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FOLLOWUP INVESTIGATION

SOILS AND GROUNDWATER

CONWAY FEED PROPERTY
18700 MAIN STREET
CONWAY, WA 98238

Prepared For

SCOTT McKNIGHT, GENERAL MANAGER
CONWAY FEED

PN 2K1803 **MAY 01, 2018**

FOLLOWUP INVESTIGATION OF THE SOILS AND GROUND WATER FROM 4 LOCATIONS AT THE CONWAY FEED SITE 18700 MAIN STREET • CONWAY, WA 98238

Facility/Site No. 3194825
VCP Project No. NW2185

Prepared For

Mr. Scott McKnight, General Manager
18700 Main Street
Conway, WA 98238

May 1, 2018

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FURTHER INVESTIGATION OF THE SOILS AND GROUNDWATER IN 2018 FROM 4 LOCATIONS AT THE CONWAY FEED SITE

18700 MAIN STREET • CONWAY, WA 98238

Facility/Site No. 3194825

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ACTIVITIES LEADING UP TO THIS NEXT PHASE OF TESTING AT THE CONWAY FEED SITE

Discussion of Activities at the Conway Feed Site

Northwest HydroGeo Consultants (**NWHGC**) was contacted by Mr. Scott McKnight, General Manager of Conway Feed, at 18700 Main Street in Conway, WA 98238. Mr. McKnight had been in commination with Mr. Roger Nye, LG, Specialist, NWRO Toxics Cleanup Program, NW Regional Office, Department of Ecology, 3190 160th Avenue SE, Bellevue, WA 98008-5452. Mr. McKnight was inquiring on how to remove the Conway Feed site from the Department of Ecology list of Contaminated Sites. For an in depth review of the four reports previously prepared for the Conway Feed site by **MTC** and **NWHGC,** please refer to the Reference section of this report.

BACKGROUND INFORMATION

Geology, Hydrogeology and Soils at the Conway Feed Site

Geologic: Western Skagit County lies within the Puget Sound Lowland, a topographic and structural depression between the Cascade range of mountains to the east and the Olympic Mountains on the west. Pleistocene-era glacial and non-glacial deposits cover most of the lowlands. The subject area is covered with floodplain sediments from the meandering South Fork of the Skagit River, located only 2,000 feet west of the subject site.

Hydrogeologic: The underlying aquifer in this area of Conway is the water table aquifer which is quite shallow, approximately three to four feet deep, depending on the time of year. We believe this aquifer is in direct

hydraulic continuity with the Skagit River Delta. Recharge to this upper aquifer is accomplished mainly by direct infiltration. Precipitation moves downward from the surface under the influence of gravity, where it intercepts and recharges the water table aquifer. From there the groundwater moves within the formation under the influence of gravity toward the Skagit River Delta in primarily a westerly direction, where it probably discharges.

Hydrologic: The subject site lies within the 100-year flood zone of the Skagit River. There are also considerable wetland areas west of the subject site. The approximate elevation of the subject site is only about 10 feet above sea level.

Local Soils: The local soils are described in the Soil Survey of Skagit County Area, Washington, presented in the U.S. Department of Agriculture Soil Conservation Service publication dated 1989. The subject site soils are classified as **Sumas silt loam** and described as:

This very deep, poorly drained soil is on flood plains and deltas. Drainage has been altered by tilling. This soils is partially protected from flooding. It formed in alluvium. Slope is 0 to 2 percent. Permeability of this soil is moderate in the upper part and rapid in the lower part. Available water capacity is moderately high.

Topographic: The subject site and surrounding area is essentially flat lying, having been modified over the last 10,000 years by the meandering Skagit River, which has moved back and forth over the local area many times. The Skagit River during periods of flooding does pose a potential risk to the site, especially during the spring runoff season when water levels in the river are at their highest.

ACTIVITIES CARRIED OUT AT CONWAY FEED BEGINNING IN 1991

The following is a summary review of activities that have been completed in regard to the underground storage tanks and the collection and testing of soils and groundwater samples. This summary covers the activities in decommissioning of the two USTs and the collection and testing of soils and groundwater at the Conway Feed site. For a detailed review of these topic the reader is referred to the reports from which they were derived. See the References at the end of this report.

Decommissioning of the two USTs in 1991 and 1992

The site contained two underground storage tanks (**USTs**): a 2,000 gallon diesel and a 1,000 gallon gasoline UST. A report was prepared for Conway Feed by **Materials Testing and Consulting, Inc. (MTC),** on the decommissioning by removal of the two Underground Storage Tanks (USTs) at the subject site in late December of 1991 and early January of 1992, prior to the involvement of **NWHGC**. It was noted in the **MTC** report that corrosion and holes were observed in the bottoms of both the diesel and gasoline USTs at the time of removal. Contamination was verified by analysis of the soils from the pit excavation. Remediation of the site consisted of removing approximately 15 cubic yards of contaminated soils and backfilling the excavated pit with clean pit-run sand and gravel. The contaminated soils from the pit were stockpiled and remediated by aeration onsite. On May 26, 1994 and June 29, 1994, three soil samples were collected from these stockpiled soils and tested. The results showed that there was no longer any petroleum contamination in the stockpiled soils detected above the cleanup standards.

A two-inch diameter monitoring well was installed to a depth of 15 feet directly west of the location of the former USTs in the backfill gravel. Using this monitoring well the groundwater was tested on February 25, 1992, with the results reported that no contamination was detected in the groundwater sample analyzed. A report on these activities dated February 1992 was submitted by **MTC** on behalf of Conway Feed.

Followup Testing of the Groundwater in 2008

In September, 2008 **NWHGC** was contacted by Mr. Scott McKnight, General Manager of Conway Feed, to obtain closure on the previous work done at the site and obtain a letter of **No Further Action** from the Washington Department of Ecology (WDOE). **NWHGC** studied the previous work done at the site, including the report submitted by **MTC** which clearly stated that all contaminated soils had been removed and followup testing of the groundwater from the installed monitoring well also proved negative results.

On September 26, 2008 **NWHGC** collected a groundwater sample from the 15-foot deep monitoring well constructed at the site and submitted the sample to EDGE Analytical in Burlington for testing. No soil samples were collected, which was beyond the scope of work. The results reported for NWTPH-HCID were **Not Detected** for Gasoline, Diesel and Heavy Oil. The test for BTEX and Lead were reported as **Not Detected** for Toluene, EthylBenzene and Total Xylenes. Low levels were detected for Benzene at 0.0003 mg/L and Lead at 0.003 mg/L.

These results were submitted to Ecology and a letter was received from Ms. Libby S. Goldstein, NWRO Toxics Cleanup Program on August 23, 2008.

Ms. Goldstein reviewed the reports submitted by **NWHGC** and the previous report submitted by **MTC Inc.** and concluded the following bullet points:

- *The site was not adequately characterized by **MTC** and further work was required. Specifically the extent of soil contamination from gasoline and diesel underneath the canopy (concrete slab), west of the of the removed USTs.*

- *Groundwater at the site had not been adequately characterized. The construction of the well was not known, which compromises the integrity of the groundwater data collected from the well.*

- *The location of the 2-inch monitoring well did not appear to be downgradient of the area where the USTs were removed.*

Note: This conclusion about the 2-inch monitoring well being constructed *upgradient* of the two decommissioned USTs is **incorrect**. The 2-inch monitoring well is 15 feet in depth and is properly placed *downgradient* of the former two USTs. The groundwater under the site is moving downgradient in a westerly direction and not in an easterly direction as implied.

- *Ecology has determined that cleanup levels and points of compliance established for the site do not meet the substantive requirement of MTCA. The site does not meet the MTCA definition of an industrial property; therefore, soil cleanup levels suitable for unrestricted land use are appropriate. For unrestricted land use, direct contact, either Method A or B cleanup levels can be used. If groundwater at the site has been impacted by releases, either MTCA Method A or B cleanup levels can be used.*

Removal of Soils and Testing of Soils and Groundwater in 2010 and 2011

Based on the Goldstein letter, **NWHGC** along with **Ultra Tank Services** conducted additional site remediation activities at the Conway Feed site in 2010. The primary objective was to explore the area directly west of the former UST location which lies under a metal canopy and below a thick concrete slab. **ULTRA TANK SERVICES, Inc.** of Bellingham, WA was contracted to accomplish the excavation of the soils and groundwater and the removal of contaminated soils where present, and to remediate these soils onsite.

This additional work at the Conway Feed site began on November 16, 2010. The excavation activities involved removing the 2-inch PVC monitoring well and the thick concrete slab under the metal canopy which was left in place. The contaminated soils

were excavated using a backhoe excavator and moved by truck to a site located north-northeast of the site on a vacant area owned by Conway Feed. This area was lined with Visqueen® and a barrier of hay bales was placed around it. The contaminated soils were spread out over a 26- by-57-foot area totaling 1,482 square feet and measuring about one foot thick. During the dry summer months the area was uncovered and allowed to aerate. Final testing of the aerated soils was conducted on August 01, 2011, with a reported result of **Not Detected** for BTEX or TPH. Low levels of Lead were detected in all samples, averaging only 15.4 mg/Kg.

Soil and Groundwater samples were continuously monitored during the excavation process using an onsite portable Photoionization Meter (PID) which was capable of detecting even very low concentrations of petroleum hydrocarbons. Contaminated soils when detected were removed from the site and spread on the sheets of Visqueen® to be aerated. Laboratory samples were also collected from time to time and submitted to EDGE Analytical for verification testing.

Excavation and testing continued until late 2010 when activities were halted due to heavy precipitation in the area and the holidays, and did not resume again until June of 2011 when precipitation events were seasonally reduced. Analysis showed low levels of lead in both the soils and groundwater in all of the samples tested by EDGE Analytical. Lead appears to be ubiquitous in the local environment.

No contamination above acceptable levels for gasoline TPH and BTEX was ever detected in soils and groundwater samples collected directly south of the former two USTs, showing that the groundwater was moving in a westerly direction and not to the south. No indications of gasoline TPH and BTEX or Diesel were ever detected in the excavated areas south of the former USTs, which further demonstrated that groundwater was indeed moving in a westerly direction at the site. All soil and groundwater samples submitted for analysis were reported to contain low levels of lead contamination.

Based on the work completed a full report was submitted to Ecology on the 25th of August 2011 by **NWHGC**, stating all contaminated soils excavated west of the former USTs up to the edge of the warehouse building had been removed and were being stockpiled and aerated. The excavated area was backfilled with clean sand and gravel and a concrete slab was poured over the excavated area. The results were submitted to Ecology for review.

Testing Under the Warehouse Floor as Required by Ecology in 2018

In early February 2018 Scott McKnight contacted **NWHGC** saying Ecology had still not issued a letter of **No Further Action** for the Conway Feed Site. Mr. McKnight sent a copy of the letter from Roger Nye, LG, Specialist, NWRO Toxics Cleanup Program, NW Regional Office, Department of Ecology, 3190 160th Avenue SE, Bellevue, WA 98008-5452. Mr. Nye's letter dated August 23 2017 listed their remaining concerns about the site:

> ***Opinion:***
>
> *Additional Soil and groundwater sampling is required to demonstrate that the full extent of soil contaminated above Method A was removed, and that groundwater contamination above Method A cleanup levels is not present on the Property. This would initially require taking soil and groundwater samples inside the warehouse building. There is limited-access "push probe" equipment available that can acquire soil and grab groundwater samples from the shallow groundwater (provided there is some room to work inside the building). There should be at least one groundwater sample location as near to the railroad property to the west as possible.*

We contacted Mr. Nye about his letter to Mr. McKnight concerning the Conway Feed Site and what was needed to achieve a letter of **No Further Action**. Mr. Nye basically repeated the opinion as shown in his letter above. Based on our conversation and his letter, **NWHGC** responded with a proposal and a scope of work to meet his concerns. To address his concerns we proposed drilling and collecting soil and groundwater samples from three boreholes inside the warehouse building: two boreholes along a north-south line 1/3 and 2/3 along a center line and a third borehole outside between the west side of the building and the railroad tracks.

Mr. Nye approved our proposal with the following modifications.

1) Move Borehole No. 2 approximately 5 to 7 feet south of its proposed location.

2) Add a new borehole to be located near the doorway entrance on the east side to the tool room portion of the warehouse, bringing the total to three inside the building and one outside between the building and the Burlington Northern Santa Fe Railroad tracks (BNSF).

Site Work Conducted on March 30th 2018

The borehole locations at the Conway Feed Warehouse site were marked using spray paint prior to drilling and collection of soils and groundwater samples. A problem arose when locating the borehole outside on the west side of the warehouse building, between the warehouse building and railroad siding tracks, as requested by Mr. Roger Nye. According to Mr. McKnight the property line is along the western wall of the warehouse structure. It would take some time to obtain permission from the BNSF railroad for this borehole, as it would be located on their property. Also, we realized that the outside elevation for the proposed exterior borehole was 4.5 feet higher than the floor on the inside of the warehouse building. Auger length was not sufficient to reach the groundwater depth required for sampling from the outside location. Therefore it seemed the best way around this problem was to simply move the borehole to the inside of the building and locate the borehole next to the wall facing the railroad tracks.

