EPA 8260D	02/14/24 12:40	02/20/24 16:20	5mL/5mL	5mL/5mL	1.00
A4B1224-03RE1	Water	EPA 8260D	02/15/24 08:36	02/20/24 16:20	5mL/5mL	5mL/5mL	1.00
A4B1224-04RE1	Water	EPA 8260D	02/14/24 13:46	02/20/24 16:20	5mL/5mL	5mL/5mL	1.00
A4B1224-19	Water	EPA 8260D	02/15/24 09:52	02/20/24 16:20	5mL/5mL	5mL/5mL	1.00
A4B1224-20	Water	EPA 8260D	02/15/24 10:39	02/20/24 16:20	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24B0610</u>							
A4B1224-17	Water	EPA 8260D	02/15/24 10:57	02/19/24 08:16	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24B0665</u>							
A4B1224-05	Water	EPA 8260D	02/15/24 08:30	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-06	Water	EPA 8260D	02/15/24 08:30	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-07	Water	EPA 8260D	02/14/24 11:54	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-08	Water	EPA 8260D	02/15/24 09:15	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-09	Water	EPA 8260D	02/14/24 11:18	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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SAMPLE PREPARATION INFORMATION

Selected Volatile Organic Compounds by EPA 8260D

<u>Prep: EPA 5030C</u>					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
A4B1224-10	Water	EPA 8260D	02/14/24 10:36	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-11	Water	EPA 8260D	02/14/24 13:12	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-12	Water	EPA 8260D	02/15/24 10:03	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-13	Water	EPA 8260D	02/14/24 12:38	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
A4B1224-14	Water	EPA 8260D	02/14/24 10:39	02/20/24 09:16	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24B0707</u>							
A4B1224-07RE1	Water	EPA 8260D	02/14/24 11:54	02/21/24 10:16	5mL/5mL	5mL/5mL	1.00
A4B1224-15RE1	Water	EPA 8260D	02/15/24 10:57	02/21/24 10:16	5mL/5mL	5mL/5mL	1.00
A4B1224-18RE1	Water	EPA 8260D	02/15/24 10:57	02/21/24 10:16	5mL/5mL	5mL/5mL	1.00

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 1Q24 Project Number: 19001-008 Project Manager: Philip Cordell	Report ID: A4B1224 - 03 04 24 1625
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QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- DCNT** Sample decanted due to the presence of sediment. Sample bottle not rinsed with solvent.
- F-11** The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
- F-18** Result for Diesel (Diesel Range Organics, C12-C25) is due to overlap from Gasoline or a Gasoline Range product.
- F-20** Result for Diesel is Estimated due to overlap from Gasoline Range Organics or other VOCs.
- FILT3** This is a laboratory filtration blank, associated with filtration batch 24B0640. See Prep page of report for associated samples.
- NR** Not Reported.
- PRO** Sample has undergone sample processing prior to extraction and analysis.
- Q-01** Spike recovery and/or RPD is outside acceptance limits.
- Q-19** Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- R-04** Reporting levels elevated due to preparation and/or analytical dilution necessary for analysis.
- S-06** Surrogate recovery is outside of established control limits.
- T-02** This Batch QC sample was analyzed outside of the method specified 12 hour analysis window. Results are estimated.

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

- DET Analyte DETECTED at or above the detection or reporting limit.
- ND Analyte NOT DETECTED at or above the detection or reporting limit.
- NR Result Not Reported
- RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as "dry", "wet", or "" (blank) designation.

- "dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.
- "wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.
- "" Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a "dry weight" basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an "As Received" basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

- " --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- " *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

- Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).
- For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
- For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
- For further details, please request a copy of this document.
- Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.
- 'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

Apex Laboratories

Darrell Auvil, Client Services Manager

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ANALYTICAL REPORT

Apex Laboratories, LLC
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Table with 3 columns: Client info (GeoEngineers - Portland), Project info (Project: Nustar Vannex GWM 1Q24), and Report ID (A4B1224 - 03 04 24 1625).

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Table header with columns: Matrix, Analysis, TNI_ID, Analyte, TNI_ID, Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation. Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Handwritten signature of Darrell Auvil

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APEX LABS
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

Company: GeoEngineers Project Mgr: Phil Cordell
Address: 5820 S Kelly Ave, Portland, OR Email: philcordell@geoengineers.com
Sampled by: SR / CW Phone: _____
Site Location: WA State: _____ County: _____

Lab # A4B1224 coc 1 of 2

Project Name: Nustar 1Q24 GWM Project #: 19001-008
Email: philcordell@geoengineers.com PO # _____

ANALYSIS REQUEST

DATE	TIME	MATRIX	# OF CONTAINERS	NWTFH-ClD	NWTFH-Dx	NWTFH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pesticides	RCRA Metals (8)	Priority Metals (13)	AL, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn	TOTAL DISS. TCLP	TCLP Metals (8)	MTBF	Hold Sample	Frozen Archive	
2/14	1136	W	5	X	X		X													X			
2/14	1240																						
2/15	0836																						
2/14	1846																						
2/15	0830																						
2/15	0830																						
2/14	1154																						
2/15	0915																						
2/14	1118																						
2/14	1036																						

Standard Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle): 1 Day 2 Day 3 Day 5 Day Standard Other: _____

SPECIAL INSTRUCTIONS:

RECEIVED BY: _____ Date: _____
Signature: _____ Printed Name: _____
Company: _____

RELINQUISHED BY: _____ Date: 2/15/24
Signature: [Signature] Printed Name: Am. Sakaiepa
Company: Apex Labs

RECEIVED BY: _____ Date: _____
Signature: _____ Printed Name: _____
Company: _____

Form Y-002 R-00

Apex Laboratories

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APEX LABS COOLER RECEIPT FORM

Client: GeoEngineers Element WO#: A4 B1224

Project/Project #: Vannex 1Q24 GWM #19001-008

Delivery Info:
 Date/time received: 2/15/24 @ 1412 By: AKC
 Delivered by: Apex Client ESS FedEx UPS Radio Morgan SDS Evergreen Other

Cooler Inspection Date/time inspected: 2/15/24 @ 1412 By: AKC

Chain of Custody included? Yes No
 Signed/dated by client? Yes No

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>5.9</u>	<u>1.8</u>	<u>3.9</u>				
Custody seals? (Y/N)	<u>N</u>	<u>N</u>	<u>N</u>				
Received on ice? (Y/N)	<u>Y</u>	<u>Y</u>	<u>Y</u>				
Temp. blanks? (Y/N)	<u>Y</u>	<u>Y</u>	<u>Y</u>				
Ice type: (Gel/Real/Other)	<u>Real</u>	<u>Real</u>	<u>Real</u>				
Condition (In/Out):	<u>In</u>	<u>In</u>	<u>In</u>				

Cooler out of temp? (Y/N) Possible reason why: _____
 Green dots applied to out of temperature samples? Yes No
 Out of temperature samples form initiated? Yes No

Sample Inspection: Date/time inspected: 2/16/24 @ 1702 By: JS

All samples intact? Yes No Comments: _____

Bottle labels/COCs agree? Yes No Comments: _____

COC/container discrepancies form initiated? Yes No
 Containers/volumes received appropriate for analysis? Yes No Comments: _____

Do VOA vials have visible headspace? Yes No NA
 Comments: _____

Water samples: pH checked: Yes No NA pH appropriate? Yes No NA pH ID: D23112
 Comments: _____

Additional information:

Labeled by: AKC Witness: AKC Cooler Inspected by: AKC

Form Y-003 R-01

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503-718-2323
ORELAP ID: OR100062

Wednesday, June 5, 2024

Philip Cordell
GeoEngineers - Portland
5820 S Kelly Ave Unit B
Portland, OR 97239

RE: A4E1286 - Nustar Vannex GWM 2Q24 - 19001-008-13

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4E1286, which was received by the laboratory on 5/15/2024 at 2:05:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: DAuvil@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information			
<u>Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.</u>			
(See Cooler Receipt Form for details)			
Cooler #1	0.0 degC	Cooler #2	3.9 degC
Cooler #3	4.3 degC		

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



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---	---	---

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	A4E1286-01	Water	05/14/24 12:14	05/15/24 14:05
MW-2	A4E1286-02	Water	05/15/24 08:53	05/15/24 14:05
MW-3	A4E1286-03	Water	05/14/24 13:26	05/15/24 14:05
MW-4	A4E1286-04	Water	05/15/24 08:00	05/15/24 14:05
MW-5	A4E1286-05	Water	05/14/24 12:56	05/15/24 14:05
MW-5 DUP	A4E1286-06	Water	05/14/24 12:56	05/15/24 14:05
MW-6	A4E1286-07	Water	05/15/24 07:54	05/15/24 14:05
MW-5D	A4E1286-08	Water	05/14/24 12:20	05/15/24 14:05
MW-6D	A4E1286-09	Water	05/15/24 08:38	05/15/24 14:05
MW-7	A4E1286-10	Water	05/14/24 10:18	05/15/24 14:05
MW-8	A4E1286-11	Water	05/14/24 11:02	05/15/24 14:05
MW-8D	A4E1286-12	Water	05/14/24 11:43	05/15/24 14:05
MW-9	A4E1286-13	Water	05/14/24 09:25	05/15/24 14:05
MW-10	A4E1286-14	Water	05/14/24 09:34	05/15/24 14:05
MW-11	A4E1286-15	Water	05/15/24 09:38	05/15/24 14:05
MW-11 DUP	A4E1286-16	Water	05/15/24 09:38	05/15/24 14:05
MW-12	A4E1286-17	Water	05/14/24 10:30	05/15/24 14:05
MW-12D	A4E1286-18	Water	05/14/24 11:19	05/15/24 14:05
MW-11	A4E1286-20	Water	05/15/24 09:38	05/15/24 14:05
MW-11 DUP	A4E1286-21	Water	05/15/24 09:38	05/15/24 14:05

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ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-1 (A4E1286-01)			Matrix: Water		Batch: 24E0775			
Diesel	0.302	---	0.0800	mg/L	1	05/22/24 19:28	NWTPH-Dx LL	F-11
Oil	ND	---	0.160	mg/L	1	05/22/24 19:28	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 92 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/22/24 19:28</i>	<i>NWTPH-Dx LL</i>
MW-2 (A4E1286-02)			Matrix: Water		Batch: 24E0775			
Diesel	ND	---	0.0800	mg/L	1	05/22/24 19:48	NWTPH-Dx LL	
Oil	ND	---	0.160	mg/L	1	05/22/24 19:48	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 70 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/22/24 19:48</i>	<i>NWTPH-Dx LL</i>
MW-3 (A4E1286-03)			Matrix: Water		Batch: 24E0775			
Diesel	ND	---	0.0784	mg/L	1	05/22/24 20:09	NWTPH-Dx LL	
Oil	ND	---	0.157	mg/L	1	05/22/24 20:09	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/22/24 20:09</i>	<i>NWTPH-Dx LL</i>
MW-4 (A4E1286-04)			Matrix: Water		Batch: 24E0775			
Diesel	0.117	---	0.0800	mg/L	1	05/22/24 20:30	NWTPH-Dx LL	F-11
Oil	ND	---	0.160	mg/L	1	05/22/24 20:30	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/22/24 20:30</i>	<i>NWTPH-Dx LL</i>
MW-5 (A4E1286-05)			Matrix: Water		Batch: 24E0775			
Diesel	1.30	---	0.0755	mg/L	1	05/22/24 20:50	NWTPH-Dx LL	F-18
Oil	ND	---	0.151	mg/L	1	05/22/24 20:50	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 79 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/22/24 20:50</i>	<i>NWTPH-Dx LL</i>
MW-5 DUP (A4E1286-06)			Matrix: Water		Batch: 24E0775			
Diesel	1.40	---	0.0792	mg/L	1	05/22/24 21:11	NWTPH-Dx LL	F-18
Oil	ND	---	0.158	mg/L	1	05/22/24 21:11	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/22/24 21:11</i>	<i>NWTPH-Dx LL</i>
MW-6 (A4E1286-07)			Matrix: Water		Batch: 24E0775			
Diesel	4.13	---	0.0777	mg/L	1	05/22/24 21:31	NWTPH-Dx LL	F-20
Oil	ND	---	0.155	mg/L	1	05/22/24 21:31	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/22/24 21:31</i>	<i>NWTPH-Dx LL</i>

Apex Laboratories

Darrell Auvil, Client Services Manager

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-5D (A4E1286-08)			Matrix: Water			Batch: 24E0775		
Diesel	0.533	---	0.0769	mg/L	1	05/22/24 23:14	NWTPH-Dx LL	F-11
Oil	ND	---	0.154	mg/L	1	05/22/24 23:14	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/22/24 23:14</i>	<i>NWTPH-Dx LL</i>
MW-6D (A4E1286-09)			Matrix: Water			Batch: 24E0775		
Diesel	0.198	---	0.0784	mg/L	1	05/22/24 23:34	NWTPH-Dx LL	F-11
Oil	ND	---	0.157	mg/L	1	05/22/24 23:34	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/22/24 23:34</i>	<i>NWTPH-Dx LL</i>
MW-7 (A4E1286-10)			Matrix: Water			Batch: 24E0775		
Diesel	ND	---	0.0769	mg/L	1	05/22/24 23:55	NWTPH-Dx LL	
Oil	ND	---	0.154	mg/L	1	05/22/24 23:55	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/22/24 23:55</i>	<i>NWTPH-Dx LL</i>
MW-8 (A4E1286-11)			Matrix: Water			Batch: 24E0775		
Diesel	ND	---	0.0769	mg/L	1	05/23/24 00:16	NWTPH-Dx LL	
Oil	ND	---	0.154	mg/L	1	05/23/24 00:16	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/23/24 00:16</i>	<i>NWTPH-Dx LL</i>
MW-8D (A4E1286-12)			Matrix: Water			Batch: 24E0775		
Diesel	ND	---	0.0777	mg/L	1	05/23/24 00:36	NWTPH-Dx LL	
Oil	ND	---	0.155	mg/L	1	05/23/24 00:36	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 91 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/23/24 00:36</i>	<i>NWTPH-Dx LL</i>
MW-9 (A4E1286-13)			Matrix: Water			Batch: 24E0775		
Diesel	ND	---	0.0755	mg/L	1	05/23/24 00:57	NWTPH-Dx LL	
Oil	ND	---	0.151	mg/L	1	05/23/24 00:57	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 97 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/23/24 00:57</i>	<i>NWTPH-Dx LL</i>
MW-10 (A4E1286-14)			Matrix: Water			Batch: 24E0775		
Diesel	ND	---	0.0784	mg/L	1	05/23/24 01:17	NWTPH-Dx LL	
Oil	ND	---	0.157	mg/L	1	05/23/24 01:17	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/23/24 01:17</i>	<i>NWTPH-Dx LL</i>

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
 Tigard, OR 97223
 503-718-2323
 ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-12 (A4E1286-17)				Matrix: Water		Batch: 24E0775		
Diesel	0.0867	---	0.0825	mg/L	1	05/23/24 01:37	NWTPH-Dx LL	F-11
Oil	ND	---	0.165	mg/L	1	05/23/24 01:37	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/23/24 01:37</i>	<i>NWTPH-Dx LL</i>
MW-12D (A4E1286-18)				Matrix: Water		Batch: 24E0775		
Diesel	ND	---	0.0777	mg/L	1	05/23/24 01:58	NWTPH-Dx LL	
Oil	ND	---	0.155	mg/L	1	05/23/24 01:58	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 108 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/23/24 01:58</i>	<i>NWTPH-Dx LL</i>

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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ANALYTICAL SAMPLE RESULTS

Dissolved Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-11 (A4E1286-20)				Matrix: Water		Batch: 24E0775		PRO
Diesel	ND	---	0.0816	mg/L	1	05/23/24 02:18	NWTPH-Dx (Diss)	
Oil	ND	---	0.163	mg/L	1	05/23/24 02:18	NWTPH-Dx (Diss)	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 74 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/23/24 02:18</i>	<i>NWTPH-Dx (Diss)</i>
MW-11 DUP (A4E1286-21)				Matrix: Water		Batch: 24E0775		PRO
Diesel	ND	---	0.0769	mg/L	1	05/23/24 02:39	NWTPH-Dx (Diss)	
Oil	ND	---	0.154	mg/L	1	05/23/24 02:39	NWTPH-Dx (Diss)	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 72 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/23/24 02:39</i>	<i>NWTPH-Dx (Diss)</i>

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-1 (A4E1286-01)				Matrix: Water		Batch: 24E0641		
Gasoline Range Organics	ND	---	0.100	mg/L	1	05/17/24 14:03	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			Recovery: 95 %	Limits: 50-150 %	1	05/17/24 14:03	NWTPH-Gx (MS)	
<i>1,4-Difluorobenzene (Sur)</i>			105 %	50-150 %	1	05/17/24 14:03	NWTPH-Gx (MS)	
MW-2 (A4E1286-02)				Matrix: Water		Batch: 24E0641		
Gasoline Range Organics	ND	---	0.100	mg/L	1	05/17/24 14:25	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			Recovery: 94 %	Limits: 50-150 %	1	05/17/24 14:25	NWTPH-Gx (MS)	
<i>1,4-Difluorobenzene (Sur)</i>			105 %	50-150 %	1	05/17/24 14:25	NWTPH-Gx (MS)	
MW-3 (A4E1286-03)				Matrix: Water		Batch: 24E0641		
Gasoline Range Organics	ND	---	0.100	mg/L	1	05/17/24 14:46	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			Recovery: 97 %	Limits: 50-150 %	1	05/17/24 14:46	NWTPH-Gx (MS)	
<i>1,4-Difluorobenzene (Sur)</i>			105 %	50-150 %	1	05/17/24 14:46	NWTPH-Gx (MS)	
MW-4 (A4E1286-04)				Matrix: Water		Batch: 24E0641		
Gasoline Range Organics	ND	---	0.100	mg/L	1	05/17/24 15:08	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			Recovery: 97 %	Limits: 50-150 %	1	05/17/24 15:08	NWTPH-Gx (MS)	
<i>1,4-Difluorobenzene (Sur)</i>			107 %	50-150 %	1	05/17/24 15:08	NWTPH-Gx (MS)	
MW-5 (A4E1286-05)				Matrix: Water		Batch: 24E0641		
Gasoline Range Organics	22.7	---	1.00	mg/L	10	05/17/24 17:20	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			Recovery: 92 %	Limits: 50-150 %	1	05/17/24 17:20	NWTPH-Gx (MS)	
<i>1,4-Difluorobenzene (Sur)</i>			98 %	50-150 %	1	05/17/24 17:20	NWTPH-Gx (MS)	
MW-5 DUP (A4E1286-06)				Matrix: Water		Batch: 24E0590		
Gasoline Range Organics	22.6	---	1.00	mg/L	10	05/16/24 15:38	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			Recovery: 98 %	Limits: 50-150 %	1	05/16/24 15:38	NWTPH-Gx (MS)	
<i>1,4-Difluorobenzene (Sur)</i>			101 %	50-150 %	1	05/16/24 15:38	NWTPH-Gx (MS)	
MW-6 (A4E1286-07RE1)				Matrix: Water		Batch: 24E0641		
Gasoline Range Organics	15.1	---	2.50	mg/L	25	05/17/24 17:42	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			Recovery: 89 %	Limits: 50-150 %	1	05/17/24 17:42	NWTPH-Gx (MS)	
<i>1,4-Difluorobenzene (Sur)</i>			94 %	50-150 %	1	05/17/24 17:42	NWTPH-Gx (MS)	
MW-5D (A4E1286-08)				Matrix: Water		Batch: 24E0590		

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ANALYTICAL REPORT

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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-5D (A4E1286-08)				Matrix: Water		Batch: 24E0590		
Gasoline Range Organics	0.185	---	0.100	mg/L	1	05/16/24 12:21	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/16/24 12:21</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>103 %</i>		<i>50-150 %</i>		<i>1</i>	<i>05/16/24 12:21</i>	<i>NWTPH-Gx (MS)</i>
MW-6D (A4E1286-09RE1)				Matrix: Water		Batch: 24E0724		
Gasoline Range Organics	ND	---	0.100	mg/L	1	05/21/24 16:42	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 91 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/21/24 16:42</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>104 %</i>		<i>50-150 %</i>		<i>1</i>	<i>05/21/24 16:42</i>	<i>NWTPH-Gx (MS)</i>
MW-7 (A4E1286-10)				Matrix: Water		Batch: 24E0590		
Gasoline Range Organics	ND	---	0.100	mg/L	1	05/16/24 13:05	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 99 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/16/24 13:05</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>109 %</i>		<i>50-150 %</i>		<i>1</i>	<i>05/16/24 13:05</i>	<i>NWTPH-Gx (MS)</i>
MW-8 (A4E1286-11)				Matrix: Water		Batch: 24E0590		
Gasoline Range Organics	ND	---	0.100	mg/L	1	05/16/24 13:26	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 99 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/16/24 13:26</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>107 %</i>		<i>50-150 %</i>		<i>1</i>	<i>05/16/24 13:26</i>	<i>NWTPH-Gx (MS)</i>
MW-8D (A4E1286-12)				Matrix: Water		Batch: 24E0590		
Gasoline Range Organics	ND	---	0.100	mg/L	1	05/16/24 13:48	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/16/24 13:48</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>109 %</i>		<i>50-150 %</i>		<i>1</i>	<i>05/16/24 13:48</i>	<i>NWTPH-Gx (MS)</i>
MW-9 (A4E1286-13)				Matrix: Water		Batch: 24E0590		
Gasoline Range Organics	ND	---	0.100	mg/L	1	05/16/24 14:10	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/16/24 14:10</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>109 %</i>		<i>50-150 %</i>		<i>1</i>	<i>05/16/24 14:10</i>	<i>NWTPH-Gx (MS)</i>
MW-10 (A4E1286-14)				Matrix: Water		Batch: 24E0590		
Gasoline Range Organics	ND	---	0.100	mg/L	1	05/16/24 14:32	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>05/16/24 14:32</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>109 %</i>		<i>50-150 %</i>		<i>1</i>	<i>05/16/24 14:32</i>	<i>NWTPH-Gx (MS)</i>
MW-11 (A4E1286-15)				Matrix: Water		Batch: 24E0590		R-04

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Apex Laboratories, LLC

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-11 (A4E1286-15)				Matrix: Water		Batch: 24E0590		R-04
Gasoline Range Organics	ND	---	1.00	mg/L	10	05/16/24 16:00	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 95 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>05/16/24 16:00</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>107 %</i>	<i>50-150 %</i>	<i>1</i>	<i>05/16/24 16:00</i>	<i>NWTPH-Gx (MS)</i>	
MW-11 DUP (A4E1286-16RE1)				Matrix: Water		Batch: 24E0641		R-04
Gasoline Range Organics	ND	---	1.00	mg/L	10	05/17/24 16:58	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 96 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>05/17/24 16:58</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>108 %</i>	<i>50-150 %</i>	<i>1</i>	<i>05/17/24 16:58</i>	<i>NWTPH-Gx (MS)</i>	
MW-12 (A4E1286-17)				Matrix: Water		Batch: 24E0590		
Gasoline Range Organics	ND	---	0.100	mg/L	1	05/16/24 14:54	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 102 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>05/16/24 14:54</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>109 %</i>	<i>50-150 %</i>	<i>1</i>	<i>05/16/24 14:54</i>	<i>NWTPH-Gx (MS)</i>	
MW-12D (A4E1286-18)				Matrix: Water		Batch: 24E0590		
Gasoline Range Organics	ND	---	0.100	mg/L	1	05/16/24 15:16	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 100 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>05/16/24 15:16</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>107 %</i>	<i>50-150 %</i>	<i>1</i>	<i>05/16/24 15:16</i>	<i>NWTPH-Gx (MS)</i>	

