

October 14, 2024

Washington State Department of Ecology
Southwest Region Office
PO Box 47775
Olympia, Washington 98504-7775

Attention: Thomas Praisewater, Site Manager

Subject: Progress Report, Third Quarter 2024
NuStar Terminals Operations Partnership L.P. Vancouver Annex Terminal
Agreed Order No. DE 19602
Vancouver, Washington
File No. 19001-008-13

This letter provides GeoEngineers, Inc.'s (GeoEngineers') progress report for the Third Quarter 2024 activities associated with Agreed Order No. DE 19602 (the Order) at the NuStar Terminals Operations Partnership L.P. (NuStar) Vancouver Annex Terminal (the Site). This progress report has been prepared and submitted on behalf of NuStar. The Site is located at 5420 NW Fruit Valley Road in Vancouver, Washington.

The Order was signed into effect on May 10, 2023, and requires NuStar to implement a cleanup action plan. This progress report presents the following per the Order:

- A list of activities conducted during the Third Quarter 2024 to implement the requirements of the Order.
- A description of any deviations from required tasks not otherwise documented in project plans or amendment requests.
- A description of deviations from the Order scope of work and schedule during the current quarter and any planned deviations during the upcoming quarter. For any deviations in schedule, a plan will be included for recovering lost time and maintaining compliance with the schedule.
- Any raw data received during the Third Quarter, if not previously submitted to Ecology, along with a detailed description of the underlying samples collected.
- The list of deliverables for the upcoming year if different from the schedule.

Activities Completed During the Reporting Period

The following activities were completed during the reporting period:

- The Second Quarter 2024 Progress Letter was submitted to Ecology on July 15, 2024;
- The Ecology Site Manager, GeoEngineers, and Terminal staff attended a site walk on September 12, 2024;
- A quarterly groundwater monitoring event was conducted on August 13 and 14, 2024; and
- The MW-5 Area Pilot Study design and coordination continued.

Order Schedule, Deviations from the Order, and Responses

The Order requires implementation of a Cleanup Action Plan (CAP), which is in Appendix B of the Order, and the CAP contemplates groundwater recirculation systems in the well MW-5 and MW-6 areas. As discussed in the 1st and 2nd Quarter 2024 Progress Reports, aquifer testing performed in November 2023 demonstrated that the silt unit in which shallow groundwater beneath the Site is first encountered is less transmissive than anticipated, suggesting that conducting a recirculation system pilot study before designing the full-scale systems for the well MW-5 and MW-6 areas would be beneficial.

Pursuant to the schedule in Appendix C of the Order, an Engineering Design Report (EDR) is required. In a letter to NuStar dated December 26, 2023, Ecology approved the request for extending the EDR submittal date from January 16, 2024 to December 31, 2024 to allow for a pilot recirculation system to be implemented and additional data to be collected to complete the full-scale design for the EDR. Therefore, instead of submittal of an EDR in January 2024, a Groundwater Recirculation System Pilot Study Work Plan was submitted to Ecology on February 2, 2024. Ecology provided email approval of the Work Plan on March 8, 2024.

Installation of the pilot study recirculation system was initially scheduled for summer 2024 but has been delayed due to unexpected complications with the electrical hookup needed to operate the recirculation system. The portable treatment system power requirements require significant electrical improvements and potential modifications to the proposed system. Coupled with groundwater monitoring results showing that the MW-11 Pilot Study has been effective at reducing petroleum hydrocarbon concentrations to below cleanup levels, Petrofix® injections are now being considered for the MW-5 area pilot study.

NuStar and GeoEngineers met with Ecology's Site Manager on September 12, 2024, during a site walk and discussed the complications with the proposed groundwater recirculation system mentioned above. Ecology concurred that consideration of Petrofix® for the MW-5 is appropriate given the promising results from the MW-11 pilot study, uncertainty about the effectiveness of a groundwater recirculation system, and logistical difficulties of installing the system. As such, GeoEngineers is preparing a memorandum requesting additional time to evaluate the results of the MW-11 pilot study, select and implement the remedial technology for the MW-5 pilot study, and extend the EDR submittal deadline.