SOIL AND GROUNDWATER SAMPLING ON MARCH 30TH 2018

Steps Followed in Collecting Soil and Groundwater Samples

1) The first step was cutting a one-foot square hole into the four-inch concrete floor of the warehouse building using a special circular saw. A vacuum was used near the saw to catch fine particles of the cement and some of the dust. In addition a jet of water was sprayed on the cutting area to keep down the dust (See Photo No. 1).

2) After the four-inch square was cut into the concrete the concrete was broken up into small chunks and then removed from the area with a wheelbarrow (see Photo No. 2).

3) After all of the concrete pieces were removed from the square hole a hand auger was placed on the center of the square hole and boring was begun. The soil in the auger was removed and placed in a wheelbarrow (see Photos No. 3, 4 and 5).

4) As soon as the saturated zone was reached, a soil sample was collected from the auger. The sampling consisted of collecting two 5 mL soil samples using a plastic sampling tube supplied by **EDGE Analytical** and placing the samples in individual 40 mL glass vials and sealing the tops. An additional 3 soil samples were placed in glass 4-once sample jars with no head space for analysis of lead, NWTPH-Dx and NWTPH/G-BTEX (see Photos No. 6 and 7).

5) The borehole was augered down another 2 to 3 feet into the saturated zone for collection of a water sample. A ¼ inch diameter plastic tube was lowered into the borehole and the end of the tube placed into a peristaltic pump. The speed could

be controlled so two 40 mL glass vials could be filled and with zero head space with the plastic tops screwed into place. Next two brown one-liter glass jars were filled. All samples were placed in one of three insulated chests and iced, bringing the samples to a temperature of 8 degrees C (See Photos No. 6 and 7).

Additional Information Concerning The Work at Conway Feed

The same procedure was followed for all four borehole locations. The location for Borehole No. 2 was moved approximately 5 feet south from its original location per Roger Nye's request. On Borehole No. 1 there was a strong odor of H_2S in the soils which quickly dissipated. No odor was detected in the water samples taken. All of the soil samples were a sandy, gravelly material, becoming more silty with depth. Apparently the site was graded and prepared with the sandy gravel before the concrete slab was poured when the warehouse was constructed. Occasionally large pebbles were encountered in the borehole, which made the augering more difficult.

Upon competition of the augering bentonite clay was poured into the borehole where possible, as the hole appeared to collapse fairly soon after the groundwater samples were collected. At the top of the boreholes a cement mixture consisting of gravelly sand and cement was poured into the one foot square hole where rebar had been inserted into the sides of the square hole. After the cement mixture had filled the square space a temporary wooden cover was placed to keep workers from stepping onto the surface as the concrete set (see Photos 8 and 9).

Photo No. 10 shows the location of Borehole No. 4, which was moved inside the warehouse building next to the western wall for the reasons already discussed.

SOIL AND GROUNDWATER TEST RESULTS

The following test results are from EDGE Analytical in Burlington, WA. The materials including soils and groundwater were taken on March 30th 2018 from the four boreholes at the Conway Feed Company in Conway WA. The soil and groundwater samples were each properly labeled in the field at the time of collection, then placed in one of three insulated chests supplied by EDGE Analytical. Each chest was filled with chipped ice, bringing the temperature of the collected samples to 8° C. The samples were delivered to EDGE Analytical under proper chain of custody on March 30th 2018. The samples were never out of NWHGC control until delivered. The proper forms are found in the Appendix of this report. The soil and groundwater samples for Boreholes 1, 3 and 4 were tested for: **NWTPH/G-BTEX, NWTPH-G/BTEX S(5035), NWTPH-Dx** and **Lead**. For Borehole 2 the analysis includes, **NWTPH/G-BTEX + MTBE, NWTPH-G/BTEX S(5035) +MTBE, NWTPH-Dx** and **Lead**.

Table No. 1 SOILS
(Sampled on March 30, 2018)

SAMPLE No.	Benzene	Toluene	Ethylbenzene	Xylenes	Lead	Gas Range Organics	Diesel Fuel	Heavier Oils
ACTION LEVEL	0.03 mg/Kg	7.0 mg/Kg	6.0 mg/Kg	9.0 mg/Kg	250 mg/Kg	100 mg/Kg	2,000 mg/Kg	2,000 mg/Kg
BH-1	ND	ND	ND	ND	9.60	ND	ND	ND
BH-2 ❶	ND	ND	ND	ND	1.60	ND	ND	ND
BH-3	ND	ND	ND	ND	11.00	ND	ND	ND
BH-4	ND	ND	ND	ND	7.26	ND	ND	ND

ND = Not Detected

❶ Methyl Tert-Butyl Ether (MTBE)

A separate test was made for **MTBE** for soils in **BH-2**. The results of testing was given as ~~**2.25 mg/Kg**~~ ND. There is currently no standard from the EPA or Ecology for the maximum allowable amount of **MTBE** in soils. **MTBE** was first introduced as an additive for unleaded gasoline in the 1980's to enhance octane ratings.

Table No. 2 GROUNDWATER
(Sampled on March 30, 2018)

Field Sample	Laboratory Test Results of Water Samples BTEX and Lead					
	Benzene mg/L	Toluene mg/L	Ethylbenzene mg/L	Total Xylenes mg/L	Gasoline (C_8-C_{12})	Lead mg/L
Ground Water Cleanup Standards	0.005 mg/L	1.00 mg/L	0.50 mg/L	1.00 mg/L	1 mg/L	0.015 mg/L
BH-1	ND	ND	ND	ND	ND	0.044
BH-2 ❶	ND	ND	ND	ND	ND	0.0057
BH-3	ND	ND	ND	ND	ND	0.00052
BH-4	ND	ND	ND	ND	ND	0.0057

❶ Methyl Tert-Butyl Ether (MTBE)

A separate test was made for **MTBE** for ground water in **BH-2**. The results of testing was given as **ND (Not Detected)**. There is currently no standard from the EPA or Ecology for the maximum allowable amount of **MTBE** in ground water. **MTBE** was first introduced as an additive for unleaded gasoline in the 1980's to enhance octane ratings.

SUMMARY OF WORK PERFORMED AT THE SITE 1991 TO PRESENT

- Two underground storage tanks (USTs) consisting of a 2,000 gallon diesel and a 1,000 gallon gasoline UST were decommissioned by removal from the Conway Feed site in December 1991 and early January 1992 (26 years ago). It was noted in the report produced by **Materials Testing and Consulting, Inc. (MTC)** that corrosion and holes were observed in the bottom of both the diesel and gasoline USTs at the time of removal so therefor the tanks had leaked. Contamination was verified by the testing of soils from the pit excavation. Remediation of the site consisted of removing approximately 15 cubic yards of soils and back filling with clean pit-run gravel according to the MTC report.

- In addition a 2-inch diameter PVC monitoring well was installed directly west (downgradient) of the former USTs in the backfill gravel and the groundwater was

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May 2, 2018

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Subject: ERRATA LETTER FOR THE MTBE IN SOILS FROM BOREHOLE # 2. CONWAY FEED SITE SOILS AND GROUNDWATER TEST REPORT

An error occurred in our report titled: **Follow up Investigation of the Soils and Groundwater at the Conway Feed Site 18200 Main Street, Conway WA 98238.** It was incorrectly reported in the text that the value for **MTBE** tested for soils was 2.25 mg/Kg. This was actually the value for PQL on the EDGE Analytical Hydrocarbon Data Report. The correct value for MTBE in soils was **NOT DETECTED**. The reports were shipped before the error could be corrected.

State of Washington Hydrogeologist 225 Licensed Geologist
Doug Dillenberger

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tested on February 25, 1992. The results as reported from those test results was that no contamination was found in the groundwater.

- In September 2008 **NWHGC** was contacted by Mr. Scott McKnight, General Manager of Conway Feed, to obtain closure on the previous work done at the site and obtain a letter of **No Further Action** from the Washington Department of Ecology (WDOE). **NWHGC** studied the previous work done at the site including the report submitted by **MTC**. **NWHGC** collected a new groundwater sample from the 15-foot deep monitoring well constructed at the site in 1992 which showed the groundwater was still uncontaminated.

- A response to the report submitted by **NWHGC** was received on March 08, 2010 prepared by Ms. Libby S. Goldstein, NWRO Toxics Cleanup Program. Ms. Goldstein concluded the earlier work conducted by **MTC** was inadequate and did not fully characterize the site. Specifically Ms. Goldstein was concerned about the extent of soil contamination west of the former UST locations which were not tested. Ms. Goldstein was concerned about the risk of soils contamination underneath the canopy and thick concrete cover. She requested that further characterization work be conducted and a followup report be submitted.

- Work began at the Conway Feed site on November 22, 2010. **ULTRA TANK Inc.**, began by breaking up and removing the concrete slab over the area west of the former USTs. Once the slab was removed a series of test pits were dug using a small backhoe around the area under the canopy for the purpose of characterizing the site and determining where there was contamination and where there was none. **NWHGC** collected a series of soil samples to confirm the findings of a portable PID meter used at the site to test the soils. Verification soils samples were collected and delivered to **EDGE Analytical Laboratory** for analysis.

- Analysis of the soils showed that contamination of the soils was mainly restricted to a zone directly west of the former two USTs. All of the reported contamination was confined to the range of gasoline. No diesel was detected, but lead was detected in only low concentrations in every sample tested. It was also determined that the product from the two USTs did not migrate under the existing warehouse building but was confined to the area in front.

- Following site characterization activities the work was suspended during the winter and spring months of 2010 and 2011, with work commencing on June 13, 2011.

- Using a combination of backhoe and dump truck the remaining contaminated soils were excavated from under the canopy and trucked 150 feet north to a level area used for storage and remediation of the contaminated soils. The contaminated soils

were spread over sheets of black Visqueen® to a depth of 2 feet for a total of 3,216 cubic feet or 119 cubic yards of contaminated soil.

- Final soil samples taken from the excavated pit showed that all contaminated soils had been removed and the pits were backfilled with clean gravel. The soils undergoing remediation were tilled about once a week during the hot summer days using a tractor with attached tiller. On days of precipitation the soils were covered in Visqueen®. Final samples showed the remediated soils where now clean to EPA and the State of Washington standards and no longer posed a threat to the environment. All work at the site was fully documented with photographs, measurements and drawings and a report submitted to Ecology for review.

CURRENT ACTIVITIES AT THE CONWAY FEED SITE

Mr. Scott McKnight contacted The Department of Ecology about having his site removed from the list of contaminated sites and Ecology issuing a letter of No Further Action. Mr. Roger Nye issued a reply in the form of a letter dated August 23, 2017 in which he issued an opinion on the site. In short Mr. Nye had the following concerns:

1) Additional soil and groundwater sampling was required inside under the floor of the warehouse building.

2) It was suggested a work plan be submitted prior to any work being undertaken.

Mr. McKnight contacted NWHGC and we discussed the Nye letter. In response NWHGC contacted Mr. Nye and a plan was discussed. NWHC proposed two boreholes inside the warehouse building with one hole 1/3 of the way on a center line and the other 2/3 distance. In addition one sample would be collected on the west side between the building and the Burlington Northern-Santa Fe Railroad (BNSF). After review of our plan Mr. Nye requested that a fourth borehole be added near the doorway into the shop area. The purpose of this borehole was to prove no contamination occurred at the edge where excavation took place seven years ago. One additional change was to move borehole No. 2 south approximately 5 feet along the center line.

On the day of the drilling (March 30th 2018) it was discovered that the property line with the BNSF Railroad was along the western wall of the warehouse building, so the borehole was moved inside and place near the western wall on Conway Feel property.

RESULTS OF TESTING AND CONCLUSIONS

- Soil samples from the four boreholes all were reported **Not Detected** for NWTPG-Gx, which included tests for BTEX and gasoline (C^8 - C^{12}).
- Groundwater samples from the four boreholes were all reported **Not Detected** for NWTPG-Gx which included tests for BTEX and gasoline (C^8 - C^{12}).
- Lead samples for soils from the four boreholes all tested well below the contamination limit of 250 mg/Kg.
- Lead samples for groundwater were tested in all four boreholes. In Borehole No. 1 the result of 0.044 mg/L was reported. The other three were reported well below the maximum contamination level of 0.015.
- Methyl Tert-Butyl Ether (MTBE) soil and ground water samples were collected from BH-2. The results from testing showed Not Detected for the ground water sample test and 2.25 mg/Kg from the soil sample. There is currently no standard for the ground water or soil sample.

Comment on Lead in Soils and Groundwater

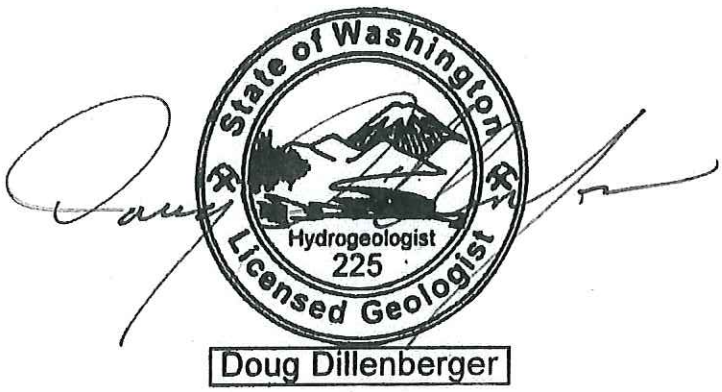
We have found that lead in soils and groundwater is nearly ubiquitous whereever roads are located. Lead in gasoline, known as ***tetraethyl lead,*** has been nearly a universal additive to gasoline since it was first discovered by General Motors in 1921 as a way of boosting octane in gasoline and thereby reducing engine knock. Leaded gasoline was not discontinued in the United States until into the early 1970s. Unlike gasoline, which is highly volatile, lead persists and will remain in the environment for many years to come.