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-1 (A4E1286-01)			Matrix: Water			Batch: 24E0641		
Benzene	ND	---	0.200	ug/L	1	05/17/24 14:03	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/17/24 14:03	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/17/24 14:03	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	05/17/24 14:03	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/17/24 14:03	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/17/24 14:03	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 109 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>05/17/24 14:03</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>105 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/17/24 14:03</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/17/24 14:03</i>	<i>EPA 8260D</i>
MW-2 (A4E1286-02)			Matrix: Water			Batch: 24E0641		
Benzene	ND	---	0.200	ug/L	1	05/17/24 14:25	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/17/24 14:25	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/17/24 14:25	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	05/17/24 14:25	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/17/24 14:25	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/17/24 14:25	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 110 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>05/17/24 14:25</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>104 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/17/24 14:25</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>94 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/17/24 14:25</i>	<i>EPA 8260D</i>
MW-3 (A4E1286-03)			Matrix: Water			Batch: 24E0641		
Benzene	ND	---	0.200	ug/L	1	05/17/24 14:46	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/17/24 14:46	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/17/24 14:46	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	05/17/24 14:46	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/17/24 14:46	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/17/24 14:46	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 110 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>05/17/24 14:46</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>104 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/17/24 14:46</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>97 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/17/24 14:46</i>	<i>EPA 8260D</i>
MW-4 (A4E1286-04)			Matrix: Water			Batch: 24E0641		
Benzene	ND	---	0.200	ug/L	1	05/17/24 15:08	EPA 8260D	

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-4 (A4E1286-04)			Matrix: Water			Batch: 24E0641		
Toluene	ND	---	1.00	ug/L	1	05/17/24 15:08	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/17/24 15:08	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	05/17/24 15:08	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/17/24 15:08	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/17/24 15:08	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		Recovery: 110 %		Limits: 80-120 %	1	05/17/24 15:08	EPA 8260D	
<i>Toluene-d8 (Surr)</i>		103 %		80-120 %	1	05/17/24 15:08	EPA 8260D	
<i>4-Bromofluorobenzene (Surr)</i>		96 %		80-120 %	1	05/17/24 15:08	EPA 8260D	
MW-5 (A4E1286-05)			Matrix: Water			Batch: 24E0641		
Benzene	ND	---	2.00	ug/L	10	05/17/24 17:20	EPA 8260D	
Toluene	ND	---	10.0	ug/L	10	05/17/24 17:20	EPA 8260D	
Ethylbenzene	113	---	5.00	ug/L	10	05/17/24 17:20	EPA 8260D	
Xylenes, total	397	---	15.0	ug/L	10	05/17/24 17:20	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	10.0	ug/L	10	05/17/24 17:20	EPA 8260D	
Naphthalene	1700	---	50.0	ug/L	10	05/17/24 17:20	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		Recovery: 102 %		Limits: 80-120 %	1	05/17/24 17:20	EPA 8260D	
<i>Toluene-d8 (Surr)</i>		109 %		80-120 %	1	05/17/24 17:20	EPA 8260D	
<i>4-Bromofluorobenzene (Surr)</i>		97 %		80-120 %	1	05/17/24 17:20	EPA 8260D	
MW-5 DUP (A4E1286-06)			Matrix: Water			Batch: 24E0590		
Benzene	ND	---	2.00	ug/L	10	05/16/24 15:38	EPA 8260D	
Toluene	ND	---	10.0	ug/L	10	05/16/24 15:38	EPA 8260D	
Ethylbenzene	115	---	5.00	ug/L	10	05/16/24 15:38	EPA 8260D	
Xylenes, total	394	---	15.0	ug/L	10	05/16/24 15:38	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	10.0	ug/L	10	05/16/24 15:38	EPA 8260D	
Naphthalene	1670	---	50.0	ug/L	10	05/16/24 15:38	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		Recovery: 106 %		Limits: 80-120 %	1	05/16/24 15:38	EPA 8260D	
<i>Toluene-d8 (Surr)</i>		107 %		80-120 %	1	05/16/24 15:38	EPA 8260D	
<i>4-Bromofluorobenzene (Surr)</i>		100 %		80-120 %	1	05/16/24 15:38	EPA 8260D	
MW-6 (A4E1286-07RE1)			Matrix: Water			Batch: 24E0641		
Benzene	217	---	5.00	ug/L	25	05/17/24 17:42	EPA 8260D	
Toluene	ND	---	25.0	ug/L	25	05/17/24 17:42	EPA 8260D	

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-6 (A4E1286-07RE1)			Matrix: Water			Batch: 24E0641		
Ethylbenzene	2510	---	12.5	ug/L	25	05/17/24 17:42	EPA 8260D	
Xylenes, total	123	---	37.5	ug/L	25	05/17/24 17:42	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	25.0	ug/L	25	05/17/24 17:42	EPA 8260D	
Naphthalene	460	---	125	ug/L	25	05/17/24 17:42	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 98 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>05/17/24 17:42</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>106 %</i>	<i>80-120 %</i>	<i>1</i>	<i>05/17/24 17:42</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>95 %</i>	<i>80-120 %</i>	<i>1</i>	<i>05/17/24 17:42</i>	<i>EPA 8260D</i>	
MW-5D (A4E1286-08)			Matrix: Water			Batch: 24E0590		
Benzene	ND	---	0.200	ug/L	1	05/16/24 12:21	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/24 12:21	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/24 12:21	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	05/16/24 12:21	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/24 12:21	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/24 12:21	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 106 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>05/16/24 12:21</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>103 %</i>	<i>80-120 %</i>	<i>1</i>	<i>05/16/24 12:21</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>97 %</i>	<i>80-120 %</i>	<i>1</i>	<i>05/16/24 12:21</i>	<i>EPA 8260D</i>	
MW-6D (A4E1286-09RE1)			Matrix: Water			Batch: 24E0724		
Benzene	ND	---	0.200	ug/L	1	05/21/24 16:42	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/21/24 16:42	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/21/24 16:42	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	05/21/24 16:42	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/21/24 16:42	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/21/24 16:42	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 108 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>05/21/24 16:42</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>103 %</i>	<i>80-120 %</i>	<i>1</i>	<i>05/21/24 16:42</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>96 %</i>	<i>80-120 %</i>	<i>1</i>	<i>05/21/24 16:42</i>	<i>EPA 8260D</i>	
MW-7 (A4E1286-10)			Matrix: Water			Batch: 24E0590		
Benzene	ND	---	0.200	ug/L	1	05/16/24 13:05	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/24 13:05	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/24 13:05	EPA 8260D	

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-7 (A4E1286-10)			Matrix: Water			Batch: 24E0590		
Xylenes, total	ND	---	1.50	ug/L	1	05/16/24 13:05	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/24 13:05	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/24 13:05	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 109 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>05/16/24 13:05</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>104 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/16/24 13:05</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/16/24 13:05</i>	<i>EPA 8260D</i>
MW-8 (A4E1286-11)			Matrix: Water			Batch: 24E0590		
Benzene	ND	---	0.200	ug/L	1	05/16/24 13:26	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/24 13:26	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/24 13:26	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	05/16/24 13:26	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/24 13:26	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/24 13:26	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 113 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>05/16/24 13:26</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/16/24 13:26</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/16/24 13:26</i>	<i>EPA 8260D</i>
MW-8D (A4E1286-12)			Matrix: Water			Batch: 24E0590		
Benzene	ND	---	0.200	ug/L	1	05/16/24 13:48	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/24 13:48	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/24 13:48	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	05/16/24 13:48	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/24 13:48	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/24 13:48	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 111 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>05/16/24 13:48</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/16/24 13:48</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/16/24 13:48</i>	<i>EPA 8260D</i>
MW-9 (A4E1286-13)			Matrix: Water			Batch: 24E0590		
Benzene	ND	---	0.200	ug/L	1	05/16/24 14:10	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/24 14:10	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/24 14:10	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	05/16/24 14:10	EPA 8260D	

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-9 (A4E1286-13)			Matrix: Water			Batch: 24E0590		
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/24 14:10	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/24 14:10	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 112 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>05/16/24 14:10</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/16/24 14:10</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/16/24 14:10</i>	<i>EPA 8260D</i>
MW-10 (A4E1286-14)			Matrix: Water			Batch: 24E0590		
Benzene	ND	---	0.200	ug/L	1	05/16/24 14:32	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/24 14:32	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/24 14:32	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	05/16/24 14:32	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/24 14:32	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/24 14:32	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 111 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>05/16/24 14:32</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/16/24 14:32</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/16/24 14:32</i>	<i>EPA 8260D</i>
MW-11 (A4E1286-15)			Matrix: Water			Batch: 24E0590		R-04
Benzene	ND	---	2.00	ug/L	10	05/16/24 16:00	EPA 8260D	
Toluene	ND	---	10.0	ug/L	10	05/16/24 16:00	EPA 8260D	
Ethylbenzene	ND	---	5.00	ug/L	10	05/16/24 16:00	EPA 8260D	
Xylenes, total	ND	---	15.0	ug/L	10	05/16/24 16:00	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	10.0	ug/L	10	05/16/24 16:00	EPA 8260D	
Naphthalene	ND	---	50.0	ug/L	10	05/16/24 16:00	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 112 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>05/16/24 16:00</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/16/24 16:00</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>114 %</i>		<i>80-120 %</i>		<i>1</i>	<i>05/16/24 16:00</i>	<i>EPA 8260D</i>
MW-11 DUP (A4E1286-16RE1)			Matrix: Water			Batch: 24E0641		R-04
Benzene	ND	---	2.00	ug/L	10	05/17/24 16:58	EPA 8260D	
Toluene	ND	---	10.0	ug/L	10	05/17/24 16:58	EPA 8260D	
Ethylbenzene	ND	---	5.00	ug/L	10	05/17/24 16:58	EPA 8260D	
Xylenes, total	ND	---	15.0	ug/L	10	05/17/24 16:58	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	10.0	ug/L	10	05/17/24 16:58	EPA 8260D	

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ANALYTICAL REPORT

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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-11 DUP (A4E1286-16RE1)			Matrix: Water			Batch: 24E0641		R-04
Naphthalene	ND	---	50.0	ug/L	10	05/17/24 16:58	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 111 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>05/17/24 16:58</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>105 %</i>	<i>80-120 %</i>	<i>1</i>	<i>05/17/24 16:58</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>102 %</i>	<i>80-120 %</i>	<i>1</i>	<i>05/17/24 16:58</i>	<i>EPA 8260D</i>	
MW-12 (A4E1286-17)			Matrix: Water			Batch: 24E0590		
Benzene	ND	---	0.200	ug/L	1	05/16/24 14:54	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/24 14:54	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/24 14:54	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	05/16/24 14:54	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/24 14:54	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/24 14:54	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 114 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>05/16/24 14:54</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>104 %</i>	<i>80-120 %</i>	<i>1</i>	<i>05/16/24 14:54</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>99 %</i>	<i>80-120 %</i>	<i>1</i>	<i>05/16/24 14:54</i>	<i>EPA 8260D</i>	
MW-12D (A4E1286-18)			Matrix: Water			Batch: 24E0590		
Benzene	ND	---	0.200	ug/L	1	05/16/24 15:16	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	05/16/24 15:16	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	05/16/24 15:16	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	05/16/24 15:16	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	05/16/24 15:16	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	05/16/24 15:16	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 110 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>05/16/24 15:16</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>102 %</i>	<i>80-120 %</i>	<i>1</i>	<i>05/16/24 15:16</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>99 %</i>	<i>80-120 %</i>	<i>1</i>	<i>05/16/24 15:16</i>	<i>EPA 8260D</i>	

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ANALYTICAL REPORT

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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0775 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (24E0775-BLK1)			Prepared: 05/22/24 07:10 Analyzed: 05/22/24 18:05									
<u>NWTPH-Dx LL</u>												
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS (24E0775-BS1)			Prepared: 05/22/24 07:10 Analyzed: 05/22/24 18:46									
<u>NWTPH-Dx LL</u>												
Diesel	0.403	---	0.0800	mg/L	1	0.500	---	81	36-132%	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 54 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS Dup (24E0775-BSD1)			Prepared: 05/22/24 07:10 Analyzed: 05/22/24 19:07									
<u>NWTPH-Dx LL</u>												
Diesel	0.396	---	0.0800	mg/L	1	0.500	---	79	36-132%	2	30%	Q-19
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						

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---	---	---

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes	
Batch 24E0775 - EPA 3510C (Fuels/Acid Ext.)						Water							
Blank (24E0775-BLK2)			Prepared: 05/22/24 07:10 Analyzed: 05/22/24 18:25						FILT3				
<u>NWTPH-Dx (Diss)</u>													
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---		
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---		
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 89 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>							
LCS (24E0775-BS1)			Prepared: 05/22/24 07:10 Analyzed: 05/22/24 18:46										
<u>NWTPH-Dx (Diss)</u>													
Diesel	0.403	---	0.0800	mg/L	1	0.500	---	81	36-132%	---	---		
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 54 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>							
LCS Dup (24E0775-BSD1)			Prepared: 05/22/24 07:10 Analyzed: 05/22/24 19:07						Q-19				
<u>NWTPH-Dx (Diss)</u>													
Diesel	0.396	---	0.0800	mg/L	1	0.500	---	79	36-132%	2	30%		
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>							

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---	---	---

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0590 - EPA 5030C						Water						
Blank (24E0590-BLK1)			Prepared: 05/16/24 07:38 Analyzed: 05/16/24 08:20									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>105 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (24E0590-BS2)			Prepared: 05/16/24 07:38 Analyzed: 05/16/24 07:58									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.400	---	0.100	mg/L	1	0.500	---	80	80-120%	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 92 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>93 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24E0590-DUP1)			Prepared: 05/16/24 07:38 Analyzed: 05/16/24 10:31									
<u>QC Source Sample: Non-SDG (A4E1254-03)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	ND	---	---	---	30%	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>107 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24E0590-DUP2)			Prepared: 05/16/24 07:38 Analyzed: 05/16/24 17:27									
<u>QC Source Sample: MW-6 (A4E1286-07)</u>												
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	15.4	---	10.0	mg/L	100	---	15.9	---	---	3	30%	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 102 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>104 %</i>		<i>50-150 %</i>		<i>"</i>						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0641 - EPA 5030C						Water						
Blank (24E0641-BLK1)						Prepared: 05/17/24 09:27 Analyzed: 05/17/24 11:28						
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 97 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>105 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (24E0641-BS2)						Prepared: 05/17/24 09:27 Analyzed: 05/17/24 11:06 Q-50						
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.414	---	0.100	mg/L	1	0.500	---	83	80-120%	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 91 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>91 %</i>		<i>50-150 %</i>		<i>"</i>						

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0724 - EPA 5030C						Water						
Blank (24E0724-BLK1)			Prepared: 05/21/24 06:18 Analyzed: 05/21/24 14:52									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 89 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>102 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (24E0724-BS2)						Prepared: 05/21/24 06:18 Analyzed: 05/21/24 13:47						
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.438	---	0.100	mg/L	1	0.500	---	88	80-120%	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 86 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>91 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24E0724-DUP1)						Prepared: 05/21/24 06:18 Analyzed: 05/21/24 19:59						
<u>QC Source Sample: Non-SDG (A4E1408-02)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	ND	---	---	---	30%	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 90 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>106 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24E0724-DUP2)						Prepared: 05/21/24 06:18 Analyzed: 05/21/24 23:38						
<u>QC Source Sample: Non-SDG (A4E1386-10)</u>												
Gasoline Range Organics	0.941	---	0.100	mg/L	1	---	0.979	---	---	4	30%	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 90 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>94 %</i>		<i>50-150 %</i>		<i>"</i>						

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0590 - EPA 5030C						Water						
Blank (24E0590-BLK1)			Prepared: 05/16/24 07:38 Analyzed: 05/16/24 08:20									
EPA 8260D												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	---
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	---
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	---
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	---
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 107 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>"</i>						
LCS (24E0590-BS1)						Prepared: 05/16/24 06:38 Analyzed: 05/16/24 07:22						
EPA 8260D												
Benzene	20.0	---	0.200	ug/L	1	20.0	---	100	80-120%	---	---	---
Toluene	19.1	---	1.00	ug/L	1	20.0	---	95	80-120%	---	---	---
Ethylbenzene	21.3	---	0.500	ug/L	1	20.0	---	106	80-120%	---	---	---
Xylenes, total	58.2	---	1.50	ug/L	1	60.0	---	97	80-120%	---	---	---
Methyl tert-butyl ether (MTBE)	19.6	---	1.00	ug/L	1	20.0	---	98	80-120%	---	---	---
Naphthalene	15.9	---	5.00	ug/L	1	20.0	---	80	80-120%	---	---	---
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 98 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>95 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>94 %</i>		<i>80-120 %</i>		<i>"</i>						
Duplicate (24E0590-DUP1)						Prepared: 05/16/24 07:38 Analyzed: 05/16/24 10:31						
QC Source Sample: Non-SDG (A4E1254-03)												
Benzene	ND	---	0.200	ug/L	1	---	ND	---	---	---	---	30%
Toluene	ND	---	1.00	ug/L	1	---	ND	---	---	---	---	30%
Ethylbenzene	ND	---	0.500	ug/L	1	---	ND	---	---	---	---	30%
Xylenes, total	ND	---	1.50	ug/L	1	---	ND	---	---	---	---	30%
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	ND	---	---	---	---	30%
Naphthalene	ND	---	5.00	ug/L	1	---	ND	---	---	---	---	30%
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 107 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>"</i>						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0590 - EPA 5030C						Water						
Duplicate (24E0590-DUP1)			Prepared: 05/16/24 07:38 Analyzed: 05/16/24 10:31									
QC Source Sample: Non-SDG (A4E1254-03)												
<i>Surr: 4-Bromofluorobenzene (Surr)</i>		<i>Recovery: 98 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
Duplicate (24E0590-DUP2)			Prepared: 05/16/24 07:38 Analyzed: 05/16/24 17:27									
QC Source Sample: MW-6 (A4E1286-07)												
EPA 8260D												
Benzene	199	---	20.0	ug/L	100	---	197	---	---	1	30%	
Toluene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Ethylbenzene	2000	---	50.0	ug/L	100	---	1970	---	---	2	30%	
Xylenes, total	ND	---	150	ug/L	100	---	128	---	---	***	30%	
Methyl tert-butyl ether (MTBE)	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Naphthalene	ND	---	500	ug/L	100	---	253	---	---	***	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 108 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>"</i>						
Matrix Spike (24E0590-MS1)			Prepared: 05/16/24 07:38 Analyzed: 05/16/24 09:25									
QC Source Sample: Non-SDG (A4E1282-01)												
EPA 8260D												
Benzene	215	---	2.00	ug/L	10	200	ND	108	79-120%	---	---	
Toluene	206	---	10.0	ug/L	10	200	ND	103	80-121%	---	---	
Ethylbenzene	247	---	5.00	ug/L	10	200	14.8	116	79-121%	---	---	
Xylenes, total	696	---	15.0	ug/L	10	600	43.9	109	79-121%	---	---	
Methyl tert-butyl ether (MTBE)	190	---	10.0	ug/L	10	200	ND	95	71-124%	---	---	
Naphthalene	241	---	50.0	ug/L	10	200	ND	120	61-128%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>93 %</i>		<i>80-120 %</i>		<i>"</i>						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0641 - EPA 5030C						Water						
Blank (24E0641-BLK1)			Prepared: 05/17/24 09:27 Analyzed: 05/17/24 11:28									
EPA 8260D												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 107 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>104 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>"</i>						
LCS (24E0641-BS1)						Prepared: 05/17/24 09:27 Analyzed: 05/17/24 10:06						Q-50
EPA 8260D												
Benzene	20.9	---	0.200	ug/L	1	20.0	---	105	80-120%	---	---	
Toluene	20.1	---	1.00	ug/L	1	20.0	---	101	80-120%	---	---	
Ethylbenzene	22.7	---	0.500	ug/L	1	20.0	---	113	80-120%	---	---	
Xylenes, total	61.1	---	1.50	ug/L	1	60.0	---	102	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	19.5	---	1.00	ug/L	1	20.0	---	97	80-120%	---	---	
Naphthalene	16.5	---	5.00	ug/L	1	20.0	---	83	80-120%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 98 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>95 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>94 %</i>		<i>80-120 %</i>		<i>"</i>						

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland	Project: Nustar Vannex GWM 2Q24	
5820 S Kelly Ave Unit B	Project Number: 19001-008-13	Report ID:
Portland, OR 97239	Project Manager: Philip Cordell	A4E1286 - 06 05 24 1050

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0724 - EPA 5030C												
Water												
Blank (24E0724-BLK1)												
Prepared: 05/21/24 06:18 Analyzed: 05/21/24 14:52												
EPA 8260D												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr) Recovery: 106 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr) 106 % 80-120 % "</i>												
<i>4-Bromofluorobenzene (Surr) 98 % 80-120 % "</i>												
LCS (24E0724-BS1)												
Prepared: 05/21/24 06:18 Analyzed: 05/21/24 12:36												
EPA 8260D												
Benzene	18.7	---	0.200	ug/L	1	20.0	---	94	80-120%	---	---	
Toluene	19.1	---	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
Ethylbenzene	21.4	---	0.500	ug/L	1	20.0	---	107	80-120%	---	---	
Xylenes, total	58.4	---	1.50	ug/L	1	60.0	---	97	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	17.6	---	1.00	ug/L	1	20.0	---	88	80-120%	---	---	
Naphthalene	15.9	---	5.00	ug/L	1	20.0	---	80	80-120%	---	---	
1,2-Dibromoethane (EDB)	21.6	---	0.500	ug/L	1	20.0	---	108	80-120%	---	---	
1,2-Dichloroethane (EDC)	18.3	---	0.400	ug/L	1	20.0	---	91	80-120%	---	---	
Isopropylbenzene	19.1	---	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
1,2,4-Trimethylbenzene	19.0	---	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
1,3,5-Trimethylbenzene	19.2	---	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr) Recovery: 95 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr) 99 % 80-120 % "</i>												
<i>4-Bromofluorobenzene (Surr) 95 % 80-120 % "</i>												
Duplicate (24E0724-DUP1)												
Prepared: 05/21/24 06:18 Analyzed: 05/21/24 19:59												

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323

ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0724 - EPA 5030C												
Water												
Duplicate (24E0724-DUP1)			Prepared: 05/21/24 06:18 Analyzed: 05/21/24 19:59									
QC Source Sample: Non-SDG (A4E1408-02)												
Benzene	ND	---	0.200	ug/L	1	---	ND	---	---	---	30%	
Toluene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
Xylenes, total	ND	---	1.50	ug/L	1	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
Naphthalene	ND	---	5.00	ug/L	1	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 110 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>"</i>						

Duplicate (24E0724-DUP2)			Prepared: 05/21/24 06:18 Analyzed: 05/21/24 23:38									
QC Source Sample: Non-SDG (A4E1386-10)												
Benzene	56.2	---	0.200	ug/L	1	---	55.5	---	---	1	30%	
Toluene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
Ethylbenzene	1.67	---	0.500	ug/L	1	---	1.64	---	---	2	30%	
Xylenes, total	ND	---	1.50	ug/L	1	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	0.540	---	---	***	30%	
Naphthalene	ND	---	5.00	ug/L	1	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	---	ND	---	---	---	30%	
Isopropylbenzene	7.40	---	1.00	ug/L	1	---	7.42	---	---	0.3	30%	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 101 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>"</i>						

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24E0724 - EPA 5030C						Water						
Matrix Spike (24E0724-MS1)						Prepared: 05/21/24 06:18 Analyzed: 05/21/24 15:36						
QC Source Sample: Non-SDG (A4E1420-01)												
EPA 8260D												
Benzene	20.5	---	0.200	ug/L	1	20.0	ND	103	79-120%	---	---	
Toluene	20.3	---	1.00	ug/L	1	20.0	ND	102	80-121%	---	---	
Ethylbenzene	23.2	---	0.500	ug/L	1	20.0	ND	116	79-121%	---	---	
Xylenes, total	63.1	---	1.50	ug/L	1	60.0	ND	105	79-121%	---	---	
Methyl tert-butyl ether (MTBE)	18.4	---	1.00	ug/L	1	20.0	ND	92	71-124%	---	---	
Naphthalene	16.5	---	5.00	ug/L	1	20.0	ND	83	61-128%	---	---	
1,2-Dibromoethane (EDB)	22.0	---	0.500	ug/L	1	20.0	ND	110	77-121%	---	---	
1,2-Dichloroethane (EDC)	18.9	---	0.400	ug/L	1	20.0	ND	95	73-128%	---	---	
Isopropylbenzene	21.3	---	1.00	ug/L	1	20.0	ND	106	72-131%	---	---	
1,2,4-Trimethylbenzene	20.1	---	1.00	ug/L	1	20.0	ND	100	76-124%	---	---	
1,3,5-Trimethylbenzene	20.4	---	1.00	ug/L	1	20.0	ND	102	75-124%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 96 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>97 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>93 %</i>		<i>80-120 %</i>		<i>"</i>						