Raw Data Submittals

Analytical data from the Third Quarter 2024 groundwater monitoring event are included in Attachment A. The data include groundwater samples collected from Site monitoring wells MW-1 through MW-12, MW-5D, MW-6D, MW-8D and MW-12D. The samples were submitted to Apex Laboratories (Apex), a Washington-certified analytical laboratory, for analysis of gasoline-range total petroleum hydrocarbons (TPH) by method NWTPHg_x, diesel-range TPH by method NWTPHd_x, and benzene, toluene, ethylbenzene, xylenes, methyl tert-butyl ether and naphthalene by EPA Method 8260B. The data will be included in the Annual 2024 Groundwater Monitoring report anticipated to be submitted to Ecology in the Second Quarter of 2025.

Deliverable Submittals This Year

The following deliverables are anticipated to be submitted in 2024:

- A Quarterly Progress Report will be submitted by October 15, 2024 per the Order; and
- A letter Request for Extension of MW-5 Pilot Study implementation and EDR submittal (Extension Request) will be submitted later this month.

Closing

If you have any questions about this progress report, please do not hesitate to call Amanda Spencer at 503.577.1535, Phil Cordell at 503.807.3835 or Victoria Wark with Evergreen Resources Management Operations at 210.918.2257.

Sincerely,
GeoEngineers, Inc.



Phil Cordell, LG
Senior Geologist

PRC:cdb

Attachments:

Attachment A - Analytical Laboratory Reports A4H1134–3Q24 Analytical Data

cc:

Victoria Wark, Evergreen Resources Management Operations (electronic deliverable)

Aaron Flett, Sunoco (electronic deliverable)

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.



ANALYTICAL REPORT

Apex Laboratories, LLC

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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Darrell Auvil, Client Services Manager



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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 |
|---|---|---|

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 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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Darrell Auvil, Client Services Manager



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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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|---|---|---|

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> |

Apex Laboratories

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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
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

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) | |
| <i>Surrogate: 4-Bromofluorobenzene (Sur)</i> | | | <i>Recovery: 97 %</i> | <i>Limits: 50-150 %</i> | <i>1</i> | <i>08/20/24 20:37</i> | <i>NWTPH-Gx (MS)</i> | |
| <i>1,4-Difluorobenzene (Sur)</i> | | | <i>103 %</i> | <i>50-150 %</i> | <i>1</i> | <i>08/20/24 20:37</i> | <i>NWTPH-Gx (MS)</i> | |
| 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) | |
| <i>Surrogate: 4-Bromofluorobenzene (Sur)</i> | | | <i>Recovery: 92 %</i> | <i>Limits: 50-150 %</i> | <i>1</i> | <i>08/20/24 10:36</i> | <i>NWTPH-Gx (MS)</i> | |
| <i>1,4-Difluorobenzene (Sur)</i> | | | <i>110 %</i> | <i>50-150 %</i> | <i>1</i> | <i>08/20/24 10:36</i> | <i>NWTPH-Gx (MS)</i> | |
| 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) | |
| <i>Surrogate: 4-Bromofluorobenzene (Sur)</i> | | | <i>Recovery: 92 %</i> | <i>Limits: 50-150 %</i> | <i>1</i> | <i>08/20/24 11:03</i> | <i>NWTPH-Gx (MS)</i> | |
| <i>1,4-Difluorobenzene (Sur)</i> | | | <i>110 %</i> | <i>50-150 %</i> | <i>1</i> | <i>08/20/24 11:03</i> | <i>NWTPH-Gx (MS)</i> | |
| 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) | |
| <i>Surrogate: 4-Bromofluorobenzene (Sur)</i> | | | <i>Recovery: 93 %</i> | <i>Limits: 50-150 %</i> | <i>1</i> | <i>08/20/24 11:30</i> | <i>NWTPH-Gx (MS)</i> | |
| <i>1,4-Difluorobenzene (Sur)</i> | | | <i>112 %</i> | <i>50-150 %</i> | <i>1</i> | <i>08/20/24 11:30</i> | <i>NWTPH-Gx (MS)</i> | |
| 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) | |
| <i>Surrogate: 4-Bromofluorobenzene (Sur)</i> | | | <i>Recovery: 93 %</i> | <i>Limits: 50-150 %</i> | <i>1</i> | <i>08/20/24 11:58</i> | <i>NWTPH-Gx (MS)</i> | |
| <i>1,4-Difluorobenzene (Sur)</i> | | | <i>112 %</i> | <i>50-150 %</i> | <i>1</i> | <i>08/20/24 11:58</i> | <i>NWTPH-Gx (MS)</i> | |
| 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) | |
| <i>Surrogate: 4-Bromofluorobenzene (Sur)</i> | | | <i>Recovery: 96 %</i> | <i>Limits: 50-150 %</i> | <i>1</i> | <i>08/21/24 10:34</i> | <i>NWTPH-Gx (MS)</i> | |
| <i>1,4-Difluorobenzene (Sur)</i> | | | <i>104 %</i> | <i>50-150 %</i> | <i>1</i> | <i>08/21/24 10:34</i> | <i>NWTPH-Gx (MS)</i> | |
| 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) | |
| <i>Surrogate: 4-Bromofluorobenzene (Sur)</i> | | | <i>Recovery: 97 %</i> | <i>Limits: 50-150 %</i> | <i>1</i> | <i>08/21/24 11:01</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 11:01</i> | <i>NWTPH-Gx (MS)</i> | |
| MW-11 (A4H1134-15) | | | Matrix: Water | | | Batch: 24H0751 | | R-04 |