RECOMMENDATION

Based on our findings of sampling and testing of soils and ground water for gasoline and diesel, which was reported **Not Detected**, and testing of soils and groundwater for lead, which was low in all but one sample tested, we believe that the site is clean to acceptable standards and Ecology should issue a letter of **No Further Action** on the Conway Feed Site.

Please call me if you have any questions.

Sincerely,



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INDEMNIFICATION AND LIMITATIONS

This report presents conditions observed during our site visit and subsequent investigation, data analysis, and reporting. Our services were provided with due diligence and observance of protocols and procedures applicable to this situation, and in accordance with the terms presented in our General Conditions. This project was conducted and this report prepared in accordance with generally accepted professional practices for the nature and conditions of the work completed in this area at the time the work was performed. This report and its conclusions and recommendations are intended for the exclusive use of the Client for specific application to the referenced project site. The photographic images appear as they were taken, with no digital changes or modifications.

As is now common in the profession, our general liability insurance carriers specifically exclude coverage for claims or damages related to the release of pollutants. Therefore, as a condition of our services, it is understood that, to the fullest extent permitted by law, our Clients agree to defend, indemnify and hold harmless **Northwest HydroGeo Consultants**, its owners, employees, subcontractors and agents, from any past, present, or future pollution-related claims or damages at the site, including potential claims from third parties that may name **Northwest HydroGeo Consultants** as a claimant. **Northwest HydroGeo Consultants** assumes no responsibility or liability for the accuracy, storage, transmission, or delivery of database and file search information provided for this project.

Within the limitations of scope, project schedule, and budget for our services, we warrant that our services have been provided in accordance with the terms of our Proposal and under the generally accepted professional environmental assessment practices at the time the report was prepared. No other warranty, express or implied, is made.

REFERENCES

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Dragovich, J., 2002, "Geologic Map of Washington, Northwest Quadrant," Published by the Washington Division of Geology and Earth Resources, Geologic Map GM-50.

Miller, Patrick, 1992, "Site Assessment Report From Materials Testing & Consulting, Inc. (MTC) Dated February 1992, 9 pp. with Appendices

C:\Users\NW HydroGeo\Doug (ACTIVE FILES)\Remediation\Conway Feed\Report on the Testing from 4 Boreholes at the Conway Feed for Roger Nye.wpd

NORTHWEST HYDROGEO CONSULTANTS

1 Lake Louise Drive • Unit 42
Bellingham, WA 98229-2982

Ph 360.734-4955 Toll-Free 800.457-1902
email: nwhydrogeo@datalinkwest.com

STATEMENT OF QUALIFICATIONS AND RÉSUMÉ

DOUGLAS S. DILLENBERGER, M.S., L.G., L.HG.

WASHINGTON LICENSED GEOLOGIST / HYDROGEOLOGIST No. 225

SUMMARY OF PROFESSIONAL EXPERIENCE

Our Principal, **Doug Dillenberger**, is a **Washington Licensed Geologist** and **Hydrogeologist** offering over thirty years' experience in earth sciences, environmental site assessments, geology and hydrogeology. Mr. Dillenberger, licensed professionally in the state of **Washington**, holds the Master's Degree in Geology with postgraduate studies in Hydrogeology at the Colorado School of Mines in Golden, Colorado. He is a nationally **Registered Professional Geologist** and a **Washington State Licensed Geologist** and **Hydrogeologist**. For twenty four years he has worked professionally throughout this six-county western Washington area and is in his twentieth year as an independent professional consultant.

His comprehensive expertise focuses on environmental assessments; geological and hydrogeological investigations and assessments; critical areas ordinance reports; regional and local ground water characterization; environmental analysis and monitoring; contaminant characterization, evaluation and remediation; shoreline analysis; nitrate loading calculations; aquifer characterization and evaluation.

Mr. Dillenberger has successfully obtained **NFA – No Further Action** – letters from the State Department of Ecology for sites successfully remediated on behalf of clients. In addition, his professional experience includes coal exploration and development—planning and supervising coal exploration projects in the Bellingham area for a large national energy company.

SELECTED PROFESSIONAL ACCOMPLISHMENTS

Northwest HydroGeo Consultants is in its twentieth year providing independent consulting services in geology, environmental and ground water projects for clients in the Pacific Northwest. Our qualifications and the full range of professional geological, hydrogeological and environmental services are presented in the **Statement of Qualifications** information packet.

- **Northwest HydroGeo Consultants** was founded in March 1995, serving Northwest Washington and offering specialized and full-service professional consulting services in aquifer testing and evaluation, geo-hazard and shoreline evaluations, project design and management, environmental site assessments, contaminant characterization and remediation, and environmental monitoring.

  During this period our Principal has accomplished some 250 Environmental Site Assessments, Phases I, II and III, and has received letters of **NFA** (No Further Action) from the State Department of Ecology under the requirements of the Voluntary Cleanup Program for successful cleanup of petroleum-contaminated sites.

  He has conducted aquifer testing for nearly 100 **Group A** and **Group B** systems, and for individual property and project wells. He has provided ground water studies and aquifer characterization for

development and planning information per Hydrogeologic Investigation reports. He has conducted aquifer evaluations for water systems of various sizes throughout the western Washington region. He is currently conducting semi-annual ground water monitoring for a gravel mining operation near the Canadian border.

SUMMARY OF PROFESSIONAL HISTORY

Since 1995	Principal, **Northwest HydroGeo Consultants**	Bellingham, Washington
1992-1995	Manager of Professional Services: **Hayes Drilling, Inc.**	Bow, Washington
1990-1992	Hydrogeologist: **W.D. Purnell and Associates**	Bellingham, Washington
1988-1990	Senior Geologist: CES, Ltd.	Portland, Oregon
1987-1988	Senior Staff Geologist: **The Mark Group**	Las Vegas, Nevada
1985-1987	Independent Consulting Geologist	Denver, Colorado
1978-1985	Exploration Geologist: **AMAX Coal Company**	Denver, Colorado
1977-1978	Staff Geologist, Development Drilling: **AMAX Coal Co.**	Indianapolis, Indiana
1976-1977	Development Geologist: **ADA Resources**	Barbourville, Kentucky

PROFESSIONAL REGISTRATION AND CERTIFICATION

Licensed Geologist and Hydrogeologist No. 225 **STATE OF WASHINGTON**
Certified Professional Geologist No. 7363 **American Institute of Professional Geologists**
Annual Refresher Training: 8-Hour Hazardous Waste Operations and Emergency Response
OLTRAIN www.oltrain.com

PROFESSIONAL MEMBERSHIPS

American Association of Professional Geologists
Association of Ground Water Scientists and Engineers
National Association of Environmental Professionals
National Ground Water Association **No. 120214**
Washington State Ground Water Association

EDUCATION

Hydrogeology	Colorado School of Mines, Postgraduate Studies	1987
M.S., Geology	Eastern Kentucky University; Richmond, Kentucky	1976
B.A., Geology	University of South Florida; Tampa, Florida	1972
A.A., General	Pensacola Community College; Pensacola, Florida	1970

MILITARY SERVICE

1964-1968 **Top Secret Crypto security clearance with Army Security Agency, U.S. Army Forces, Europe. Honorably discharged upon fulfillment of enlistment.**

The State of Washington

DEPARTMENT OF LICENSING

It is hereby certified that **Douglas Scott Dillenberger**

has satisfactorily complied with and completed the statutory requirements set forth in title 18 revised code of Washington to engage in practice as a

Geologist

And is hereby authorized, empowered and granted the right to engage in that practice within the State of Washington subject to the state laws.

And is licensed as a qualified

Hydrogeologist

Given under the hand and seal of the director this 16th day of November, 2001.

Fred Stephens
DIRECTOR

Geologist Licensing Board

Jeffrey H. Randall
CHAIR

No. 225

ACORD®

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DATE (MM/DD/YYYY): 9/12/2017

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IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Bob Wallin Insurance 1844 Iron Street Bellingham WA 98225-4611	CONTACT NAME: Sue DeLeon PHONE (A/C, No, Ext): (360) 734-5204 FAX (A/C, No): (360) 734-5207 E-MAIL ADDRESS: sue@bobwallin.com
INSURED Douglas S. Dillenberger, DBA: Northwest HydroGeo 1 Lake Louise Drive #42 Bellingham WA 98229	INSURER(S) AFFORDING COVERAGE / NAIC # INSURER A : CNA INSURER B : INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES CERTIFICATE NUMBER: 17/18 Prof Liab REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	$
	OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ☐ NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
	☐ UMBRELLA LIAB ☐ OCCUR						EACH OCCURRENCE	$
	☐ EXCESS LIAB ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N						☐ PER STATUTE ☐ OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ (Mandatory in NH)	N/A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A	Professional Liability			EEH591903626	9/5/2017	9/5/2018	Aggregate Limit	1,000,000
							Each Occurance Limit	1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Sue DeLeon/SUE

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NORTHWEST HYDROGEO CONSULTANTS