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323

ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24E0775</u>							
A4E1286-01	Water	NWTPH-Dx LL	05/14/24 12:14	05/22/24 07:10	1000mL/2mL	1000mL/2mL	1.00
A4E1286-02	Water	NWTPH-Dx LL	05/15/24 08:53	05/22/24 07:10	1000mL/2mL	1000mL/2mL	1.00
A4E1286-03	Water	NWTPH-Dx LL	05/14/24 13:26	05/22/24 07:10	1020mL/2mL	1000mL/2mL	0.98
A4E1286-04	Water	NWTPH-Dx LL	05/15/24 08:00	05/22/24 07:10	1000mL/2mL	1000mL/2mL	1.00
A4E1286-05	Water	NWTPH-Dx LL	05/14/24 12:56	05/22/24 07:10	1060mL/2mL	1000mL/2mL	0.94
A4E1286-06	Water	NWTPH-Dx LL	05/14/24 12:56	05/22/24 07:10	1010mL/2mL	1000mL/2mL	0.99
A4E1286-07	Water	NWTPH-Dx LL	05/15/24 07:54	05/22/24 07:10	1030mL/2mL	1000mL/2mL	0.97
A4E1286-08	Water	NWTPH-Dx LL	05/14/24 12:20	05/22/24 07:10	1040mL/2mL	1000mL/2mL	0.96
A4E1286-09	Water	NWTPH-Dx LL	05/15/24 08:38	05/22/24 07:10	1020mL/2mL	1000mL/2mL	0.98
A4E1286-10	Water	NWTPH-Dx LL	05/14/24 10:18	05/22/24 07:10	1040mL/2mL	1000mL/2mL	0.96
A4E1286-11	Water	NWTPH-Dx LL	05/14/24 11:02	05/22/24 07:10	1040mL/2mL	1000mL/2mL	0.96
A4E1286-12	Water	NWTPH-Dx LL	05/14/24 11:43	05/22/24 07:10	1030mL/2mL	1000mL/2mL	0.97
A4E1286-13	Water	NWTPH-Dx LL	05/14/24 09:25	05/22/24 07:10	1060mL/2mL	1000mL/2mL	0.94
A4E1286-14	Water	NWTPH-Dx LL	05/14/24 09:34	05/22/24 07:10	1020mL/2mL	1000mL/2mL	0.98
A4E1286-17	Water	NWTPH-Dx LL	05/14/24 10:30	05/22/24 07:10	970mL/2mL	1000mL/2mL	1.03
A4E1286-18	Water	NWTPH-Dx LL	05/14/24 11:19	05/22/24 07:10	1030mL/2mL	1000mL/2mL	0.97

Dissolved Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24E0775</u>							
A4E1286-20	Water	NWTPH-Dx (Diss)	05/15/24 09:38	05/22/24 07:10	980mL/2mL	1000mL/2mL	1.02
A4E1286-21	Water	NWTPH-Dx (Diss)	05/15/24 09:38	05/22/24 07:10	1040mL/2mL	1000mL/2mL	0.96

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030C

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24E0590</u>							
A4E1286-06	Water	NWTPH-Gx (MS)	05/14/24 12:56	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-08	Water	NWTPH-Gx (MS)	05/14/24 12:20	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-10	Water	NWTPH-Gx (MS)	05/14/24 10:18	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-11	Water	NWTPH-Gx (MS)	05/14/24 11:02	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-12	Water	NWTPH-Gx (MS)	05/14/24 11:43	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-13	Water	NWTPH-Gx (MS)	05/14/24 09:25	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323

ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
---	---	---

SAMPLE PREPARATION INFORMATION

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

<u>Prep: EPA 5030C</u>					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
A4E1286-14	Water	NWTPH-Gx (MS)	05/14/24 09:34	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-15	Water	NWTPH-Gx (MS)	05/15/24 09:38	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-17	Water	NWTPH-Gx (MS)	05/14/24 10:30	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-18	Water	NWTPH-Gx (MS)	05/14/24 11:19	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24E0641</u>							
A4E1286-01	Water	NWTPH-Gx (MS)	05/14/24 12:14	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00
A4E1286-02	Water	NWTPH-Gx (MS)	05/15/24 08:53	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00
A4E1286-03	Water	NWTPH-Gx (MS)	05/14/24 13:26	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00
A4E1286-04	Water	NWTPH-Gx (MS)	05/15/24 08:00	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00
A4E1286-05	Water	NWTPH-Gx (MS)	05/14/24 12:56	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00
A4E1286-07RE1	Water	NWTPH-Gx (MS)	05/15/24 07:54	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00
A4E1286-16RE1	Water	NWTPH-Gx (MS)	05/15/24 09:38	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24E0724</u>							
A4E1286-09RE1	Water	NWTPH-Gx (MS)	05/15/24 08:38	05/21/24 13:12	5mL/5mL	5mL/5mL	1.00

Selected Volatile Organic Compounds by EPA 8260D

<u>Prep: EPA 5030C</u>					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 24E0590</u>							
A4E1286-06	Water	EPA 8260D	05/14/24 12:56	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-08	Water	EPA 8260D	05/14/24 12:20	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-10	Water	EPA 8260D	05/14/24 10:18	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-11	Water	EPA 8260D	05/14/24 11:02	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-12	Water	EPA 8260D	05/14/24 11:43	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-13	Water	EPA 8260D	05/14/24 09:25	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-14	Water	EPA 8260D	05/14/24 09:34	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-15	Water	EPA 8260D	05/15/24 09:38	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-17	Water	EPA 8260D	05/14/24 10:30	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
A4E1286-18	Water	EPA 8260D	05/14/24 11:19	05/16/24 07:38	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24E0641</u>							
A4E1286-01	Water	EPA 8260D	05/14/24 12:14	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00
A4E1286-02	Water	EPA 8260D	05/15/24 08:53	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00
A4E1286-03	Water	EPA 8260D	05/14/24 13:26	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00
A4E1286-04	Water	EPA 8260D	05/15/24 08:00	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00
A4E1286-05	Water	EPA 8260D	05/14/24 12:56	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
---	---	---

SAMPLE PREPARATION INFORMATION

Selected Volatile Organic Compounds by EPA 8260D

Prep: EPA 5030C

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A4E1286-07RE1	Water	EPA 8260D	05/15/24 07:54	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00
A4E1286-16RE1	Water	EPA 8260D	05/15/24 09:38	05/17/24 10:27	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24E0724</u>							
A4E1286-09RE1	Water	EPA 8260D	05/15/24 08:38	05/21/24 13:12	5mL/5mL	5mL/5mL	1.00

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Darrell Auvil, Client Services Manager



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ORELAP ID: OR100062

GeoEngineers - Portland

5820 S Kelly Ave Unit B
Portland, OR 97239

Project: **Nustar Vannex GWM 2Q24**

Project Number: **19001-008-13**

Project Manager: **Philip Cordell**

Report ID:

A4E1286 - 06 05 24 1050

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- F-11** The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
- F-18** Result for Diesel (Diesel Range Organics, C12-C25) is due to overlap from Gasoline or a Gasoline Range product.
- F-20** Result for Diesel is Estimated due to overlap from Gasoline Range Organics or other VOCs.
- FILT3** This is a laboratory filtration blank, associated with filtration batch 24E0595. See Prep page of report for associated samples.
- PRO** Sample has undergone sample processing prior to extraction and analysis.
- Q-19** Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- Q-50** Due to instrument malfunction, not all Batch QC samples were analyzed. The batch is accepted based on the recoveries of the Blank Spike (BS).
- R-04** Reporting levels elevated due to preparation and/or analytical dilution necessary for analysis.

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

- DET Analyte DETECTED at or above the detection or reporting limit.
- ND Analyte NOT DETECTED at or above the detection or reporting limit.
- NR Result Not Reported
- RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

- Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.
 - "dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.
 - "wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.
 - " " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.
- Results for Volatiles analyses on soils and sediments that are reported on a "dry weight" basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an "As Received" basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

- " --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- " *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL). Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.

- For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
- For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

- Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Table with project details: GeoEngineers - Portland, Project: Nustar Vannex GWM 2Q24, Project Number: 19001-008-13, Project Manager: Philip Cordell, Report ID: A4E1286 - 06 05 24 1050

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) -
EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Table header with columns: Matrix, Analysis, TNI_ID, Analyte, TNI_ID, Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation. Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Handwritten signature of Darrell Auvil

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ANALYTICAL REPORT

Apex Laboratories, LLC

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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland
5820 S Kelly Ave Unit B
Portland, OR 97239

Project: **Nustar Vannex GWM 2024**
Project Number: **19001-008-13**
Project Manager: **Philip Cordell**

Report ID:
A4E1286 - 06 05 24 1050

LOC modified by Sam Russell on 5/16/24 - Jay Whittall
 Revised
 Lab # AVE1286 coc 1 of 2
CHAIN OF CUSTODY

APEX LABS
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

Company: GeoEngineers		Project Mgr: Phil Cordell		Project Name: Vannex 2024 GWM		Project #: 1001-008-13	
Address: 5820 S. Kelly Ave, Portland, OR		Phone:		Email: p.cordell@geoengineers.com		Lab # PO #	
Sampled by: Sam Russell/Colm Watson		ANALYSIS REQUEST					
Site Location:							
State: WA							
County: Clark							
SAMPLE ID	DATE	TIME	MATRIX	# OF CONTAINERS	NWTR-ACID	NWTR-DX	NWTR-CX
MW-1	5/14/24	12:14	W	5	X	X	X
MW-2	5/15/24	08:55	W	5			
MW-3	5/14/24	13:26					
MW-4	5/15/24	08:00					
MW-5	5/14/24	12:56					
MW-5 DUP	5/14/24	12:56					
MW-6	5/15/24	10:54					
MW-5D	5/14/24	12:20					
MW-6D	5/15/24	08:58					
MW-7	5/14/24	16:18					
SPECIAL INSTRUCTIONS: MW-1 and MW-11 OR samples collected in 1L amber bottles were unprocessed. Please filter with 0.7 µm filter before analysis. For VDA's, please centrifuge and, if necessary, decant before analysis. Cont. on Pg. 2/2							
TAT Requested (circle) 1 Day 2 Day 3 Day 5 Day Other:				SAMPLES ARE HELD FOR 30 DAYS			
RELINQUISHED BY: Signature: <i>Sam Russell</i> Date: 5/15/24 Printed Name: Sam Russell Company: GeoEngineers	RECEIVED BY: Signature: <i>ANSAWILOR</i> Date: 5/15/24 Printed Name: ANSAWILOR Company: Apex	RELINQUISHED BY: Signature: _____ Date: _____ Printed Name: _____ Company: _____	RECEIVED BY: Signature: _____ Date: _____ Printed Name: _____ Company: _____				

Form Y-002 R-00

Apex Laboratories

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Darrell Auvil, Client Services Manager



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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 2Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4E1286 - 06 05 24 1050
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APEX LABS COOLER RECEIPT FORM

Client: GeoEngineers Element WO#: A4E1286

Project/Project #: Vannex 2Q24 GWM 19001-008-13

Delivery Info:
 Date/time received: 5/15/24 @ 1405 By: AAW
 Delivered by: Apex Client FedEx UPS Radio Morgan SDS Evergreen Other
 From USDA Regulated Origin? Yes No

Cooler Inspection Date/time inspected: 5/15/24 @ 1408 By: AAW
 Chain of Custody included? Yes No
 Signed/dated by client? Yes No
 Contains USDA Reg. Soils? Yes No Unsure (email RegSoils)

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>0.0</u>	<u>3.9</u>	<u>4.3</u>				
Custody seals? (Y/N)	<u>N</u>	<u>→</u>					
Received on ice? (Y/N)	<u>Y</u>	<u>→</u>					
Temp. blanks? (Y/N)	<u>N</u>	<u>→</u>					
Ice type: (Gel/Real/Other)	<u>Real</u>	<u>→</u>					
Condition (In/Out):	<u>In</u>	<u>→</u>					

Cooler out of temp? (Y/N) Possible reason why: _____
 Green dots applied to out of temperature samples? Yes/No /No
 Out of temperature samples form initiated? Yes/No /No

Sample Inspection: Date/time inspected: 5/15/24 @ 1517 By: AAW
 All samples intact? Yes No Comments: _____

Bottle labels/COCs agree? Yes No Comments: No DIT on coc. Trip blanks are not listed on the coc. See form and for AAW keys 51.57m

COC/container discrepancies form initiated? Yes No 5/15

Containers/volumes received appropriate for analysis? Yes No Comments: _____

Do VOA vials have visible headspace? Yes No NA

Comments: _____

Water samples: pH checked: Yes No NA pH appropriate? Yes No NA pH ID: A231172

Comments: TB# 3542 #3542

Labeled by: AAW Witness: AAW Cooler Inspected by: AAW

Form Y-003 R-02

Apex Laboratories

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ANALYTICAL REPORT

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6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Thursday, August 29, 2024

Philip Cordell
GeoEngineers - Portland
5820 S Kelly Ave Unit B
Portland, OR 97239

RE: A4H1134 - Nustar Vannex GWM 3Q24 - 19001-008-13

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4H1134, which was received by the laboratory on 8/14/2024 at 1:16:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: DAuvil@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information			
<u>Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.</u>			
(See Cooler Receipt Form for details)			
Cooler #1	4.2	degC	
Cooler #2	2.8	degC	
Cooler #3	4.6	degC	
Cooler #4	0.4	degC	

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	A4H1134-01	Water	08/13/24 12:29	08/14/24 13:16
MW-2	A4H1134-02	Water	08/14/24 09:46	08/14/24 13:16
MW-3	A4H1134-03	Water	08/14/24 08:09	08/14/24 13:16
MW-4	A4H1134-04	Water	08/14/24 09:00	08/14/24 13:16
MW-5	A4H1134-05	Water	08/13/24 13:23	08/14/24 13:16
MW-5 DUP	A4H1134-06	Water	08/13/24 13:23	08/14/24 13:16
MW-5D	A4H1134-07	Water	08/13/24 13:22	08/14/24 13:16
MW-6	A4H1134-08	Water	08/14/24 10:44	08/14/24 13:16
MW-6D	A4H1134-09	Water	08/14/24 10:13	08/14/24 13:16
MW-7	A4H1134-10	Water	08/13/24 09:30	08/14/24 13:16
MW-8	A4H1134-11	Water	08/13/24 11:09	08/14/24 13:16
MW-8D	A4H1134-12	Water	08/13/24 10:32	08/14/24 13:16
MW-9	A4H1134-13	Water	08/13/24 12:21	08/14/24 13:16
MW-10	A4H1134-14	Water	08/13/24 09:16	08/14/24 13:16
MW-11	A4H1134-15	Water	08/14/24 08:24	08/14/24 13:16
MW-11 DUP	A4H1134-16	Water	08/14/24 08:24	08/14/24 13:16
MW-12	A4H1134-17	Water	08/13/24 10:29	08/14/24 13:16
MW-12D	A4H1134-18	Water	08/13/24 11:09	08/14/24 13:16

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---	---	---

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-1 (A4H1134-01)			Matrix: Water			Batch: 24H0802		
Diesel	0.405	---	0.0777	mg/L	1	08/23/24 02:51	NWTPH-Dx LL	F-11
Oil	ND	---	0.155	mg/L	1	08/23/24 02:51	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 82 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 02:51</i>	<i>NWTPH-Dx LL</i>
MW-2 (A4H1134-02)			Matrix: Water			Batch: 24H0876		
Diesel	ND	---	0.0762	mg/L	1	08/23/24 21:57	NWTPH-Dx LL	
Oil	ND	---	0.152	mg/L	1	08/23/24 21:57	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 82 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 21:57</i>	<i>NWTPH-Dx LL</i>
MW-3 (A4H1134-03)			Matrix: Water			Batch: 24H0876		
Diesel	0.0801	---	0.0769	mg/L	1	08/23/24 22:21	NWTPH-Dx LL	F-11
Oil	ND	---	0.154	mg/L	1	08/23/24 22:21	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 82 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 22:21</i>	<i>NWTPH-Dx LL</i>
MW-4 (A4H1134-04)			Matrix: Water			Batch: 24H0876		
Diesel	0.136	---	0.0769	mg/L	1	08/23/24 22:44	NWTPH-Dx LL	F-11
Oil	ND	---	0.154	mg/L	1	08/23/24 22:44	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 84 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 22:44</i>	<i>NWTPH-Dx LL</i>
MW-5 (A4H1134-05)			Matrix: Water			Batch: 24H0802		
Diesel	2.17	---	0.0777	mg/L	1	08/23/24 03:12	NWTPH-Dx LL	F-18
Oil	ND	---	0.155	mg/L	1	08/23/24 03:12	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 03:12</i>	<i>NWTPH-Dx LL</i>
MW-5 DUP (A4H1134-06)			Matrix: Water			Batch: 24H0802		
Diesel	1.86	---	0.0800	mg/L	1	08/23/24 03:33	NWTPH-Dx LL	F-18
Oil	ND	---	0.160	mg/L	1	08/23/24 03:33	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 86 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 03:33</i>	<i>NWTPH-Dx LL</i>
MW-5D (A4H1134-07)			Matrix: Water			Batch: 24H0802		
Diesel	0.552	---	0.0792	mg/L	1	08/23/24 03:53	NWTPH-Dx LL	F-20
Oil	ND	---	0.158	mg/L	1	08/23/24 03:53	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 89 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 03:53</i>	<i>NWTPH-Dx LL</i>

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
---	---	---

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-6 (A4H1134-08)			Matrix: Water		Batch: 24H0876			
Diesel	4.37	---	0.0762	mg/L	1	08/23/24 23:08	NWTPH-Dx LL	F-20
Oil	ND	---	0.152	mg/L	1	08/23/24 23:08	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 71 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 23:08</i>	<i>NWTPH-Dx LL</i>
MW-6D (A4H1134-09)			Matrix: Water		Batch: 24H0876			
Diesel	0.151	---	0.0755	mg/L	1	08/23/24 23:54	NWTPH-Dx LL	F-11
Oil	ND	---	0.151	mg/L	1	08/23/24 23:54	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 84 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 23:54</i>	<i>NWTPH-Dx LL</i>
MW-7 (A4H1134-10)			Matrix: Water		Batch: 24H0802			
Diesel	ND	---	0.0762	mg/L	1	08/23/24 04:34	NWTPH-Dx LL	
Oil	ND	---	0.152	mg/L	1	08/23/24 04:34	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 81 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 04:34</i>	<i>NWTPH-Dx LL</i>
MW-8 (A4H1134-11)			Matrix: Water		Batch: 24H0802			
Diesel	ND	---	0.0755	mg/L	1	08/23/24 04:55	NWTPH-Dx LL	
Oil	ND	---	0.151	mg/L	1	08/23/24 04:55	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 77 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 04:55</i>	<i>NWTPH-Dx LL</i>
MW-8D (A4H1134-12)			Matrix: Water		Batch: 24H0802			
Diesel	ND	---	0.0777	mg/L	1	08/23/24 05:16	NWTPH-Dx LL	
Oil	ND	---	0.155	mg/L	1	08/23/24 05:16	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 65 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 05:16</i>	<i>NWTPH-Dx LL</i>
MW-9 (A4H1134-13)			Matrix: Water		Batch: 24H0802			
Diesel	ND	---	0.0777	mg/L	1	08/23/24 05:36	NWTPH-Dx LL	
Oil	ND	---	0.155	mg/L	1	08/23/24 05:36	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 66 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 05:36</i>	<i>NWTPH-Dx LL</i>
MW-10 (A4H1134-14)			Matrix: Water		Batch: 24H0802			
Diesel	ND	---	0.0762	mg/L	1	08/23/24 05:57	NWTPH-Dx LL	
Oil	ND	---	0.152	mg/L	1	08/23/24 05:57	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 64 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 05:57</i>	<i>NWTPH-Dx LL</i>

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-12 (A4H1134-17)				Matrix: Water		Batch: 24H0802		
Diesel	ND	---	0.0769	mg/L	1	08/23/24 06:18	NWTPH-Dx LL	
Oil	ND	---	0.154	mg/L	1	08/23/24 06:18	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 81 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 06:18</i>	<i>NWTPH-Dx LL</i>
MW-12D (A4H1134-18)				Matrix: Water		Batch: 24H0802		
Diesel	ND	---	0.0777	mg/L	1	08/23/24 06:38	NWTPH-Dx LL	
Oil	ND	---	0.155	mg/L	1	08/23/24 06:38	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 78 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/23/24 06:38</i>	<i>NWTPH-Dx LL</i>

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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ANALYTICAL SAMPLE RESULTS

Dissolved Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-11 (A4H1134-15)				Matrix: Water		Batch: 24H0772		FILT1
Diesel	ND	---	0.0777	mg/L	1	08/21/24 22:55	NWTPH-Dx (Diss)	
Oil	ND	---	0.155	mg/L	1	08/21/24 22:55	NWTPH-Dx (Diss)	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 66 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/21/24 22:55</i>	<i>NWTPH-Dx (Diss)</i>
MW-11 DUP (A4H1134-16)				Matrix: Water		Batch: 24H0772		FILT1
Diesel	ND	---	0.0755	mg/L	1	08/21/24 23:16	NWTPH-Dx (Diss)	
Oil	ND	---	0.151	mg/L	1	08/21/24 23:16	NWTPH-Dx (Diss)	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 53 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/21/24 23:16</i>	<i>NWTPH-Dx (Diss)</i>

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-1 (A4H1134-01)			Matrix: Water			Batch: 24H0656		
Gasoline Range Organics	ND	---	0.100	mg/L	1	08/19/24 17:20	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 94 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>08/19/24 17:20</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>109 %</i>	<i>50-150 %</i>	<i>1</i>	<i>08/19/24 17:20</i>	<i>NWTPH-Gx (MS)</i>	
MW-2 (A4H1134-02)			Matrix: Water			Batch: 24H0656		
Gasoline Range Organics	ND	---	0.100	mg/L	1	08/19/24 17:47	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 93 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>08/19/24 17:47</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>111 %</i>	<i>50-150 %</i>	<i>1</i>	<i>08/19/24 17:47</i>	<i>NWTPH-Gx (MS)</i>	
MW-3 (A4H1134-03)			Matrix: Water			Batch: 24H0656		
Gasoline Range Organics	ND	---	0.100	mg/L	1	08/19/24 18:15	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 94 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>08/19/24 18:15</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>110 %</i>	<i>50-150 %</i>	<i>1</i>	<i>08/19/24 18:15</i>	<i>NWTPH-Gx (MS)</i>	
MW-4 (A4H1134-04)			Matrix: Water			Batch: 24H0656		
Gasoline Range Organics	ND	---	0.100	mg/L	1	08/19/24 18:42	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 94 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>08/19/24 18:42</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>112 %</i>	<i>50-150 %</i>	<i>1</i>	<i>08/19/24 18:42</i>	<i>NWTPH-Gx (MS)</i>	
MW-5 (A4H1134-05)			Matrix: Water			Batch: 24H0656		
Gasoline Range Organics	16.7	---	2.00	mg/L	20	08/19/24 19:09	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 94 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>08/19/24 19:09</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>109 %</i>	<i>50-150 %</i>	<i>1</i>	<i>08/19/24 19:09</i>	<i>NWTPH-Gx (MS)</i>	
MW-5 DUP (A4H1134-06)			Matrix: Water			Batch: 24H0700		
Gasoline Range Organics	16.4	---	2.00	mg/L	20	08/20/24 20:10	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 97 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>08/20/24 20:10</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>104 %</i>	<i>50-150 %</i>	<i>1</i>	<i>08/20/24 20:10</i>	<i>NWTPH-Gx (MS)</i>	
MW-5D (A4H1134-07)			Matrix: Water			Batch: 24H0700		
Gasoline Range Organics	0.508	---	0.100	mg/L	1	08/20/24 10:09	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 96 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>08/20/24 10:09</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>111 %</i>	<i>50-150 %</i>	<i>1</i>	<i>08/20/24 10:09</i>	<i>NWTPH-Gx (MS)</i>	
MW-6 (A4H1134-08)			Matrix: Water			Batch: 24H0700		

