**GALLOWAY ENVIRONMENTAL, INC**
*15600 NE 8th Street, Suite B1, 617 (425) 894-8607*
*Bellevue, WA 98008*
*Dylan@GallowayEnvironmental.com*

May 1, 2019

Tamarah Hancock
Scarsella Bros. Inc.
PO Box 68697
Seattle, Washington 98168

Emailed to: Tamarah.k@scarsellabros.com and Jenifer.m@scarsellabros.com

***SUBJECT: SUMMARY STATUS REPORT — GROUNDWATER MONITORING WELL SAMPLE RESULTS AT THE FIRWOOD PIT PROPERTY IN EDGEWOOD, WA***
***SEPA PROJECT #1808 – CLEAR AND GRADE PERMIT #3492***

Dear Ms. Hancock:

This letter report presents a summary of Galloway Environmental, Inc.'s (GEI's) findings from the groundwater monitoring event at the Firwood Pit property for March and April 2019.

The scope of work for this quarterly groundwater monitoring report is based on the City of Edgewood's Final Conditions for Firwood Pit Reclamation – Original SEPA project #1808, Clear and Grade Permit #3492 which was updated on November 26, 2018. This report includes: 1) Chemical analytical results of water sampled from four groundwater wells, and 2) Physical properties of groundwater in the monitoring wells.

## *INTRODUCTION*

The Firwood Mine was a sand and gravel surface mine that was exhausted of its aggregate resource before March 1, 2000 when it was assigned and leased to Scarsella Bros., Inc. by the Tim Corliss and Son Company and is now in the reclamation process. The mine is located in the general area east of Freeman Road, adjacent to the west side of 90th Avenue East, south of 33rd Street East, and northeast of Simons Creek. The Site is in the City of Edgewood, Pierce County, Washington.

## *GROUNDWATER SAMPLING SUMMARY*

On March 29, 2019 and April 1, 2019, GEI collected groundwater samples from groundwater monitoring wells MW-1, MW-2, MW-3a, and MW-4 and submitted them to OnSite Environmental, Incorporated, located at 14648 NE 95th Street, Redmond, Washington (OnSite Environmental). The locations of the wells are shown on Figure 1 of this report.

Prior to sample collection, GEI gauged and purged each well to evaluate the current groundwater flow conditions and attain groundwater samples that were representative of the site. During the purging process, water quality parameters were measured using a multiparameter water quality meter (model YSI 556 MPS) fitted with a flow-through cell to measure pH, temperature, conductivity, and dissolved oxygen (DO). Additionally, per the updated clear and grade permit, GEI utilized a pH/ORP meter (model Extech SDL 100) to measure oxygen-reduction potential (ORP). Each meter was calibrated prior to use using a 3-point pH calibration process (pH valued at 4.02, 7.02, and 10.04). The YSI 556 MPS meter was further calibrated using a 3-point conductivity process (conductivity valued at 84 micrograms per centimeter [μg/cm], 1,413 μg/cm, and 12,880 μg/cm).

The pH measured at the conclusion of the purging process ranged from 6.06 to 6.47 using the YSI 556 MPS meter and 6.38 to 6.90 using the Extech SDL 100 meter. The variation among the pH measurements is likely due to variations in temperatures measured from each meter. The conductivity measured at the conclusion of the purging process ranged from 0.114 milliSiemens per centimeter (mS/cm) to 0.303 mS/cm. The DO

measured at the conclusion of the purging process ranged from 0.35 milligrams per liter (mg/L) to 5.86 mg/L. The ORP measured at the conclusion of the purging process ranged from 4 millivolts (mV) to 32 mV. Turbidity was observed to be clear in all wells at the conclusion of the purging process. GEI purged a minimum of three well volumes from each well as indicated in Table 1, below.

**Table 1 – Groundwater Volumes March & April 2019**

| Well Number | Total Depth (feet below top of casing surface) | Depth to Water (feet) | Volume (gallons) | Volume Purged (gallons) |
|---|---|---|---|---|
| MW-1 | 20.10 | 8.95 | 1.784 | 6.0 |
| MW-2 | 77.82 | 70.48 | 1.17 | 4.5 |
| MW-3a | 136.12 | 129.15 | 1.11 | 3.4 |
| MW-4 | 107.28 | 99.60 | 1.23 | 4.0 |

The samples were analyzed for petroleum hydrocarbons using the Northwest Total Petroleum Hydrocarbons as Hydrocarbon Identification (NWTPH-HCID) method and total and dissolved arsenic using the United States Environmental Protection Agency (US EPA) method 200.8. The groundwater sample collected from MW-3a was additionally analyzed for Northwest Petroleum Hydrocarbons as Gasoline (NWTPH-Gas) using the and volatile organic compounds (VOCs) using the US EPA method 8260C. Laboratory chemical analytical results are summarized as follows *(See Table 1 for a summary of the laboratory results).*

- Laboratory analytical screening for petroleum hydrocarbons in the groundwater sample collected from MW-3a resulted in the detection of gasoline-range hydrocarbons. This was followed up with NWTPH-Gas analysis and VOC analysis which resulted in non-detectable concentrations of gasoline and the detected concentrations of acetone and 2-butanone (methyl ethyl ketone [MEK]). Acetone was detected at a concentration of 3,700 micrograms per liter (μg/L), below its MTCA Method B Cleanup Level of 7,200 μg/L. 2-butanone was detected at a concentration of 3,100 μg/L, below its MTCA Method B Cleanup Level of 4,800 μg/L. To investigate the source(s) of acetone and 2-butanone, GEI surveyed the well casing with an endoscope which confirmed the presence of a blue polyvinyl chloride cement that appears to have been used during the vertical extension of the well. Upon receipt and confirmation of the laboratory analytical results for acetone and 2-butanone, GEI notified you of the findings and recommended extraction of the impacted water and reconstruction of the well extension by a licensed driller.
- Laboratory analyses resulted in the detections of total and dissolved arsenic at concentrations of 4.8 μg/L and 4.9 μg/L, respectively, in the groundwater sample collected from MW-1. The detected concentrations are below the MTCA Method A Cleanup Level of 5.0 μg/L and the Maximum Contaminant Level (MCL) of 10.0 μg/L.
- Laboratory analyses resulted in no other detections of analytes at concentrations equal to, or exceeding, their respective laboratory practical quantitation limits (PQLs) in any of the groundwater samples analyzed.

As noted above, if not yet completed, GEI recommends notifying the appropriate regulatory agencies of the findings, extracting the impacted water from MW-3a, reconstructing the casing extension of MW-3a by a licensed driller, and resurveying the wells by a licensed land surveyor. Upon completion of these tasks, the groundwater elevations may be re-calculated to more accurately represent groundwater flow conditions.

As per the City of Edgewood's Final Conditions for the Clear and Grade Permit (#3492), petroleum hydrocarbon compounds and dissolved arsenic will be tested quarterly; and polycyclic aromatic hydrocarbons (PAHs) will be tested annually for the wells.

Should you have any questions regarding this report or if you would like to discuss our findings, please contact us at any of the addresses listed on top of this letter.

Respectfully Submitted,
GALLOWAY ENVIRONMENTAL, INC.