FIGURES
and
PHOTOGRAPHS

T 33 N R 04 E, W.M. Sec 19

SATELLITE IMAGE

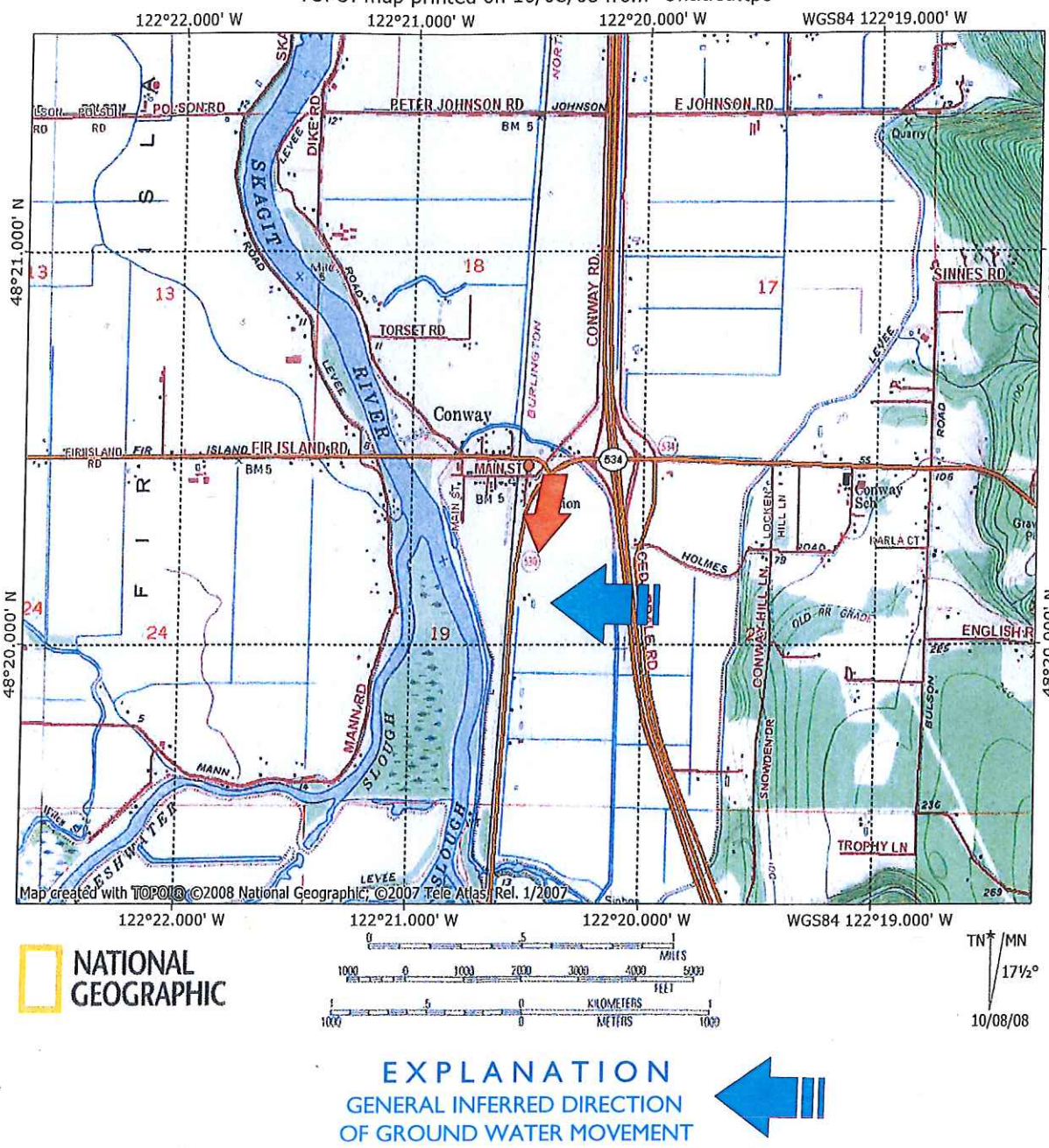
FOLLOWUP INVESTIGATION OF SOILS AND GROUNDWATER ONSITE

NORTHWEST HYDROGEO CONSULTANTS

CONWAY FEED SITE
18700 MAIN STREET
CONWAY, WA 98238

PN 2K1803 MAY 2018

Figure 1



EXPLANATION

GENERAL INFERRED DIRECTION OF GROUND WATER MOVEMENT

T 33 N R 04 E, W.M. Sec 19

RED ARROW DENOTES APPROXIMATE LOCATION OF PROJECT SITE

MAP REFERENCE

TOPO! SOFTWARE by NATIONAL GEOGRAPHIC © 2004

SCALE: 1:24,000

REGIONAL SETTING

with GENERAL INFERRED DIRECTION OF GROUND WATER MOVEMENT

CONWAY FEED

18700 MAIN STREET • CONWAY, WA 98238

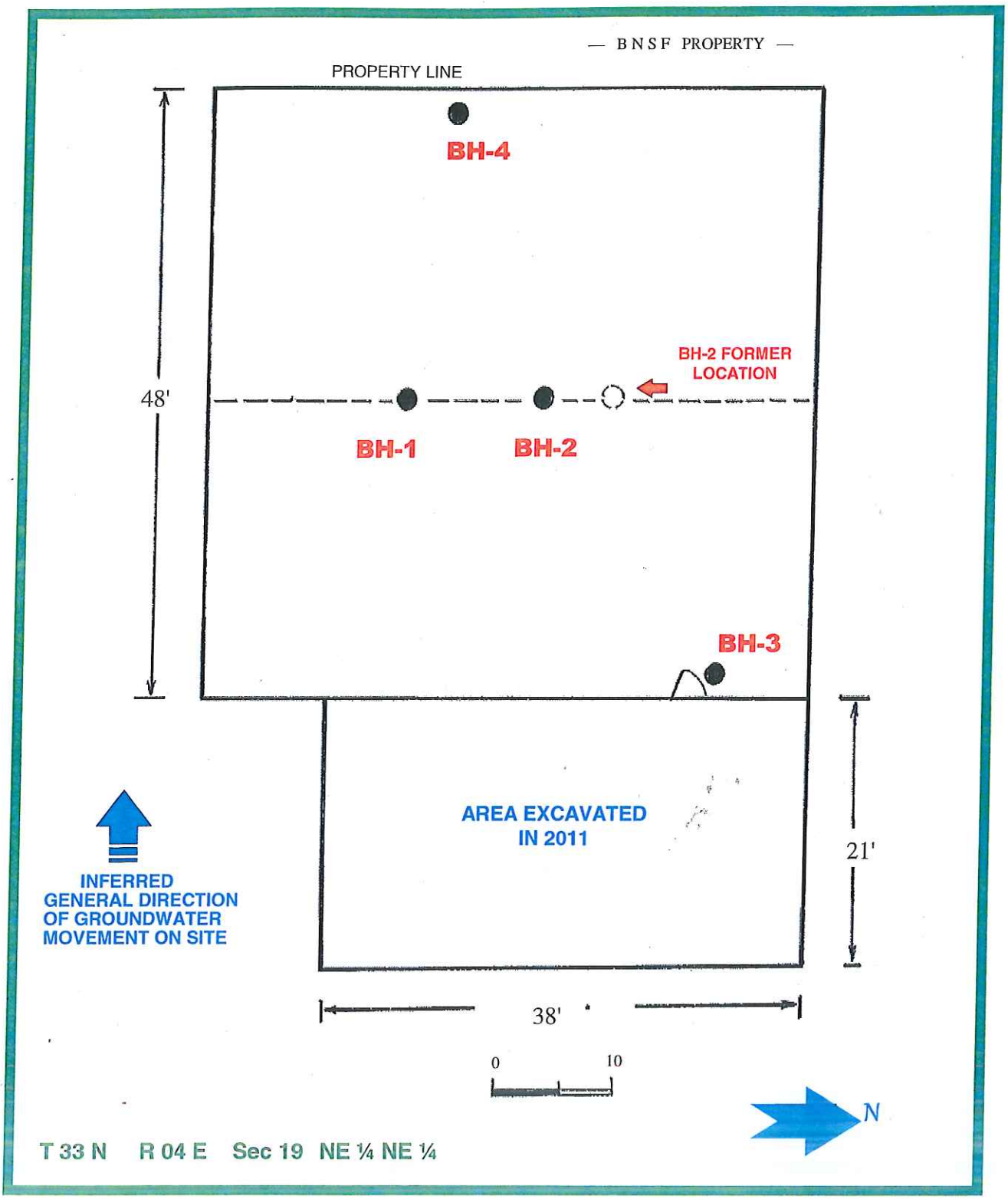
SKAGIT COUNTY

SCOTT McKNIGHT, GENERAL MANAGER

PN 2K1803 MAY 2018

NORTHWEST HYDROGEO CONSULTANTS

Figure 1



SITE DRAWING

FOLLOWUP INVESTIGATION OF SOILS AND GROUNDWATER ONSITE

NORTHWEST HYDROGEO CONSULTANTS

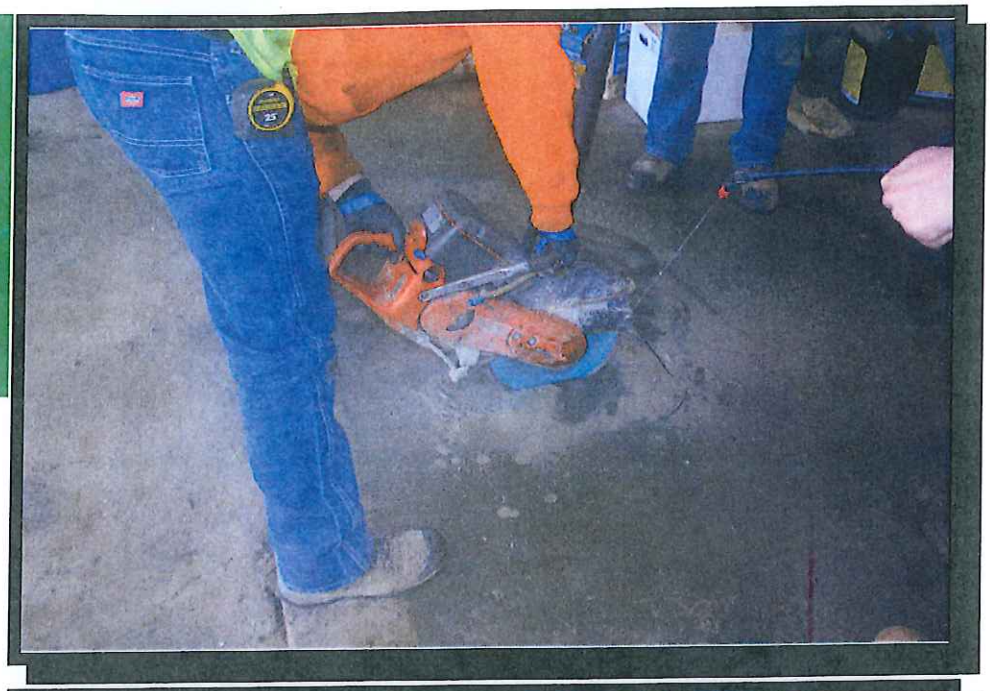
CONWAY FEED SITE
P O BOX 576
CONWAY, WA 98238

PN 2K1803 MAY 2018

Figure 3

SITE PHOTOS
SAMPLING ACTIVITIES
CONWAY FEED SITE

ONSITE PHOTOS 03/30/2018
PN 2K1803



1

THE FIRST STAGE IS CUTTING A 1x1 FOOT SQUARE HOLE IN THE 4-INCH THICK CONCRETE FLOOR, WITH A CARBIDE SAW AND STREAM OF WATER TO KEEP DOWN DUST.

ONE HELPER IN BACKGROUND IS VACUUMING UP OTHER MATERIALS.

2

NEXT, THE CONCRETE IS BROKEN UP INSIDE THE 1x1 FOOT SQUARE USING AN ELECTRIC JACKHAMMER.

3

BROKEN-UP MATERIAL IS EXCAVATED USING A SHOVEL.

MATERIALS ARE PLACED IN A WHEELBARROW AND MOVED OFFSITE FOR PROPER DISPOSAL.

IMAGES HAVE NOT BEEN ALTERED FOR PUBLICATION

NORTHWEST HYDROGEO CONSULTANTS

SITE PHOTOS

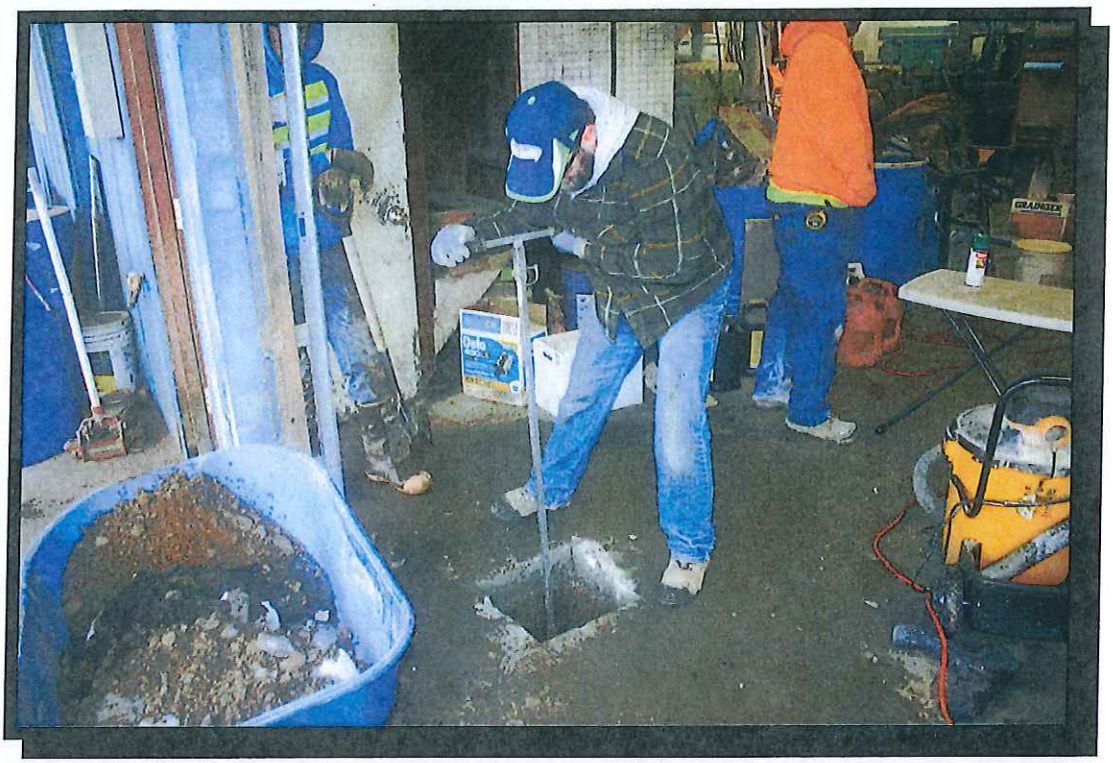
SAMPLING ACTIVITIES
CONWAY FEED SITE

ONSITE PHOTOS 03/30/2018

PN 2K1803

4

NEXT A HAND AUGER IS USED TO AUGER DOWN TO THE. SATURATED ZONE.



5

ONCE THE SATURATED ZONE IS REACHED, A SOIL SAMPLE IS COLLECTED USING A 50cc PLASTIC COLLECTION TUBE FOR **EPA VOIC 5035** METHOD.

THE SAMPLE WAS PLACED IN A 40 mLGLASS VIAL, SEALED AND LABELED.

IMAGES HAVE NOT BEEN ALTERED FOR PUBLICATION.

SITE PHOTOS

SAMPLING ACTIVITIES
CONWAY FEED SITE

ONSITE PHOTOS 03/30/2018

PN 2K1803

6

USING THE HAND AUGER AND AUGERING INTO THE SATURATED ZONE APPROXIMATELY 3 FEET, A GROUNDWATER SAMPLE IS COLLECTED USING A NEW LENGTH OF 1/4-INCH DIAMETER PLASTIC TUBING PUMPED WITH A PERISTALTIC PUMP.

CONTROLS FOR THE PUMP PROVIDE VARIABLE PUMPING RATES FOR SAMPLE COLLECTION.

7

SAMPLES FOR BTEX ANALYSIS ARE COLLECTED IN A 55 mL GLASS VIAL, WITH NO HEAD SPACE AT THE TOP.