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland	Project: Nustar Vannex GWM 3Q24	
5820 S Kelly Ave Unit B	Project Number: 19001-008-13	Report ID:
Portland, OR 97239	Project Manager: Philip Cordell	A4H1134 - 08 29 24 1422

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-6 (A4H1134-08)				Matrix: Water		Batch: 24H0700		
Gasoline Range Organics	13.4	---	2.50	mg/L	25	08/20/24 20:37	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 97 %	Limits: 50-150 %	1	08/20/24 20:37	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			103 %	50-150 %	1	08/20/24 20:37	NWTPH-Gx (MS)	
MW-6D (A4H1134-09)				Matrix: Water		Batch: 24H0700		
Gasoline Range Organics	ND	---	0.100	mg/L	1	08/20/24 10:36	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 92 %	Limits: 50-150 %	1	08/20/24 10:36	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			110 %	50-150 %	1	08/20/24 10:36	NWTPH-Gx (MS)	
MW-7 (A4H1134-10)				Matrix: Water		Batch: 24H0700		
Gasoline Range Organics	ND	---	0.100	mg/L	1	08/20/24 11:03	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 92 %	Limits: 50-150 %	1	08/20/24 11:03	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			110 %	50-150 %	1	08/20/24 11:03	NWTPH-Gx (MS)	
MW-8 (A4H1134-11)				Matrix: Water		Batch: 24H0700		
Gasoline Range Organics	ND	---	0.100	mg/L	1	08/20/24 11:30	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 93 %	Limits: 50-150 %	1	08/20/24 11:30	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			112 %	50-150 %	1	08/20/24 11:30	NWTPH-Gx (MS)	
MW-8D (A4H1134-12)				Matrix: Water		Batch: 24H0700		
Gasoline Range Organics	ND	---	0.100	mg/L	1	08/20/24 11:58	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 93 %	Limits: 50-150 %	1	08/20/24 11:58	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			112 %	50-150 %	1	08/20/24 11:58	NWTPH-Gx (MS)	
MW-9 (A4H1134-13)				Matrix: Water		Batch: 24H0751		
Gasoline Range Organics	ND	---	0.100	mg/L	1	08/21/24 10:34	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 96 %	Limits: 50-150 %	1	08/21/24 10:34	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			104 %	50-150 %	1	08/21/24 10:34	NWTPH-Gx (MS)	
MW-10 (A4H1134-14)				Matrix: Water		Batch: 24H0751		
Gasoline Range Organics	ND	---	0.100	mg/L	1	08/21/24 11:01	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 97 %	Limits: 50-150 %	1	08/21/24 11:01	NWTPH-Gx (MS)	
1,4-Difluorobenzene (Sur)			105 %	50-150 %	1	08/21/24 11:01	NWTPH-Gx (MS)	
MW-11 (A4H1134-15)				Matrix: Water		Batch: 24H0751		R-04

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
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 503-718-2323
 ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-11 (A4H1134-15)				Matrix: Water		Batch: 24H0751		R-04
Gasoline Range Organics	ND	---	0.500	mg/L	5	08/21/24 16:02	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/21/24 16:02</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>109 %</i>		<i>50-150 %</i>		<i>1</i>	<i>08/21/24 16:02</i>	<i>NWTPH-Gx (MS)</i>
MW-11 DUP (A4H1134-16)				Matrix: Water		Batch: 24H0751		R-04
Gasoline Range Organics	ND	---	0.500	mg/L	5	08/21/24 16:30	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/21/24 16:30</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>111 %</i>		<i>50-150 %</i>		<i>1</i>	<i>08/21/24 16:30</i>	<i>NWTPH-Gx (MS)</i>
MW-12 (A4H1134-17)				Matrix: Water		Batch: 24H0751		
Gasoline Range Organics	ND	---	0.100	mg/L	1	08/21/24 11:28	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/21/24 11:28</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>105 %</i>		<i>50-150 %</i>		<i>1</i>	<i>08/21/24 11:28</i>	<i>NWTPH-Gx (MS)</i>
MW-12D (A4H1134-18)				Matrix: Water		Batch: 24H0751		
Gasoline Range Organics	ND	---	0.100	mg/L	1	08/21/24 11:56	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>08/21/24 11:56</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>106 %</i>		<i>50-150 %</i>		<i>1</i>	<i>08/21/24 11:56</i>	<i>NWTPH-Gx (MS)</i>

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-1 (A4H1134-01)			Matrix: Water			Batch: 24H0656		
Benzene	ND	---	0.200	ug/L	1	08/19/24 17:20	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	08/19/24 17:20	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	08/19/24 17:20	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	08/19/24 17:20	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	08/19/24 17:20	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	08/19/24 17:20	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 108 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>08/19/24 17:20</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>104 %</i>	<i>80-120 %</i>	<i>1</i>	<i>08/19/24 17:20</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>102 %</i>	<i>80-120 %</i>	<i>1</i>	<i>08/19/24 17:20</i>	<i>EPA 8260D</i>	
MW-2 (A4H1134-02)			Matrix: Water			Batch: 24H0656		
Benzene	ND	---	0.200	ug/L	1	08/19/24 17:47	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	08/19/24 17:47	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	08/19/24 17:47	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	08/19/24 17:47	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	08/19/24 17:47	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	08/19/24 17:47	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 106 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>08/19/24 17:47</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>104 %</i>	<i>80-120 %</i>	<i>1</i>	<i>08/19/24 17:47</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>102 %</i>	<i>80-120 %</i>	<i>1</i>	<i>08/19/24 17:47</i>	<i>EPA 8260D</i>	
MW-3 (A4H1134-03)			Matrix: Water			Batch: 24H0656		
Benzene	ND	---	0.200	ug/L	1	08/19/24 18:15	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	08/19/24 18:15	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	08/19/24 18:15	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	08/19/24 18:15	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	08/19/24 18:15	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	08/19/24 18:15	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 107 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>08/19/24 18:15</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>105 %</i>	<i>80-120 %</i>	<i>1</i>	<i>08/19/24 18:15</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>103 %</i>	<i>80-120 %</i>	<i>1</i>	<i>08/19/24 18:15</i>	<i>EPA 8260D</i>	
MW-4 (A4H1134-04)			Matrix: Water			Batch: 24H0656		
Benzene	ND	---	0.200	ug/L	1	08/19/24 18:42	EPA 8260D	

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-4 (A4H1134-04)			Matrix: Water			Batch: 24H0656		
Toluene	ND	---	1.00	ug/L	1	08/19/24 18:42	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	08/19/24 18:42	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	08/19/24 18:42	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	08/19/24 18:42	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	08/19/24 18:42	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 107 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>08/19/24 18:42</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>104 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/19/24 18:42</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/19/24 18:42</i>	<i>EPA 8260D</i>
MW-5 (A4H1134-05)			Matrix: Water			Batch: 24H0656		
Benzene	ND	---	4.00	ug/L	20	08/19/24 19:09	EPA 8260D	
Toluene	ND	---	20.0	ug/L	20	08/19/24 19:09	EPA 8260D	
Ethylbenzene	118	---	10.0	ug/L	20	08/19/24 19:09	EPA 8260D	
Xylenes, total	315	---	30.0	ug/L	20	08/19/24 19:09	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	20.0	ug/L	20	08/19/24 19:09	EPA 8260D	
Naphthalene	1710	---	100	ug/L	20	08/19/24 19:09	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 106 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>08/19/24 19:09</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>104 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/19/24 19:09</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/19/24 19:09</i>	<i>EPA 8260D</i>
MW-5 DUP (A4H1134-06)			Matrix: Water			Batch: 24H0700		
Benzene	ND	---	4.00	ug/L	20	08/20/24 20:10	EPA 8260D	
Toluene	ND	---	20.0	ug/L	20	08/20/24 20:10	EPA 8260D	
Ethylbenzene	121	---	10.0	ug/L	20	08/20/24 20:10	EPA 8260D	
Xylenes, total	315	---	30.0	ug/L	20	08/20/24 20:10	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	20.0	ug/L	20	08/20/24 20:10	EPA 8260D	
Naphthalene	1680	---	100	ug/L	20	08/20/24 20:10	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 103 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>08/20/24 20:10</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 20:10</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 20:10</i>	<i>EPA 8260D</i>
MW-5D (A4H1134-07)			Matrix: Water			Batch: 24H0700		
Benzene	ND	---	0.200	ug/L	1	08/20/24 10:09	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	08/20/24 10:09	EPA 8260D	

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-5D (A4H1134-07)			Matrix: Water			Batch: 24H0700		
Ethylbenzene	6.55	---	0.500	ug/L	1	08/20/24 10:09	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	08/20/24 10:09	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	08/20/24 10:09	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	08/20/24 10:09	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>08/20/24 10:09</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>104 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 10:09</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 10:09</i>	<i>EPA 8260D</i>
MW-6 (A4H1134-08)			Matrix: Water			Batch: 24H0700		
Benzene	143	---	5.00	ug/L	25	08/20/24 20:37	EPA 8260D	
Toluene	ND	---	25.0	ug/L	25	08/20/24 20:37	EPA 8260D	
Ethylbenzene	1420	---	12.5	ug/L	25	08/20/24 20:37	EPA 8260D	
Xylenes, total	92.0	---	37.5	ug/L	25	08/20/24 20:37	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	25.0	ug/L	25	08/20/24 20:37	EPA 8260D	
Naphthalene	416	---	125	ug/L	25	08/20/24 20:37	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 101 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>08/20/24 20:37</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 20:37</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 20:37</i>	<i>EPA 8260D</i>
MW-6D (A4H1134-09)			Matrix: Water			Batch: 24H0700		
Benzene	ND	---	0.200	ug/L	1	08/20/24 10:36	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	08/20/24 10:36	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	08/20/24 10:36	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	08/20/24 10:36	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	08/20/24 10:36	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	08/20/24 10:36	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>08/20/24 10:36</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>105 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 10:36</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 10:36</i>	<i>EPA 8260D</i>
MW-7 (A4H1134-10)			Matrix: Water			Batch: 24H0700		
Benzene	ND	---	0.200	ug/L	1	08/20/24 11:03	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	08/20/24 11:03	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	08/20/24 11:03	EPA 8260D	

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Darrell Auvil, Client Services Manager

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-7 (A4H1134-10)				Matrix: Water		Batch: 24H0700		
Xylenes, total	ND	---	1.50	ug/L	1	08/20/24 11:03	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	08/20/24 11:03	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	08/20/24 11:03	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 107 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>08/20/24 11:03</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>104 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 11:03</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 11:03</i>	<i>EPA 8260D</i>
MW-8 (A4H1134-11)				Matrix: Water		Batch: 24H0700		
Benzene	ND	---	0.200	ug/L	1	08/20/24 11:30	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	08/20/24 11:30	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	08/20/24 11:30	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	08/20/24 11:30	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	08/20/24 11:30	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	08/20/24 11:30	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 107 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>08/20/24 11:30</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>105 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 11:30</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 11:30</i>	<i>EPA 8260D</i>
MW-8D (A4H1134-12)				Matrix: Water		Batch: 24H0700		
Benzene	ND	---	0.200	ug/L	1	08/20/24 11:58	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	08/20/24 11:58	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	08/20/24 11:58	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	08/20/24 11:58	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	08/20/24 11:58	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	08/20/24 11:58	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 108 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>08/20/24 11:58</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>104 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 11:58</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/20/24 11:58</i>	<i>EPA 8260D</i>
MW-9 (A4H1134-13)				Matrix: Water		Batch: 24H0751		
Benzene	ND	---	0.200	ug/L	1	08/21/24 10:34	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	08/21/24 10:34	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	08/21/24 10:34	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	08/21/24 10:34	EPA 8260D	

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-9 (A4H1134-13)			Matrix: Water			Batch: 24H0751		
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	08/21/24 10:34	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	08/21/24 10:34	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 103 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>08/21/24 10:34</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/21/24 10:34</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>104 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/21/24 10:34</i>	<i>EPA 8260D</i>
MW-10 (A4H1134-14)			Matrix: Water			Batch: 24H0751		
Benzene	ND	---	0.200	ug/L	1	08/21/24 11:01	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	08/21/24 11:01	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	08/21/24 11:01	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	08/21/24 11:01	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	08/21/24 11:01	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	08/21/24 11:01	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>08/21/24 11:01</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/21/24 11:01</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/21/24 11:01</i>	<i>EPA 8260D</i>
MW-11 (A4H1134-15)			Matrix: Water			Batch: 24H0751		R-04
Benzene	1.85	---	1.00	ug/L	5	08/21/24 16:02	EPA 8260D	
Toluene	ND	---	5.00	ug/L	5	08/21/24 16:02	EPA 8260D	
Ethylbenzene	ND	---	2.50	ug/L	5	08/21/24 16:02	EPA 8260D	
Xylenes, total	ND	---	7.50	ug/L	5	08/21/24 16:02	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	5.00	ug/L	5	08/21/24 16:02	EPA 8260D	
Naphthalene	ND	---	25.0	ug/L	5	08/21/24 16:02	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>08/21/24 16:02</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/21/24 16:02</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>08/21/24 16:02</i>	<i>EPA 8260D</i>
MW-11 DUP (A4H1134-16)			Matrix: Water			Batch: 24H0751		R-04
Benzene	ND	---	1.00	ug/L	5	08/21/24 16:30	EPA 8260D	
Toluene	ND	---	5.00	ug/L	5	08/21/24 16:30	EPA 8260D	
Ethylbenzene	ND	---	2.50	ug/L	5	08/21/24 16:30	EPA 8260D	
Xylenes, total	ND	---	7.50	ug/L	5	08/21/24 16:30	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	5.00	ug/L	5	08/21/24 16:30	EPA 8260D	

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ANALYTICAL REPORT

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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-11 DUP (A4H1134-16)			Matrix: Water			Batch: 24H0751		R-04
Naphthalene	ND	---	25.0	ug/L	5	08/21/24 16:30	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 106 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>08/21/24 16:30</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>102 %</i>	<i>80-120 %</i>	<i>1</i>	<i>08/21/24 16:30</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>101 %</i>	<i>80-120 %</i>	<i>1</i>	<i>08/21/24 16:30</i>	<i>EPA 8260D</i>	
MW-12 (A4H1134-17)			Matrix: Water			Batch: 24H0751		
Benzene	ND	---	0.200	ug/L	1	08/21/24 11:28	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	08/21/24 11:28	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	08/21/24 11:28	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	08/21/24 11:28	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	08/21/24 11:28	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	08/21/24 11:28	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 103 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>08/21/24 11:28</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>103 %</i>	<i>80-120 %</i>	<i>1</i>	<i>08/21/24 11:28</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>102 %</i>	<i>80-120 %</i>	<i>1</i>	<i>08/21/24 11:28</i>	<i>EPA 8260D</i>	
MW-12D (A4H1134-18)			Matrix: Water			Batch: 24H0751		
Benzene	ND	---	0.200	ug/L	1	08/21/24 11:56	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	08/21/24 11:56	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	08/21/24 11:56	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	08/21/24 11:56	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	08/21/24 11:56	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	08/21/24 11:56	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 103 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>08/21/24 11:56</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>101 %</i>	<i>80-120 %</i>	<i>1</i>	<i>08/21/24 11:56</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>101 %</i>	<i>80-120 %</i>	<i>1</i>	<i>08/21/24 11:56</i>	<i>EPA 8260D</i>	

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24H0802 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (24H0802-BLK1)			Prepared: 08/22/24 07:49 Analyzed: 08/22/24 21:21									
<u>NWTPH-Dx LL</u>												
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 81 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS (24H0802-BS1)						Prepared: 08/22/24 07:49 Analyzed: 08/22/24 21:42						Q-19
<u>NWTPH-Dx LL</u>												
Diesel	0.414	---	0.0800	mg/L	1	0.500	---	83	36-132%	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 94 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS Dup (24H0802-BSD1)						Prepared: 08/22/24 07:49 Analyzed: 08/22/24 22:03						Q-19
<u>NWTPH-Dx LL</u>												
Diesel	0.406	---	0.0800	mg/L	1	0.500	---	81	36-132%	2	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 94 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
Batch 24H0876 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (24H0876-BLK1)			Prepared: 08/23/24 11:14 Analyzed: 08/23/24 20:47									
<u>NWTPH-Dx LL</u>												
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 81 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS (24H0876-BS1)						Prepared: 08/23/24 11:14 Analyzed: 08/23/24 21:10						
<u>NWTPH-Dx LL</u>												
Diesel	0.426	---	0.0800	mg/L	1	0.500	---	85	36-132%	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 83 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS Dup (24H0876-BSD1)						Prepared: 08/23/24 11:14 Analyzed: 08/23/24 21:34						Q-19
<u>NWTPH-Dx LL</u>												
Diesel	0.423	---	0.0800	mg/L	1	0.500	---	85	36-132%	0.7	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 82 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24H0772 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (24H0772-BLK1)			Prepared: 08/21/24 11:03 Analyzed: 08/21/24 20:10									
<u>NWTPH-Dx (Diss)</u>												
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 86 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
Blank (24H0772-BLK2)			Prepared: 08/21/24 11:03 Analyzed: 08/21/24 20:31									
<u>NWTPH-Dx (Diss)</u>												
Diesel	ND	---	0.0769	mg/L	1	---	---	---	---	---	---	FILT3
Oil	ND	---	0.154	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 80 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS (24H0772-BS1)			Prepared: 08/21/24 11:03 Analyzed: 08/21/24 20:51									
<u>NWTPH-Dx (Diss)</u>												
Diesel	0.342	---	0.0800	mg/L	1	0.500	---	68	36-132%	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 87 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS Dup (24H0772-BSD1)			Prepared: 08/21/24 11:03 Analyzed: 08/21/24 21:12									
<u>NWTPH-Dx (Diss)</u>												
Diesel	0.349	---	0.0800	mg/L	1	0.500	---	70	36-132%	2	30%	Q-19
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 87 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24H0656 - EPA 5030C						Water						
Blank (24H0656-BLK1)			Prepared: 08/19/24 08:11 Analyzed: 08/19/24 10:55									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 92 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>106 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (24H0656-BS2)						Prepared: 08/19/24 08:11 Analyzed: 08/19/24 10:27						
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.499	---	0.100	mg/L	1	0.500	---	100	80-120%	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>103 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24H0656-DUP1)						Prepared: 08/19/24 08:11 Analyzed: 08/19/24 19:37						
<u>QC Source Sample: MW-5 (A4H1134-05)</u>												
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	17.3	---	2.00	mg/L	20	---	16.7	---	---	4	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 94 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>110 %</i>		<i>50-150 %</i>		<i>"</i>						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24H0700 - EPA 5030C						Water						
Blank (24H0700-BLK1)			Prepared: 08/20/24 06:39 Analyzed: 08/20/24 09:41									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>111 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (24H0700-BS2)						Prepared: 08/20/24 06:39 Analyzed: 08/20/24 09:14						
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.482	---	0.100	mg/L	1	0.500	---	96	80-120%	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 94 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>106 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24H0700-DUP1)						Prepared: 08/20/24 06:39 Analyzed: 08/20/24 21:04						
<u>QC Source Sample: Non-SDG (A4H1259-05RE1)</u>												
Gasoline Range Organics	7.13	---	0.500	mg/L	5	---	8.69	---	---	20	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 102 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>104 %</i>		<i>50-150 %</i>		<i>"</i>						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24H0751 - EPA 5030C						Water						
Blank (24H0751-BLK1)			Prepared: 08/21/24 07:21 Analyzed: 08/21/24 10:02									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 94 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>103 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (24H0751-BS2)						Prepared: 08/21/24 07:21 Analyzed: 08/21/24 09:35						
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.482	---	0.100	mg/L	1	0.500	---	96	80-120%	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>100 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24H0751-DUP1)						Prepared: 08/21/24 07:21 Analyzed: 08/21/24 21:58						
<u>QC Source Sample: Non-SDG (A4H1194-01)</u>												
Gasoline Range Organics	69.1	---	10.0	mg/L	100	---	70.1	---	---	1	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 87 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>103 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24H0751-DUP2)						Prepared: 08/21/24 07:21 Analyzed: 08/21/24 21:31						
<u>QC Source Sample: Non-SDG (A4H1308-02)</u>												
Gasoline Range Organics	1.27	---	1.00	mg/L	10	---	1.26	---	---	1	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 94 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>115 %</i>		<i>50-150 %</i>		<i>"</i>						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24H0656 - EPA 5030C						Water						
Blank (24H0656-BLK1)			Prepared: 08/19/24 08:11 Analyzed: 08/19/24 10:55									
<u>EPA 8260D</u>												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>"</i>						
LCS (24H0656-BS1)						Prepared: 08/19/24 08:11 Analyzed: 08/19/24 09:54						
<u>EPA 8260D</u>												
Benzene	19.7	---	0.200	ug/L	1	20.0	---	98	80-120%	---	---	
Toluene	18.8	---	1.00	ug/L	1	20.0	---	94	80-120%	---	---	
Ethylbenzene	19.7	---	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Xylenes, total	58.2	---	1.50	ug/L	1	60.0	---	97	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	17.5	---	1.00	ug/L	1	20.0	---	87	80-120%	---	---	
Naphthalene	19.4	---	5.00	ug/L	1	20.0	---	97	80-120%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>95 %</i>		<i>80-120 %</i>		<i>"</i>						
Duplicate (24H0656-DUP1)						Prepared: 08/19/24 08:11 Analyzed: 08/19/24 19:37						
<u>QC Source Sample: MW-5 (A4H1134-05)</u>												
<u>EPA 8260D</u>												
Benzene	ND	---	4.00	ug/L	20	---	ND	---	---	---	30%	
Toluene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Ethylbenzene	119	---	10.0	ug/L	20	---	118	---	---	1	30%	
Xylenes, total	321	---	30.0	ug/L	20	---	315	---	---	2	30%	
Methyl tert-butyl ether (MTBE)	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Naphthalene	1800	---	100	ug/L	20	---	1710	---	---	5	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						

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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24H0656 - EPA 5030C						Water						
Duplicate (24H0656-DUP1)						Prepared: 08/19/24 08:11 Analyzed: 08/19/24 19:37						
QC Source Sample: MW-5 (A4H1134-05)												
<i>Surr: Toluene-d8 (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>"</i>						
Matrix Spike (24H0656-MS1)						Prepared: 08/19/24 08:11 Analyzed: 08/19/24 15:58						
QC Source Sample: MW-1 (A4H1134-01)												
EPA 8260D												
Benzene	24.5	---	0.200	ug/L	1	20.0	ND	123	79-120%	---	---	Q-01
Toluene	23.1	---	1.00	ug/L	1	20.0	ND	116	80-121%	---	---	
Ethylbenzene	24.4	---	0.500	ug/L	1	20.0	ND	122	79-121%	---	---	Q-01
Xylenes, total	71.4	---	1.50	ug/L	1	60.0	ND	119	79-121%	---	---	
Methyl tert-butyl ether (MTBE)	20.6	---	1.00	ug/L	1	20.0	ND	103	71-124%	---	---	
Naphthalene	22.9	---	5.00	ug/L	1	20.0	ND	115	61-128%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>97 %</i>		<i>80-120 %</i>		<i>"</i>						

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
---	---	--

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24H0700 - EPA 5030C												
Water												
Blank (24H0700-BLK1)												
Prepared: 08/20/24 06:39 Analyzed: 08/20/24 09:41												
<u>EPA 8260D</u>												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr) Recovery: 106 % Limits: 80-120 % Dilution: 1x												
Toluene-d8 (Surr) 104 % 80-120 % "												
4-Bromofluorobenzene (Surr) 103 % 80-120 % "												
LCS (24H0700-BS1)												
Prepared: 08/20/24 06:39 Analyzed: 08/20/24 08:41												
<u>EPA 8260D</u>												
Benzene	18.8	---	0.200	ug/L	1	20.0	---	94	80-120%	---	---	
Toluene	18.0	---	1.00	ug/L	1	20.0	---	90	80-120%	---	---	
Ethylbenzene	18.7	---	0.500	ug/L	1	20.0	---	94	80-120%	---	---	
Xylenes, total	54.7	---	1.50	ug/L	1	60.0	---	91	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	16.3	---	1.00	ug/L	1	20.0	---	82	80-120%	---	---	
Naphthalene	17.9	---	5.00	ug/L	1	20.0	---	89	80-120%	---	---	
1,2-Dibromoethane (EDB)	18.7	---	0.500	ug/L	1	20.0	---	93	80-120%	---	---	
1,2-Dichloroethane (EDC)	20.2	---	0.400	ug/L	1	20.0	---	101	80-120%	---	---	
Isopropylbenzene	16.9	---	1.00	ug/L	1	20.0	---	84	80-120%	---	---	
1,2,4-Trimethylbenzene	18.3	---	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
1,3,5-Trimethylbenzene	18.4	---	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr) Recovery: 102 % Limits: 80-120 % Dilution: 1x												
Toluene-d8 (Surr) 99 % 80-120 % "												
4-Bromofluorobenzene (Surr) 96 % 80-120 % "												
Duplicate (24H0700-DUP1)												
Prepared: 08/20/24 06:39 Analyzed: 08/20/24 21:04												
T-02												