Dylan Galloway, REA
*President*
*cc: Jenifer A. Morrison, SBI*

| Table 2 — Groundwater Sample Results Summary, Units = µg/L (ppb-water) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample ID | Sample Date | NWTPH-HCID | NWTPH Gx | BTEX | NWTPH -Dx | PAHs (EPA 8270 SIM) | Arsenic (EPA 7060) | Remarks |
| MW-1 | 2/3/12 | ND | - - - | - - - | - - - | - - - | **14** | |
| " | 5/2/12 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 7/19/12 | ND | - - - | - - - | - - - | ND | ND | |
| " | 10/29/12 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/14/13 | ND | - - - | - - - | - - - | - - - | **26** | |
| " | 4/19/13 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 7/23/13 | ND | - - - | - - - | - - - | ND | **18** | |
| " | 10/17/13 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/28/14 | ND | - - - | - - - | - - - | - - - | **30** | |
| " | 4/3/14 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 7/14/14 | ND | - - - | - - - | - - - | ND | **26** | |
| " | 10/10/14 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 12/20/14 | ND | - - - | - - - | - - - | - - - | **29** | |
| " | 4/28/15 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 6/25/15 | ND | - - - | - - - | - - - | ND | **6.6** | |
| " | 10/3/15 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/22/16 | ND | - - - | - - - | - - - | - - - | **40** | |
| " | 4/13/16 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 7/25/16 | ND | - - - | - - - | - - - | ND | **15** | |
| " | 10/17/16 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/27/17 | ND | - - - | - - - | - - - | - - - | **22** | |
| " | 4/13/17 | Detect | ND | ND | Lube Oil 720 | - - - | - - - | |
| " | 11/4/17 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/30/18 | ND | - - - | - - - | - - - | - - - | **8.7** | |
| " | 4/30/18 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 6/29/18 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 9/27/18 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 12/27/18 | ND | - - - | - - - | - - - | - - - | **13/11**** | |
| " | 3/29/19 | ND | - - - | - - - | - - - | - - - | 4.8/4.9** | |
| MW-2 | 2/3/12 | ND | - - - | - - - | - - - | - - - | ND | |
| " | 5/2/12 | ND | - - - | - - - | - - - | - - - | --- | |
| " | 7/19/12 | ND | - - - | - - - | - - - | ND | ND | |
| " | 10/29/12 | ND | - - - | - - - | - - - | - - - | --- | |
| " | 1/14/13 | ND | - - - | - - - | - - - | - - - | **7** | |
| " | 4/19/13 | ND | - - - | - - - | - - - | - - - | --- | |
| " | 7/23/13 | ND | - - - | - - - | - - - | ND | ND | |
| " | 10/17/13 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/28/14 | ND | - - - | - - - | - - - | - - - | 3.6 | |
| " | 4/3/14 | ND | - - - | - - - | - - - | - - - | - - - | |

Notes on Page7

| Table 2 – Groundwater Sample Results Summary, Units = µg/L (ppb-water) (Continued) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample ID | Date | NWTPH-HCID | NWTPH Gx | BTEX | NWTPH -Dx | PAHs (EPA 8270 SIM) | Arsenic (EPA 7060) | Remarks |
| MW-2 (Continued) | | | | | | | | |
| " | 7/14/14 | ND | - - - | - - - | - - - | ND | **5.2** | |
| " | 10/10/14 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 12/20/14 | ND | - - - | - - - | - - - | - - - | ND | |
| " | 4/28/15 | ND | - - - | - - - | - - - | - - - | - - - | |
| | 6/25/15 | ND | - - - | - - - | - - - | ND | ND | |
| " | 10/3/15 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/22/16 | ND | - - - | - - - | - - - | - - - | 2.7 | |
| " | 4/13/16 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 7/25/16 | ND | - - - | - - - | - - - | ND | 3.6 | Cr = 11, Pb = 3.4 ppb |
| " | 10/17/16 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/27/17 | ND | - - - | - - - | - - - | - - - | ND | |
| " | 4/13/17 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 11/4/17 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/30/18 | ND | - - - | - - - | - - - | - - - | ND | |
| " | 4/30/18 | ND | - - - | - - - | - - - | - - - | - - - | |
| | 6/29/18 | ND | - - - | - - - | - - - | ND | ND | |
| " | 9/27/18 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 12/27/18 | ND | - - - | - - - | - - - | - - - | ND/ND** | |
| " | 3/29/19 | ND | - - - | - - - | - - - | - - - | ND/ND** | |
| MW-3 | 2/3/12 | ND | - - - | - - - | - - - | - - - | - - - | MW-3 was not accessible for sampling |
| " | 5/2/12 | ND | - - - | - - - | - - - | - - - | ND | |
| " | 7/19/12 | ND | - - - | - - - | - - - | ND | ND | |
| " | 10/29/12 | ND | - - - | - - - | - - - | - - - | --- | |
| " | 1/14/13 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 4/19/13 | ND | - - - | - - - | - - - | - - - | --- | |
| " | 7/23/13 | ND | - - - | - - - | - - - | ND | ND | |
| " | 10/17/13 | Detect | - - - | - - - | Lube Oil 420 | - - - | - - - | |
| " | 1/28/14 | ND | - - - | - - - | - - - | - - - | ND | |
| " | 4/3/14 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 7/14/14 | Detect | - - - | - - - | Lube Oil 510 | ND | ND | |
| " | 7/30/14 | ND | - - - | - - - | - - - | - - - | - - - | Re-sample MW-3 |
| " | 10/10/14 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 12/20/14 | - - - | - - - | - - - | - - - | - - - | - - - | Well plugged - no sample |
| " | 4/28/15 | - - - | - - - | - - - | - - - | - - - | - - - | Well plugged - no sample |

Notes on Page 7

| Table 2 – Groundwater Sample Results Summary, Units = µg/L (ppb-water) (Continued) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample ID | Date | NWTPH-HCID | NWTPH Gx | BTEX | NWTPH -Dx | PAHs (EPA 8270 SIM) | Arsenic (EPA 7060) | Remarks |
| MW-3 (Continued) | | | | | | | | |
| " | 6/25/15 | ND | - - - | - - - | - - - | ND - See note | **6.1** | ND except Benzo(a)anthracene = 0.012 |
| " | 10/3/15 | - - - | - - - | - - - | - - - | - - - | - - - | Well covered - no sample |
| " | 1/22/16 | - - - | - - - | - - - | - - - | - - - | - - - | " |
| " | 4/13/16 | - - - | - - - | - - - | - - - | - - - | - - - | " |
| " | 7/25/16 | - - - | - - - | - - - | - - - | - - - | - - - | |
| " | 10/17/16 | - - - | - - - | - - - | - - - | - - - | - - - | " |
| " | 4/13/16 | - - - | - - - | - - - | - - - | - - - | - - - | " |
| " | 7/25/16 | - - - | - - - | - - - | - - - | - - - | - - - | |
| " | 10/17/16 | - - - | - - - | - - - | - - - | - - - | - - - | " |
| " | 1/27/17 | - - - | - - - | - - - | - - - | - - - | - - - | Well plugged (abandoned) |
| MW-3a | 2/24/17 | Detect | ND | ND | Lube Oil = 420 | ND except 2-Methylnapthalene = 0.11 (not considered a carcinogen (cPAH)) | - - - | New well replaced MW-3 |
| " | 4/13/17 | ND | - - - | - - - | - - - | - - - | - - - | " |
| " | 11/4/17 | - - - | - - - | - - - | - - - | - - - | - - - | " |
| " | 1/30/18 | ND | - - - | - - - | - - - | - - - | **8.7** | " |
| " | 4/30/18 | ND | - - - | - - - | - - - | - - - | - - - | " |
| | 6/29/18 | ND | - - - | - - - | - - - | ND | ND | |
| " | 9/27/18 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 12/27/18 | ND | - - - | - - - | - - - | - - - | **11**/ND** | |
| " | 4/1/19 | ND | ND | - - - | - - - | - - - | ND/ND** | Acetone @ 3,700 µg/L MEK @ 3,100 µg/L[2] |
| MW-4 | 2/3/12 | ND | - - - | - - - | - - - | - - - | ND | |
| " | 5/2/12 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 7/19/12 | ND | - - - | - - - | - - - | ND | ND | |
| " | 10/29/12 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/14/13 | ND | - - - | - - - | - - - | - - - | **5.1** | |
| " | 4/19/13 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 7/23/13 | ND | - - - | - - - | - - - | ND | 6.7 | |
| " | 10/17/13 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/28/14 | ND | - - - | - - - | - - - | - - - | - - - | |