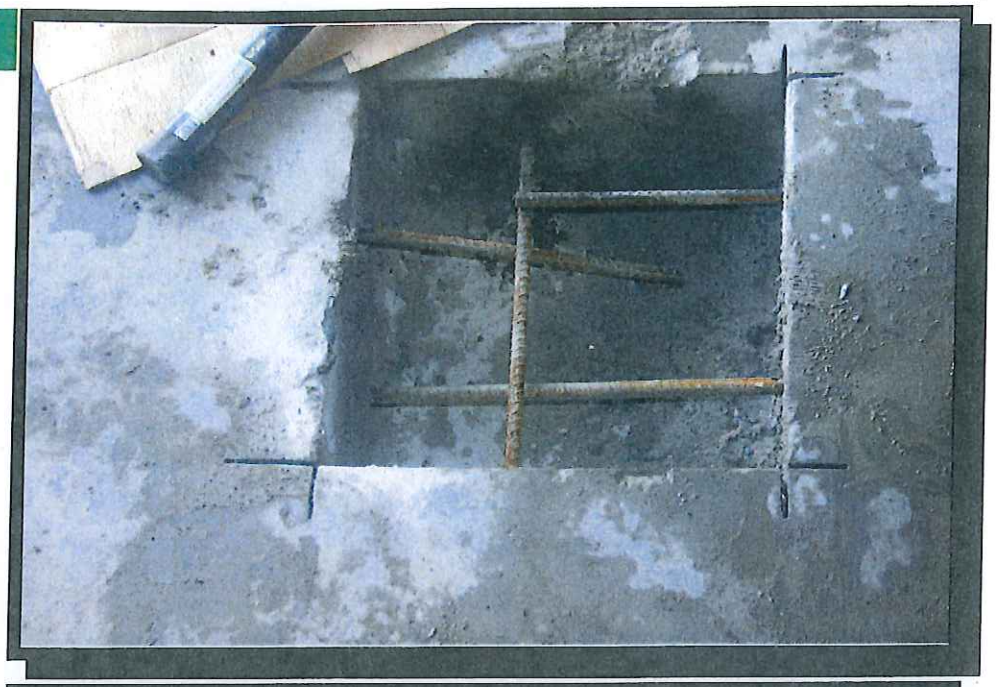
SAMPLES FOR ANALYSIS OF NWTPH-GASOLINE AND NWTPH-DIESEL ARE COLLECTED IN 1-LITER BROWN GLASS BOTTLES, AS SEEN IN PHOTO 6.

IMAGES HAVE NOT BEEN ALTERED FOR PUBLICATION.

8

AFTER SOIL AND GROUNDWATER SAMPLES ARE COLLECTED, THE HOLE IS BACKFILLED WITH BENTONITE PELLETS.

REINFORCING RODS ARE THEN INSERTED INTO THE SIDES OF THE CONCRETE IN THE CUT HOLE AND A CONCRETE MIXTURE WAS POURED INTO THE HOLE UP TO FLOOR LEVEL.



9

VIEW OF COMPLETED HOLE FILLED WITH CEMENT, WITH TEMPORARY PROTECTIVE BARRIER ON TOP TO KEEP PEOPLE FROM STEPPING ON IT.

10

VIEW SHOWING **BH-4** BY THE REAR WALL OF WAREHOUSE BEING EXCAVATED.

NOTE RETAINING WALL AT REAR, WHICH IS 4.5 FEET BELOW GROUND LEVEL AT THIS POINT.

ON OPPOSITE SIDE OF THE WALL IS THE BURLINGTON NORTHERN - SANTA FE RAILROAD RIGHT OF WAY PROPERTY, WHICH ABUTS THE CONWAY FEED WAREHOUSE LOCATION. FOR THIS REASON THE FINAL HOLE HAD TO BE MOVED INSIDE THE BUILDING.

MEASURING STICK AGAINST WALL IS MARKED IN ONE-FOOT INCREMENTS AND DENOTES TOP OF EXTERIOR GROUND LEVEL.

IMAGES HAVE NOT BEEN ALTERED FOR PUBLICATION

NORTHWEST HYDROGEO CONSULTANTS

OPINION LETTER

from

ROGER NYE
NWRO TOXICS CLEANUP PROGRAM
DEPARTMENT OF ECOLOGY
BELLEVUE, WA 98008-5452

AUGUST 23, 2017

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

August 23, 2017

COPY

Mr. Scott McKnight
Conway Feed
18700 Main Street
(P. O. Box 576)
Conway, WA 98238

Re: Opinion pursuant to WAC 173-340-515(5) on Remedial Actions for the following Hazardous Waste Site:

- **Name:** Conway Feed VCP (aka Conway Feed LUST)
- **Address:** 2110 Jones Road, Conway, WA
- **Facility/Site No.:** 5135 (Formerly F/S No.: 3194825)
- **VCP No.:** NW2185
- **Cleanup Site ID Nos:** 2524 & (7524)

Dear Mr. McKnight:

Thank you for submitting documents regarding your remedial actions for the Conway Feed facility (Site) for review by the Washington State Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding a review of submitted documents/reports pursuant to requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and remediating the following releases at the Site:

- Gasoline-range petroleum hydrocarbons (TPH-G), diesel-range petroleum hydrocarbons (TPH-D), benzene, toluene ethylbenzene, and xylenes (BTEX) into the Soil.

- Potentially TPH-G, TPH-D, and BTEX into the Ground Water

Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory and not binding on Ecology.

Ecology's Toxics Cleanup Program has reviewed the following information regarding your remedial actions:

1. Northwest HydroGeo Consultants, Site Remediation Report Conway Feed Site, August 25, 2011.

2. Ecology, Further Action Opinion Letter, March 5, 2010.

3. Northwest HydroGeo Consultants, Hydrogeologic Investigation Report Conway Feed Site, October 20, 2008.

4. Materials Testing & Consulting Inc., Site Assessment Conway Feed, February 1992.

The reports listed above will be kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Appointments can be made by calling the NWRO resource contact at (425) 649-7235 or by e-mail to nwro_public_request@ecy.wa.gov.

The Site is defined by the extent of contamination caused by releases of TPH-G, TPH-D, and BTEX in Soil and Ground Water.

The Site is more particularly described in Enclosure A to this letter, which includes Site diagrams. The description of the Site is based solely on the information contained in the documents listed above.

Based on a review of supporting documentation listed above, pursuant to **requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the releases (described above) at the Site, Ecology has determined:**

(1) Remedial Actions: Ecology understands the remedial actions accomplished at the Site to date included the following:

Two underground storage tanks (USTs) were removed from the Property during December 1991. The USTs included a 2,000 gallon tank used for diesel fuel storage and a 1,000 gallon tank used for gasoline storage. Both USTs were collocated in a single excavation and buried beneath concrete and asphalt paving. The USTs were reportedly installed in the mid-1960s and both showed corrosion and holes when removed.

After the UST removals, soil contamination in the excavation was observed and verified by subsequent soil sampling. Sheen was observed on ground water in the UST excavation at approximately five feet below ground surface (bgs). Efforts were made to over-excavate the contaminated soil to the extent defined by Method A cleanup levels for TPH-G, TPH-D, and BTEX applicable in 1991. As determined by field observations and confirmation soil samples, this extent was achieved on the east, south, and north sides, and bottom (approximately 6 feet bgs) of the excavation. The excavation was not extended to the west because of concrete paving and risk to the structural support of a large steel canopy. Confirmation samples from the west wall of the excavation showed that elevated levels of TPH-G and BTEX (up to 1,646 parts/million (ppm) TPH-G and 16 ppm benzene) in excess of both the 1991 and current Method A cleanup levels remained in the soil. There were also detections of TPH-D slightly in excess of the 1991 Method A cleanup level (200 ppm), but not in excess of the current cleanup level for TPH-D (2,000 ppm). Fifteen cubic yards (cyds) of contaminated soil were removed from the excavation to another area on the Property for remediation by land farming (aeration). The excavation was filled with gravel (approximately 30 cyds) and the surface repaved. A ground water monitoring well was installed at the western edge of the excavation in the gravel and sampled on February 25, 1992. Sample results showed no detections of TPH or BTEX.

During June and August 1994, three samples of the land-farmed soil were acquired and analyzed for TPH-G and BTEX. Analytical results for the samples indicated that contaminant levels were non-detectable in the treated soil.

On September 9, 2008 the monitoring well installed at the Site in early 1992 was sampled for the second time. The water sample was analyzed for TPH-G, TPH-D, TPH-O, BTEX, and lead. Contaminant levels were non-detectable except for benzene and lead, which had detectable levels below their respective Method A cleanup levels for ground water.

In July 2009, Ecology's opinion on the environmental circumstances at the Site was requested through enrollment in the VCP. Ecology's opinion letter dated March 5, 2010 stated in summary that the compliant ground water samples from the one monitoring well did not preclude the necessity to characterize both soil and ground water further to the west and southwest of the former USTs.

During November 2010 the soil was characterized to the west of the 1991 gravel-filled excavation. The concrete slab beneath the steel canopy was removed and six test pits were completed in the area. Odors and an oily sludge material were encountered. Eight soil samples were acquired from the test pits at depths of 5 to 7 feet bgs and analyzed for TPH-G, TPH-D, TPH-O, BTEX and lead. The sample results indicated an area of contaminated soil extending west of the former UST's location with maximum levels of TPH-G (2,650 ppm) and benzene (1 ppm) exceeding the Method A soil cleanup levels for TPH-G with benzene present and benzene (30 ppm and 0.03 ppm respectively).

A sample of water in the test pits was acquired on December 30, 2010 and analyzed for TPH-G, BTEX, and lead. No sheen was observed on the water. The water sample results were non-detectable except for a minimal detection of lead.

During June 2011 a remedial excavation was performed to remove the remaining contaminated soil. The limits of the contaminated soil were determined by field observation (visual and olfactory evidence) and confirmation soil samples referenced to the Method A soil cleanup levels for TPH, BTEX, and lead. The remedial excavation encompassed the locations of two of the exploratory test pits. Three confirmation samples were acquired at 6 to 7 feet bgs - two along the east wall of the remedial excavation (adjacent to the previous 1991 excavation) and one on the north side of the excavation. Sample results were non-detectable concentrations except for three low detections of lead, and one of toluene. There were apparently no confirmation soil samples acquired to document that the western extent of the contaminated soil was reached and removed. After the contaminated soil had been removed, a sample of water in the open remedial excavation was acquired on July 22, 2011 and analyzed for BTEX and lead. Concentrations of toluene and lead were double their respective Method A ground water cleanup levels. There were minimal detections of the other compounds. The excavation was then filled with gravel.

The soil reportedly from both the initial test pits and the remedial excavation (total of 119 cyds) was transported to a nearby area of the Property for treatment by land farming (aeration). The soil was spread out two feet in thickness on top of a plastic liner and tilled on warm sunny days from June 15, 2011 until August 2011. On August 1, 2011 three randomly-selected soil samples were acquired from the treated soil and analyzed for TPH-G, a suite of 78 volatile organic compounds (VOCs, which included BTEX), and lead. Sample results were all non-detectable except lead, which was detected at concentrations less than 20 ppm.

(2) Comments:

Confirmation soil sampling from the western side of the 2011 remedial excavation was necessary to demonstrate that soil contamination did not extend further to the west at that location. Soil sample A-2K1001 taken from an exploratory test pit near the east wall of the warehouse building contained 2,650 ppm TPH-G and 1 ppm benzene. The Method A soil cleanup levels for TPH-G (with benzene) and benzene are 30 ppm and 0.03 ppm respectively so these levels are exceedences. As per the Site diagrams, the western extent of the remedial excavation ended very near the location of this sample with elevated concentrations exceeding Method A.

Sampling of ground water in the natural water-bearing formation is necessary downgradient from the area of contaminated soil (source area). All of the water samples acquired at the Site thus far are from water that collected into upgradient excavations (including from the

monitoring well, which was installed within the 1991 excavation). The gravel-filled 1991 excavation likely functioned as a large collection sump for water, which highly diluted any impacts contaminated soil may have had on ground water entering the excavation. As has been demonstrated, the "clean" excavation water samples were not diagnostic as to whether or not contaminated soil remained at the Site. The samples of water from the 2011 remedial excavation are not representative of whether or not contamination in soil and ground water above cleanup levels persist at the Site.

Ecology considers that a general flow direction of ground water towards the South Fork of the Skagit River (approximately 1,600 feet to the west-southwest) is reasonable to assume. Furthermore, that presumed flow direction is also locally towards a wetland area approximately 130 feet from the Site. Given the many years that free product and/or contaminated soil were in contact with and likely partitioning to ground water, a plume of hydrocarbon contamination in the ground water would typically extend downgradient beneath the warehouse building, and potentially off the Property an unknown distance in the direction of ground water flow (presumed to be to the west-southwest). Since the USTs and hopefully most of the contaminated soil have been removed, contamination in ground water downgradient from the Site will eventually attenuate to below cleanup levels, but that degradation also needs to be confirmed by sampling ground water on and downgradient of the Site.

Opinion:

Additional soil and ground water sampling is required to demonstrate that the full extent of the soil contaminated above Method A was removed, and that ground water contamination above Method A cleanup levels is not present on the Property. This would initially require taking soil and ground water samples inside the warehouse building. There is limited-access "push probe" equipment available that can acquire soil and grab ground water samples from the shallow ground water (provided there is some room to work inside the building). There should be at least one ground water sample location as near to the railroad property to the west as possible.

The approach to cleanup and to establish a cleanup standard for soil at the Site was acceptable. The intent was to remove all contaminated soil to the extent defined by Method A cleanup levels for soil throughout the Property (standard point of compliance). A terrestrial ecological evaluation (TEE) does not influence soil cleanup levels given the lack of significant wildlife habitat in the vicinity of the Site, and also given the nature and concentrations of the contamination in the soil (TPH-G, TPH-D, and BTEX). The cleanup standard for ground water has yet to be established. You may wish to submit a work plan to Ecology for review through the VCP before undertaking any additional sampling. The in situ soil data acquired during 2011 and data from any future sampling should be entered electronically into Ecology's Environmental Information Management (EIM) database.