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323

ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
---	---	--

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes	
Batch 24H0700 - EPA 5030C													
Water													
Duplicate (24H0700-DUP1)													
						Prepared: 08/20/24 06:39	Analyzed: 08/20/24 21:04						T-02
QC Source Sample: Non-SDG (A4H1259-05RE1)													
Benzene	ND	---	1.00	ug/L	5	---	ND	---	---	---	30%		
Toluene	ND	---	5.00	ug/L	5	---	ND	---	---	---	30%		
Ethylbenzene	ND	---	2.50	ug/L	5	---	ND	---	---	---	30%		
Xylenes, total	ND	---	7.50	ug/L	5	---	ND	---	---	---	30%		
Methyl tert-butyl ether (MTBE)	ND	---	5.00	ug/L	5	---	ND	---	---	---	30%		
Naphthalene	ND	---	25.0	ug/L	5	---	ND	---	---	---	30%		
1,2-Dibromoethane (EDB)	ND	---	2.50	ug/L	5	---	ND	---	---	---	30%		
1,2-Dichloroethane (EDC)	ND	---	2.00	ug/L	5	---	ND	---	---	---	30%		
Isopropylbenzene	26.2	---	5.00	ug/L	5	---	24.1	---	---	8	30%		
1,2,4-Trimethylbenzene	ND	---	5.00	ug/L	5	---	ND	---	---	---	30%		
1,3,5-Trimethylbenzene	ND	---	5.00	ug/L	5	---	ND	---	---	---	30%		
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>							
<i>Toluene-d8 (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>"</i>							
<i>4-Bromofluorobenzene (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>"</i>							

Matrix Spike (24H0700-MS1)												
						Prepared: 08/20/24 06:39	Analyzed: 08/20/24 12:25					
QC Source Sample: MW-8D (A4H1134-12)												
EPA 8260D												
Benzene	24.9	---	0.200	ug/L	1	20.0	ND	125	79-120%	---	---	Q-01
Toluene	23.5	---	1.00	ug/L	1	20.0	ND	118	80-121%	---	---	
Ethylbenzene	24.6	---	0.500	ug/L	1	20.0	ND	123	79-121%	---	---	Q-01
Xylenes, total	71.3	---	1.50	ug/L	1	60.0	ND	119	79-121%	---	---	
Methyl tert-butyl ether (MTBE)	20.8	---	1.00	ug/L	1	20.0	ND	104	71-124%	---	---	
Naphthalene	23.6	---	5.00	ug/L	1	20.0	ND	118	61-128%	---	---	
1,2-Dibromoethane (EDB)	23.7	---	0.500	ug/L	1	20.0	ND	118	77-121%	---	---	
1,2-Dichloroethane (EDC)	25.6	---	0.400	ug/L	1	20.0	ND	128	73-128%	---	---	
Isopropylbenzene	22.3	---	1.00	ug/L	1	20.0	ND	111	72-131%	---	---	
1,2,4-Trimethylbenzene	24.3	---	1.00	ug/L	1	20.0	ND	122	76-124%	---	---	
1,3,5-Trimethylbenzene	24.4	---	1.00	ug/L	1	20.0	ND	122	75-124%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>95 %</i>		<i>80-120 %</i>		<i>"</i>						

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
---	---	--

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24H0751 - EPA 5030C												
Water												
Blank (24H0751-BLK1)												
Prepared: 08/21/24 07:21 Analyzed: 08/21/24 10:02												
EPA 8260D												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr) Recovery: 103 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr) 101 % 80-120 % "</i>												
<i>4-Bromofluorobenzene (Surr) 103 % 80-120 % "</i>												
LCS (24H0751-BS1)												
Prepared: 08/21/24 07:21 Analyzed: 08/21/24 09:02												
EPA 8260D												
Benzene	18.4	---	0.200	ug/L	1	20.0	---	92	80-120%	---	---	
Toluene	17.5	---	1.00	ug/L	1	20.0	---	88	80-120%	---	---	
Ethylbenzene	18.1	---	0.500	ug/L	1	20.0	---	90	80-120%	---	---	
Xylenes, total	53.3	---	1.50	ug/L	1	60.0	---	89	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	17.1	---	1.00	ug/L	1	20.0	---	86	80-120%	---	---	
Naphthalene	19.9	---	5.00	ug/L	1	20.0	---	100	80-120%	---	---	
1,2-Dibromoethane (EDB)	19.2	---	0.500	ug/L	1	20.0	---	96	80-120%	---	---	
1,2-Dichloroethane (EDC)	19.4	---	0.400	ug/L	1	20.0	---	97	80-120%	---	---	
Isopropylbenzene	16.4	---	1.00	ug/L	1	20.0	---	82	80-120%	---	---	
1,2,4-Trimethylbenzene	17.7	---	1.00	ug/L	1	20.0	---	88	80-120%	---	---	
1,3,5-Trimethylbenzene	17.6	---	1.00	ug/L	1	20.0	---	88	80-120%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr) Recovery: 100 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr) 99 % 80-120 % "</i>												
<i>4-Bromofluorobenzene (Surr) 100 % 80-120 % "</i>												
Duplicate (24H0751-DUP1)												
Prepared: 08/21/24 07:21 Analyzed: 08/21/24 21:58												
T-02												

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Darrell Auvil, Client Services Manager

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes	
Batch 24H0751 - EPA 5030C						Water							
Duplicate (24H0751-DUP1)			Prepared: 08/21/24 07:21 Analyzed: 08/21/24 21:58						T-02				
QC Source Sample: Non-SDG (A4H1194-01)													
Benzene	19000	---	20.0	ug/L	100	---	19200	---	---	0.7	30%		
Toluene	ND	---	100	ug/L	100	---	ND	---	---	---	30%		
Ethylbenzene	271	---	50.0	ug/L	100	---	296	---	---	9	30%		
Xylenes, total	ND	---	150	ug/L	100	---	ND	---	---	---	30%		
Methyl tert-butyl ether (MTBE)	260	---	100	ug/L	100	---	287	---	---	10	30%		
Naphthalene	ND	---	500	ug/L	100	---	ND	---	---	---	30%		
1,2-Dibromoethane (EDB)	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%		
1,2-Dichloroethane (EDC)	ND	---	40.0	ug/L	100	---	ND	---	---	---	30%		
Isopropylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%		
1,2,4-Trimethylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%		
1,3,5-Trimethylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%		
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>							
<i>Toluene-d8 (Surr)</i>		<i>104 %</i>		<i>80-120 %</i>		<i>"</i>							
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>"</i>							
Duplicate (24H0751-DUP2)			Prepared: 08/21/24 07:21 Analyzed: 08/21/24 21:31						T-02				
QC Source Sample: Non-SDG (A4H1308-02)													
Benzene	7.80	---	2.00	ug/L	10	---	7.60	---	---	3	30%		
Toluene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%		
Ethylbenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%		
Xylenes, total	ND	---	15.0	ug/L	10	---	ND	---	---	---	30%		
Methyl tert-butyl ether (MTBE)	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%		
Naphthalene	ND	---	50.0	ug/L	10	---	ND	---	---	---	30%		
1,2-Dibromoethane (EDB)	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%		
1,2-Dichloroethane (EDC)	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%		
Isopropylbenzene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%		
1,2,4-Trimethylbenzene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%		
1,3,5-Trimethylbenzene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%		
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 111 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>							
<i>Toluene-d8 (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>"</i>							
<i>4-Bromofluorobenzene (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>"</i>							

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
---	---	--

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24H0751 - EPA 5030C						Water						
Matrix Spike (24H0751-MS1)			Prepared: 08/21/24 07:21 Analyzed: 08/21/24 13:18									
QC Source Sample: Non-SDG (A4H1194-04)												
EPA 8260D												
Benzene	23.9	---	0.200	ug/L	1	20.0	ND	119	79-120%	---	---	
Toluene	22.2	---	1.00	ug/L	1	20.0	ND	111	80-121%	---	---	
Ethylbenzene	23.0	---	0.500	ug/L	1	20.0	ND	115	79-121%	---	---	
Xylenes, total	68.2	---	1.50	ug/L	1	60.0	ND	114	79-121%	---	---	
Methyl tert-butyl ether (MTBE)	21.2	---	1.00	ug/L	1	20.0	ND	106	71-124%	---	---	
Naphthalene	22.5	---	5.00	ug/L	1	20.0	ND	112	61-128%	---	---	
1,2-Dibromoethane (EDB)	23.3	---	0.500	ug/L	1	20.0	ND	116	77-121%	---	---	
1,2-Dichloroethane (EDC)	24.6	---	0.400	ug/L	1	20.0	ND	123	73-128%	---	---	
Isopropylbenzene	21.2	---	1.00	ug/L	1	20.0	ND	106	72-131%	---	---	
1,2,4-Trimethylbenzene	22.1	---	1.00	ug/L	1	20.0	ND	110	76-124%	---	---	
1,3,5-Trimethylbenzene	22.4	---	1.00	ug/L	1	20.0	ND	112	75-124%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>"</i>						

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ANALYTICAL REPORT

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24H0802</u>							
A4H1134-01	Water	NWTPH-Dx LL	08/13/24 12:29	08/22/24 12:07	1030mL/2mL	1000mL/2mL	0.97
A4H1134-05	Water	NWTPH-Dx LL	08/13/24 13:23	08/22/24 12:07	1030mL/2mL	1000mL/2mL	0.97
A4H1134-06	Water	NWTPH-Dx LL	08/13/24 13:23	08/22/24 12:07	1000mL/2mL	1000mL/2mL	1.00
A4H1134-07	Water	NWTPH-Dx LL	08/13/24 13:22	08/22/24 12:07	1010mL/2mL	1000mL/2mL	0.99
A4H1134-10	Water	NWTPH-Dx LL	08/13/24 09:30	08/22/24 12:07	1050mL/2mL	1000mL/2mL	0.95
A4H1134-11	Water	NWTPH-Dx LL	08/13/24 11:09	08/22/24 12:07	1060mL/2mL	1000mL/2mL	0.94
A4H1134-12	Water	NWTPH-Dx LL	08/13/24 10:32	08/22/24 12:07	1030mL/2mL	1000mL/2mL	0.97
A4H1134-13	Water	NWTPH-Dx LL	08/13/24 12:21	08/22/24 12:07	1030mL/2mL	1000mL/2mL	0.97
A4H1134-14	Water	NWTPH-Dx LL	08/13/24 09:16	08/22/24 12:07	1050mL/2mL	1000mL/2mL	0.95
A4H1134-17	Water	NWTPH-Dx LL	08/13/24 10:29	08/22/24 12:07	1040mL/2mL	1000mL/2mL	0.96
A4H1134-18	Water	NWTPH-Dx LL	08/13/24 11:09	08/22/24 12:07	1030mL/2mL	1000mL/2mL	0.97
<u>Batch: 24H0876</u>							
A4H1134-02	Water	NWTPH-Dx LL	08/14/24 09:46	08/23/24 11:14	1050mL/2mL	1000mL/2mL	0.95
A4H1134-03	Water	NWTPH-Dx LL	08/14/24 08:09	08/23/24 11:14	1040mL/2mL	1000mL/2mL	0.96
A4H1134-04	Water	NWTPH-Dx LL	08/14/24 09:00	08/23/24 11:14	1040mL/2mL	1000mL/2mL	0.96
A4H1134-08	Water	NWTPH-Dx LL	08/14/24 10:44	08/23/24 11:14	1050mL/2mL	1000mL/2mL	0.95
A4H1134-09	Water	NWTPH-Dx LL	08/14/24 10:13	08/23/24 11:14	1060mL/2mL	1000mL/2mL	0.94

Dissolved Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24H0772</u>							
A4H1134-15	Water	NWTPH-Dx (Diss)	08/14/24 08:24	08/21/24 11:03	1030mL/2mL	1000mL/2mL	0.97
A4H1134-16	Water	NWTPH-Dx (Diss)	08/14/24 08:24	08/21/24 11:03	1060mL/2mL	1000mL/2mL	0.94

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030C

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24H0656</u>							
A4H1134-01	Water	NWTPH-Gx (MS)	08/13/24 12:29	08/19/24 10:42	5mL/5mL	5mL/5mL	1.00
A4H1134-02	Water	NWTPH-Gx (MS)	08/14/24 09:46	08/19/24 10:42	5mL/5mL	5mL/5mL	1.00
A4H1134-03	Water	NWTPH-Gx (MS)	08/14/24 08:09	08/19/24 10:42	5mL/5mL	5mL/5mL	1.00
A4H1134-04	Water	NWTPH-Gx (MS)	08/14/24 09:00	08/19/24 10:42	5mL/5mL	5mL/5mL	1.00
A4H1134-05	Water	NWTPH-Gx (MS)	08/13/24 13:23	08/19/24 10:42	5mL/5mL	5mL/5mL	1.00

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323

ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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SAMPLE PREPARATION INFORMATION

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

<u>Prep: EPA 5030C</u>					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 24H0700</u>							
A4H1134-06	Water	NWTPH-Gx (MS)	08/13/24 13:23	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
A4H1134-07	Water	NWTPH-Gx (MS)	08/13/24 13:22	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
A4H1134-08	Water	NWTPH-Gx (MS)	08/14/24 10:44	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
A4H1134-09	Water	NWTPH-Gx (MS)	08/14/24 10:13	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
A4H1134-10	Water	NWTPH-Gx (MS)	08/13/24 09:30	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
A4H1134-11	Water	NWTPH-Gx (MS)	08/13/24 11:09	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
A4H1134-12	Water	NWTPH-Gx (MS)	08/13/24 10:32	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24H0751</u>							
A4H1134-13	Water	NWTPH-Gx (MS)	08/13/24 12:21	08/21/24 09:54	5mL/5mL	5mL/5mL	1.00
A4H1134-14	Water	NWTPH-Gx (MS)	08/13/24 09:16	08/21/24 09:54	5mL/5mL	5mL/5mL	1.00
A4H1134-15	Water	NWTPH-Gx (MS)	08/14/24 08:24	08/21/24 09:54	5mL/5mL	5mL/5mL	1.00
A4H1134-16	Water	NWTPH-Gx (MS)	08/14/24 08:24	08/21/24 09:54	5mL/5mL	5mL/5mL	1.00
A4H1134-17	Water	NWTPH-Gx (MS)	08/13/24 10:29	08/21/24 09:54	5mL/5mL	5mL/5mL	1.00
A4H1134-18	Water	NWTPH-Gx (MS)	08/13/24 11:09	08/21/24 09:54	5mL/5mL	5mL/5mL	1.00

Selected Volatile Organic Compounds by EPA 8260D

<u>Prep: EPA 5030C</u>					Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
<u>Batch: 24H0656</u>							
A4H1134-01	Water	EPA 8260D	08/13/24 12:29	08/19/24 10:42	5mL/5mL	5mL/5mL	1.00
A4H1134-02	Water	EPA 8260D	08/14/24 09:46	08/19/24 10:42	5mL/5mL	5mL/5mL	1.00
A4H1134-03	Water	EPA 8260D	08/14/24 08:09	08/19/24 10:42	5mL/5mL	5mL/5mL	1.00
A4H1134-04	Water	EPA 8260D	08/14/24 09:00	08/19/24 10:42	5mL/5mL	5mL/5mL	1.00
A4H1134-05	Water	EPA 8260D	08/13/24 13:23	08/19/24 10:42	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24H0700</u>							
A4H1134-06	Water	EPA 8260D	08/13/24 13:23	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
A4H1134-07	Water	EPA 8260D	08/13/24 13:22	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
A4H1134-08	Water	EPA 8260D	08/14/24 10:44	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
A4H1134-09	Water	EPA 8260D	08/14/24 10:13	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
A4H1134-10	Water	EPA 8260D	08/13/24 09:30	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
A4H1134-11	Water	EPA 8260D	08/13/24 11:09	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
A4H1134-12	Water	EPA 8260D	08/13/24 10:32	08/20/24 09:36	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24H0751</u>							
A4H1134-13	Water	EPA 8260D	08/13/24 12:21	08/21/24 09:54	5mL/5mL	5mL/5mL	1.00

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
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503-718-2323

ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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SAMPLE PREPARATION INFORMATION

Selected Volatile Organic Compounds by EPA 8260D

Prep: EPA 5030C

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A4H1134-14	Water	EPA 8260D	08/13/24 09:16	08/21/24 09:54	5mL/5mL	5mL/5mL	1.00
A4H1134-15	Water	EPA 8260D	08/14/24 08:24	08/21/24 09:54	5mL/5mL	5mL/5mL	1.00
A4H1134-16	Water	EPA 8260D	08/14/24 08:24	08/21/24 09:54	5mL/5mL	5mL/5mL	1.00
A4H1134-17	Water	EPA 8260D	08/13/24 10:29	08/21/24 09:54	5mL/5mL	5mL/5mL	1.00
A4H1134-18	Water	EPA 8260D	08/13/24 11:09	08/21/24 09:54	5mL/5mL	5mL/5mL	1.00

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ORELAP ID: OR100062

GeoEngineers - Portland
5820 S Kelly Ave Unit B
Portland, OR 97239

Project: **Nustar Vannex GWM 3Q24**
Project Number: **19001-008-13**
Project Manager: **Philip Cordell**

Report ID:
A4H1134 - 08 29 24 1422

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- F-11** The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
- F-18** Result for Diesel (Diesel Range Organics, C12-C25) is due to overlap from Gasoline or a Gasoline Range product.
- F-20** Result for Diesel is Estimated due to overlap from Gasoline Range Organics or other VOCs.
- FILT1** Sample was lab filtered and acid preserved prior to analysis. See sample preparation section of report for date and time of filtration.
- FILT3** This is a laboratory filtration blank, associated with filtration batch 24H0702. See Prep page of report for associated samples.
- Q-01** Spike recovery and/or RPD is outside acceptance limits.
- Q-19** Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- R-04** Reporting levels elevated due to preparation and/or analytical dilution necessary for analysis.
- T-02** This Batch QC sample was analyzed outside of the method specified 12 hour analysis window. Results are estimated.

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

- DET Analyte DETECTED at or above the detection or reporting limit.
- ND Analyte NOT DETECTED at or above the detection or reporting limit.
- NR Result Not Reported
- RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Validated Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

- Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.
 - "dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.
 - "wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.
 - " " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.
- Results for Volatiles analyses on soils and sediments that are reported on a "dry weight" basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an "As Received" basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

- " --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- " *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL). Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.

- For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
- For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

- Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

Apex Laboratories

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) -
EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
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All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation. Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

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Darrell Auvil, Client Services Manager

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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APEX LABS
6700 SW Sandburg St., Tigard, OR 97223 Ph. 503-718-2323

CHAIN OF CUSTODY

Lab # APX1134 COC 2 of 2

Project Mgr: Phil Cordell Project Name: Vannex 3Q24 GWM Project #: 19001-008-13

Address: 5820 S Kelly Ave Unit B, Portland, OR 97239 Email: _____

Sampled by: Sam R. / Colin W.

Site Location: OR CA

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	ANALYSIS REQUEST		Archive
						Priority Metals (13)	TCRP Metals (8)	
MW-8		8/13	109	W	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-8D		8/13	1032	W	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-9		8/13	1021	W	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-10		8/13	0916	W	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-11		8/14	0824	W	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-11 DUP		8/14	0824	W	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-12		8/13	1029	W	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
MW-12D		8/13	1109	W	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

SPECIAL INSTRUCTIONS:
* See COC 1 of 2 for MW-11 sample processing instructions.

<p>RELINQUISHED BY: Signature: <u>[Signature]</u> Date: <u>8/14/24</u></p> <p>Printed Name: <u>Colin Watson</u> Time: <u>1316</u></p> <p>Company: <u>GeoEngineers</u></p>	<p>RECEIVED BY: Signature: <u>[Signature]</u> Date: <u>8/14/24</u></p> <p>Printed Name: <u>ANISSA WILLIAMS</u> Time: <u>1316</u></p> <p>Company: <u>GeoEngineers</u></p>	<p>RELINQUISHED BY: Signature: _____ Date: _____</p> <p>Printed Name: _____ Time: _____</p> <p>Company: _____</p>
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ANALYTICAL REPORT

Apex Laboratories, LLC

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Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Nustar Vannex GWM 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell	Report ID: A4H1134 - 08 29 24 1422
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APEX LABS COOLER RECEIPT FORM

Client: GeoEngineers Element WO#: A4 H1134

Project/Project #: Vannex 3Q24 GWM 19001-008-13

Delivery Info:

Date/time received: 8/14/24 @ 1316 By: APW

Delivered by: Apex Client FedEx UPS Radio Morgan SDS Evergreen Other

From USDA Regulated Origin? Yes No

Cooler Inspection Date/time inspected: 8/14/24 @ 1316 By: APW

Chain of Custody included? Yes No

Signed/dated by client? Yes No

Contains USDA Reg. Soils? Yes No Unsure (email RegSoils)

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>4.2</u>	<u>2.8</u>	<u>4.6</u>	<u>0.4</u>			
Custody seals? (Y/N)	<u>N</u>						
Received on ice? (Y/N)	<u>Y</u>						
Temp. blanks? (Y/N)	<u>Y</u>			<u>N</u>			
Ice type: (Gel/Real/Other)	<u>Real</u>	<u>Gel/Real</u>	<u>Gel/Real</u>	<u>Gel</u>			
Condition (In/Out):	<u>In</u>						

Cooler out of temp? (Y/N) Possible reason why: _____

Green dots applied to out of temperature samples? Yes No

Out of temperature samples form initiated? Yes No

Sample Inspection: Date/time inspected: 8/14/24 @ 1454 By: KMS

All samples intact? Yes No Comments: _____

Bottle labels/COCs agree? Yes No Comments: _____

COC/container discrepancies form initiated? Yes No

Containers/volumes received appropriate for analysis? Yes No Comments: _____

Do VOA vials have visible headspace? Yes No NA

Comments: _____

Water samples: pH checked: Yes No NA pH appropriate? Yes No NA pH ID: A231172

Comments: _____

Labeled by: APW

Witness: ZAM

Cooler Inspected by: KRS

Form Y-003 R-02

Apex Laboratories

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Wednesday, December 4, 2024

Sam J. Russell
GeoEngineers - Portland
5820 S Kelly Ave Unit B
Portland, OR 97239

RE: A4K1513 - Sunoco Annex - 4Q24 GWM - 19001-008-13

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4K1513, which was received by the laboratory on 11/21/2024 at 10:48:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: DAuvil@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information	
<p><u>Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.</u></p> <p>(See Cooler Receipt Form for details)</p>	
<p>Default Cooler</p>	<p style="text-align: center; border-top: 1px solid black;">5.5 degC</p>

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 19001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1513 - 12 04 24 1122
---	--	--

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-6	A4K1513-01	Water	11/21/24 09:21	11/21/24 10:48

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---	--	---

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-6 (A4K1513-01)				Matrix: Water		Batch: 24K0908		
Diesel	2.31	---	0.800	mg/L	10	11/27/24 01:10	NWTPH-Dx LL	F-20
Oil	ND	---	1.60	mg/L	10	11/27/24 01:10	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 92 %</i>		<i>Limits: 50-150 %</i>	<i>10</i>	<i>11/27/24 01:10</i>	<i>NWTPH-Dx LL</i>	<i>S-05</i>

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ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-6 (A4K1513-01)				Matrix: Water		Batch: 24K0818		
Gasoline Range Organics	14.5	---	2.50	mg/L	25	11/23/24 01:30	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 98 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/23/24 01:30</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>102 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/23/24 01:30</i>	<i>NWTPH-Gx (MS)</i>	