Notes on Page 7

| Table 2 – Groundwater Sample Results Summary, Units = µg/L (ppb-water) (Continued) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sample ID | Date | NWTPH-HCID | NWTPH Gx | BTEX | NWTPH -Dx | PAHs (EPA 8270 SIM) | Arsenic (EPA 7060) | Remarks |
| MW-4 (Continued) | | | | | | | | |
| " | 4/3/14 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 7/14/14 | ND | - - - | - - - | - - - | ND | **11** | |
| " | 10/10/14 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 12/20/14 | ND | - - - | - - - | - - - | - - - | **7.6** | |
| " | 4/28/15 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 6/25/15 | ND | - - - | - - - | - - - | ND | **6.1** | |
| " | 10/3/15 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/22/16 | ND | - - - | - - - | - - - | - - - | ND | |
| " | 4/13/16 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 7/25/16 | ND | - - - | - - - | - - - | ND | ND | |
| " | 10/17/16 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/27/17 | ND | - - - | - - - | - - - | - - - | ND | |
| " | 4/13/17 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 11/4/17 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 1/30/18 | ND | - - - | - - - | - - - | - - - | ND | |
| " | 4/30/18 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 6/29/18 | ND | - - - | - - - | - - - | ND | ND | |
| " | 9/27/18 | ND | - - - | - - - | - - - | - - - | - - - | |
| " | 12/27/18 | ND | - - - | - - - | - - - | - - - | ND/ND** | |
| " | 3/29/19 | ND | - - - | - - - | - - - | - - - | ND/ND** | |
| MTCA A Potable Groundwater CULs | | | 500 | 5/1000/ 700/1000 | 500 | TEC=0.012 | 5.0/10.0[1] | |

Notes:

See figure for sample locations
MTCA Method A or Method B
- - - = Not analyzed
ND = Not Detected at a concentration equal to or exceeding the laboratory PQL
** = Laboratory results presented as total arsenic on left and dissolved arsenic on right of "/"
1 = MTCA Method A Cleanup Level for groundwater is 5.0 µg/L. The Maximum Contaminant Level (MCL) for Drinking Water is 10.0 µg/L
2 = MTCA Method B Cleanup Level for acetone and MEK (2-butanone) in groundwater are 7,200 µg/L and 4,800 µg/L, respectively.

| Table 3 – Water Elevations and Sample Log Data Summary | | | | | | |
|---|---|---|---|---|---|---|
| Date | Well # | Water Elevation (Feet amsl) | Temperature °C | pH | Conductivity µS | Color |
| 2/3/2012 | MW-1 | 35.11 | 9.5 | 7.22 | 525 | clear |
| " | MW-2 | 35.10 | 12.0 | 7.20 | 191 | clear |
| " | MW-3 | - - - | - - - | - - - | - - - | No access to well |
| " | MW-4 | 35.11 | 12.9 | 7.20 | 284 | clear |
| 5/3/2012 | MW-1 | 35.42 | 11.8 | 7.22 | 582 | clear |
| " | MW-2 | 35.50 | 12.6 | 7.19 | 186 | clear |
| " | MW-3 | 35.30 | 12.4 | 7.22 | 259 | clear |
| " | MW-4 | 35.48 | 13.6 | 7.20 | 275 | clear |
| 7/19/2012 | MW-1 | 34.47 | 13.2 | 7.19 | 271 | clear |
| " | MW-2 | 34.60 | 13.3 | 7.16 | 182 | clear |
| " | MW-3 | 34.51 | 13.3 | 7.20 | 222 | clear |
| " | MW-4 | 34.66 | 13.6 | 7.21 | 260 | clear |
| 10/29/12 | MW-1 | 32.66 | 11.5 | 7.19 | 328 | clear |
| " | MW-2 | 32.70 | 11.9 | 7.16 | 198 | clear |
| " | MW-3 | 32.64 | 11.4 | 7.20 | 262 | clear |
| " | MW-4 | 32.55 | 11.4 | 7.21 | 285 | clear |
| 1/14/13 | MW-1 | 33.95 | 9.2 | 7.23 | 519 | clear |
| " | MW-2 | 33.94 | 9.1 | 7.23 | 373 | clear |
| " | MW-3 | 33.90 | 9.2 | 7.23 | 372 | clear |
| " | MW-4 | 33.89 | 9.1 | 7.23 | 285 | clear |
| 4/19/13 | MW-1 | 34.46 | 12.2 | 7.20 | 432 | clear |
| " | MW-2 | 34.52 | 11.1 | 7.21 | 236 | clear |
| " | MW-3 | 34.50 | 11.3 | 7.22 | 302 | clear |
| " | MW-4 | 34.41 | 11.5 | 7.21 | 382 | clear |
| 7/23/13 | MW-1 | 32.45 | 13.1 | 7.15 | 232 | clear |
| " | MW-2 | 32.50 | 12.8 | 7.20 | 236 | clear |
| " | MW-3 | 32.43 | 12.9 | 7.21 | 282 | clear |
| " | MW-4 | 32.46 | 12.6 | 7.21 | 312 | clear |
| 10/17/13 | MW-1 | 33.44 | 13.1 | 7.21 | 415 | clear |
| " | MW-2 | 33.49 | 12.8 | 7.22 | 185 | clear |
| " | MW-3 | 33.20 | 10.8 | 7.21 | 227 | clear |
| " | MW-4 | 35.36 | 12.1 | 7.22 | 268 | clear |

| Table 3 – Water Elevations and Sample Log Data Summary (Continued) | | | | | | |
|---|---|---|---|---|---|---|
| Date | Well # | Water Elevation (Feet amsl) | Temperature °C | pH | Conductivity µS | Color |
| 1/28/14 | MW-1 | 33.44 | 9.6 | 7.22 | 520 | clear |
| " | MW-2 | 33.49 | 9.8 | 7.23 | 368 | clear |
| " | MW-3 | 33.20 | 9.5 | 7.23 | 351 | clear |
| " | MW-4 | 35.36 | 9.7 | 7.23 | 298 | clear |
| 4/3/14 | MW-1 | 34.62 | 11.9 | 7.20 | 452 | clear |
| " | MW-2 | 34.65 | 11.6 | 7.22 | 348 | clear |
| | MW-3 | 34.64 | 11.4 | 7.23 | 335 | clear |
| " | MW-4 | 34.58 | 11.1 | 7.22 | 298 | clear |
| 7/14/14 | MW-1 | 34.12 | 12.9 | 7.23 | 283 | clear |
| " | MW-2 | 34.13 | 12.3 | 7.20 | 201 | clear |
| " | MW-3 | 34.19 | 12.7 | 7.21 | 229 | clear |
| " | MW-4 | 34.20 | 12.8 | 7.22 | 282 | clear |
| 12/20/14 | MW-1 | 34.43 | 13.0 | 7.20 | 386 | clear |
| " | MW-2 | 34.44 | 12.8 | 7.22 | 210 | clear |
| " | MW-3 | - - - | - - - | - - - | - - - | Not sample |
| " | MW-4 | 32.47 | 13.0 | 7.21 | 385 | clear |
| 4/28/15 | MW-1 | 33.96 | 12.8 | 7.20 | 393 | clear |
| " | MW-2 | 33.99 | 12.4 | 7.21 | 224 | clear |
| " | MW-3 | - - - | - - - | - - - | - - - | Not sample |
| " | MW-4 | 32.49 | 13.4 | 7.22 | 396 | clear |
| 6/25/15 | MW-1 | 33.97 | 14.3 | 6.82 | 352 | clear |
| " | MW-2 | 34.10 | 13.4 | 7.14 | 199 | clear |
| " | MW-3 | 34.01 | 15.3 | 7.03 | 264 | clear |
| " | MW-4 | 34.16 | 15.3 | 7.01 | 242 | clear |
| 10/3/15 | MW-1 | 32.56 | 14.9 | 7.13 | 314 | clear |
| " | MW-2 | 32.91 | 12.9 | 7.16 | 206 | clear |
| " | MW-3 | - - - | - - - | - - - | - - - | Not sampled |
| " | MW-4 | 32.80 | 14.1 | 7.17 | 310 | clear |
| 1/22/16 | MW-1 | 34.61 | 12.9 | 7.20 | 356 | clear |
| " | MW-2 | 34.63 | 13.1 | 7.18 | 208 | clear |
| " | MW-3 | - - - | - - - | - - - | - - - | Not sampled |
| " | MW-4 | 34.57 | 13.6 | 7.22 | 298 | clear |