This opinion does not represent a determination by Ecology that a proposed remedial action will be sufficient to characterize and address the specified contamination at the Site or that no further remedial action will be required at the Site upon completion of the proposed remedial action. To obtain either of these opinions, you must submit appropriate documentation to Ecology and request such an opinion under the VCP. **This letter also does not provide an opinion regarding the sufficiency of any other remedial action proposed for or conducted at the Site.**

Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or conducted at the Site meet those requirements.

If you have any questions regarding this opinion, please contact me at (425) 649-7251, or by e-mail at roger.nye@ecy.wa.gov.

Sincerely,

Roger K. Nye

Roger K. Nye
NWRO Toxics Cleanup Program

Enclosure: (1) A- Site Description and Diagrams

cc: Douglas Dillenberger, Northwest HydroGeo Consultants, Inc.
Sonia Fernandez, VCP Coordinator, NWRO Ecology

Enclosure A
Site / Property Description and Diagrams

This section provides Ecology's understanding and interpretation of Property conditions and is the basis for the opinion expressed in the body of the letter.

Site: Petroleum hydrocarbons (TPH-G, TPH-D, and BTEX) were released into the soil and ground water within a Property owned by CFI Properties, LLC which is located at 2110 Jones Road in Conway, Washington. The extent of these releases into the soil and ground water comprises the Site. The extent of the soil contamination has been defined except possibly to the west of the source area. The extent of potentially-impacted ground water contamination has not been defined. The Site is located particularly in the northern portion of the Property near the intersection of Main Street and Jones Road.

Property and Area Description: The Property is approximately rectangular in shape and 3.84 acres in size (Skagit County Parcel No. P117953). An animal feed mill facility (Conway Feed), which manufactures various types of feeds from grain for livestock, occupies the entire 3.84 acres of the Property. The animal feed mill consists of a several buildings, silos and other appurtenances related to the manufacturing process. Railroad tracks (Burlington Northern) extend north-south adjacent to the west edge of the Property. Small businesses, a post office, and residences are further to the west. A large log storage/processing facility is located southwest of the Property. More residences are located northwest of the Property. Two automobile service stations are located northeast of the Property (300 feet and 500 feet away). Neither station is identified as a contaminated site. Jones Road borders the east edge of the Property and Pioneer Highway is located 300 feet to the east. The land further east and southeast of the Property is actively-worked agricultural land.

Property History and Current Use: The Conway Feed animal feed manufacturing mill has operated on the Property since 1919. Use of the Property prior to 1919 is unknown.

Sources of Contamination: The soil and ground water contamination was caused by long-term releases of gasoline and diesel fuel from two USTs formerly utilized at the Property. It appears that the release from the gasoline UST primarily caused the contamination observed on the Site. The two USTs were both removed in 1991.

Physiographic Setting: The Property is located within the flood plain of the Skagit River. The land is flat and the elevation of the Site is at an approximate elevation of 10 feet above mean sea level. The South Fork of the Skagit River lies approximately 1,600 feet to the west-southwest.

Ecological Setting: There is not significant habitat for terrestrial ecological receptors in the area on and near the Site. The land surface is covered by commercial structures, buildings, paved or gravel surfaces, roads, railroad tracks, and actively-worked agricultural land. A small wetland area is located near the Site that is possibly a remnant from a larger area that was filled in.

Geology: The Site is underlain by flood-plain deposits consisting of an assortment of low-permeability fine sands, silts and clays to the maximum depth of exploration (about 7 feet).
Ground Water: Ground water was encountered at 4 to 6 feet bgs. The flow direction is presumably to the west-southwest towards a wetland area and towards the Skagit River.

Extent of Soil and Ground Water Contamination: The lateral extent of soil contamination was defined except to the west. The vertical extent was limited to approximately 6 feet bgs. The extent of possible ground water contamination on and potentially downgradient of the Property is unknown.

LABORATORY ANALYSIS REPORTS

from

EDGE ANALYTICAL

BURLINGTON, WA 98233

APRIL 23, 2018

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Bellingham, WA	*Microbiology (b)*	805 Orchard Dr Ste 4	Bellingham, WA 98225	360.715.1212
Portland, OR	*Microbiology/Chemistry (c)*	9150 SW Pioneer Ct Ste W	Wilsonville, OR 97070	503.682.7802
Corvallis, OR	*Microbiology (d)*	540 SW Third Street	Corvallis, OR 97333	541.753.4946

April 23, 2018

Mr. Doug Dillenberger
NW HydroGeo Consultants
1 Lake Louise Drive Unit 42
Bellingham, WA 98229

RE: 18-10633 - Conway Feed

Dear Mr. Doug Dillenberger,

Your project: Conway Feed, was received on Friday March 30, 2018.

All samples were analyzed within the accepted holding times and were appropriately preserved and analyzed according to approved analytical protocols, unless noted in the data or QC reports. The quality control data was within laboratory acceptance limits, unless specified in the data or QC reports.

If you have questions phone us at 800 755-9295.

Respectfully

Patrick Miller, MS
QA Officer

Enclosures: Data Report
QC Reports
Chain of Custody

EDGE ANALYTICAL

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Bend, OR *Microbiology (e)*
20332 Empire Blvd Ste 4 - Bend, OR 97701 - 541.639.8425

So. 1 All
Borings
BTEX, TPH-G
MTBE

Hydrocarbon Data Report

Client Name: NW HydroGeo Consultants
1 Lake Louise Drive Unit 42
Bellingham, WA 98229

Reference Number: **18-10633**
Project: Conway Feed
Report Date: 6/6/18
Date Received: 3/30/18
Approved By: fm,hy,pdm
Authorized by:

Patrick Miller, MS
QA Officer

Sample Description: BH-1 - Warehouse
Lab Number: 22321
Date Analyzed: 4/2/18
Sample Date: 3/30/18 12:35
Collected By: Doug Dillenberger
Analyzed By: HY

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Gx											
BENZENE	ND		2	0.03	0.05		mg/Kg	8260C/5035A	a	8260S_180402	
TOLUENE	ND		2	7.0	0.19		mg/Kg	8260C/5035A	a	8260S_180402	
ETHYLBENZENE	ND		2	6.0	0.19		mg/Kg	8260C/5035A	a	8260S_180402	
TOTAL XYLENES	ND		2	9.0	0.38		mg/Kg	8260C/5035A	a	8260S_180402	
GAS Range Organics	ND		2	100/30*	47		mg/Kg	8260C/5035A	a	8260S_180402	

Sample Description: BH-3 - Warehouse
Lab Number: 22323
Date Analyzed: 4/2/18
Sample Date: 3/30/18 10:40
Collected By: Doug Dillenberger
Analyzed By: HY

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Gx											
BENZENE	ND		2	0.03	0.038	-	mg/Kg	8260C/5035A	a	8260S_180402	
TOLUENE	ND		2	7.0	0.15	-	mg/Kg	8260C/5035A	a	8260S_180402	
ETHYLBENZENE	ND		2	6.0	0.15	-	mg/Kg	8260C/5035A	a	8260S_180402	
TOTAL XYLENES	ND		2	9.0	0.30	-	mg/Kg	8260C/5035A	a	8260S_180402	
GAS Range Organics	ND		2	100/30*	38	-	mg/Kg	8260C/5035A	a	8260S_180402	

Sample Description: BH-4 - Warehouse
Lab Number: 22325
Date Analyzed: 4/2/18
Sample Date: 3/30/18 14:30
Collected By: Doug Dillenberger
Analyzed By: HY

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Gx											

Notation:

ND - A result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.
PQL = Practical Quantitation Limit is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions.
D.F. - Dilution Factor
Cleanup Level - The regulatory limit for Method A Cleanup Levels (MTCA, Chapter173-340 WAC) contaminants in the specified matrix. Amended Feb 12, 2001

The Cleanup level for Gasoline Range Organics (GRO) is 100 mg/Kg for gas mixtures without benzene and when the total ethylbenzene, toluene and xylenes are less than 1% of the gasoline concentration. The Cleanup level for GRO is 30 mg/Kg for all other mixtures.

If you have any questions concerning this report contact us at the above phone number.

Form: cHCID.rpt

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Bend, OR *Microbiology (e)*
20332 Empire Blvd Ste 4 - Bend, OR 97701 - 541.639.8425

Hydrocarbon Data Report

Client Name: NW HydroGeo Consultants
1 Lake Louise Drive Unit 42
Bellingham, WA 98229

Reference Number: **18-10633**
Project: Conway Feed
Report Date: 4/23/18
Date Received: 3/30/18
Approved By: hy,pdm
Authorized by:

Patrick Miller, MS
QA Officer

Sample Description: BH-3 - Warehouse
Lab Number: 22323
Date Analyzed: 4/2/18

Sample Date: 3/30/18 10:40
Collected By: Doug Dillenberger
Analyzed By: HY

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Gx											
BENZENE	ND		2	0.03	0.038	-	mg/Kg	8260C/5035A	a	8260S_180402	
TOLUENE	ND		2	7.0	0.15	-	mg/Kg	8260C/5035A	a	8260S_180402	
ETHYLBENZENE	ND		2	6.0	0.15	-	mg/Kg	8260C/5035A	a	8260S_180402	
TOTAL XYLENES	ND		2	9.0	0.30	-	mg/Kg	8260C/5035A	a	8260S_180402	
GAS Range Organics	ND		2	100/30*	38	-	mg/Kg	8260C/5035A	a	8260S_180402	

Sample Description: BH-4 - Warehouse
Lab Number: 22325
Date Analyzed: 4/2/18

Sample Date: 3/30/18 14:30
Collected By: Doug Dillenberger
Analyzed By: HY

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Gx											
BENZENE	ND		1	0.03	0.03	-	mg/Kg	8260C/5035A	a	8260S_180402	
TOLUENE	ND		1	7.0	0.13	-	mg/Kg	8260C/5035A	a	8260S_180402	
ETHYLBENZENE	ND		1	6.0	0.13	-	mg/Kg	8260C/5035A	a	8260S_180402	
TOTAL XYLENES	ND		1	9.0	0.26	-	mg/Kg	8260C/5035A	a	8260S_180402	
GAS Range Organics	ND		1	100/30*	32	-	mg/Kg	8260C/5035A	a	8260S_180402	

Sample Description: BH-2 - Warehouse
Lab Number: 22327
Date Analyzed: 4/2/18

Sample Date: 3/30/18 11:30
Collected By: Doug Dillenberger
Analyzed By: HY

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment

Notation:
ND - A result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.
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Reference Number: **18-10633**
Report Date: 4/23/18

Hydrocarbon Data Report

METHYL TERT-BUTYL ETHER	ND	2		2.25	-	mg/Kg	8260C/5030B	a	8260S_180402
NWTPH-Gx									
BENZENE	ND	2	0.03	0.04	-	mg/Kg	8260C/5035A	a	8260S_180402
TOLUENE	ND	2	7.0	0.18	-	mg/Kg	8260C/5035A	a	8260S_180402
ETHYLBENZENE	ND	2	6.0	0.18	-	mg/Kg	8260C/5035A	a	8260S_180402
TOTAL XYLENES	ND	2	9.0	0.36	-	mg/Kg	8260C/5035A	a	8260S_180402
GAS Range Organics	ND	2	100/30*	45	-	mg/Kg	8260C/5035A	a	8260S_180402

Notation:

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Bend, OR *Microbiology (e)*
20332 Empire Blvd Ste 4 - Bend, OR 97701 - 541.639.8425

ND

BTEX - TPH 6
6W all burns.
MTBE BH-2

Hydrocarbon Data Report

Client Name: NW HydroGeo Consultants
1 Lake Louise Drive Unit 42
Bellingham, WA 98229

Reference Number: **18-10633**
Project: Conway Feed
Report Date: 4/23/18
Date Received: 3/30/18
Approved By: hy,pdm
Authorized by:

Patrick Miller, MS
QA Officer

Sample Description: BH-1 - Warehouse
Lab Number: 22322
Date Analyzed: 4/4/18

Sample Date: 3/30/18 12:35
Collected By: Doug Dillenberger
Analyzed By: HY

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Gx											
BENZENE	ND		1	0.005	0.0004	0.00014	mg/L	8260C/5030B	a	GXW_180404	
TOLUENE	ND		1	1.00	0.0004	7.00E-05	mg/L	8260C/5030B	a	GXW_180404	
ETHYLBENZENE	ND		1	0.70	0.0004	9.00E-05	mg/L	8260C/5030B	a	GXW_180404	
TOTAL XYLENES	ND		1	1.00	0.0008		mg/L	8260C/5030B	a	GXW_180404	
GASOLINE (C8 - C12)	ND		1	1	0.10		mg/L	8260C/5030B	a	GXW_180404	

Sample Description: BH-3 - Warehouse
Lab Number: 22324
Date Analyzed: 4/4/18

Sample Date: 3/30/18 10:40
Collected By: Doug Dillenberger
Analyzed By: HY

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Gx											
BENZENE	ND		1	0.005	0.0004	0.00014	mg/L	8260C/5030B	a	GXW_180404	
TOLUENE	ND		1	1.00	0.0004	7.00E-05	mg/L	8260C/5030B	a	GXW_180404	
ETHYLBENZENE	ND		1	0.70	0.0004	9.00E-05	mg/L	8260C/5030B	a	GXW_180404	
TOTAL XYLENES	ND		1	1.00	0.0008		mg/L	8260C/5030B	a	GXW_180404	
GASOLINE (C8 - C12)	ND		1	1	0.10		mg/L	8260C/5030B	a	GXW_180404	