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---	--	---

ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-6 (A4K1513-01)			Matrix: Water			Batch: 24K0818		
Benzene	163	---	5.00	ug/L	25	11/23/24 01:30	EPA 8260D	
Toluene	ND	---	25.0	ug/L	25	11/23/24 01:30	EPA 8260D	
Ethylbenzene	1160	---	12.5	ug/L	25	11/23/24 01:30	EPA 8260D	
Xylenes, total	195	---	37.5	ug/L	25	11/23/24 01:30	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	25.0	ug/L	25	11/23/24 01:30	EPA 8260D	
Naphthalene	217	---	125	ug/L	25	11/23/24 01:30	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>			<i>Recovery: 102 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>11/23/24 01:30</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>102 %</i>	<i>80-120 %</i>	<i>1</i>	<i>11/23/24 01:30</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>98 %</i>	<i>80-120 %</i>	<i>1</i>	<i>11/23/24 01:30</i>	<i>EPA 8260D</i>	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0908 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (24K0908-BLK1)			Prepared: 11/26/24 06:16 Analyzed: 11/26/24 19:55									
<u>NWTPH-Dx LL</u>												
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
Mineral Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
Blank (24K0908-BLK2)			Prepared: 11/26/24 06:36 Analyzed: 11/26/24 20:16									
<u>NWTPH-Dx LL</u>												
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
Mineral Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS (24K0908-BS1)			Prepared: 11/26/24 06:16 Analyzed: 11/26/24 20:36									
<u>NWTPH-Dx LL</u>												
Diesel	0.414	---	0.0800	mg/L	1	0.500	---	83	36-132%	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 107 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS Dup (24K0908-BSD1)			Prepared: 11/26/24 06:16 Analyzed: 11/26/24 20:58									Q-19
<u>NWTPH-Dx LL</u>												
Diesel	0.421	---	0.0800	mg/L	1	0.500	---	84	36-132%	2	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 19001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1513 - 12 04 24 1122
---	--	---

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0818 - EPA 5030C						Water						
Blank (24K0818-BLK1)			Prepared: 11/22/24 08:58 Analyzed: 11/22/24 15:22									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>101 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (24K0818-BS2)			Prepared: 11/22/24 08:58 Analyzed: 11/22/24 14:54									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.480	---	0.100	mg/L	1	0.500	---	96	80-120%	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>98 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24K0818-DUP1)			Prepared: 11/22/24 08:58 Analyzed: 11/22/24 18:08									
<u>QC Source Sample: Non-SDG (A4K1481-05)</u>												
Gasoline Range Organics	ND	---	0.500	mg/L	5	---	ND	---	---	---	30%	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>104 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24K0818-DUP2)			Prepared: 11/22/24 08:58 Analyzed: 11/23/24 03:21									
<u>QC Source Sample: MW-6 (A4K1513-01)</u>												
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	14.4	---	2.50	mg/L	25	---	14.5	---	---	0.8	30%	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 99 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>101 %</i>		<i>50-150 %</i>		<i>"</i>						

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Darrell Auvil, Client Services Manager

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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0818 - EPA 5030C												
Water												
Blank (24K0818-BLK1)												
Prepared: 11/22/24 08:58						Analyzed: 11/22/24 15:22						
EPA 8260D												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	---
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	---
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	---
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	---
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	---	---	---	---	---	---	---
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	---
Isopropylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
n-Propylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	---
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
<i>Surr: 1,4-Difluorobenzene (Surr) Recovery: 102 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr) 101 % 80-120 % "</i>												
<i>4-Bromofluorobenzene (Surr) 104 % 80-120 % "</i>												

LCS (24K0818-BS1)												
Prepared: 11/22/24 08:58						Analyzed: 11/22/24 13:57						
EPA 8260D												
Benzene	18.7	---	0.200	ug/L	1	20.0	---	93	80-120%	---	---	---
Toluene	19.0	---	1.00	ug/L	1	20.0	---	95	80-120%	---	---	---
Ethylbenzene	19.4	---	0.500	ug/L	1	20.0	---	97	80-120%	---	---	---
Xylenes, total	61.3	---	1.50	ug/L	1	60.0	---	102	80-120%	---	---	---
Methyl tert-butyl ether (MTBE)	20.2	---	1.00	ug/L	1	20.0	---	101	80-120%	---	---	---
Naphthalene	18.5	---	5.00	ug/L	1	20.0	---	93	80-120%	---	---	---
1,2-Dibromoethane (EDB)	20.3	---	0.500	ug/L	1	20.0	---	102	80-120%	---	---	---
1,2-Dichloroethane (EDC)	18.8	---	0.400	ug/L	1	20.0	---	94	80-120%	---	---	---
Isopropylbenzene	21.8	---	1.00	ug/L	1	20.0	---	109	80-120%	---	---	---
n-Propylbenzene	19.4	---	0.500	ug/L	1	20.0	---	97	80-120%	---	---	---
1,2,4-Trimethylbenzene	20.5	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	---
1,3,5-Trimethylbenzene	20.2	---	1.00	ug/L	1	20.0	---	101	80-120%	---	---	---
<i>Surr: 1,4-Difluorobenzene (Surr) Recovery: 99 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr) 98 % 80-120 % "</i>												
<i>4-Bromofluorobenzene (Surr) 94 % 80-120 % "</i>												

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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0818 - EPA 5030C												
Water												
Duplicate (24K0818-DUP1)												
Prepared: 11/22/24 08:58 Analyzed: 11/22/24 18:08												
QC Source Sample: Non-SDG (A4K1481-05)												
Benzene	ND	---	1.00	ug/L	5	---	ND	---	---	---	30%	
Toluene	ND	---	5.00	ug/L	5	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	2.50	ug/L	5	---	ND	---	---	---	30%	
Xylenes, total	ND	---	7.50	ug/L	5	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	5.00	ug/L	5	---	ND	---	---	---	30%	
Naphthalene	ND	---	25.0	ug/L	5	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	2.50	ug/L	5	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	2.00	ug/L	5	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	5.00	ug/L	5	---	ND	---	---	---	30%	
n-Propylbenzene	ND	---	2.50	ug/L	5	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	5.00	ug/L	5	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	5.00	ug/L	5	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr) Recovery: 105 % Limits: 80-120 % Dilution: 1x												
Toluene-d8 (Surr) 101 % 80-120 % "												
4-Bromofluorobenzene (Surr) 103 % 80-120 % "												

Duplicate (24K0818-DUP2)												
Prepared: 11/22/24 08:58 Analyzed: 11/23/24 03:21												
QC Source Sample: MW-6 (A4K1513-01)												
EPA 8260D												
Benzene	164	---	5.00	ug/L	25	---	163	---	---	0.8	30%	
Toluene	ND	---	25.0	ug/L	25	---	14.2	---	---	***	30%	
Ethylbenzene	1160	---	12.5	ug/L	25	---	1160	---	---	0.6	30%	
Xylenes, total	197	---	37.5	ug/L	25	---	195	---	---	1	30%	
Methyl tert-butyl ether (MTBE)	ND	---	25.0	ug/L	25	---	ND	---	---	---	30%	
Naphthalene	230	---	125	ug/L	25	---	217	---	---	6	30%	
1,2-Dibromoethane (EDB)	ND	---	12.5	ug/L	25	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	10.0	ug/L	25	---	ND	---	---	---	30%	
Isopropylbenzene	49.0	---	25.0	ug/L	25	---	47.0	---	---	4	30%	
n-Propylbenzene	140	---	12.5	ug/L	25	---	140	---	---	0.2	30%	
1,2,4-Trimethylbenzene	88.2	---	25.0	ug/L	25	---	83.8	---	---	5	30%	
1,3,5-Trimethylbenzene	ND	---	25.0	ug/L	25	---	22.0	---	---	***	30%	
Surr: 1,4-Difluorobenzene (Surr) Recovery: 104 % Limits: 80-120 % Dilution: 1x												

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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0818 - EPA 5030C						Water						
Duplicate (24K0818-DUP2)			Prepared: 11/22/24 08:58 Analyzed: 11/23/24 03:21									
QC Source Sample: MW-6 (A4K1513-01)												
<i>Surr: Toluene-d8 (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>"</i>						
Matrix Spike (24K0818-MS1)						Prepared: 11/22/24 08:58 Analyzed: 11/23/24 02:26						
QC Source Sample: Non-SDG (A4K1508-01)												
EPA 8260D												
Benzene	206	---	2.00	ug/L	10	200	ND	103	79-120%	---	---	
Toluene	202	---	10.0	ug/L	10	200	ND	101	80-121%	---	---	
Ethylbenzene	206	---	5.00	ug/L	10	200	ND	103	79-121%	---	---	
Xylenes, total	635	---	15.0	ug/L	10	600	ND	106	79-121%	---	---	
Methyl tert-butyl ether (MTBE)	201	---	10.0	ug/L	10	200	ND	100	71-124%	---	---	
Naphthalene	197	---	50.0	ug/L	10	200	ND	98	61-128%	---	---	
1,2-Dibromoethane (EDB)	204	---	5.00	ug/L	10	200	ND	102	77-121%	---	---	
1,2-Dichloroethane (EDC)	202	---	4.00	ug/L	10	200	ND	101	73-128%	---	---	
Isopropylbenzene	234	---	10.0	ug/L	10	200	ND	117	72-131%	---	---	
n-Propylbenzene	215	---	5.00	ug/L	10	200	8.60	103	76-126%	---	---	
1,2,4-Trimethylbenzene	214	---	10.0	ug/L	10	200	ND	107	76-124%	---	---	
1,3,5-Trimethylbenzene	212	---	10.0	ug/L	10	200	ND	106	75-124%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 103 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>92 %</i>		<i>80-120 %</i>		<i>"</i>						

Apex Laboratories

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 19001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1513 - 12 04 24 1122
---	--	---

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24K0908</u>							
A4K1513-01	Water	NWTPH-Dx LL	11/21/24 09:21	11/26/24 11:25	1000mL/2mL	1000mL/2mL	1.00

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030C

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24K0818</u>							
A4K1513-01	Water	NWTPH-Gx (MS)	11/21/24 09:21	11/22/24 09:01	5mL/5mL	5mL/5mL	1.00

Selected Volatile Organic Compounds by EPA 8260D

Prep: EPA 5030C

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24K0818</u>							
A4K1513-01	Water	EPA 8260D	11/21/24 09:21	11/22/24 09:01	5mL/5mL	5mL/5mL	1.00

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QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- F-20** Result for Diesel (DRO) is Estimated due to overlap from Gasoline Range Organics or other VOCs.
- Q-19** Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- S-05** Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

- DET Analyte DETECTED at or above the detection or reporting limit.
- ND Analyte NOT DETECTED at or above the detection or reporting limit.
- NR Result Not Reported
- RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Validated Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

- " dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.
- " wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.
- " " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a "dry weight" basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an "As Received" basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

- " --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- " *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL). Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.

- For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
- For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

- Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

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Decanted Samples:

Soils/Sediments:

Unless TCLP analysis is required or there is notification otherwise for a specific project, all Soil and Sediments containing excess water are decanted prior to analysis in order to provide the most representative sample for analysis.

Water Samples:

Water samples containing solids and sediment may need to be decanted in order to eliminate these particulates from the water extractions. In the case of organics extractions, a solvent rinse of the container will not be performed.

Volatiles Soils (5035s)

Samples that are field preserved by 5035 for volatiles are dry weight corrected using the same dry weight correction as for normal analyses. In the case of decanted samples, the dry weight may be performed on a decanted sample, while the aliquot for 5035 may not have been treated the same way. If this is a concern, please submit separate containers for dry weight analysis for volatiles can be provided.

All samples decanted in the laboratory are noted in this report with the DCNT qualifier indicating the sample was decanted.

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC
6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Table with 3 columns: Client info (GeoEngineers - Portland), Project info (Sunoco Annex - 4Q24 GWM), and Report ID (A4K1513 - 12 04 24 1122).

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) -
EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Table header with columns: Matrix, Analysis, TNI_ID, Analyte, TNI_ID, Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation. Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Handwritten signature of Darrell Auvil

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---	--	---

APEX LABS
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

Company: *Geo Engineers*
Address: *5820 S Kelly Ave Portland OR*
Sampled by: *Sam Russell*
Site Location: _____
State: *WA* County: *Clark*

Lab #: *A4K1513 coc 1 of 1*

Project #: *19001-008-13*

Project Name: *Amex GWM 4Q24*

Email: *SRussell@geoenr.com*

Project Mgr: *Sam Russell*

Phone: _____

PO # _____

Project #: *19001-008-13*

Project Name: *Amex GWM 4Q24*

Email: *SRussell@geoenr.com*

SAMPLE ID	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-DX	NWTPH-GX	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Volat Full List	8082 PCBs	8081 Pesticides	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Cr, Cu, Fe, Ni, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn	TOTAL DISS. TCLP	TCLP Metals (8)	X Meth. Ion	X MTBE	Hold Sample	Frozen Archive	
																									ANALYSIS REQUEST
<i>AW-6</i>	<i>11/21/24</i>	<i>0921</i>	<i>W</i>	<i>6</i>		<i>X</i>	<i>X</i>	<i>X</i>																	

Standard Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle): 1 Day 2 Day 3 Day 5 Day Standard Other: _____

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:

Signature: *Sam Russell* Date: *11/21/24*

Printed Name: *Sam Russell* Time: *1048*

Company: *Geo Engineers*

RECEIVED BY:

Signature: *Anna Wilber* Date: *11/21/24*

Printed Name: *Anna Wilber* Time: _____

Company: *Apex*

SPECIAL INSTRUCTIONS:

Form Y-002 R-00

Apex Laboratories

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APEX LABS COOLER RECEIPT FORM

Client: GeoEngineers Element WO#: A4K1513

Project/Project #: Annex Gwm 4Q24 19001-008-13

Delivery Info:

Date/time received: 11/21/24 @ 1018 By: AW

Delivered by: Apex Client RSS FedEx UPS Radio Morgan SDS Evergreen Other

From USDA Regulated Origin? Yes No

Cooler Inspection Date/time inspected: 11/21/24 @ 1018 By: AW

Chain of Custody included? Yes No

Signed/dated by client? Yes No

Contains USDA Reg. Soils? Yes No Unsure (email RegSoils)

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>5.5</u>						
Custody seals? (Y/N)	<u>N</u>						
Received on ice? (Y/N)	<u>Y</u>						
Temp. blanks? (Y/N)	<u>Y</u>						
Ice type: (Gel/Real/Other)	<u>Real</u>						
Condition (In/Out):	<u>IA</u>						

Cooler out of temp? (Y/N) Possible reason why: NA

Green dots applied to out of temperature samples? Yes No

Out of temperature samples form initiated? Yes No

Sample Inspection: Date/time inspected: 11/21/24 @ 1150 By: JA

All samples intact? Yes No Comments: ?

Bottle labels/COCs agree? Yes No Comments: COC reads 6 containers, received

5 cont. T for 3 VOAs reads 0900.

COC/container discrepancies form initiated? Yes No

Containers/volumes received appropriate for analysis? Yes No Comments: _____

Do VOA vials have visible headspace? Yes No NA

Comments: _____

Water samples: pH checked: Yes No NA pH appropriate? Yes No NA pH ID: A23T17L

Comments: _____

Labeled by: JA

Witness: AS

Cooler Inspected by: AW

Form Y-003 R-02



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Wednesday, December 11, 2024

Sam J. Russell
GeoEngineers - Portland
5820 S Kelly Ave Unit B
Portland, OR 97239

RE: A4K1487 - Sunoco Annex - 4Q24 GWM - 019001-008-13

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4K1487, which was received by the laboratory on 11/20/2024 at 3:32:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: DAuvil@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information			
<u>Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.</u>			
(See Cooler Receipt Form for details)			
Cooler #1	3.6	degC	
		Cooler #2	3.2 degC
		Cooler #3	2.6 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report. All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



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ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	A4K1487-01	Water	11/20/24 09:59	11/20/24 15:32
MW-2	A4K1487-02	Water	11/20/24 08:50	11/20/24 15:32
MW-3	A4K1487-03	Water	11/19/24 10:38	11/20/24 15:32
MW-4	A4K1487-04	Water	11/19/24 09:32	11/20/24 15:32
MW-5	A4K1487-05	Water	11/20/24 08:11	11/20/24 15:32
MW-5 DUP	A4K1487-06	Water	11/20/24 08:11	11/20/24 15:32
MW-5D	A4K1487-07	Water	11/20/24 09:09	11/20/24 15:32
MW-6D	A4K1487-08	Water	11/20/24 12:29	11/20/24 15:32
MW-7	A4K1487-09	Water	11/19/24 09:45	11/20/24 15:32
MW-8	A4K1487-10	Water	11/19/24 11:22	11/20/24 15:32
MW-8D	A4K1487-11	Water	11/19/24 12:25	11/20/24 15:32
MW-9	A4K1487-12	Water	11/19/24 10:34	11/20/24 15:32
MW-10	A4K1487-13	Water	11/20/24 08:06	11/20/24 15:32
MW-11	A4K1487-14	Water	11/20/24 11:12	11/20/24 15:32
MW-11 DUP	A4K1487-15	Water	11/20/24 11:12	11/20/24 15:32
MW-12	A4K1487-16	Water	11/19/24 11:35	11/20/24 15:32
MW-12D	A4K1487-17	Water	11/19/24 12:41	11/20/24 15:32
MW-11	A4K1487-18	Water	11/20/24 11:12	11/20/24 15:32
MW-11 DUP	A4K1487-19	Water	11/20/24 11:12	11/20/24 15:32

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ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-1 (A4K1487-01)				Matrix: Water		Batch: 24L0068		
Diesel	0.236	---	0.0784	mg/L	1	12/03/24 22:12	NWTPH-Dx LL	F-11
Oil	ND	---	0.157	mg/L	1	12/03/24 22:12	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 73 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/03/24 22:12</i>	<i>NWTPH-Dx LL</i>
MW-2 (A4K1487-02)				Matrix: Water		Batch: 24L0068		
Diesel	ND	---	0.0808	mg/L	1	12/03/24 22:33	NWTPH-Dx LL	
Oil	ND	---	0.162	mg/L	1	12/03/24 22:33	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 83 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/03/24 22:33</i>	<i>NWTPH-Dx LL</i>
MW-3 (A4K1487-03)				Matrix: Water		Batch: 24L0001		
Diesel	ND	---	0.0762	mg/L	1	12/02/24 23:23	NWTPH-Dx LL	
Oil	ND	---	0.152	mg/L	1	12/02/24 23:23	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 82 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/02/24 23:23</i>	<i>NWTPH-Dx LL</i>
MW-4 (A4K1487-04)				Matrix: Water		Batch: 24L0001		PRES
Diesel	0.188	---	0.0777	mg/L	1	12/02/24 23:44	NWTPH-Dx LL	F-11
Oil	ND	---	0.155	mg/L	1	12/02/24 23:44	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 86 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/02/24 23:44</i>	<i>NWTPH-Dx LL</i>
MW-5 (A4K1487-05)				Matrix: Water		Batch: 24L0068		
Diesel	1.64	---	0.0769	mg/L	1	12/03/24 22:53	NWTPH-Dx LL	F-18
Oil	ND	---	0.154	mg/L	1	12/03/24 22:53	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 86 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/03/24 22:53</i>	<i>NWTPH-Dx LL</i>
MW-5 DUP (A4K1487-06)				Matrix: Water		Batch: 24L0068		
Diesel	1.49	---	0.0777	mg/L	1	12/03/24 23:14	NWTPH-Dx LL	F-18
Oil	ND	---	0.155	mg/L	1	12/03/24 23:14	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 72 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/03/24 23:14</i>	<i>NWTPH-Dx LL</i>
MW-5D (A4K1487-07)				Matrix: Water		Batch: 24L0068		
Diesel	0.382	---	0.0800	mg/L	1	12/03/24 23:34	NWTPH-Dx LL	F-11
Oil	ND	---	0.160	mg/L	1	12/03/24 23:34	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 76 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/03/24 23:34</i>	<i>NWTPH-Dx LL</i>

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
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ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-6D (A4K1487-08)				Matrix: Water		Batch: 24L0068		
Diesel	ND	---	0.0792	mg/L	1	12/03/24 23:55	NWTPH-Dx LL	
Oil	ND	---	0.158	mg/L	1	12/03/24 23:55	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 73 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/03/24 23:55</i>	<i>NWTPH-Dx LL</i>
MW-7 (A4K1487-09)				Matrix: Water		Batch: 24L0001		
Diesel	ND	---	0.0762	mg/L	1	12/03/24 00:04	NWTPH-Dx LL	
Oil	ND	---	0.152	mg/L	1	12/03/24 00:04	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 73 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/03/24 00:04</i>	<i>NWTPH-Dx LL</i>
MW-8 (A4K1487-10)				Matrix: Water		Batch: 24L0001		
Diesel	ND	---	0.0777	mg/L	1	12/03/24 00:25	NWTPH-Dx LL	
Oil	ND	---	0.155	mg/L	1	12/03/24 00:25	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 68 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/03/24 00:25</i>	<i>NWTPH-Dx LL</i>
MW-8D (A4K1487-11)				Matrix: Water		Batch: 24L0001		
Diesel	ND	---	0.0784	mg/L	1	12/03/24 00:45	NWTPH-Dx LL	
Oil	ND	---	0.157	mg/L	1	12/03/24 00:45	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 78 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/03/24 00:45</i>	<i>NWTPH-Dx LL</i>
MW-9 (A4K1487-12)				Matrix: Water		Batch: 24L0001		
Diesel	ND	---	0.0769	mg/L	1	12/03/24 01:06	NWTPH-Dx LL	
Oil	ND	---	0.154	mg/L	1	12/03/24 01:06	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 71 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/03/24 01:06</i>	<i>NWTPH-Dx LL</i>
MW-10 (A4K1487-13)				Matrix: Water		Batch: 24L0068		
Diesel	ND	---	0.0800	mg/L	1	12/04/24 00:16	NWTPH-Dx LL	
Oil	ND	---	0.160	mg/L	1	12/04/24 00:16	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 75 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/04/24 00:16</i>	<i>NWTPH-Dx LL</i>
MW-12 (A4K1487-16)				Matrix: Water		Batch: 24L0001		
Diesel	ND	---	0.0800	mg/L	1	12/03/24 02:49	NWTPH-Dx LL	
Oil	ND	---	0.160	mg/L	1	12/03/24 02:49	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 77 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/03/24 02:49</i>	<i>NWTPH-Dx LL</i>

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
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ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-12D (A4K1487-17)				Matrix: Water		Batch: 24L0001		
Diesel	ND	---	0.0825	mg/L	1	12/03/24 03:09	NWTPH-Dx LL	
Oil	ND	---	0.165	mg/L	1	12/03/24 03:09	NWTPH-Dx LL	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 74 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/03/24 03:09</i>	<i>NWTPH-Dx LL</i>

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ANALYTICAL SAMPLE RESULTS

Dissolved Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-11 (A4K1487-18)				Matrix: Water		Batch: 24K0908		PRO
Diesel	ND	---	0.0808	mg/L	1	11/26/24 22:42	NWTPH-Dx (Diss)	
Oil	ND	---	0.162	mg/L	1	11/26/24 22:42	NWTPH-Dx (Diss)	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 61 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>11/26/24 22:42</i>	<i>NWTPH-Dx (Diss)</i>
MW-11 DUP (A4K1487-19RE1)				Matrix: Water		Batch: 24L0068		A-01, H-02, PRO
Diesel	ND	---	0.0769	mg/L	1	12/04/24 00:36	NWTPH-Dx (Diss)	
Oil	ND	---	0.154	mg/L	1	12/04/24 00:36	NWTPH-Dx (Diss)	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 71 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>12/04/24 00:36</i>	<i>NWTPH-Dx (Diss)</i>