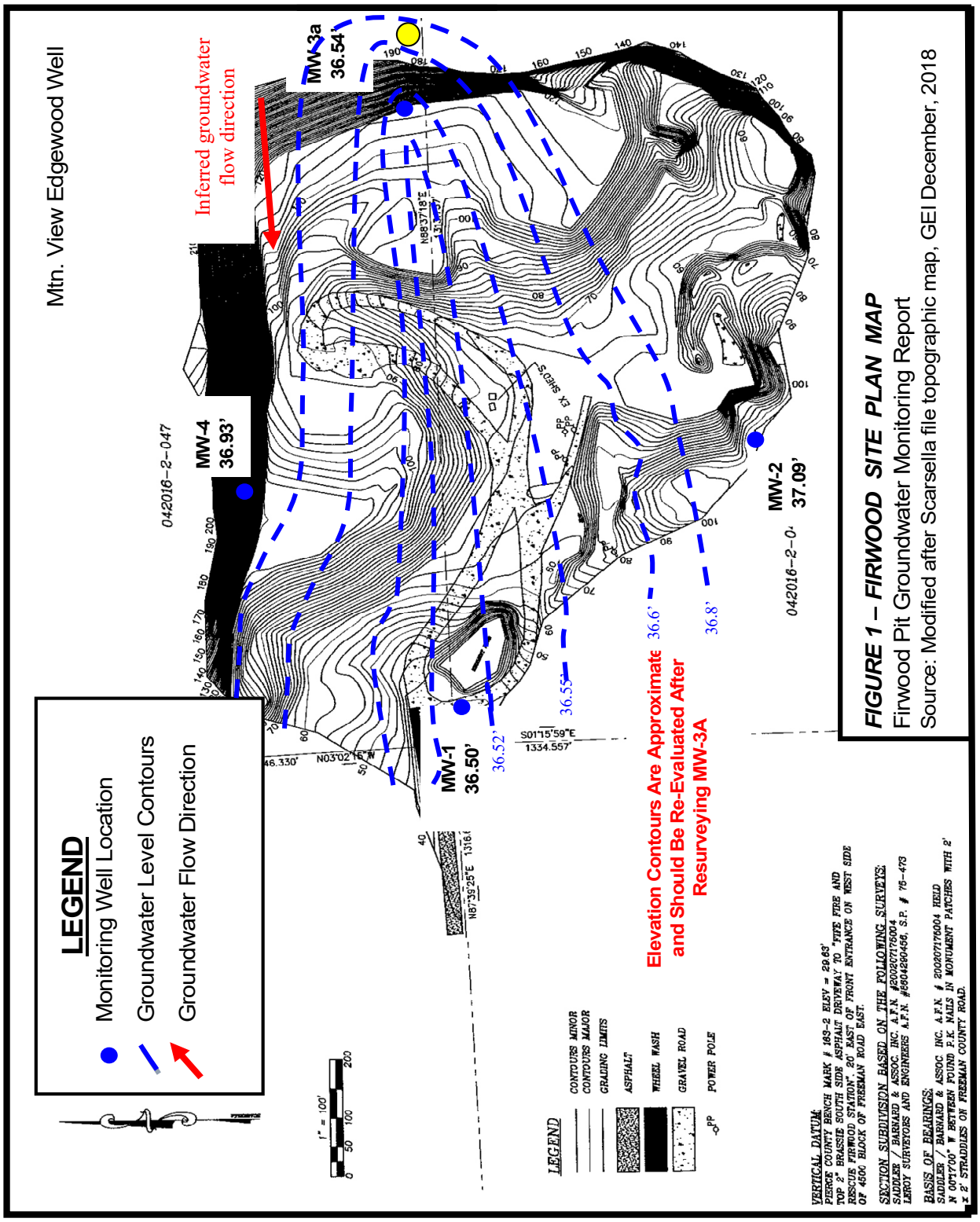
| Table 3 – Water Elevations and Sample Log Data Summary (Continued) | | | | | | |
|---|---|---|---|---|---|---|
| Date | Well # | Water Elevation (Feet amsl) | Temperature °C | pH | Conductivity µS | Color |
| 4/13/16 | MW-1 | 34.68 | 13.8 | 7.02 | 298 | clear |
| " | MW-2 | 34.92 | 14.1 | 7.19 | 255 | clear |
| " | MW-3 | - - - | - - - | - - - | - - - | Not sampled |
| " | MW-4 | 34.86 | 14.5 | 7.21 | 296 | clear |
| 7/25/16 | MW-1 | 34.14 | 14.2 | 7.02 | 298 | clear |
| " | MW-2 | 34.53 | 13.5 | 7.19 | 255 | clear |
| " | MW-3 | - - - | - - - | - - - | - - - | Not sampled |
| " | MW-4 | 34.56 | 13.9 | 7.20 | 306 | clear |
| 10/17/16 | MW-1 | 33.77 | 12.4 | 7.06 | 306 | clear |
| " | MW-2 | 33.92 | 12.9 | 7.11 | 268 | clear |
| " | MW-3 | - - - | - - - | - - - | - - - | Not sampled |
| " | MW-4 | 33.96 | 13.5 | 7.18 | 312 | clear |
| 1/27/17 | MW-1 | 34.52 | 12.4 | 7.06 | 268 | clear |
| " | MW-2 | 34.66 | 12.9 | 7.11 | 245 | clear |
| " | MW-3 | - - - | - - - | - - - | - - - | Not sampled |
| " | MW-4 | 34.51 | 13.5 | 7.18 | 371 | clear |
| 2/24/17 | MW-1 | 37.99 | 12.4 | 7.06 | 268 | clear |
| " | MW-2 | 38.55 | 12.9 | 7.11 | 245 | clear |
| " | MW-3a | 38.44 | 13.2 | 7.07 | 412 | clear |
| " | MW-4 | 38.36 | 13.5 | 7.18 | 371 | clear |
| 4/13/17 | MW-1 | 38.32 | 12.4 | 7.08 | 279 | clear |
| " | MW-2 | 38.94 | 12.9 | 7.10 | 230 | clear |
| " | MW-3a | 38.82 | 13.2 | 7.12 | 408 | clear |
| " | MW-4 | 38.73 | 13.5 | 7.08 | 295 | clear |
| 11/4/17 | MW-1 | 36.92 | 10.8 | 6.36 | 455.9 | clear |
| " | MW-2 | 37.58 | 7.3 | 6.45 | 371.9 | clear |
| " | MW-3a | 37.42 | 11.4 | 7.61 | 3.8 | clear |
| | MW-4 | 34.67 | 13.6 | 7.10 | 307 | clear |
| 1/30/18 | MW-1 | 38.26 | 9.3 | 5.79 | 764.8 | clear |
| " | MW-2 | 38.82 | 9.2 | 6.34 | 763.3 | clear |
| " | MW-3a | 38.68 | 9.8 | 6.52 | 762.9 | clear |
| | MW-4 | 38.59 | 9.7 | 6.18 | 763.6 | clear |
| 4/30/18 | MW-1 | 37.92 | 8.39 | 5.76 | 286 | clear |
| " | MW-2 | 38.61 | 9.34 | 5.97 | 126 | clear |
| " | MW-3a | 38.47 | 9.35 | 6.23 | 410 | clear |
| " | MW-4 | 38.49 | 9.74 | 5.61 | 207 | clear |