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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 |
|---|---|---|

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> | | 08/21/24 16:02 | NWTPH-Gx (MS) | |
| <i>1,4-Difluorobenzene (Sur)</i> | | <i>109 %</i> | | <i>50-150 %</i> | | 08/21/24 16:02 | NWTPH-Gx (MS) | |
| 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> | | 08/21/24 16:30 | NWTPH-Gx (MS) | |
| <i>1,4-Difluorobenzene (Sur)</i> | | <i>111 %</i> | | <i>50-150 %</i> | | 08/21/24 16:30 | NWTPH-Gx (MS) | |
| 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> | | 08/21/24 11:28 | NWTPH-Gx (MS) | |
| <i>1,4-Difluorobenzene (Sur)</i> | | <i>105 %</i> | | <i>50-150 %</i> | | 08/21/24 11:28 | NWTPH-Gx (MS) | |
| 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> | | 08/21/24 11:56 | NWTPH-Gx (MS) | |
| <i>1,4-Difluorobenzene (Sur)</i> | | <i>106 %</i> | | <i>50-150 %</i> | | 08/21/24 11:56 | NWTPH-Gx (MS) | |

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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 |
|---|---|---|

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

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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 |
|---|---|---|

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 |
|---|---|--|

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> | | Recovery: 104 % | | Limits: 80-120 % | 1 | 08/20/24 10:09 | EPA 8260D | |
| <i>Toluene-d8 (Surr)</i> | | 104 % | | 80-120 % | 1 | 08/20/24 10:09 | EPA 8260D | |
| <i>4-Bromofluorobenzene (Surr)</i> | | 100 % | | 80-120 % | 1 | 08/20/24 10:09 | EPA 8260D | |
| 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> | | Recovery: 101 % | | Limits: 80-120 % | 1 | 08/20/24 20:37 | EPA 8260D | |
| <i>Toluene-d8 (Surr)</i> | | 101 % | | 80-120 % | 1 | 08/20/24 20:37 | EPA 8260D | |
| <i>4-Bromofluorobenzene (Surr)</i> | | 101 % | | 80-120 % | 1 | 08/20/24 20:37 | EPA 8260D | |
| 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> | | Recovery: 105 % | | Limits: 80-120 % | 1 | 08/20/24 10:36 | EPA 8260D | |
| <i>Toluene-d8 (Surr)</i> | | 105 % | | 80-120 % | 1 | 08/20/24 10:36 | EPA 8260D | |
| <i>4-Bromofluorobenzene (Surr)</i> | | 102 % | | 80-120 % | 1 | 08/20/24 10:36 | EPA 8260D | |
| 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

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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 |
|---|---|---|

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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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

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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| | | |
|---|---|---|
| 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

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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Darrell Auvil, Client Services Manager