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ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-1 (A4K1487-01)				Matrix: Water		Batch: 24K0822		
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/22/24 18:19	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 94 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/22/24 18:19</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>101 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/22/24 18:19</i>	<i>NWTPH-Gx (MS)</i>	
MW-2 (A4K1487-02)				Matrix: Water		Batch: 24K0822		
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/22/24 18:41	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 91 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/22/24 18:41</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>100 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/22/24 18:41</i>	<i>NWTPH-Gx (MS)</i>	
MW-3 (A4K1487-03)				Matrix: Water		Batch: 24K0751		
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/21/24 16:33	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 97 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/21/24 16:33</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>106 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/21/24 16:33</i>	<i>NWTPH-Gx (MS)</i>	
MW-4 (A4K1487-04)				Matrix: Water		Batch: 24K0751		
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/21/24 17:00	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 98 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/21/24 17:00</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>105 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/21/24 17:00</i>	<i>NWTPH-Gx (MS)</i>	
MW-5 (A4K1487-05)				Matrix: Water		Batch: 24K0822		
Gasoline Range Organics	14.5	---	2.00	mg/L	20	11/22/24 22:03	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 94 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/22/24 22:03</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>108 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/22/24 22:03</i>	<i>NWTPH-Gx (MS)</i>	
MW-5 DUP (A4K1487-06)				Matrix: Water		Batch: 24K0822		
Gasoline Range Organics	15.2	---	2.00	mg/L	20	11/22/24 22:26	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 94 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/22/24 22:26</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>107 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/22/24 22:26</i>	<i>NWTPH-Gx (MS)</i>	
MW-5D (A4K1487-07)				Matrix: Water		Batch: 24K0822		
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/22/24 13:47	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 93 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/22/24 13:47</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>105 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/22/24 13:47</i>	<i>NWTPH-Gx (MS)</i>	
MW-6D (A4K1487-08)				Matrix: Water		Batch: 24K0822		

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
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ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-6D (A4K1487-08)				Matrix: Water		Batch: 24K0822		
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/22/24 14:10	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 94 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/22/24 14:10</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>106 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/22/24 14:10</i>	<i>NWTPH-Gx (MS)</i>	
MW-7 (A4K1487-09)				Matrix: Water		Batch: 24K0751		
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/21/24 17:28	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 97 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/21/24 17:28</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>105 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/21/24 17:28</i>	<i>NWTPH-Gx (MS)</i>	
MW-8 (A4K1487-10)				Matrix: Water		Batch: 24K0751		
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/21/24 17:56	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 96 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/21/24 17:56</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>103 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/21/24 17:56</i>	<i>NWTPH-Gx (MS)</i>	
MW-8D (A4K1487-11)				Matrix: Water		Batch: 24K0822		
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/22/24 14:32	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 93 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/22/24 14:32</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>106 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/22/24 14:32</i>	<i>NWTPH-Gx (MS)</i>	
MW-9 (A4K1487-12)				Matrix: Water		Batch: 24K0822		
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/22/24 14:55	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 93 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/22/24 14:55</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>106 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/22/24 14:55</i>	<i>NWTPH-Gx (MS)</i>	
MW-10 (A4K1487-13)				Matrix: Water		Batch: 24K0822		
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/22/24 15:18	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 92 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/22/24 15:18</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>107 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/22/24 15:18</i>	<i>NWTPH-Gx (MS)</i>	
MW-11 (A4K1487-14)				Matrix: Water		Batch: 24K0822		R-04
Gasoline Range Organics	ND	---	0.500	mg/L	5	11/22/24 16:26	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 89 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/22/24 16:26</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>109 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/22/24 16:26</i>	<i>NWTPH-Gx (MS)</i>	
MW-11 DUP (A4K1487-15)				Matrix: Water		Batch: 24K0822		R-04

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ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-11 DUP (A4K1487-15)			Matrix: Water			Batch: 24K0822		R-04
Gasoline Range Organics	ND	---	0.500	mg/L	5	11/22/24 16:48	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 89 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/22/24 16:48</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>109 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/22/24 16:48</i>	<i>NWTPH-Gx (MS)</i>	
MW-12 (A4K1487-16)			Matrix: Water			Batch: 24K0822		
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/22/24 15:40	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 91 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/22/24 15:40</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>104 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/22/24 15:40</i>	<i>NWTPH-Gx (MS)</i>	
MW-12D (A4K1487-17)			Matrix: Water			Batch: 24K0822		
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/22/24 16:03	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 92 %</i>	<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/22/24 16:03</i>	<i>NWTPH-Gx (MS)</i>	
<i>1,4-Difluorobenzene (Sur)</i>			<i>106 %</i>	<i>50-150 %</i>	<i>1</i>	<i>11/22/24 16:03</i>	<i>NWTPH-Gx (MS)</i>	

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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-1 (A4K1487-01)			Matrix: Water			Batch: 24K0822		
Toluene	ND	---	1.00	ug/L	1	11/22/24 18:19	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	11/22/24 18:19	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	11/22/24 18:19	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	11/22/24 18:19	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	11/22/24 18:19	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 101 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/22/24 18:19</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 18:19</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 18:19</i>	<i>EPA 8260D</i>
MW-1 (A4K1487-01RE1)			Matrix: Water			Batch: 24K0873		
Benzene	ND	---	0.200	ug/L	1	11/25/24 13:35	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/25/24 13:35</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/25/24 13:35</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/25/24 13:35</i>	<i>EPA 8260D</i>
MW-2 (A4K1487-02)			Matrix: Water			Batch: 24K0822		
Benzene	ND	---	0.200	ug/L	1	11/22/24 18:41	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	11/22/24 18:41	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	11/22/24 18:41	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	11/22/24 18:41	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	11/22/24 18:41	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	11/22/24 18:41	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/22/24 18:41</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 18:41</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 18:41</i>	<i>EPA 8260D</i>
MW-3 (A4K1487-03)			Matrix: Water			Batch: 24K0751		
Benzene	ND	---	0.200	ug/L	1	11/21/24 16:33	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	11/21/24 16:33	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	11/21/24 16:33	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	11/21/24 16:33	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	11/21/24 16:33	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	11/21/24 16:33	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/21/24 16:33</i>	<i>EPA 8260D</i>

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-3 (A4K1487-03)				Matrix: Water		Batch: 24K0751		
<i>Surrogate: Toluene-d8 (Surr)</i>		<i>Recovery: 103 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>1</i>	<i>11/21/24 16:33</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>		<i>105 %</i>	<i>80-120 %</i>	<i>1</i>	<i>1</i>	<i>11/21/24 16:33</i>	<i>EPA 8260D</i>	
MW-4 (A4K1487-04)				Matrix: Water		Batch: 24K0751		
Benzene	ND	---	0.200	ug/L	1	11/21/24 17:00	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	11/21/24 17:00	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	11/21/24 17:00	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	11/21/24 17:00	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	11/21/24 17:00	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	11/21/24 17:00	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>1</i>	<i>11/21/24 17:00</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>		<i>103 %</i>	<i>80-120 %</i>	<i>1</i>	<i>1</i>	<i>11/21/24 17:00</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>		<i>105 %</i>	<i>80-120 %</i>	<i>1</i>	<i>1</i>	<i>11/21/24 17:00</i>	<i>EPA 8260D</i>	
MW-5 (A4K1487-05)				Matrix: Water		Batch: 24K0822		
Benzene	ND	---	4.00	ug/L	20	11/22/24 22:03	EPA 8260D	
Toluene	ND	---	20.0	ug/L	20	11/22/24 22:03	EPA 8260D	
Ethylbenzene	147	---	10.0	ug/L	20	11/22/24 22:03	EPA 8260D	
Xylenes, total	208	---	30.0	ug/L	20	11/22/24 22:03	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	20.0	ug/L	20	11/22/24 22:03	EPA 8260D	
Naphthalene	1820	---	100	ug/L	20	11/22/24 22:03	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 107 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>1</i>	<i>11/22/24 22:03</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>	<i>80-120 %</i>	<i>1</i>	<i>1</i>	<i>11/22/24 22:03</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>		<i>96 %</i>	<i>80-120 %</i>	<i>1</i>	<i>1</i>	<i>11/22/24 22:03</i>	<i>EPA 8260D</i>	
MW-5 DUP (A4K1487-06)				Matrix: Water		Batch: 24K0822		
Benzene	ND	---	4.00	ug/L	20	11/22/24 22:26	EPA 8260D	
Toluene	ND	---	20.0	ug/L	20	11/22/24 22:26	EPA 8260D	
Ethylbenzene	144	---	10.0	ug/L	20	11/22/24 22:26	EPA 8260D	
Xylenes, total	228	---	30.0	ug/L	20	11/22/24 22:26	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	20.0	ug/L	20	11/22/24 22:26	EPA 8260D	
Naphthalene	1920	---	100	ug/L	20	11/22/24 22:26	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 105 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>1</i>	<i>11/22/24 22:26</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>	<i>80-120 %</i>	<i>1</i>	<i>1</i>	<i>11/22/24 22:26</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>		<i>98 %</i>	<i>80-120 %</i>	<i>1</i>	<i>1</i>	<i>11/22/24 22:26</i>	<i>EPA 8260D</i>	

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-5 DUP (A4K1487-06)			Matrix: Water			Batch: 24K0822		
MW-5D (A4K1487-07)			Matrix: Water			Batch: 24K0822		
Benzene	ND	---	0.200	ug/L	1	11/22/24 13:47	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	11/22/24 13:47	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	11/22/24 13:47	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	11/22/24 13:47	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	11/22/24 13:47	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	11/22/24 13:47	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 106 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/22/24 13:47</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 13:47</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 13:47</i>	<i>EPA 8260D</i>
MW-6D (A4K1487-08)			Matrix: Water			Batch: 24K0822		
Benzene	ND	---	0.200	ug/L	1	11/22/24 14:10	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	11/22/24 14:10	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	11/22/24 14:10	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	11/22/24 14:10	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	11/22/24 14:10	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	11/22/24 14:10	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/22/24 14:10</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 14:10</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 14:10</i>	<i>EPA 8260D</i>
MW-7 (A4K1487-09)			Matrix: Water			Batch: 24K0751		
Benzene	ND	---	0.200	ug/L	1	11/21/24 17:28	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	11/21/24 17:28	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	11/21/24 17:28	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	11/21/24 17:28	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	11/21/24 17:28	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	11/21/24 17:28	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/21/24 17:28</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/21/24 17:28</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/21/24 17:28</i>	<i>EPA 8260D</i>

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Darrell Auvil, Client Services Manager

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-8 (A4K1487-10)			Matrix: Water			Batch: 24K0751		
Benzene	ND	---	0.200	ug/L	1	11/21/24 17:56	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	11/21/24 17:56	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	11/21/24 17:56	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	11/21/24 17:56	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	11/21/24 17:56	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	11/21/24 17:56	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/21/24 17:56</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/21/24 17:56</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>104 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/21/24 17:56</i>	<i>EPA 8260D</i>
MW-8D (A4K1487-11)			Matrix: Water			Batch: 24K0822		
Benzene	ND	---	0.200	ug/L	1	11/22/24 14:32	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	11/22/24 14:32	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	11/22/24 14:32	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	11/22/24 14:32	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	11/22/24 14:32	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	11/22/24 14:32	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/22/24 14:32</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 14:32</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 14:32</i>	<i>EPA 8260D</i>
MW-9 (A4K1487-12)			Matrix: Water			Batch: 24K0822		
Benzene	ND	---	0.200	ug/L	1	11/22/24 14:55	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	11/22/24 14:55	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	11/22/24 14:55	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	11/22/24 14:55	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	11/22/24 14:55	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	11/22/24 14:55	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/22/24 14:55</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 14:55</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 14:55</i>	<i>EPA 8260D</i>
MW-10 (A4K1487-13)			Matrix: Water			Batch: 24K0822		
Benzene	ND	---	0.200	ug/L	1	11/22/24 15:18	EPA 8260D	

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-10 (A4K1487-13)			Matrix: Water			Batch: 24K0822		
Toluene	ND	---	1.00	ug/L	1	11/22/24 15:18	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	11/22/24 15:18	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	11/22/24 15:18	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	11/22/24 15:18	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	11/22/24 15:18	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/22/24 15:18</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 15:18</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 15:18</i>	<i>EPA 8260D</i>
MW-11 (A4K1487-14)			Matrix: Water			Batch: 24K0822		R-04
Benzene	ND	---	1.00	ug/L	5	11/22/24 16:26	EPA 8260D	
Toluene	ND	---	5.00	ug/L	5	11/22/24 16:26	EPA 8260D	
Ethylbenzene	ND	---	2.50	ug/L	5	11/22/24 16:26	EPA 8260D	
Xylenes, total	ND	---	7.50	ug/L	5	11/22/24 16:26	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	5.00	ug/L	5	11/22/24 16:26	EPA 8260D	
Naphthalene	ND	---	25.0	ug/L	5	11/22/24 16:26	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/22/24 16:26</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 16:26</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>107 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 16:26</i>	<i>EPA 8260D</i>
MW-11 DUP (A4K1487-15)			Matrix: Water			Batch: 24K0822		R-04
Benzene	ND	---	1.00	ug/L	5	11/22/24 16:48	EPA 8260D	
Toluene	ND	---	5.00	ug/L	5	11/22/24 16:48	EPA 8260D	
Ethylbenzene	ND	---	2.50	ug/L	5	11/22/24 16:48	EPA 8260D	
Xylenes, total	ND	---	7.50	ug/L	5	11/22/24 16:48	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	5.00	ug/L	5	11/22/24 16:48	EPA 8260D	
Naphthalene	ND	---	25.0	ug/L	5	11/22/24 16:48	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/22/24 16:48</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 16:48</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>107 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 16:48</i>	<i>EPA 8260D</i>
MW-12 (A4K1487-16)			Matrix: Water			Batch: 24K0822		
Benzene	ND	---	0.200	ug/L	1	11/22/24 15:40	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	11/22/24 15:40	EPA 8260D	

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
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ANALYTICAL SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
MW-12 (A4K1487-16)			Matrix: Water			Batch: 24K0822		
Ethylbenzene	ND	---	0.500	ug/L	1	11/22/24 15:40	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	11/22/24 15:40	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	11/22/24 15:40	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	11/22/24 15:40	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/22/24 15:40</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 15:40</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 15:40</i>	<i>EPA 8260D</i>
MW-12D (A4K1487-17)			Matrix: Water			Batch: 24K0822		
Benzene	ND	---	0.200	ug/L	1	11/22/24 16:03	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	11/22/24 16:03	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	11/22/24 16:03	EPA 8260D	
Xylenes, total	ND	---	1.50	ug/L	1	11/22/24 16:03	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	11/22/24 16:03	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	11/22/24 16:03	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>11/22/24 16:03</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 16:03</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>1</i>	<i>11/22/24 16:03</i>	<i>EPA 8260D</i>

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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes	
Batch 24L0001 - EPA 3510C (Fuels/Acid Ext.)						Water							
Blank (24L0001-BLK1)			Prepared: 12/02/24 05:00			Analyzed: 12/02/24 19:58							
<u>NWTPH-Dx LL</u>													
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---		
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---		
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 78 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>							
LCS (24L0001-BS1)						Prepared: 12/02/24 05:00 Analyzed: 12/02/24 20:19							
<u>NWTPH-Dx LL</u>													
Diesel	0.292	---	0.0800	mg/L	1	0.500	---	58	36-132%	---	---		
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 76 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>							
LCS Dup (24L0001-BSD1)						Prepared: 12/02/24 05:00 Analyzed: 12/02/24 20:39							Q-19
<u>NWTPH-Dx LL</u>													
Diesel	0.291	---	0.0800	mg/L	1	0.500	---	58	36-132%	0.3	30%		
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 73 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>							
Batch 24L0068 - EPA 3510C (Fuels/Acid Ext.)						Water							
Blank (24L0068-BLK1)			Prepared: 12/03/24 11:11			Analyzed: 12/03/24 20:09							
<u>NWTPH-Dx LL</u>													
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	B-02	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---		
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 87 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>							
LCS (24L0068-BS1)						Prepared: 12/03/24 11:11 Analyzed: 12/03/24 20:50							
<u>NWTPH-Dx LL</u>													
Diesel	0.475	---	0.0800	mg/L	1	0.500	---	95	36-132%	---	---		
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>							
LCS Dup (24L0068-BSD1)						Prepared: 12/03/24 11:11 Analyzed: 12/03/24 21:11							Q-19
<u>NWTPH-Dx LL</u>													
Diesel	0.473	---	0.0800	mg/L	1	0.500	---	95	36-132%	0.6	30%		
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>							

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
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QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0908 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (24K0908-BLK1)			Prepared: 11/26/24 06:16 Analyzed: 11/26/24 19:55									
<u>NWTPH-Dx (Diss)</u>												
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
Blank (24K0908-BLK2)			Prepared: 11/26/24 06:36 Analyzed: 11/26/24 20:16									
<u>NWTPH-Dx (Diss)</u>												
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS (24K0908-BS1)			Prepared: 11/26/24 06:16 Analyzed: 11/26/24 20:36									
<u>NWTPH-Dx (Diss)</u>												
Diesel	0.414	---	0.0800	mg/L	1	0.500	---	83	36-132%	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 107 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS Dup (24K0908-BSD1)			Prepared: 11/26/24 06:16 Analyzed: 11/26/24 20:58									
<u>NWTPH-Dx (Diss)</u>												
Diesel	0.421	---	0.0800	mg/L	1	0.500	---	84	36-132%	2	30%	Q-19
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
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QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0068 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (24L0068-BLK2)			Prepared: 12/03/24 12:05 Analyzed: 12/03/24 20:30						FILT3			
<u>NWTPH-Dx (Diss)</u>												
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 90 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0751 - EPA 5030C						Water						
Blank (24K0751-BLK1)			Prepared: 11/21/24 08:24 Analyzed: 11/21/24 11:28									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 94 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>101 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (24K0751-BS2)						Prepared: 11/21/24 08:24 Analyzed: 11/21/24 10:33						Q-50
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.522	---	0.100	mg/L	1	0.500	---	104	80-120%	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 97 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>100 %</i>		<i>50-150 %</i>		<i>"</i>						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0822 - EPA 5030C						Water						
Blank (24K0822-BLK1)			Prepared: 11/22/24 10:34 Analyzed: 11/22/24 13:06									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>104 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (24K0822-BS2)			Prepared: 11/22/24 10:34 Analyzed: 11/22/24 12:43									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.428	---	0.100	mg/L	1	0.500	---	86	80-120%	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 94 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>102 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24K0822-DUP1)			Prepared: 11/22/24 10:34 Analyzed: 11/22/24 22:48									
<u>QC Source Sample: MW-5 DUP (A4K1487-06)</u>												
Gasoline Range Organics	14.8	---	2.00	mg/L	20	---	15.2	---	---	2	30%	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>106 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (24K0822-DUP2)			Prepared: 11/22/24 10:34 Analyzed: 11/22/24 21:18									
<u>QC Source Sample: Non-SDG (A4K1434-12)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	ND	---	---	---	30%	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>105 %</i>		<i>50-150 %</i>		<i>"</i>						

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GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
---	---	---

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0751 - EPA 5030C						Water						
Blank (24K0751-BLK1)			Prepared: 11/21/24 08:24 Analyzed: 11/21/24 11:28									
EPA 8260D												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>"</i>						
LCS (24K0751-BS1)						Prepared: 11/21/24 08:24 Analyzed: 11/21/24 10:05						Q-50
EPA 8260D												
Benzene	18.5	---	0.200	ug/L	1	20.0	---	92	80-120%	---	---	
Toluene	19.4	---	1.00	ug/L	1	20.0	---	97	80-120%	---	---	
Ethylbenzene	19.4	---	0.500	ug/L	1	20.0	---	97	80-120%	---	---	
Xylenes, total	61.7	---	1.50	ug/L	1	60.0	---	103	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	20.9	---	1.00	ug/L	1	20.0	---	104	80-120%	---	---	
Naphthalene	18.9	---	5.00	ug/L	1	20.0	---	95	80-120%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 98 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>"</i>						
Matrix Spike (24K0751-MS1)						Prepared: 11/21/24 08:24 Analyzed: 11/21/24 13:19						COMP
QC Source Sample: Non-SDG (A4K1443-08)												
EPA 8260D												
Benzene	19.7	---	0.200	ug/L	1	20.0	0.280	97	79-120%	---	---	
Toluene	19.9	---	1.00	ug/L	1	20.0	ND	100	80-121%	---	---	
Ethylbenzene	19.8	---	0.500	ug/L	1	20.0	ND	99	79-121%	---	---	
Xylenes, total	62.7	---	1.50	ug/L	1	60.0	ND	104	79-121%	---	---	
Methyl tert-butyl ether (MTBE)	20.9	---	1.00	ug/L	1	20.0	ND	104	71-124%	---	---	
Naphthalene	18.8	---	5.00	ug/L	1	20.0	ND	94	61-128%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0751 - EPA 5030C						Water						
Matrix Spike (24K0751-MS1)						Prepared: 11/21/24 08:24 Analyzed: 11/21/24 13:19						COMP
QC Source Sample: Non-SDG (A4K1443-08)												
Surr: Toluene-d8 (Surr)		Recovery: 99 %		Limits: 80-120 %		Dilution: 1x						
4-Bromofluorobenzene (Surr)		93 %		80-120 %		"						

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Darrell Auvil, Client Services Manager



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0822 - EPA 5030C												
Water												
Blank (24K0822-BLK1)			Prepared: 11/22/24 10:34 Analyzed: 11/22/24 13:06									
EPA 8260D												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>"</i>						
<hr/>												
LCS (24K0822-BS1)			Prepared: 11/22/24 10:34 Analyzed: 11/22/24 12:09									
EPA 8260D												
Benzene	20.9	---	0.200	ug/L	1	20.0	---	104	80-120%	---	---	
Toluene	19.5	---	1.00	ug/L	1	20.0	---	97	80-120%	---	---	
Ethylbenzene	20.6	---	0.500	ug/L	1	20.0	---	103	80-120%	---	---	
Xylenes, total	60.7	---	1.50	ug/L	1	60.0	---	101	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	20.9	---	1.00	ug/L	1	20.0	---	104	80-120%	---	---	
Naphthalene	17.2	---	5.00	ug/L	1	20.0	---	86	80-120%	---	---	
Isopropylbenzene	19.8	---	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>94 %</i>		<i>80-120 %</i>		<i>"</i>						
<hr/>												
Duplicate (24K0822-DUP1)			Prepared: 11/22/24 10:34 Analyzed: 11/22/24 22:48									
QC Source Sample: MW-5 DUP (A4K1487-06)												
Benzene	ND	---	4.00	ug/L	20	---	ND	---	---	---	30%	
Toluene	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Ethylbenzene	137	---	10.0	ug/L	20	---	144	---	---	5	30%	
Xylenes, total	218	---	30.0	ug/L	20	---	228	---	---	5	30%	
Methyl tert-butyl ether (MTBE)	ND	---	20.0	ug/L	20	---	ND	---	---	---	30%	
Naphthalene	1870	---	100	ug/L	20	---	1920	---	---	2	30%	

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0822 - EPA 5030C						Water						
Duplicate (24K0822-DUP1)			Prepared: 11/22/24 10:34 Analyzed: 11/22/24 22:48									
QC Source Sample: MW-5 DUP (A4K1487-06)												
Isopropylbenzene	111	---	20.0	ug/L	20	---	116	---	---	4	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 106 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>"</i>						
Duplicate (24K0822-DUP2)			Prepared: 11/22/24 10:34 Analyzed: 11/22/24 21:18									
QC Source Sample: Non-SDG (A4K1434-12)												
Benzene	ND	---	0.200	ug/L	1	---	ND	---	---	---	30%	
Toluene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
Xylenes, total	ND	---	1.50	ug/L	1	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	0.500	---	---	***	30%	
Naphthalene	ND	---	5.00	ug/L	1	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 104 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>"</i>						
Matrix Spike (24K0822-MS1)			Prepared: 11/22/24 10:34 Analyzed: 11/22/24 17:11									
QC Source Sample: MW-12D (A4K1487-17)												
EPA 8260D												
Benzene	21.0	---	0.200	ug/L	1	20.0	ND	105	79-120%	---	---	
Toluene	19.5	---	1.00	ug/L	1	20.0	ND	98	80-121%	---	---	
Ethylbenzene	20.6	---	0.500	ug/L	1	20.0	ND	103	79-121%	---	---	
Xylenes, total	60.1	---	1.50	ug/L	1	60.0	ND	100	79-121%	---	---	
Methyl tert-butyl ether (MTBE)	20.1	---	1.00	ug/L	1	20.0	ND	101	71-124%	---	---	
Naphthalene	14.9	---	5.00	ug/L	1	20.0	ND	75	61-128%	---	---	
Isopropylbenzene	19.5	---	1.00	ug/L	1	20.0	ND	98	72-131%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 103 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>92 %</i>		<i>80-120 %</i>		<i>"</i>						