**Table 3 – Water Elevations and Sample Log Data Summary (Continued)**

| Date | Well # | Water Elevation (Feet amsl) | Temperature °C | pH | Conductivity µS/cm | Color | DO (mg/L) | ORP (mV) |
|---|---|---|---|---|---|---|---|---|
| 6/29/18 | MW-1 | 36.26 | 9.58 | 6.48 | 330 | clear | 0.33 | 50.9 |
| " | MW-2 | 36.91 | 9.68 | 6.88 | 193 | clear | 8.72 | 39.8 |
| " | MW-3a | 36.77 | 9.44 | 6.88 | 460 | clear | 2.42 | 23.6 |
| " | MW-4 | 36.81 | 10.09 | 6.45 | 296 | clear | 3.47 | 34.0 |
| 9/27/18 | MW-1 | 36.00 | 10.28 | 6.52 | 195 | clear | 0.62 | NM |
| " | MW-2 | 36.77 | 9.84 | 6.34 | 115 | clear | 8.85 | NM |
| " | MW-3a | 36.64 | 9.95 | 6.41 | 292 | brown | 2.65 | NM |
| " | MW-4 | 36.59 | 10.82 | 6.43 | 194 | clear | 3.61 | NM |
| 12/27/18 | MW-1 | 36.97 | 9.63 | 6.24/6.49* | 276 | clear | 0.25 | 27 |
| " | MW-2 | 37.48 | 9.26 | 6.04/6.33* | 119 | clear | 6.32 | 37 |
| " | MW-3a | 37.36 | 10.02 | 6.44/6.52* | 199 | clear | 4.12 | 27 |
| " | MW-4 | 37.32 | 9.81 | 5.96/6.14* | 188 | Clear | 3.24 | 48 |
| 3/29/19 | MW-1 | 36.50 | 8.27 | 6.47/6.76* | 256 | Clear | 0.35 | 13 |
| 3/29/19 | MW-2 | 37.09 | 9.46 | 6.06/6.55* | 114 | Clear | 5.86 | 26 |
| 4/1/19" | MW-3a | 36.54** | 9.82 | 6.44/6.90* | 303 | clear | 4.01 | 4 |
| 3/29/19 | MW-4 | 36.93 | 10.42 | 6.08/6.38* | 190 | clear | 3.69 | 32 |

Notes:

amsl = above mean sea level
µS = microSiemens per centimeter
DO = dissolved oxygen
mg/L = milligrams per liter
NM = not measured
mV = millivolts
* = First pH value was collected using the YSI 556 MPS meter. The second pH value was collected using the Extech SDL 100 meter
** = Estimation due to recent extension of well casing by approximately 20 feet


Mtn. View Edgewood Well
LEGEND
Monitoring Well Location
Groundwater Level Contours
Groundwater Flow Direction
Inferred groundwater flow direction
MW-3a
36.54'
MW-4
36.93'
MW-1
36.50'
MW-2
37.09'
Elevation Contours Are Approximate and Should Be Re-Evaluated After Resurveying MW-3A
36.6'
36.8'
36.52'
36.55'
042016-2-047
042016-2-0
LEGEND
CONTOURS MINOR
CONTOURS MAJOR
GRADING LIMITS
ASPHALT
WHEEL WASH
GRAVEL ROAD
POWER POLE
VERTICAL DATUM:
PIERCE COUNTY BENCH MARK # 183-2 ELEV = 29.63'
TOP 2" BRASS IN SOUTH SIDE ASPHALT DRIVEWAY TO "FIFE FIRE AND RESCUE FIRWOOD STATION" 20' EAST OF FRONT ENTRANCE ON WEST SIDE OF 4506 BLOCK OF FREEMAN ROAD EAST.
SECTION SUBDIVISION BASED ON THE FOLLOWING SURVEYS:
SADDLER / BARNARD & ASSOC INC A.F.N. #200207175004
LEROY SURVEYORS AND ENGINEERS A.F.N. #8604280466, S.P. # 76-473
BASIS OF BEARINGS:
SADDLER / BARNARD & ASSOC INC. A.F.N. # 200207175004 HELD
N 00°17'00" W BETWEEN FOUND P.K. NAILS IN MONUMENT PATCHES WITH 2' X 2' STRADDLES ON FREEMAN COUNT ROAD.
FIGURE 1 – FIRWOOD SITE PLAN MAP
Firwood Pit Groundwater Monitoring Report
Source: Modified after Scarsella file topographic map, GEI December, 2018

# Attachment 1
# Laboratory Analytical Reports

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

April 9, 2019

Dylan Galloway
Galloway Environmental, Inc.
15600 NE 8th Street, Suite B1, 617
Bellevue, WA 98008

Re: Analytical Data for Project 28027
Laboratory Reference No. 1903-303

Dear Dylan:

Enclosed are the analytical results and associated quality control data for samples submitted on March 29, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: April 9, 2019
Samples Submitted: March 29, 2019
Laboratory Reference: 1903-303
Project: 28027

**Case Narrative**

Samples were collected on March 29, 2019 and received by the laboratory on March 29, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: April 9, 2019
Samples Submitted: March 29, 2019
Laboratory Reference: 1903-303
Project: 28027

**HYDROCARBON IDENTIFICATION**
**NWTPH-HCID**

Matrix: Water
Units: mg/L (ppm)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **Client ID:** | **MW-1** | | | | | |
| Laboratory ID: | 03-303-01 | | | | | |
| Gasoline Range Organics | **ND** | 0.10 | NWTPH-HCID | 4-1-19 | 4-1-19 | |
| Diesel Range Organics | **ND** | 0.26 | NWTPH-HCID | 4-1-19 | 4-1-19 | |
| Lube Oil Range Organics | **ND** | 0.41 | NWTPH-HCID | 4-1-19 | 4-1-19 | |
| *Surrogate:* | *Percent Recovery* | *Control Limits* | | | | |
| *o-Terphenyl* | *79* | *50-150* | | | | |
| **Client ID:** | **MW-2** | | | | | |
| Laboratory ID: | 03-303-02 | | | | | |
| Gasoline Range Organics | **ND** | 0.10 | NWTPH-HCID | 4-1-19 | 4-1-19 | |
| Diesel Range Organics | **ND** | 0.26 | NWTPH-HCID | 4-1-19 | 4-1-19 | |
| Lube Oil Range Organics | **ND** | 0.41 | NWTPH-HCID | 4-1-19 | 4-1-19 | |
| *Surrogate:* | *Percent Recovery* | *Control Limits* | | | | |
| *o-Terphenyl* | *86* | *50-150* | | | | |
| **Client ID:** | **MW-4** | | | | | |
| Laboratory ID: | 03-303-03 | | | | | |
| Gasoline Range Organics | **ND** | 0.10 | NWTPH-HCID | 4-1-19 | 4-1-19 | |
| Diesel Range Organics | **ND** | 0.26 | NWTPH-HCID | 4-1-19 | 4-1-19 | |
| Lube Oil Range Organics | **ND** | 0.41 | NWTPH-HCID | 4-1-19 | 4-1-19 | |
| *Surrogate:* | *Percent Recovery* | *Control Limits* | | | | |
| *o-Terphenyl* | *87* | *50-150* | | | | |

Date of Report: April 9, 2019
Samples Submitted: March 29, 2019
Laboratory Reference: 1903-303
Project: 28027

**HYDROCARBON IDENTIFICATION**
**NWTPH-HCID**
**QUALITY CONTROL**

Matrix: Water
Units: mg/L (ppm)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **METHOD BLANK** | | | | | | |
| Laboratory ID: | MB0401W1 | | | | | |
| Gasoline Range Organics | **ND** | 0.10 | NWTPH-HCID | 4-1-19 | 4-1-19 | |
| Diesel Range Organics | **ND** | 0.25 | NWTPH-HCID | 4-1-19 | 4-1-19 | |
| Lube Oil Range Organics | **ND** | 0.40 | NWTPH-HCID | 4-1-19 | 4-1-19 | |
| *Surrogate:* | *Percent Recovery* | *Control Limits* | | | | |
| *o-Terphenyl* | *73* | *50-150* | | | | |

