Interim Cleanup Action Report

Tanner Electric Cooperative, Transformer Spill Remediation
44711 Southeast North Bend Way
North Bend, Washington

Prepared for

Tanner Electric Cooperative
Post Office Box 1426
North Bend, Washington 98045

Prepared by

Robinson Noble/Terraphase Engineering Inc.
17625 – 130th Avenue NE, Suite 102
Woodinville, Washington 98072

September 5, 2023

Project Number W105.001.001

File: Interim Cleanup Action Report

ROBINSON NOBLE
a terraphase company

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Acronyms and Abbreviations

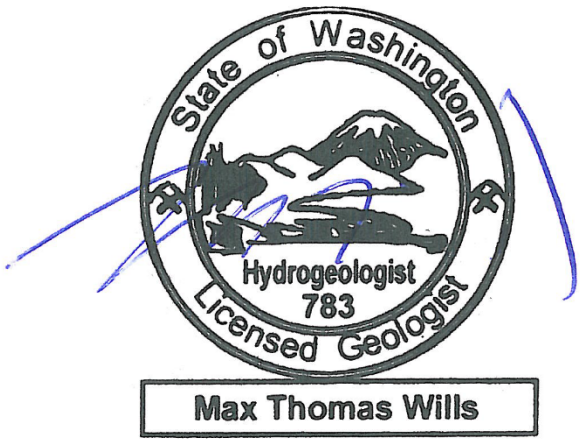
bgs	Below Ground Surface
CLARC	Cleanup Levels and Risk Calculations
COC	Contaminant of Concern
CUL	Cleanup Level
Ecology	Washington State Department of Ecology
ERTS	Environmental Report Tracking System
kVA	kilo-volt-amperes
Libby	Libby Environmental, Inc.
MSL	Mean Sea Level
MTCA	Model Toxics Control Act
ORC	Oxygen Release Compound
PCB	Polychlorinated Biphenyl
Qa	Quaternary alluvium
QA/QC	Quality Assurance/Quality Control
RCW	Revised Code of Washington
RL	Laboratory Reporting Limit
Tanner Electric	Tanner Electric Cooperative
USGS	United States Geological Survey
WAC	Washington Administrative Code
WSDOT	Washington State Department of Transportation

Signatures

All geologic information, conclusions, and recommendations in this document have been prepared under the responsible charge of a Licensed Washington Professional Hydrogeologist.

Max Wills, Principal Hydrogeologist, LHG, CWRE

September 5, 2023
Date



1 Introduction

1.1 General

This interim cleanup action report describes efforts completed to remediate soils contaminated by a release of dielectric fluid (mineral oil) from a large (25,000 kVA) substation-type electrical transformer. The subject transformer is owned and maintained by Tanner Electric, which is an electrical utility cooperative based in North Bend, Washington. According to information provided by Tanner Electric, vandals broke into their North Bend yard, where the transformer was being stored, and drained the oil reservoir (~2,800 gallons) to access metal components inside the transformer. The oil drained directly to and impacted the soils underlying the transformer.

On July 26, 2023, upon discovering the release, Tanner Electric personnel reported the incident to Ecology via ERTS. A copy of the ERTS report (No. 724369) is included in Appendix A. Tanner Electric then contracted with US Ecology/NRC to conduct remedial excavation of the impacted soils. Tanner Electric also retained the services of Russell Post Environmental Consulting and Robinson Noble (a subsidiary of Terraphase Engineering, Inc.) to provide environmental oversight of the project. The remediation efforts documented in this report were performed as an independent remedial action as described in Chapter 173-340-515 WAC (Washington State Model Toxics Control Act).

1.2 Transformer Details

Information provided by Tanner Electric indicates that the subject transformer (Serial No. 21051400621) was manufactured by CG Power Systems USA, Inc. in 2015 and has a reservoir capacity of 2,815 gallons. The use of PCBs in dielectric fluid was abolished in 1985 and placards on the subject transformer indicate that it utilizes non-PCB-containing mineral oil. Recent test results for the transformer oil are provided in Appendix A and photographs of the transformer placards are included in Appendix B.