ANALYTICAL 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 |
|---|---|--|

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 |
|---|---|--|

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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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 | | | | | | | | | T-02 |
| <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 | | | | | | | | | T-02 |
| <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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|---|---|--|

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

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 | | | | | | | | | | | | |
| Blank (24H0700-BLK1) | | | | | | | | | | | | |
| | | | | | | Prepared: 08/20/24 06:39 Analyzed: 08/20/24 09:41 | | | | | | |
| 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)</i> | | <i>Recovery: 106 %</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>103 %</i> | | <i>80-120 %</i> | | <i>"</i> | | | | | | |
| LCS (24H0700-BS1) | | | | | | | | | | | | |
| | | | | | | Prepared: 08/20/24 06:39 Analyzed: 08/20/24 08:41 | | | | | | |
| EPA 8260D | | | | | | | | | | | | |
| 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% | --- | --- | |
| <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>96 %</i> | | <i>80-120 %</i> | | <i>"</i> | | | | | | |
| 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

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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 |
|---|---|--|

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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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 | | | | | | | | | | | | |
| 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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ANALYTICAL REPORT

Apex Laboratories, LLC

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503-718-2323
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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 |
|---|---|--|

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> | | | | | | | |

Apex Laboratories

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Darrell Auvil, Client Services Manager



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| | | |
|---|---|--|
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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 | | | | | | |
| 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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Darrell Auvil, Client Services Manager

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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 |
|---|---|---|

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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|---|---|--|
| 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 |
|---|---|--|

SAMPLE PREPARATION INFORMATION

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

| Prep: EPA 5030C | | | | | 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

| Prep: EPA 5030C | | | | | 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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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 |
|---|---|---|

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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503-718-2323
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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

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).

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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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|---|---|---|

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 |
|--------|----------|--------|---------|--------|---------------|
|--------|----------|--------|---------|--------|---------------|

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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|---|---|---|

CHAIN OF CUSTODY

Lab # A4H1134 coc 1 of 2

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

Company: GeoEngineers Project Mgr: Phil Cordell Project Name: Vannex 3Q24 GWM Project #: 19001-008-13
 Address: 5820 S. Kelly Ave, Portland Email: p.cordell@geoengineers.com PO #
 Sampled by: Sam Russell/Colin Watson Phone:
 Site Location: State WA County Clatsop

ANALYSIS REQUEST

| SAMPLE ID | DATE | TIME | MATRIX | # OF CONTAINERS | NWTPH-HCID | NWTPH-DX | NWTPH-GX | 8260 BTEX | | 8260 RBDM VOCs | | 8260 Halo VOCs | | 8270 VOCs Full List | | 8270 SIM PAHs | | 8270 Sem-Vols Full List | | 8081 Pesticides | | 8082 PCBs | | Priority Metals (13) Al, Sb, As, Ba, Be, Bi, Br, Cd, Cr, Cu, Fe, Hg, K, Mg, Mn, Mo, Ni, Pb, Se, Ag, Na, Tl, V, Zn | TCMP Metals (8) TOTAL DISS. TCMP | Hold Sample | Frozen Archive | | | | |
|-----------|------|------|--------|-----------------|------------|----------|----------|-----------|--|----------------|--|----------------|--|---------------------|--|---------------|--|-------------------------|--|-----------------|--|-----------|--|--|-------------------------------------|-------------|----------------|--|--|--|--|
| | | | | | | | | X | | X | | X | | X | | X | | X | | X | | | | | | | | | | | |
| MW-1 | 8/13 | 1224 | W | 5 | | X | | X | | | | | | | | | | | | | | | | | | | | | | | |
| MW-2 | 8/14 | 0946 | W | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW-3 | 8/14 | 0807 | W | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW-4 | 8/14 | 0900 | W | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW-5 | 8/13 | 1323 | W | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW-5 DUP | 8/13 | 1322 | W | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW-5D | 8/13 | 1322 | W | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW-6 | 8/14 | 1044 | W | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW-6D | 8/14 | 1043 | W | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MW-7 | 8/13 | 0520 | W | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Standard Turn Around Time (TAT) = 10 Business Days

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

SPECIAL INSTRUCTIONS:
 * Please filter 1-L samples for DA with 0.7 µm filter.
 1-L MW-11 bottles we impressed, please pressure filter following.
 MW-11 VOKS ionium alum do act as a settling agent. Black, brown scale carbon should settle if left undisturbed.