Date of Report: April 9, 2019
Samples Submitted: March 29, 2019
Laboratory Reference: 1903-303
Project: 28027

**DISSOLVED ARSENIC**
**EPA 200.8**

Matrix: Water
Units: ug/L (ppb)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **Client ID:** | **MW-1** | | | | | |
| Laboratory ID: | 03-303-01 | | | | | |
| Arsenic | **4.9** | 3.0 | EPA 200.8 | | 4-5-19 | |
| **Client ID:** | **MW-2** | | | | | |
| Laboratory ID: | 03-303-02 | | | | | |
| Arsenic | **ND** | 3.0 | EPA 200.8 | | 4-5-19 | |
| **Client ID:** | **MW-4** | | | | | |
| Laboratory ID: | 03-303-03 | | | | | |
| Arsenic | **ND** | 3.0 | EPA 200.8 | | 4-5-19 | |

Date of Report: April 9, 2019
Samples Submitted: March 29, 2019
Laboratory Reference: 1903-303
Project: 28027

**DISSOLVED ARSENIC**
**EPA 200.8**
**QUALITY CONTROL**

Matrix: Water
Units: ug/L (ppb)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **METHOD BLANK** | | | | | | |
| Laboratory ID: | MB0405D1 | | | | | |
| Arsenic | **ND** | 3.0 | EPA 200.8 | | 4-5-19 | |

| Analyte | Result | | Spike Level | | Source Result | Percent Recovery | | Recovery Limits | RPD | RPD Limit | Flags |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **DUPLICATE** | | | | | | | | | | | |
| Laboratory ID: | 03-303-01 | | | | | | | | | | |
| | ORIG | DUP | | | | | | | | | |
| Arsenic | **4.90** | **4.54** | NA | NA | | NA | | NA | 8 | 20 | |
| **MATRIX SPIKES** | | | | | | | | | | | |
| Laboratory ID: | 03-303-01 | | | | | | | | | | |
| | MS | MSD | MS | MSD | | MS | MSD | | | | |
| Arsenic | **89.0** | **82.8** | 80.0 | 80.0 | 4.90 | **105** | **97** | 75-125 | 7 | 20 | |

Date of Report: April 9, 2019
Samples Submitted: March 29, 2019
Laboratory Reference: 1903-303
Project: 28027

**TOTAL ARSENIC**
**EPA 200.8**

Matrix: Water
Units: ug/L (ppb)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **Client ID:** | **MW-1** | | | | | |
| Laboratory ID: | 03-303-01 | | | | | |
| Arsenic | **4.8** | 3.3 | EPA 200.8 | 4-5-19 | 4-5-19 | |
| **Client ID:** | **MW-2** | | | | | |
| Laboratory ID: | 03-303-02 | | | | | |
| Arsenic | **ND** | 3.3 | EPA 200.8 | 4-5-19 | 4-5-19 | |
| **Client ID:** | **MW-4** | | | | | |
| Laboratory ID: | 03-303-03 | | | | | |
| Arsenic | **ND** | 3.3 | EPA 200.8 | 4-5-19 | 4-5-19 | |

Date of Report: April 9, 2019
Samples Submitted: March 29, 2019
Laboratory Reference: 1903-303
Project: 28027

**TOTAL ARSENIC**
**EPA 200.8**
**QUALITY CONTROL**

Matrix: Water
Units: ug/L (ppb)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **METHOD BLANK** | | | | | | |
| Laboratory ID: | MB0405WM1 | | | | | |
| Arsenic | **ND** | 3.3 | EPA 200.8 | 4-5-19 | 4-5-19 | |

| Analyte | Result | | Spike Level | | Source Result | Percent Recovery | | Recovery Limits | RPD | RPD Limit | Flags |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **DUPLICATE** | | | | | | | | | | | |
| Laboratory ID: | 03-303-01 | | | | | | | | | | |
| | ORIG | DUP | | | | | | | | | |
| Arsenic | **4.78** | **5.09** | NA | NA | | NA | | NA | 6 | 20 | |
| **MATRIX SPIKES** | | | | | | | | | | | |
| Laboratory ID: | 03-303-01 | | | | | | | | | | |
| | MS | MSD | MS | MSD | | MS | MSD | | | | |
| Arsenic | **119** | **125** | 111 | 111 | 4.78 | **103** | **108** | 75-125 | 5 | 20 | |

OnSite Environmental Inc.

**Data Qualifiers and Abbreviations**

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

# Chain of Custody

Page 1 of 1

**OnSite Environmental Inc.**
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Galloway Environmental, Inc
Project Number: 28027
Project Name: Firwood
Project Manager: D Galloway
Sampled by: D Galloway

**Turnaround Request (in working days)**
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days) (TPH analysis 5 Days)
☐ _____ (other)

**Laboratory Number:** 03-303

| Lab ID | Sample Identification | Date Sampled | Time Sampled | Matrix | Number of Containers | NWTPH-HCID | NWTPH-Gx/BTEX | NWTPH-Gx | NWTPH-Dx (☐ Acid / SG Clean-up) | Volatiles 8260C | Halogenated Volatiles 8260C | EDB EPA 8011 (Waters Only) | Semivolatiles 8270D/SIM (with low-level PAHs) | PAHs 8270D/SIM (low-level) | PCBs 8082A | Organochlorine Pesticides 8081B | Organophosphorus Pesticides 8270D/SIM | Chlorinated Acid Herbicides 8151A | Total RCRA Metals | Total MTCA Metals | TCLP Metals | HEM (oil and grease) 1664A | Dissolved Arsenic - Field Filtered | Total Arsenic - Not Field Filtered | | | % Moisture |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MW-1 | 3/29/19 | 1038 | W | 7 | X | | | | | | | | | | | | | | | | | X | X | | | |
| 2 | MW-2 | ↓ | 1150 | ↓ | ↓ | X | | | | | | | | | | | | | | | | | X | X | | | |
| 3 | MW-4 | ↓ | 1355 | ↓ | ↓ | X | | | | | | | | | | | | | | | | | X | X | | | |

| | Signature | Company | Date | Time |
|---|---|---|---|---|
| Relinquished | | GEL | 3/29/19 | 1545 |
| Received | | GEL | 3/29/19 | 1545 |
| Relinquished | | | | |
| Received | | | | |
| Relinquished | | | | |
| Received | | | | |
| Reviewed/Date | | Reviewed/Date | | |

**Comments/Special Instructions**
Field filtered sample containers are

Data Package: Standard ☐ Level III ☐ Level IV ☐

Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

OnSite Environmental Inc.
14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

April 10, 2019

Dylan Galloway
Galloway Environmental, Inc.
15600 NE 8th Street, Suite B1, 617
Bellevue, WA 98008

Re: Analytical Data for Project 28027
Laboratory Reference No. 1904-006

Dear Dylan:

Enclosed are the analytical results and associated quality control data for samples submitted on April 1, 2019.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**Case Narrative**

Samples were collected on April 1, 2019 and received by the laboratory on April 1, 2019. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**HYDROCARBON IDENTIFICATION**
**NWTPH-HCID**

Matrix: Water
Units: mg/L (ppm)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **Client ID:** | **MW-3a** | | | | | |
| Laboratory ID: | 04-006-01 | | | | | |
| Gasoline Range Organics | **Detected** | 0.10 | NWTPH-HCID | 4-2-19 | 4-2-19 | |
| Diesel Range Organics | **ND** | 0.25 | NWTPH-HCID | 4-2-19 | 4-2-19 | |
| Lube Oil Range Organics | **ND** | 0.41 | NWTPH-HCID | 4-2-19 | 4-2-19 | |
| *Surrogate:* | *Percent Recovery* | *Control Limits* | | | | |
| *o-Terphenyl* | *100* | *50-150* | | | | |