1.3 Site Location and Description

The Tanner Electric storage yard is located at 44711 SE North Bend Way in North Bend, Washington. This property is identified by the King County Assessor as tax parcel 1423089032. A vicinity map is presented in Figure 1 and an aerial detail is shown on Figure 2. A copy of the King County Assessor's property report for Parcel 1423089032 is provided in Appendix A. As shown on Figure 2, the area of the mineral oil release (herein referred to as the site) lies partially within the Tanner Electric storage yard property (King County Parcel 1423089032) and partially within the WSDOT right-of-way for Interstate 90. The site is specifically located within Section 14 of Township 23 North, Range 08 East, relative to the Willamette Meridian.

The storage yard property is presently undeveloped with any structures. The property is currently occupied by a large gravel parking area that is enclosed by a chain-link fence and used to store various electrical equipment and appurtenances (i.e., electrical transformers, power poles, etc.). As shown on

Figure 2 and discussed below in Section 1.3.1, there is an old 6-inch diameter water well on the property that was reportedly constructed by the previous owners for potable water supply.

The site lies within the flood plain between the Middle and South Forks of the Snoqualmie River. The topography of the site is relatively flat and occurs at an elevation of approximately 525 feet above MSL. There are no surface water bodies on the site. The closest surface water body is the Middle Fork of the Snoqualmie River, which is located approximately 500 feet north of the site at its closest point. The South Fork of the Snoqualmie River is located approximately 1,500 feet south of the site, and both the Middle and South Forks flow generally west-northwest and conjoin at a point approximately 4 miles northwest of the site.

1.3.1 Geology and Hydrogeology

Tabor and others (USGS 2000) map the surface geology of the site and surrounding area as Quaternary alluvium (Qa) associated with the nearby Snoqualmie River. Alluvial deposits generally consist of sand-through cobble-size material with a silt- to sand-size matrix. During remedial excavation (Section 2.1), materials consistent with alluvium were encountered to a depth of 24 feet.

No groundwater was encountered during remedial excavation. However, given the depth of the alluvium and the proximity of the site to the Snoqualmie River, it is likely that groundwater below the site is in hydraulic continuity with the river and fluctuates seasonally with changes in river stage. At the start of this project, the bottom of the old 6-inch well (see Figure 2) was measured at a depth of 33 feet bgs and the well was dry. The level of the nearby Snoqualmie River was also observed to be “low”. As part of a pilot infiltration study for the construction of a new substation at the site, Tanner Electric measured water levels in the old 6-inch well approximately monthly for a period of just under one year (January 25, 2017 to January 9, 2018). During this period, water levels in the well fluctuated from a low of 37 feet bgs in November to a high of 23 feet bgs in April. A copy of the infiltration study is provided in Appendix A. We presume that the seasonal fluctuation of the groundwater below the site is currently similar to the fluctuation in 2017, and we estimate that the depth to groundwater was between 35 and 40 feet during the remedial actions described in this report.

2 Site Cleanup Actions

2.1 Remedial Excavation

On August 3, 2023, personnel from Tanner Electric, US Ecology/NRC, and Robinson Noble met on site to further assess the spill and discuss the logistics for conducting remedial excavation. The excavation of impacted soils commenced that same day. Inspection of the spill area revealed obvious dark brown to black surface staining covering an area approximately 30 x 30 feet square. Remedial excavation began near the center of the stained area using tracked excavators and continued down and outward toward the margins of the impacted area. The excavated soils were temporally stockpiled on plastic sheeting adjacent to the excavation area, and subsequently loaded into dump-trucks and removed from the site.