Sample Description: BH-4 - Warehouse
Lab Number: 22326
Date Analyzed: 4/4/18

Sample Date: 3/30/18 14:30
Collected By: Doug Dillenberger
Analyzed By: HY

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Gx											

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Reference Number: **18-10633**
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Hydrocarbon Data Report

BENZENE	**ND**	1	0.005	0.0004	0.00014	mg/L	8260C/5030B	a	GXW_180404
TOLUENE	**ND**	1	1.00	0.0004	7.00E-05	mg/L	8260C/5030B	a	GXW_180404
ETHYLBENZENE	**ND**	1	0.70	0.0004	9.00E-05	mg/L	8260C/5030B	a	GXW_180404
TOTAL XYLENES	**ND**	1	1.00	0.0008		mg/L	8260C/5030B	a	GXW_180404
GASOLINE (C8 - C12)	**ND**	1	1	0.10		mg/L	8260C/5030B	a	GXW_180404

Sample Description: BH-2 - Warehouse
Lab Number: 22328
Date Analyzed: 4/4/18

Sample Date: 3/30/18 11:30
Collected By: Doug Dillenberger
Analyzed By: HY

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
METHYL TERT-BUTYL ETHER	**ND**		1		0.001	0.0001	mg/L	8260C/5030B	a	GXW_180404	

NWTPH-Gx

BENZENE	**ND**	1	0.005	0.0004	0.00014	mg/L	8260C/5030B	a	GXW_180404
TOLUENE	**ND**	1	1.00	0.0004	7.00E-05	mg/L	8260C/5030B	a	GXW_180404
ETHYLBENZENE	**ND**	1	0.70	0.0004	9.00E-05	mg/L	8260C/5030B	a	GXW_180404
TOTAL XYLENES	**ND**	1	1.00	0.0008		mg/L	8260C/5030B	a	GXW_180404
GASOLINE (C8 - C12)	**ND**	1	1	0.10		mg/L	8260C/5030B	a	GXW_180404

Notation:
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tpt D/O soil all Borings

Hydrocarbon Data Report

Client Name: NW HydroGeo Consultants
1 Lake Louise Drive Unit 42
Bellingham, WA 98229

Reference Number: **18-10633**
Project: Conway Feed
Report Date: 4/23/18
Date Received: 3/30/18
Approved By: hy,pdm
Authorized by:

Patrick Miller, MS
QA Officer

Sample Description: BH-1 - Warehouse
Lab Number: 22321
Date Analyzed: 4/13/18

Sample Date: 3/30/18 12:35
Collected By: Doug Dillenberger
Analyzed By: SM

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Dx											
DIESEL (C12 - C24)	ND		2	2000	110		mg/Kg	NWTPH-Dx/3550B	a	DXS_180411	
HEAVIER OILS (>C24)	ND		2	2000	75		mg/Kg	NWTPH-Dx/3550B	a	DXS_180411	

Sample Description: BH-3 - Warehouse
Lab Number: 22323
Date Analyzed: 4/13/18

Sample Date: 3/30/18 10:40
Collected By: Doug Dillenberger
Analyzed By: SM

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Dx											
DIESEL (C12 - C24)	ND		1	2000	65		mg/Kg	NWTPH-Dx/3550B	a	DXS_180411	
HEAVIER OILS (>C24)	ND		1	2000	65		mg/Kg	NWTPH-Dx/3550B	a	DXS_180411	

Sample Description: BH-4 - Warehouse
Lab Number: 22325
Date Analyzed: 4/13/18

Sample Date: 3/30/18 14:30
Collected By: Doug Dillenberger
Analyzed By: SM

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Dx											
DIESEL (C12 - C24)	ND		1	2000	55		mg/Kg	NWTPH-Dx/3550B	a	DXS_180411	
HEAVIER OILS (>C24)	ND		1	2000	55		mg/Kg	NWTPH-Dx/3550B	a	DXS_180411	

Notation:
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If you have any questions concerning this report contact us at the above phone number.
Form: cHCID.rpt

Reference Number: **18-10633**
Report Date: 4/23/18

ANALYTICAL

Hydrocarbon Data Report

Sample Description: BH-2 - Warehouse
Lab Number: 22327
Date Analyzed: 4/13/18

Sample Date: 3/30/18 11:30
Collected By: Doug Dillenberger
Analyzed By: SM

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Dx											
DIESEL (C12 - C24)	ND		1	2000	70		mg/Kg	NWTPH-Dx/3550B	a	DXS_180411	
HEAVIER OILS (>C24)	ND		1	2000	70		mg/Kg	NWTPH-Dx/3550B	a	DXS_180411	

Notation:
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TPH-D / 6
GW all Borings
1 < MTCA - 3 Borings

Hydrocarbon Data Report

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1 Lake Louise Drive Unit 42
Bellingham, WA 98229

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Patrick Miller, MS
QA Officer

Sample Description: BH-1 - Warehouse
Lab Number: 22322
Date Analyzed: 4/3/18
Sample Date: 3/30/18 12:35
Collected By: Doug Dillenberger
Analyzed By: ELW

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Dx											
DIESEL (C12 - C24)	8.7		10	0.5	1	0.7	mg/L	NWTPH-Dx/35 10C	a	DXW_180403	10X DILUTION
HEAVIER OILS (>C24)	15.5		10	0.5	1		mg/L	NWTPH-Dx/35 10C	a	DXW_180403	10X DILUTION

Sample Description: BH-3 - Warehouse
Lab Number: 22324
Date Analyzed: 4/3/18
Sample Date: 3/30/18 10:40
Collected By: Doug Dillenberger
Analyzed By: ELW

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Dx											
DIESEL (C12 - C24)	1.4		1	0.5	0.1	0.07	mg/L	NWTPH-Dx/35 10C	a	DXW_180403	
HEAVIER OILS (>C24)	2.8		1	0.5	0.1		mg/L	NWTPH-Dx/35 10C	a	DXW_180403	

Sample Description: BH-4 - Warehouse
Lab Number: 22326
Date Analyzed: 4/3/18
Sample Date: 3/30/18 14:30
Collected By: Doug Dillenberger
Analyzed By: ELW

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Dx											
DIESEL (C12 - C24)	1.1		10	0.5	1	0.7	mg/L	NWTPH-Dx/35 10C	a	DXW_180403	10X DILUTION
HEAVIER OILS (>C24)	1.8		10	0.5	1		mg/L	NWTPH-Dx/35 10C	a	DXW_180403	10X DILUTION

Notation:
ND - A result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.
PQL = Practical Quantitation Limit is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions.
D.F. - Dilution Factor
Cleanup Level - The regulatory limit for Method A Cleanup Levels (MTCA, Chapter173-340 WAC) contaminants in the specified matrix. Amended Feb 12, 2001
The Cleanup level for Gasoline Range Organics (GRO) is 100 mg/Kg for gas mixtures without benzene and when the total ethylbenzene, toluene and xylenes are less than 1% of the gasoline concentration. The Cleanup level for GRO is 30 mg/Kg for all other mixtures.

If you have any questions concerning this report contact us at the above phone number.
Form: cHCID.rpt

Reference Number: **18-10633**
Report Date: 4/23/18

Hydrocarbon Data Report

Sample Description: BH-2 - Warehouse
Lab Number: 22328
Date Analyzed: 4/3/18

Sample Date: 3/30/18 11:30
Collected By: Doug Dillenberger
Analyzed By: ELW

Parameter	Result	Flag	DF	Cleanup Level	PQL	MDL	Units	Method	Lab	Batch	Comment
NWTPH-Dx											
DIESEL (C12 - C24)	**0.19**		1	0.5	0.1	0.07	mg/L	NWTPH-Dx/3510C	a	DXW_180403	
HEAVIER OILS (>C24)	**0.31**		1	0.5	0.1		mg/L	NWTPH-Dx/3510C	a	DXW_180403	

Notation:

ND - A result of "ND" indicates that the compound was not detected above the Lab's Method Reporting Limit - MRL.
PQL = Practical Quantitation Limit is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions.
D.F. - Dilution Factor
Cleanup Level - The regulatory limit for Method A Cleanup Levels (MTCA, Chapter173-340 WAC) contaminants in the specified matrix. Amended Feb 12, 2001

The Cleanup level for Gasoline Range Organics (GRO) is 100 mg/Kg for gas mixtures without benzene and when the total ethylbenzene, toluene and xylenes are less than 1% of the gasoline concentration. The Cleanup level for GRO is 30 mg/Kg for all other mixtures.

EDGE ANALYTICAL

Burlington, WA *Corporate Laboratory (a)*
1620 S Walnut St - Burlington, WA 98233 - **800.755.9295** • 360.757.1400

Bellingham, WA *Microbiology (b)*
805 Orchard Dr Ste 4 - Bellingham, WA 98225 - 360.715.1212

Portland, OR *Microbiology/Chemistry (c)*
9150 SW Pioneer Ct Ste W - Wilsonville, OR 97070 - 503.682.7802

Corvallis, OR *Microbiology/Chemistry (d)*
540 SW Third Street - Corvallis, OR 97333 - 541.753.4946

Bend, OR *Microbiology (e)*
20332 Empire Blvd Ste 4 - Bend, OR 97701 - 541.639.8425

Lead Soil + GW all Borings

Data Report

Client Name: NW HydroGeo Consultants
1 Lake Louise Drive Unit 42
Bellingham, WA 98229

Reference Number: **18-10633**
Project: Conway Feed

Report Date: 4/23/18

Date Received: 3/30/18
Approved by: anp,bj
Authorized by:

Patrick Miller, MS
QA Officer

Sample Description: BH-1 Warehouse
Lab Number: 22321 Sample Comment:
Sample Date: 3/30/18 12:35 pm
Collected By: Doug Dillenberger

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-92-1	**LEAD**	9.60	1.01		mg/Kg	1.0	6010B/3051	a	4/13/18	ANP	6010B_180413B	

Sample Description: BH-1 Warehouse
Lab Number: 22322 Sample Comment:
Sample Date: 3/30/18 12:35 pm
Collected By: Doug Dillenberger

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-92-1	**LEAD**	0.044	0.001	6.66E-06	mg/L	1.0	200.8/3010A	a	4/5/18	BJ	200.8_180405C2	

Sample Description: BH-3 Warehouse
Lab Number: 22324 Sample Comment:
Sample Date: 3/30/18 10:40 am
Collected By: Doug Dillenberger

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-92-1	**LEAD**	0.00052 J	0.001	6.66E-06	mg/L	1.0	200.8/3010A	a	4/5/18	BJ	200.8_180405C2	

Sample Description: BH-4 Warehouse
Lab Number: 22325 Sample Comment:
Sample Date: 3/30/18 2:30 pm
Collected By: Doug Dillenberger

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-92-1	**LEAD**	7.26	1.00		mg/Kg	1.0	6010B/3051	a	4/13/18	ANP	6010B_180413B	

Sample Description: BH-4 Warehouse
Lab Number: 22326 Sample Comment:
Sample Date: 3/30/18 2:30 pm
Collected By: Doug Dillenberger

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-92-1	**LEAD**	0.0057 J	0.001	6.66E-06	mg/L	1.0	200.8/3010A	a	4/5/18	BJ	200.8_180405C2	

Sample Description: BH-2 Warehouse
Lab Number: 22327 Sample Comment:
Sample Date: 3/30/18 11:30 am
Collected By: Doug Dillenberger

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment

Notes:
ND = Not detected above the listed practical quantitation limit (PQL) or not above the Method Detection Limit (MDL), if requested.
PQL = Practical Quantitation Limit is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions.
D.F. - Dilution Factor

If you have any questions concerning this report contact us at the above phone number.