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**HYDROCARBON IDENTIFICATION**
**NWTPH-HCID**
**QUALITY CONTROL**

Matrix: Water
Units: mg/L (ppm)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **METHOD BLANK** | | | | | | |
| Laboratory ID: | MB0402W1 | | | | | |
| Gasoline Range Organics | **ND** | 0.10 | NWTPH-HCID | 4-2-19 | 4-5-19 | |
| Diesel Range Organics | **ND** | 0.25 | NWTPH-HCID | 4-2-19 | 4-5-19 | |
| Lube Oil Range Organics | **ND** | 0.40 | NWTPH-HCID | 4-2-19 | 4-5-19 | |
| *Surrogate:* | *Percent Recovery* | *Control Limits* | | | | |
| *o-Terphenyl* | *93* | *50-150* | | | | |

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**GASOLINE RANGE ORGANICS**
**NWTPH-Gx**

Matrix: Water
Units: ug/L (ppb)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **Client ID:** | **MW-3a** | | | | | |
| Laboratory ID: | 04-006-01 | | | | | |
| Gasoline | **ND** | 100 | NWTPH-Gx | 4-8-19 | 4-8-19 | |
| *Surrogate:* | *Percent Recovery* | *Control Limits* | | | | |
| *Fluorobenzene* | *108* | *66-117* | | | | |

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**GASOLINE RANGE ORGANICS**
**NWTPH-Gx**
**QUALITY CONTROL**

Matrix: Water
Units: ug/L (ppb)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **METHOD BLANK** | | | | | | |
| Laboratory ID: | MB0408W1 | | | | | |
| Gasoline | **ND** | 100 | NWTPH-Gx | 4-8-19 | 4-8-19 | |
| *Surrogate:* | *Percent Recovery* | *Control Limits* | | | | |
| *Fluorobenzene* | *99* | *66-117* | | | | |

| Analyte | Result | | Spike Level | | Source Result | Percent Recovery | | Recovery Limits | RPD | RPD Limit | Flags |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **DUPLICATE** | | | | | | | | | | | |
| Laboratory ID: | 04-006-01 | | | | | | | | | | |
| | ORIG | DUP | | | | | | | | | |
| Gasoline | **ND** | **ND** | NA | NA | | NA | | NA | NA | 30 | |
| *Surrogate:* | | | | | | | | | | | |
| *Fluorobenzene* | | | | | | *108* | *108* | *66-117* | | | |

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**VOLATILE ORGANICS EPA 8260C**
page 1 of 2

Matrix: Water
Units: ug/L

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **Client ID:** | **MW-3a** | | | | | |
| Laboratory ID: | 04-006-01 | | | | | |
| Dichlorodifluoromethane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Chloromethane | ND | 50 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Vinyl Chloride | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Bromomethane | ND | 34 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Chloroethane | ND | 50 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Trichlorofluoromethane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,1-Dichloroethene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Acetone | 3700 | 250 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Iodomethane | ND | 310 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Carbon Disulfide | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Methylene Chloride | ND | 50 | EPA 8260C | 4-2-19 | 4-2-19 | |
| (trans) 1,2-Dichloroethene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Methyl t-Butyl Ether | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,1-Dichloroethane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Vinyl Acetate | ND | 50 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 2,2-Dichloropropane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| (cis) 1,2-Dichloroethene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 2-Butanone | 3100 | 250 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Bromochloromethane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Chloroform | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,1,1-Trichloroethane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Carbon Tetrachloride | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,1-Dichloropropene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Benzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2-Dichloroethane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Trichloroethene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2-Dichloropropane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Dibromomethane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Bromodichloromethane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 2-Chloroethyl Vinyl Ether | ND | 50 | EPA 8260C | 4-2-19 | 4-2-19 | |
| (cis) 1,3-Dichloropropene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Methyl Isobutyl Ketone | ND | 100 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Toluene | ND | 50 | EPA 8260C | 4-2-19 | 4-2-19 | |
| (trans) 1,3-Dichloropropene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**VOLATILE ORGANICS EPA 8260C**
page 2 of 2

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **Client ID:** | **MW-3a** | | | | | |
| Laboratory ID: | 04-006-01 | | | | | |
| 1,1,2-Trichloroethane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Tetrachloroethene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,3-Dichloropropane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 2-Hexanone | ND | 130 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Dibromochloromethane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2-Dibromoethane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Chlorobenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,1,1,2-Tetrachloroethane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Ethylbenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| m,p-Xylene | ND | 20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| o-Xylene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Styrene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Bromoform | ND | 50 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Isopropylbenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Bromobenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,1,2,2-Tetrachloroethane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2,3-Trichloropropane | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| n-Propylbenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 2-Chlorotoluene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 4-Chlorotoluene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,3,5-Trimethylbenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| tert-Butylbenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2,4-Trimethylbenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| sec-Butylbenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,3-Dichlorobenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| p-Isopropyltoluene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,4-Dichlorobenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2-Dichlorobenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| n-Butylbenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2-Dibromo-3-chloropropane | ND | 65 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2,4-Trichlorobenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Hexachlorobutadiene | ND | 50 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Naphthalene | ND | 50 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2,3-Trichlorobenzene | ND | 10 | EPA 8260C | 4-2-19 | 4-2-19 | |
| *Surrogate:* | *Percent Recovery* | *Control Limits* | | | | |
| *Dibromofluoromethane* | *96* | *75-127* | | | | |
| *Toluene-d8* | *101* | *80-127* | | | | |
| *4-Bromofluorobenzene* | *101* | *78-125* | | | | |

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**VOLATILE ORGANICS EPA 8260C**
**METHOD BLANK QUALITY CONTROL**
page 1 of 2

Matrix: Water
Units: ug/L

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| Laboratory ID: | MB0402W2 | | | | | |
| Dichlorodifluoromethane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Chloromethane | ND | 1.0 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Vinyl Chloride | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Bromomethane | ND | 0.68 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Chloroethane | ND | 1.0 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Trichlorofluoromethane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,1-Dichloroethene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Acetone | ND | 5.0 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Iodomethane | ND | 6.2 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Carbon Disulfide | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Methylene Chloride | ND | 1.0 | EPA 8260C | 4-2-19 | 4-2-19 | |
| (trans) 1,2-Dichloroethene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Methyl t-Butyl Ether | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,1-Dichloroethane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Vinyl Acetate | ND | 1.0 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 2,2-Dichloropropane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| (cis) 1,2-Dichloroethene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 2-Butanone | ND | 5.0 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Bromochloromethane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Chloroform | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,1,1-Trichloroethane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Carbon Tetrachloride | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,1-Dichloropropene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Benzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2-Dichloroethane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Trichloroethene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2-Dichloropropane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Dibromomethane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Bromodichloromethane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 2-Chloroethyl Vinyl Ether | ND | 1.0 | EPA 8260C | 4-2-19 | 4-2-19 | |
| (cis) 1,3-Dichloropropene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Methyl Isobutyl Ketone | ND | 2.0 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Toluene | ND | 1.0 | EPA 8260C | 4-2-19 | 4-2-19 | |
| (trans) 1,3-Dichloropropene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**VOLATILE ORGANICS EPA 8260C**
**METHOD BLANK QUALITY CONTROL**
page 2 of 2

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| Laboratory ID: | MB0402W2 | | | | | |
| 1,1,2-Trichloroethane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Tetrachloroethene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,3-Dichloropropane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 2-Hexanone | ND | 2.5 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Dibromochloromethane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2-Dibromoethane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Chlorobenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,1,1,2-Tetrachloroethane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Ethylbenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| m,p-Xylene | ND | 0.40 | EPA 8260C | 4-2-19 | 4-2-19 | |
| o-Xylene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Styrene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Bromoform | ND | 1.0 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Isopropylbenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Bromobenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,1,2,2-Tetrachloroethane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2,3-Trichloropropane | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| n-Propylbenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 2-Chlorotoluene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 4-Chlorotoluene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,3,5-Trimethylbenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| tert-Butylbenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2,4-Trimethylbenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| sec-Butylbenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,3-Dichlorobenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| p-Isopropyltoluene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,4-Dichlorobenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2-Dichlorobenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| n-Butylbenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2-Dibromo-3-chloropropane | ND | 1.3 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2,4-Trichlorobenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Hexachlorobutadiene | ND | 1.0 | EPA 8260C | 4-2-19 | 4-2-19 | |
| Naphthalene | ND | 1.0 | EPA 8260C | 4-2-19 | 4-2-19 | |
| 1,2,3-Trichlorobenzene | ND | 0.20 | EPA 8260C | 4-2-19 | 4-2-19 | |
| *Surrogate:* | *Percent Recovery* | *Control Limits* | | | | |
| *Dibromofluoromethane* | *95* | *75-127* | | | | |
| *Toluene-d8* | *100* | *80-127* | | | | |
| *4-Bromofluorobenzene* | *99* | *78-125* | | | | |