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Darrell Auvil, Client Services Manager

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ANALYTICAL REPORT

Apex Laboratories, LLC

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ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
---	---	---

QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0873 - EPA 5030C												
Water												
Blank (24K0873-BLK1)			Prepared: 11/25/24 10:29			Analyzed: 11/25/24 11:42						
<u>EPA 8260D</u>												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>102 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>104 %</i>		<i>80-120 %</i>		<i>"</i>						
<hr/>												
LCS (24K0873-BS1)			Prepared: 11/25/24 10:29			Analyzed: 11/25/24 10:46						
<u>EPA 8260D</u>												
Benzene	18.2	---	0.200	ug/L	1	20.0	---	91	80-120%	---	---	
Toluene	18.6	---	1.00	ug/L	1	20.0	---	93	80-120%	---	---	
Ethylbenzene	18.7	---	0.500	ug/L	1	20.0	---	94	80-120%	---	---	
Xylenes, total	58.2	---	1.50	ug/L	1	60.0	---	97	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	19.2	---	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
Naphthalene	16.2	---	5.00	ug/L	1	20.0	---	81	80-120%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 101 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>92 %</i>		<i>80-120 %</i>		<i>"</i>						
<hr/>												
Duplicate (24K0873-DUP1)			Prepared: 11/25/24 10:29			Analyzed: 11/25/24 21:25						
<u>QC Source Sample: Non-SDG (A4K1585-01)</u>												
Benzene	13.4	---	1.00	ug/L	5	---	12.7	---	---	5	30%	
Toluene	72.8	---	5.00	ug/L	5	---	73.6	---	---	1	30%	
Ethylbenzene	22.0	---	2.50	ug/L	5	---	21.6	---	---	2	30%	
Xylenes, total	740	---	7.50	ug/L	5	---	767	---	---	4	30%	
Methyl tert-butyl ether (MTBE)	ND	---	5.00	ug/L	5	---	ND	---	---	---	30%	
Naphthalene	ND	---	25.0	ug/L	5	---	22.2	---	---	***	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 107 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>"</i>						

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QUALITY CONTROL (QC) SAMPLE RESULTS

Selected Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0873 - EPA 5030C						Water						
Duplicate (24K0873-DUP1)						Prepared: 11/25/24 10:29 Analyzed: 11/25/24 21:25						
QC Source Sample: Non-SDG (A4K1585-01)												
<i>Surr: 4-Bromofluorobenzene (Surr)</i>		<i>Recovery: 101 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
Matrix Spike (24K0873-MS1)						Prepared: 11/25/24 10:29 Analyzed: 11/25/24 15:54						
QC Source Sample: Non-SDG (A4K1603-11)												
EPA 8260D												
Benzene	19.9	---	0.200	ug/L	1	20.0	ND	99	79-120%	---	---	
Toluene	20.0	---	1.00	ug/L	1	20.0	ND	100	80-121%	---	---	
Ethylbenzene	20.1	---	0.500	ug/L	1	20.0	ND	101	79-121%	---	---	
Xylenes, total	60.8	---	1.50	ug/L	1	60.0	ND	101	79-121%	---	---	
Methyl tert-butyl ether (MTBE)	19.9	---	1.00	ug/L	1	20.0	ND	99	71-124%	---	---	
Naphthalene	16.3	---	5.00	ug/L	1	20.0	ND	82	61-128%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>93 %</i>		<i>80-120 %</i>		<i>"</i>						

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SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24L0001</u>							
A4K1487-03	Water	NWTPH-Dx LL	11/19/24 10:38	12/02/24 11:00	1050mL/2mL	1000mL/2mL	0.95
A4K1487-04	Water	NWTPH-Dx LL	11/19/24 09:32	12/02/24 11:00	1030mL/2mL	1000mL/2mL	0.97
A4K1487-09	Water	NWTPH-Dx LL	11/19/24 09:45	12/02/24 11:00	1050mL/2mL	1000mL/2mL	0.95
A4K1487-10	Water	NWTPH-Dx LL	11/19/24 11:22	12/02/24 11:00	1030mL/2mL	1000mL/2mL	0.97
A4K1487-11	Water	NWTPH-Dx LL	11/19/24 12:25	12/02/24 11:00	1020mL/2mL	1000mL/2mL	0.98
A4K1487-12	Water	NWTPH-Dx LL	11/19/24 10:34	12/02/24 11:00	1040mL/2mL	1000mL/2mL	0.96
A4K1487-16	Water	NWTPH-Dx LL	11/19/24 11:35	12/02/24 11:00	1000mL/2mL	1000mL/2mL	1.00
A4K1487-17	Water	NWTPH-Dx LL	11/19/24 12:41	12/02/24 11:00	970mL/2mL	1000mL/2mL	1.03
<u>Batch: 24L0068</u>							
A4K1487-01	Water	NWTPH-Dx LL	11/20/24 09:59	12/03/24 11:11	1020mL/2mL	1000mL/2mL	0.98
A4K1487-02	Water	NWTPH-Dx LL	11/20/24 08:50	12/03/24 11:11	990mL/2mL	1000mL/2mL	1.01
A4K1487-05	Water	NWTPH-Dx LL	11/20/24 08:11	12/03/24 11:11	1040mL/2mL	1000mL/2mL	0.96
A4K1487-06	Water	NWTPH-Dx LL	11/20/24 08:11	12/03/24 11:11	1030mL/2mL	1000mL/2mL	0.97
A4K1487-07	Water	NWTPH-Dx LL	11/20/24 09:09	12/03/24 11:11	1000mL/2mL	1000mL/2mL	1.00
A4K1487-08	Water	NWTPH-Dx LL	11/20/24 12:29	12/03/24 11:11	1010mL/2mL	1000mL/2mL	0.99
A4K1487-13	Water	NWTPH-Dx LL	11/20/24 08:06	12/03/24 11:11	1000mL/2mL	1000mL/2mL	1.00

Dissolved Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24K0908</u>							
A4K1487-18	Water	NWTPH-Dx (Diss)	11/20/24 11:12	11/26/24 06:16	990mL/2mL	1000mL/2mL	1.01
<u>Batch: 24L0068</u>							
A4K1487-19RE1	Water	NWTPH-Dx (Diss)	11/20/24 11:12	12/03/24 12:05	1040mL/2mL	1000mL/2mL	0.96

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030C

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24K0751</u>							
A4K1487-03	Water	NWTPH-Gx (MS)	11/19/24 10:38	11/21/24 09:29	5mL/5mL	5mL/5mL	1.00
A4K1487-04	Water	NWTPH-Gx (MS)	11/19/24 09:32	11/21/24 09:29	5mL/5mL	5mL/5mL	1.00
A4K1487-09	Water	NWTPH-Gx (MS)	11/19/24 09:45	11/21/24 09:29	5mL/5mL	5mL/5mL	1.00
A4K1487-10	Water	NWTPH-Gx (MS)	11/19/24 11:22	11/21/24 09:29	5mL/5mL	5mL/5mL	1.00

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SAMPLE PREPARATION INFORMATION

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030C							
Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24K0822</u>							
A4K1487-01	Water	NWTPH-Gx (MS)	11/20/24 09:59	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-02	Water	NWTPH-Gx (MS)	11/20/24 08:50	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-05	Water	NWTPH-Gx (MS)	11/20/24 08:11	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-06	Water	NWTPH-Gx (MS)	11/20/24 08:11	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-07	Water	NWTPH-Gx (MS)	11/20/24 09:09	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-08	Water	NWTPH-Gx (MS)	11/20/24 12:29	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-11	Water	NWTPH-Gx (MS)	11/19/24 12:25	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-12	Water	NWTPH-Gx (MS)	11/19/24 10:34	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-13	Water	NWTPH-Gx (MS)	11/20/24 08:06	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-14	Water	NWTPH-Gx (MS)	11/20/24 11:12	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-15	Water	NWTPH-Gx (MS)	11/20/24 11:12	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-16	Water	NWTPH-Gx (MS)	11/19/24 11:35	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-17	Water	NWTPH-Gx (MS)	11/19/24 12:41	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00

Selected Volatile Organic Compounds by EPA 8260D

Prep: EPA 5030C							
Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24K0751</u>							
A4K1487-03	Water	EPA 8260D	11/19/24 10:38	11/21/24 09:29	5mL/5mL	5mL/5mL	1.00
A4K1487-04	Water	EPA 8260D	11/19/24 09:32	11/21/24 09:29	5mL/5mL	5mL/5mL	1.00
A4K1487-09	Water	EPA 8260D	11/19/24 09:45	11/21/24 09:29	5mL/5mL	5mL/5mL	1.00
A4K1487-10	Water	EPA 8260D	11/19/24 11:22	11/21/24 09:29	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24K0822</u>							
A4K1487-01	Water	EPA 8260D	11/20/24 09:59	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-02	Water	EPA 8260D	11/20/24 08:50	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-05	Water	EPA 8260D	11/20/24 08:11	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-06	Water	EPA 8260D	11/20/24 08:11	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-07	Water	EPA 8260D	11/20/24 09:09	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-08	Water	EPA 8260D	11/20/24 12:29	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-11	Water	EPA 8260D	11/19/24 12:25	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-12	Water	EPA 8260D	11/19/24 10:34	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-13	Water	EPA 8260D	11/20/24 08:06	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-14	Water	EPA 8260D	11/20/24 11:12	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-15	Water	EPA 8260D	11/20/24 11:12	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
A4K1487-16	Water	EPA 8260D	11/19/24 11:35	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00

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Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239	Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell	Report ID: A4K1487 - 12 11 24 1706
---	---	---

SAMPLE PREPARATION INFORMATION

Selected Volatile Organic Compounds by EPA 8260D

Prep: EPA 5030C

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A4K1487-17	Water	EPA 8260D	11/19/24 12:41	11/22/24 13:11	5mL/5mL	5mL/5mL	1.00
<u>Batch: 24K0873</u>							
A4K1487-01RE1	Water	EPA 8260D	11/20/24 09:59	11/25/24 11:20	5mL/5mL	5mL/5mL	1.00

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Darrell Auvil, Client Services Manager



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Table with 3 columns: Client info (GeoEngineers - Portland), Project info (Sunoco Annex - 4Q24 GWM), and Report ID (A4K1487 - 12 11 24 1706).

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- A-01 Sample was originally extracted within hold time with failing surrogate. Out of hold extraction confirms sample is non-detect
B-02 Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
COMP Analyzed sample is a composite of discrete samples that was performed in the laboratory.
F-11 The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
F-18 Result for Diesel (Diesel Range Organics, C12-C25) is due to overlap from Gasoline or a Gasoline Range product.
FILT3 This is a laboratory filtration blank, associated with filtration batch 24L0020. See Prep page of report for associated samples.
H-02 This sample was extracted outside of the recommended holding time.
PRES Incomplete field preservation. Additional preservative was added to adjust the pH within the appropriate range for this analysis.
PRO Sample has undergone sample processing prior to extraction and analysis.
Q-19 Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
Q-50 Due to instrument malfunction, not all Batch QC samples were analyzed. The batch is accepted based on the recoveries of the Blank Spike (BS).
R-04 Reporting levels elevated due to preparation and/or analytical dilution necessary for analysis.

Apex Laboratories

Signature of Darrell Auvil

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

- DET Analyte DETECTED at or above the detection or reporting limit.
- ND Analyte NOT DETECTED at or above the detection or reporting limit.
- NR Result Not Reported
- RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Validated Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

- " dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.
- " wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.
- " " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a "dry weight" basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an "As Received" basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

- " --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- " *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL). Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.

- For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
- For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

- Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

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<p>GeoEngineers - Portland 5820 S Kelly Ave Unit B Portland, OR 97239</p>	<p>Project: Sunoco Annex - 4Q24 GWM Project Number: 019001-008-13 Project Manager: Sam J. Russell</p>	<p style="text-align: right;">Report ID: A4K1487 - 12 11 24 1706</p>
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Decanted Samples:

Soils/Sediments:

Unless TCLP analysis is required or there is notification otherwise for a specific project, all Soil and Sediments containing excess water are decanted prior to analysis in order to provide the most representative sample for analysis.

Water Samples:

Water samples containing solids and sediment may need to be decanted in order to eliminate these particulates from the water extractions. In the case of organics extractions, a solvent rinse of the container will not be performed.

Volatiles Soils (5035s)

Samples that are field preserved by 5035 for volatiles are dry weight corrected using the same dry weight correction as for normal analyses. In the case of decanted samples, the dry weight may be performed on a decanted sample, while the aliquot for 5035 may not have been treated the same way. If this is a concern, please submit separate containers for dry weight analysis for volatiles can be provided.

All samples decanted in the laboratory are noted in this report with the DCNT qualifier indicating the sample was decanted.

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Darrell Auvil, Client Services Manager



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LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Table header with columns: Matrix, Analysis, TNI_ID, Analyte, TNI_ID, Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation. Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Handwritten signature of Darrell Auvil

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Darrell Auvil, Client Services Manager



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---	---	--

APEX LABS
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

Company: GeoEngineers
Address: 5820 S Kelly Ave, Portland, OR
Sampled by: Sam Russell
Site Location: _____
State: WA
County: Clark

Lab # AMMVA coc 1 of 2

Project Name: Sunoco Annex 4Q24 GWM
Project #: 1001-008-13
Email: srussell@geoengineers.com
Project Mgr: Sam Russell
Phone: _____

Project # 1001-008-13
PO # _____

SAMPLE ID	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-DX	NWTPH-GX	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pesticides	RCRA Metals (8)	Priority Metals (13)	AL, Sb, As, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, TL, V, Zn, TOTAL DISS, TCLP	TCLP Metals (8)	Methylene	Hold Sample	Frozen Archive	
																							DATE
MW-1	11/20	0951	W	5		X	X	X															
MW-2	11/20	0850																					
MW-3	11/19	1038																					
MW-4	11/19	0932																					
MW-5	11/20	0811																					
MW-5 DUP	11/20	0811																					
MW-5D	11/20	0409																					
MW-6D	11/20	1229																					
MW-7	11/19	0745																					
MW-8	11/19	1122																					

Standard Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle): Standard 1 Day 2 Day 3 Day 5 Day Other: _____

RELINQUISHED BY:
Signature: _____
Printed Name: Colin Watson
Company: GeoEngineers

RECEIVED BY:
Signature: _____
Printed Name: ANSEL WILSON
Company: Apex

RELINQUISHED BY:
Signature: _____
Printed Name: _____
Company: _____

RECEIVED BY:
Signature: _____
Printed Name: _____
Company: _____

Form Y-002 R-00

Apex Laboratories

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GeoEngineers - Portland
5820 S Kelly Ave Unit B
Portland, OR 97239
Project: Sunoco Annex - 4Q24 GWM
Project Number: 019001-008-13
Project Manager: Sam J. Russell
Report ID: A4K1487 - 12 11 24 1706

APEX LABS COOLER RECEIPT FORM

Client: GeoEngineers Element WO#: A4K1487

Project/Project #: Sunoco Annex 4Q24 GWM 19001-008-13

Delivery Info:

Date/time received: 11/20/24 @ 1532 By: JAM

Delivered by: Apex Client [X] ESS FedEx UPS Radio Morgan SDS Evergreen Other

From USDA Regulated Origin? Yes No [X]

Cooler Inspection Date/time inspected: 11/20/24 @ 1532 By: JAM

Chain of Custody included? Yes [X] No

Signed/dated by client? Yes [X] No

Contains USDA Reg. Soils? Yes No [X] Unsure (email RegSoils)

Table with 7 columns: Cooler #1 to Cooler #7. Rows include Temperature (°C), Custody seals? (Y/N), Received on ice? (Y/N), Temp. blanks? (Y/N), Ice type: (Gel/Real/Other), Condition (In/Out).

Cooler out of temp? (Y/N) Possible reason why:

Green dots applied to out of temperature samples? Yes/No

Out of temperature samples form initiated? Yes/No

Sample Inspection: Date/time inspected: 11/20/24 @ 1650 By: JAM

All samples intact? Yes [X] No Comments:

Bottle labels/COCs agree? Yes [X] No Comments:

COC/container discrepancies form initiated? Yes No [X]

Containers/volumes received appropriate for analysis? Yes [X] No Comments:

Do VOA vials have visible headspace? Yes No [X] NA

Comments: 3 MW 11 and MW 11 DUD have sed. anal for 2A

Water samples: pH checked: Yes [X] No NA pH appropriate? Yes [X] No [X] NA pH ID: A231172

Comments: Received 3/2 unpres 12 Amber for MW 11 and

MW 11 DUP. They pH @ 7.

Labeled by: JAM

Witness: JAM

Cooler Inspected by: JAM

Form Y-003 R-02

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Signature of Darrell Auvil

Darrell Auvil, Client Services Manager

APPENDIX F
Ecology Approval for the Use of Alum to Treat Samples
Collected from Well MW-11

Sam J. Russell

From: Smith, Andrew (ECY) <ansm461@ECY.WA.GOV>
Sent: Tuesday, January 16, 2024 3:38 PM
To: Sam J. Russell; Amanda Spencer
Cc: Robinson, Renee; Philip Cordell
Subject: RE: NuStar Vannex terminal - Petrofix monitoring

CAUTION! THIS IS AN EXTERNAL EMAIL

If you suspect this is a phishing email, click the **Phish Alert Report** button.

Thanks Everyone.

From: Sam J. Russell <srussell@geoengineers.com>
Sent: Tuesday, January 16, 2024 2:34 PM
To: Amanda Spencer <aspencer@geoengineers.com>; Smith, Andrew (ECY) <ansm461@ECY.WA.GOV>
Cc: Robinson, Renee <Renee.Robinson@nustarenergy.com>; Philip Cordell <pcordell@geoengineers.com>
Subject: RE: NuStar Vannex terminal - Petrofix monitoring

Hi Andy,

Yes, the alum will already be in the VOAs before the sampling occurs. As you alluded to, we're doing this to prevent any changes to the normal VOC sampling process that may allow volatiles to escape. Aside from the VOAs containing alum (added prior to sampling), the sampling and lab analysis will be performed as usual.

Thanks,
Sam

Samuel J. Russell
Staff Environmental Engineer 1 | GeoEngineers, Inc.
Telephone: 503.603.6689
Mobile: 503.891.3055

From: Amanda Spencer <aspencer@geoengineers.com>
Sent: Tuesday, January 16, 2024 2:23 PM
To: Smith, Andrew (ECY) <ansm461@ecy.wa.gov>
Cc: Robinson, Renee <Renee.Robinson@nustarenergy.com>; Philip Cordell <pcordell@geoengineers.com>; Sam J. Russell <srussell@geoengineers.com>
Subject: RE: NuStar Vannex terminal - Petrofix monitoring

I believe it is already in the sample container, so added in before the sample is collected.

Sam – can you confirm?

Amanda Spencer, R.G., P.E.
Senior Principal Hydrogeologist | GeoEngineers, Inc.

Mobile: 503.577.1535

Email: aspencer@geoengineers.com

5820 S Kelly Ave Suite B

Portland, OR 97239

www.geoengineers.com

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From: Smith, Andrew (ECY) <ansm461@ECY.WA.GOV>

Sent: Tuesday, January 16, 2024 12:57 PM

To: Amanda Spencer <aspencer@geoengineers.com>

Cc: Robinson, Renee <Renee.Robinson@nustarenergy.com>; Philip Cordell <pcordell@geoengineers.com>; Sam J. Russell <srussell@geoengineers.com>

Subject: RE: NuStar Vannex terminal - Petrofix monitoring

CAUTION! THIS IS AN EXTERNAL EMAIL

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Amanda,

Will it be added before sample is collected since you are collecting volatiles?

Thanks

Andy

From: Amanda Spencer <aspencer@geoengineers.com>

Sent: Tuesday, January 16, 2024 11:49 AM

To: Smith, Andrew (ECY) <ansm461@ECY.WA.GOV>

Cc: Robinson, Renee <Renee.Robinson@nustarenergy.com>; Philip Cordell <pcordell@geoengineers.com>; Sam J. Russell <srussell@geoengineers.com>; Amanda Spencer <aspencer@geoengineers.com>

Subject: RE: NuStar Vannex terminal - Petrofix monitoring

Hi Andy – we just noticed that you mentioned the use of Alum in the well; I wanted to clarify that the alum is actually added to the samples collected from well MW-11 not to the well itself. We are hoping to avoid having to add anything into the well itself.

Feel free to give me a call if you have any questions or concerns.

Thank you!

Amanda

Amanda Spencer, R.G., P.E.

Senior Principal Hydrogeologist | GeoEngineers, Inc.

Mobile: 503.577.1535

Email: aspencer@geoengineers.com

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From: Smith, Andrew (ECY) <ansm461@ECY.WA.GOV>
Sent: Tuesday, January 16, 2024 10:33 AM
To: Amanda Spencer <aspencer@geoengineers.com>
Cc: Robinson, Renee <Renee.Robinson@nustarenergy.com>; Philip Cordell <pcordell@geoengineers.com>; Sam J. Russell <srussell@geoengineers.com>
Subject: RE: NuStar Vannex terminal - Petrofix monitoring

CAUTION! THIS IS AN EXTERNAL EMAIL

If you suspect this is a phishing email, click the **Phish Alert Report** button.

Amanda,

Ecology approves the use of aluminum sulfate (Alum) in monitoring well MW-11 to help flocculate the colloidal activated carbon in the well. How many times do you think you will need to add the Alum to the well? Please let me know the affects after initial application.

Thanks

Andy

Andrew Smith, PE, LHG
Unit Supervisor UST/Technical Support Unit
Department of Ecology
Toxics Cleanup Program
360-485-3987

From: Amanda Spencer <aspencer@geoengineers.com>
Sent: Tuesday, January 9, 2024 3:39 PM
To: Smith, Andrew (ECY) <ansm461@ECY.WA.GOV>
Cc: Robinson, Renee <Renee.Robinson@nustarenergy.com>; Philip Cordell <pcordell@geoengineers.com>; Sam J. Russell <srussell@geoengineers.com>; Amanda Spencer <aspencer@geoengineers.com>
Subject: NuStar Vannex terminal - Petrofix monitoring

Hi Andy – I wanted for follow-up on some of our Vannex discussions we had in December. As mentioned, we were not able to sample well MW-11 during the last quarterly monitoring event because the Petrofix material had entered into the well. Which is a good thing, since it demonstrates that we were achieving our desired radius of influence. However, it make collecting a representative sample more challenging. As I mentioned, it could take several months for the Petrofix to settle out in the well.

Sam Russell, our engineer who lead the Petrofix effort, did some research and worked with Regenesis (makers of Petrofix) to identify the best option to be able to collect a sample from the well in the interim so we can start tracking the concentration trends in the well post injections. He identified the addition of alum to the samples as the best option. The alum makes the carbon from the Petrofix settle out without influencing the concentration of dissolved phase hydrocarbons in the sample, allowing for a result representative of the concentrations in the adjacent water bearing unit. The information on this approach is attached. We were hoping to go out in the next couple of weeks to sample well MW-11 using this approach – is this acceptable to you?

If you'd like to discuss it in more detail with Sam and I, let me know and I can set up a call time.

Thank you,
Amanda

Amanda Spencer, R.G., P.E.
Senior Principal Hydrogeologist | GeoEngineers, Inc.
Mobile: 503.577.1535
Email: aspencer@geoengineers.com

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Portland, OR 97239
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APPENDIX G
Forensic Analysis Correspondence Regarding SPH
from Well MW-6

From: [Kurt Johnson](#)
To: [Sam J. Russell](#)
Cc: [Darrell Auvil](#); [Kent Patton](#)
Subject: FW: Forensics available ----- Annex sample --product sample update---A4K1486
Date: Monday, December 2, 2024 11:36:04 AM
Attachments: [image001.png](#)
[A4K1486-01HCID overlay.pdf](#)

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Sam,

To follow up on our discussion, the attached overlay shows that the sample MW-6 free product contains a middle distillate such as diesel #2 or similar fuel. The lack of a pattern of normal alkanes indicates that the fuel has undergone substantial biological degradation. Additional work to further characterize the fuel including its period of manufacture is available, if warranted.

Please feel free to contact me if you would like to discuss further.

Respectfully,

Kurt Johnson, Senior Chemist
Director of Forensic Services
6700 SW Sandburg St.
Tigard, OR 97223
O: (503) 718-2323 Ext. 237
C: (206) 852-9663
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