| | |
|--|---|
| RELINQUISHED BY: Signature: <u>[Signature]</u> Date: <u>8/14/24</u> Printed Name: <u>Colin Watson</u> Time: <u>1316</u> Company: <u>GeoEngineers</u> | RECEIVED BY: Signature: <u>[Signature]</u> Date: <u>8/14/24</u> Printed Name: <u>Alyssa Wilbur</u> Time: <u>1316</u> Company: <u>Apex</u> |
|--|---|

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

| APEX LABS 6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323 | | CHAIN OF CUSTODY | | Lab # <u>NA1134</u> COC 2 of 2 | | | | | | | |
|--|----------|-----------------------------------|------|--------------------------------------|-----------------|-------|-------|-------|-------|-------|-------------------|
| Company: <u>GeoEngineers</u> | | Project Mgr: <u>Phil Cordell</u> | | Project Name: <u>Vannex 3Q24 GWM</u> | | | | | | | |
| Address: <u>5820 S Kelly Ave Unit B, Portland, OR 97239</u> | | Phone: _____ | | Project #: <u>19001-008-13</u> | | | | | | | |
| Sampled by: <u>Sam R. Colman</u> | | Email: _____ | | PO # _____ | | | | | | | |
| ANALYSIS REQUEST | | | | | | | | | | | |
| SAMPLE ID | LAB ID # | DATE | TIME | MATRIX | # OF CONTAINERS | | | | | | |
| MW-8 | | 8/13 | 109 | W | 5 | | | | | | |
| MW-8D | | 8/13 | 1032 | W | 5 | | | | | | |
| MW-9 | | 8/13 | 1021 | W | 5 | | | | | | |
| MW-10 | | 8/13 | 0916 | W | 5 | | | | | | |
| MW-11 | | 8/14 | 0824 | W | 5 | | | | | | |
| MW-11 DUP | | 8/14 | 0824 | W | 5 | | | | | | |
| MW-12 | | 8/13 | 1029 | W | 5 | | | | | | |
| MW-12D | | 8/13 | 1109 | W | 5 | | | | | | |
| Normal Turn Around Time (TAT) = 10 Business Days | | | | | | | | | | | |
| TAT Requested (circle) | | | | | | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 5px;">1 Day</td> <td style="border: 1px solid black; padding: 5px;">2 Day</td> <td style="border: 1px solid black; padding: 5px;">3 Day</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;">4 DAY</td> <td style="border: 1px solid black; padding: 5px;">5 DAY</td> <td style="border: 1px solid black; padding: 5px;">Other: <u>STD</u></td> </tr> </table> | | | | | | 1 Day | 2 Day | 3 Day | 4 DAY | 5 DAY | Other: <u>STD</u> |
| 1 Day | 2 Day | 3 Day | | | | | | | | | |
| 4 DAY | 5 DAY | Other: <u>STD</u> | | | | | | | | | |
| SPECIAL INSTRUCTIONS: | | | | | | | | | | | |
| <u>* See COC 1 of 2 for MW-11 sample processing instructions.</u> | | | | | | | | | | | |
| RELINQUISHED BY: | | RECEIVED BY: | | RECEIVED BY: | | | | | | | |
| Signature: <u>[Signature]</u> | | Signature: <u>[Signature]</u> | | Signature: _____ | | | | | | | |
| Date: <u>8/14/24</u> | | Date: <u>8/14/24</u> | | Date: _____ | | | | | | | |
| Printed Name: <u>Colin Watson</u> | | Printed Name: <u>ANSSA Wilbur</u> | | Printed Name: _____ | | | | | | | |
| Time: <u>1316</u> | | Time: <u>1316</u> | | Time: _____ | | | | | | | |
| Company: <u>GeoEngineers</u> | | Company: <u>GeoEngineers</u> | | Company: _____ | | | | | | | |

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 3Q24 Project Number: 19001-008-13 Project Manager: Philip Cordell | Report ID: A4H1134 - 08 29 24 1422 |
|---|---|---|

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>Geo/Real</u> | <u>Geo/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