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**VOLATILE ORGANICS EPA 8260C**
**SB/SBD QUALITY CONTROL**

Matrix: Water
Units: ug/L

| Analyte | Result | | Spike Level | | Percent Recovery | | Recovery Limits | RPD | RPD Limit | Flags |
|---|---|---|---|---|---|---|---|---|---|---|
| **SPIKE BLANKS** | | | | | | | | | | |
| Laboratory ID: | SB0402W2 | | | | | | | | | |
| | SB | SBD | SB | SBD | SB | SBD | | | | |
| 1,1-Dichloroethene | **8.60** | **8.74** | 10.0 | 10.0 | 86 | 87 | 62-129 | 2 | 15 | |
| Benzene | **9.09** | **9.12** | 10.0 | 10.0 | 91 | 91 | 77-127 | 0 | 15 | |
| Trichloroethene | **10.7** | **10.6** | 10.0 | 10.0 | 107 | 106 | 70-120 | 1 | 15 | |
| Toluene | **10.2** | **10.1** | 10.0 | 10.0 | 102 | 101 | 82-123 | 1 | 15 | |
| Chlorobenzene | **10.7** | **10.5** | 10.0 | 10.0 | 107 | 105 | 79-120 | 2 | 15 | |
| *Surrogate:* | | | | | | | | | | |
| *Dibromofluoromethane* | | | | | *91* | *94* | *75-127* | | | |
| *Toluene-d8* | | | | | *101* | *101* | *80-127* | | | |
| *4-Bromofluorobenzene* | | | | | *100* | *100* | *78-125* | | | |

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**DISSOLVED ARSENIC**
**EPA 200.8**

Matrix: Water
Units: ug/L (ppb)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **Client ID:** | **MW-3a** | | | | | |
| Laboratory ID: | 04-006-01 | | | | | |
| Arsenic | **ND** | 3.0 | EPA 200.8 | | 4-5-19 | |

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**DISSOLVED ARSENIC**
**EPA 200.8**
**QUALITY CONTROL**

Matrix: Water
Units: ug/L (ppb)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **METHOD BLANK** | | | | | | |
| Laboratory ID: | MB0405D1 | | | | | |
| Arsenic | **ND** | 3.0 | EPA 200.8 | | 4-5-19 | |

| Analyte | Result | | Spike Level | | Source Result | Percent Recovery | | Recovery Limits | RPD | RPD Limit | Flags |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **DUPLICATE** | | | | | | | | | | | |
| Laboratory ID: | 03-303-01 | | | | | | | | | | |
| | ORIG | DUP | | | | | | | | | |
| Arsenic | **4.90** | **4.54** | NA | NA | | NA | | NA | 8 | 20 | |
| **MATRIX SPIKES** | | | | | | | | | | | |
| Laboratory ID: | 03-303-01 | | | | | | | | | | |
| | MS | MSD | MS | MSD | | MS | MSD | | | | |
| Arsenic | **89.0** | **82.8** | 80.0 | 80.0 | 4.90 | **105** | **97** | 75-125 | 7 | 20 | |

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**TOTAL ARSENIC**
**EPA 200.8**

Matrix: Water
Units: ug/L (ppb)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **Client ID:** | **MW-3a** | | | | | |
| Laboratory ID: | 04-006-01 | | | | | |
| Arsenic | **ND** | 3.3 | EPA 200.8 | 4-5-19 | 4-5-19 | |

Date of Report: April 10, 2019
Samples Submitted: April 1, 2019
Laboratory Reference: 1904-006
Project: 28027

**TOTAL ARSENIC**
**EPA 200.8**
**QUALITY CONTROL**

Matrix: Water
Units: ug/L (ppb)

| Analyte | Result | PQL | Method | Date Prepared | Date Analyzed | Flags |
|---|---|---|---|---|---|---|
| **METHOD BLANK** | | | | | | |
| Laboratory ID: | MB0405WM1 | | | | | |
| Arsenic | **ND** | 3.3 | EPA 200.8 | 4-5-19 | 4-5-19 | |

| Analyte | Result | | Spike Level | | Source Result | Percent Recovery | | Recovery Limits | RPD | RPD Limit | Flags |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **DUPLICATE** | | | | | | | | | | | |
| Laboratory ID: | 03-303-01 | | | | | | | | | | |
| | ORIG | DUP | | | | | | | | | |
| Arsenic | **4.78** | **5.09** | NA | NA | | NA | | NA | 6 | 20 | |
| **MATRIX SPIKES** | | | | | | | | | | | |
| Laboratory ID: | 03-303-01 | | | | | | | | | | |
| | MS | MSD | MS | MSD | | MS | MSD | | | | |
| Arsenic | **119** | **125** | 111 | 111 | 4.78 | **103** | **108** | 75-125 | 5 | 20 | |

OnSite Environmental Inc.

**Data Qualifiers and Abbreviations**

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

E - The value reported exceeds the quantitation range and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range are impacting the diesel range result.

M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

N - Hydrocarbons in the lube oil range are impacting the diesel range result.

N1 - Hydrocarbons in diesel range are impacting lube oil range results.

O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

U1 - The practical quantitation limit is elevated due to interferences present in the sample.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a mercury cleanup procedure.

X1- Sample extract treated with a sulfuric acid/silica gel cleanup procedure.

Y - The calibration verification for this analyte exceeded the 20% drift specified in method 8260C, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

# Chain of Custody

Page 1 of 1

**OnSite Environmental Inc.**
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Galloway Environmental Lab
Project Number: 28027
Project Name: Firwood
Project Manager: D Galloway
Sampled by: D Galloway

**Turnaround Request (in working days)**
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days) (TPH analysis 5 Days)
☐ _____ (other)

**Laboratory Number:** 04-006

| Lab ID | Sample Identification | Date Sampled | Time Sampled | Matrix | Number of Containers | NWTPH-HCID | NWTPH-Gx/BTEX | NWTPH-Gx | NWTPH-Dx (☐ Acid / SG Clean-up) | Volatiles 8260C | Halogenated Volatiles 8260C | EDB EPA 8011 (Waters Only) | Semivolatiles 8270D/SIM (with low-level PAHs) | PAHs 8270D/SIM (low-level) | PCBs 8082A | Organochlorine Pesticides 8081B | Organophosphorus Pesticides 8270D/SIM | Chlorinated Acid Herbicides 8151A | Total RCRA Metals | Total MTCA Metals | TCLP Metals | HEM (oil and grease) 1664A | Dissolved Arsenic | Total Arsenic | | | % Moisture |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MW-3a | 4/1/19 | 1200 | W | 7 | X | | ⊗ | | X | | | | | | | | | | | | | X | X | | | |

| | Signature | Company | Date | Time |
|---|---|---|---|---|
| Relinquished | | GEI | 4/1/19 | 1400 |
| Received | | CORE | 4/1/19 | 1400 |
| Relinquished | | | | |
| Received | | | | |
| Relinquished | | | | |
| Received | | | | |
| Reviewed/Date | | Reviewed/Date | | |

**Comments/Special Instructions**
Dissolved arsenic container was field filtered.
⊗ Added 4/8/19. DB (2 day TAT)

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