ANALYTICAL

Reference Number: **18-10633**
Report Date: 4/23/18

Data Report

7439-92-1	**LEAD**	1.60	0.92		mg/Kg	1.0	6010B/3051	a	4/13/18	ANP	6010B_180413B

Sample Description: BH-2 Warehouse — Sample Date: 3/30/18 11:30 am
Lab Number: 22328 — Sample Comment: — Collected By: Doug Dillenberger

CAS ID#	Parameter	**Result**	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-92-1	**LEAD**	0.0057	0.001	6.66E-06	mg/L	1.0	200.8/3010A	a	4/5/18	BJ	200.8_180405C2	

Notes:

ND = Not detected above the listed practical quantitation limit (PQL) or not above the Method Detection Limit (MDL), if requested.
PQL = Practical Quantitation Limit is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions.
D.F. - Dilution Factor

EDGE ANALYTICAL

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540 SW Third Street - Corvallis, OR 97333 - 541.753.4946

Bend, OR *Microbiology (e)*
20332 Empire Blvd Ste 4 - Bend, OR 97701 - 541.639.8425

Data Report

Client Name: NW HydroGeo Consultants
1 Lake Louise Drive Unit 42
Bellingham, WA 98229

Reference Number: **18-10633**
Project: Conway Feed

Report Date: 4/27/18

Date Received: 3/30/18
Approved by: anp,bj
Authorized by:

Patrick Miller, MS
QA Officer

Sample Description: BH-1 Warehouse
Lab Number: 22321 Sample Comment:
Sample Date: 3/30/18 12:35 pm
Collected By: Doug Dillenberger

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-92-1	LEAD	9.60	1.01		mg/Kg	1.0	6010B/3051	a	4/13/18	ANP	6010B_180413B	

Sample Description: BH-1 Warehouse
Lab Number: 22322 Sample Comment:
Sample Date: 3/30/18 12:35 pm
Collected By: Doug Dillenberger

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-92-1	LEAD	0.044	0.001	6.66E-06	mg/L	1.0	200.8/3010A	a	4/5/18	BJ	200.8_180405C2	

Sample Description: BH-3 Warehouse
Lab Number: 22323 Sample Comment:
Sample Date: 3/30/18 10:40 am
Collected By: Doug Dillenberger

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-92-1	LEAD	11.0	1.02		mg/Kg	1.0	6010B/3051	a	4/24/18	ANP	6010B_180424B	

Sample Description: BH-3 Warehouse
Lab Number: 22324 Sample Comment:
Sample Date: 3/30/18 10:40 am
Collected By: Doug Dillenberger

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-92-1	LEAD	0.00052 J	0.001	6.66E-06	mg/L	1.0	200.8/3010A	a	4/5/18	BJ	200.8_180405C2	

Sample Description: BH-4 Warehouse
Lab Number: 22325 Sample Comment:
Sample Date: 3/30/18 2:30 pm
Collected By: Doug Dillenberger

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment
7439-92-1	LEAD	7.26	1.00		mg/Kg	1.0	6010B/3051	a	4/13/18	ANP	6010B_180413B	

Sample Description: BH-4 Warehouse
Lab Number: 22326 Sample Comment:
Sample Date: 3/30/18 2:30 pm
Collected By: Doug Dillenberger

CAS ID#	Parameter	Result	PQL	MDL	Units	DF	Method	Lab	Analyzed	Analyst	Batch	Comment

Notes:
ND = Not detected above the listed practical quantitation limit (PQL) or not above the Method Detection Limit (MDL), if requested.
PQL = Practical Quantitation Limit is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions.
D.F. - Dilution Factor

If you have any questions concerning this report contact us at the above phone number.

QUALITY CONTROL REPORT
SURROGATE REPORT

Reference Number: 18-10633
Report Date: 04/23/18

Lab No	Analyte	Result	Qualifier	Units	Method	Limit
8260S_180402						
22321	d8-TOLUENE (Surr)	103		%	8260C	Acceptance Range: 50-150%
DXS_180411						
22321	O-TERPHENYL	83		%	NWTPH-Dx	
DXW_180403						
22322	O-TERPHENYL	81		%	NWTPH-Dx	Acceptance Limits: 50-150%
GXW_180404						
22322	d8-TOLUENE (Surr)	102		%	8260C	Acceptance Range: 50-150%
8260S_180402						
22323	d8-TOLUENE (Surr)	101		%	8260C	Acceptance Range: 50-150%
DXS_180411						
22323	O-TERPHENYL	84		%	NWTPH-Dx	
DXW_180403						
22324	O-TERPHENYL	106		%	NWTPH-Dx	Acceptance Limits: 50-150%
GXW_180404						
22324	d8-TOLUENE (Surr)	104		%	8260C	Acceptance Range: 50-150%
8260S_180402						
22325	d8-TOLUENE (Surr)	103		%	8260C	Acceptance Range: 50-150%
DXS_180411						
22325	O-TERPHENYL	88		%	NWTPH-Dx	
DXW_180403						
22326	O-TERPHENYL	98		%	NWTPH-Dx	Acceptance Limits: 50-150%
GXW_180404						
22326	d8-TOLUENE (Surr)	101		%	8260C	Acceptance Range: 50-150%
8260S_180402						
22327	d8-TOLUENE (Surr)	103		%	8260C	Acceptance Range: 50-150%
DXS_180411						
22327	O-TERPHENYL	84		%	NWTPH-Dx	
DXW_180403						
22328	O-TERPHENYL	81		%	NWTPH-Dx	Acceptance Limits: 50-150%
GXW_180404						
22328	d8-TOLUENE (Surr)	102		%	8260C	Acceptance Range: 50-150%

*Notation:

A surrogate is a pure compound added to a sample in the laboratory just before processing so that the overall efficiency of a method can be determined.

The Acceptance Limits (or Control Limits) approximate a 99% confidence interval around the mean recovery.

Qualifier Definitions

Reference Number: 18-10633
Report Date: 04/23/18

Qualifier	Definition
HR	High QCS recovery due to increased detector response No sample dectections, therefore, no further action taken for this analysis set.
IEV	Acceptance criteria do not apply to estimated values
IM	Matrix induced bias assumed
INH	The sample was non-homogeneous
IS	The ratio of the spike concentration to sample background was too low to meet performance criteria
J	Indicates an estimated concentration. This occurs when an analyte concentration is below the calibration curve but is above the method detection limit.
LR	Low recovery can not be accounted for. However, there is adequate sensitivity to detect the compound at the MRL. No sample detections so no further action for this analysis batch.

Note: Some qualifier definitions found on this page may pertain to results or QC data which are not printed with this report.

EDGE ANALYTICAL

SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Calibration Check

Reference Number: **18-10633**
Report Date: 04/23/18

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
200.8_180405C2 0	LEAD	0.00099	0.001	mg/L	200.8	99	80-120		CAL	
6010B_180413B 2	LEAD	1	1	mg/L	6010B	100	90-110		CAL	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

ANALYTICAL

SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: **18-10633**
Report Date: 04/23/18

Batch		Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
200.8_180405C2	0	LEAD	0.025	0.025	mg/L	200.8	100	85-115		LFB	
6010B_180413B	0	LEAD	0.88	1	mg/L	6010B	88	85-115		LFB	
DXS_180411	0	DIESEL (C12 - C24)	99.4	125	mg/Kg	NWTPH-Dx	80	70-130		LFB	
DXW_180403	0	DIESEL (C12 - C24)	4.4	5	mg/L	NWTPH-Dx	88	70-130		LFB	
GXW_180404	0	BENZENE	0.0037	0.004	mg/L	8260C	93	70-130		LFB	
	0	ETHYLBENZENE	0.0034	0.004	mg/L	8260C	85	70-130		LFB	
	0	METHYL TERT-BUTYL ETHER	0.0038	0.004	mg/L	8260C	95	70-130		LFB	
	0	TOLUENE	0.0037	0.004	mg/L	8260C	93	70-130		LFB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

ANALYTICAL

SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Reagent Blank

Reference Number: **18-10633**
Report Date: 04/23/18

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
200.8_180405C2 0	LEAD	ND		mg/L	200.8		0-0		LRB	
6010B_180413B 0	LEAD	ND		mg/L	6010B		0-0		LRB	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

ANALYTICAL

SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: **18-10633**
Report Date: 04/23/18

Batch		Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
200.8_180405C2	0	LEAD	ND		mg/L	200.8		0-0		MB	
6010B_180413B	0	LEAD	ND		mg/L	6010B		0-0		MB	
DXS_180411	0	DIESEL (C12 - C24)	ND		mg/Kg	NWTPH-Dx		0-0		MB	
	0	HEAVIER OILS (>C24)	ND		mg/Kg	NWTPH-Dx		0-0		MB	
DXW_180403	0	DIESEL (C12 - C24)	ND		mg/L	NWTPH-Dx		0-0		MB	
	0	HEAVIER OILS (>C24)	ND		mg/L	NWTPH-Dx		0-0		MB	
GXW_180404	0	BENZENE	ND		mg/L	8260C		0-0		MB	TB 18-10434
	0	ETHYLBENZENE	ND		mg/L	8260C		0-0		MB	TB 18-10434
	0	METHYL TERT-BUTYL ETHER	ND		mg/L	8260C		0-0		MB	TB 18-10434
	0	TOLUENE	ND		mg/L	8260C		0-0		MB	TB 18-10434
	1	BENZENE	ND		mg/L	8260C		0-0		MB	TB 18-09419

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

EDGE ANALYTICAL

SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Quality Control Sample

Reference Number: **18-10633**
Report Date: 04/23/18

Batch		Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
200.8_180405C2	0	LEAD	0.039	0.04	mg/L	200.8	98	90-110		QCS	
6010B_180413B	0	LEAD	2.09	2	mg/L	6010B	105	90-110		QCS	

*Notation:

% Recovery = (Result of Analysis)/(True Value) * 100

NA = Indicates % Recovery could not be calculated.

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

SAMPLE DEPENDENT
QUALITY CONTROL REPORT
Duplicate, Matrix Spike/Matrix Spike Duplicate and Confirmation Result Report

Batch	Sample	Analyte	Result	Duplicate Result	Units	%RPD	Limits	QC Qualifier	Type	Comments
Duplicate										
200.8_180405C2										
	22275	LEAD	ND	ND	ug/L	NA	0-20		DUP	
	23345	LEAD	0.0004	0.0004	mg/L	0.0	0-20		DUP	
6010B_180413B										
	22397	LEAD	24.0	24.5	mg/Kg	2.1	0-20		DUP	
DXS_180411										
	23759	DIESEL (C12 - C24)	ND	ND	mg/Kg	NA	0-30		DUP	
	23759	HEAVIER OILS (>C24)	363	260	mg/Kg	33.1	0-30	INH	DUP	
DXW_180403										
	22328	DIESEL (C12 - C24)	0.19	0.15	mg/L	23.5	0-30		DUP	
	22328	HEAVIER OILS (>C24)	0.31	0.24	mg/L	25.5	0-30		DUP	
TS_180403										
	22327	TOTAL SOLIDS FOR CALCULATION	70.90	74.19	%	4.5	0-20		DUP	
	23010	TOTAL SOLIDS FOR CALCULATION	98.99	99.12	%	0.1	0-20		DUP	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

FORM: QC Dependent.rpt

Reference Number: 18-10633
Report Date: 4/23/2018

Batch	Sample	Analyte	Result	Spike Result	Duplicate Spike Result	Spike Conc	Units	Percent Recovery MS	Percent Recovery MSD	Limits*	%RPD	Limits*	QC Qualifier	Type	Comments
Laboratory Fortified Matrix (MS)															
200.8_180405C2															
	22275	LEAD	ND	25		25	ug/L	**100**		70-130	NA	0-20		LFM	
	23345	LEAD	0.0004	0.026		0.025	mg/L	**102**		70-130	NA	0-20		LFM	
6010B_180413B															
	22397	LEAD	24.0	114	116	75	mg/Kg	**120**	**123**	75-125	2.2	0-20		LFM	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) analyses are used to determine the accuracy (MS) and precision (MSD) of a analytical method in a given sample matrix. Therefore, the usefulness of this report is limited to samples of similar matrices analyzed in the same analytical batch.

Only Duplicate sample with detections are listed in this report

Limits are intended for water matrices only. These criteria are for guidance only when reported with soils/solids.

FORM: QC Dependent.rpt

QUALITY CONTROL REPORT
SURROGATE REPORT

Reference Number: 18-10633
Report Date: 04/23/18

Lab No	Analyte	Result	Qualifier	Units	Method	Limit
8260S_180402						
22321	d8-TOLUENE (Surr)	103		%	8260C	Acceptance Range: 50-150%
DXS_180411						
22321	O-TERPHENYL	83		%	NWTPH-Dx	
DXW_180403						
22322	O-TERPHENYL	81		%	NWTPH-Dx	Acceptance Limits: 50-150%
GXW_180404						
22322	d8-TOLUENE (Surr)	102		%	8260C	Acceptance Range: 50-150%
8260S_180402						
22323	d8-TOLUENE (Surr)	101		%	8260C	Acceptance Range: 50-150%
DXS_180411						
22323	O-TERPHENYL	84		%	NWTPH-Dx	
DXW_180403						
22324	O-TERPHENYL	106		%	NWTPH-Dx	Acceptance Limits: 50-150%
GXW_180404						
22324	d8-TOLUENE (Surr)	104		%	8260C	Acceptance Range: 50-150%
8260S_180402						
22325	d8-TOLUENE (Surr)	103		%	8260C	Acceptance Range: 50-150%
DXS_180411						
22325	O-TERPHENYL	88		%	NWTPH-Dx	
DXW_180403						
22326	O-TERPHENYL	98		%	NWTPH-Dx	Acceptance Limits: 50-150%
GXW_180404						
22326	d8-TOLUENE (Surr)	101		%	8260C	Acceptance Range: 50-150%
8260S_180402						
22327	d8-TOLUENE (Surr)	103		%	8260C	Acceptance Range: 50-150%
DXS_180411						
22327	O-TERPHENYL	84		%	NWTPH-Dx	
DXW_180403						
22328	O-TERPHENYL	81		%	NWTPH-Dx	Acceptance Limits: 50-150%
GXW_180404						
22328	d8-TOLUENE (Surr)	102		%	8260C	Acceptance Range: 50-150%

*Notation:

A surrogate is a pure compound added to a sample in the laboratory just before processing so that the overall efficiency of a method can be determined.

The Acceptance Limits (or Control Limits) approximate a 99% confidence interval around the mean recovery.