In general, remedial excavation proceeded down and outward until visual field screening indicated that the limits of the impacted soils had been reached. Confirmation soil samples were then collected at the margins of remedial excavation and submitted to a laboratory for analysis of mineral oil. Based on the information provided by Tanner Electric regarding the age and composition of the dielectric fluid used in the subject transformer (see Section 1.2), it was determined that mineral oil was the only COC. During remedial excavation, additional performance samples of obviously impacted soils were also collected and analyzed to better characterize the nature of the release.

Figure 3 shows the aerial extent of the remedial excavation and the location of the conformation and performance samples collected during this project. Figure 4 shows two representative profiles (Cross Sections AA' and BB') that depict the vertical extent of the remedial excavation. As shown on Figures 3 and 4, the remedial excavation covers an area measuring approximately 45 x 78 feet and extends to a maximum depth of 24 feet near the center of the excavation. As also shown on Figures 3 and 4, additional "benching" areas were excavated outside of the impacted area to allow for stabilization of the excavation and access for deeper remedial excavation. It is estimated that a total of approximately 1,325 cubic yards of impacted soil was excavated and removed from the site.

As shown on Figures 3 and 4, remedial excavation was extended to the lateral margins of the impacted area. However, deeper mineral oil contamination near the center of the spill area could not be reached with excavation, so some residual impacts at depth (below 24 feet) were left in place. Rough mass balance calculations suggest that approximately half of the mineral released (~1,400 gallons) was recovered through remedial excavation. Considering the high porosity and hydraulic conductivity of the alluvial materials at the site, it is presumed that a large percentage of the mineral oil that was not recovered migrated vertically downward to the water table where it was then dispersed downgradient and is no longer recoverable.

2.1.1 Laboratory Analyses and Analytical Results

The MTCA Method A soil CUL for mineral oil is 4,000 mg/kg, which was the target soil CUL for this project. All soil samples were submitted to Libby Environmental, Inc. (Libby) for analyses of mineral oil using Ecology Test Method NWTPH-Dx/Dx Extended. Soil samples were analyzed in part at Libby's fixed laboratory facility and in part using an on-site mobile laboratory. Analytical results are shown on Figures 3 and 4 and summarized below in Tables 1 through 3. Libby's complete laboratory reports, along with representative chromatograms are included in Appendix C.

Table 1 Soil Analytical Results (performance samples)

Sample Number	Location (description)	Depth (feet)	Result (mg/kg)
SS2-2	East Side of Excavation (surrounding soils removed)	2	**4,700**
SS3-6	Center of Excavation (surrounding soils removed)	6	**14,000**
MTCA Method A Soil CUL for unrestricted land use			4,000

Table notes: Bolded values indicate the concentration exceeds the applicable CUL

Table 2 Soil Analytical Results (confirmation samples)

Sample Number	Location (description)	Depth (feet)	Result (mg/kg)
SS1-21	Base	21	2,300
SS4-14	North Wall	14	1,100
SS5-14	West Wall	14	<110
SS6-13	South Wall	13	<110
SS7-13	East Wall	13	<110
SS8-21	Base (additional soil removed below 21')	21	**5,100**
SS9-15	West Wall	15	1,900
SS10-15	East Wall	15	<110
SS11-6	East Wall	6	<110
SS12-6	East Wall	6	<110
SS13-6	South Wall	6	<110
SS14-6	South Wall	6	<110
SS15-6	West Wall	6	<100
SS16-6	West Wall	6	<110
SS17-6	West Wall	6	<110
SS18-6	West Wall	6	800
SS19-6	North Wall	6	<110
SS20-6	North Wall	6	<110
SS21-6	East Wall	6	310
SS22-6	East Wall	6	<110
SS23-24	Base (no additional soil removed below 24')	24	**5,200**
SS24-24	Base (no additional soil removed below 24')	24	**4,900**
MTCA Method A Soil CUL for unrestricted land use			4,000

Table notes: Bolded values indicate the concentration exceeds the applicable CUL

As shown above in Table 1, the mineral oil concentrations within the visually impacted soils (performance samples) ranged from 4,700 mg/kg near the outer margins of the impacted area to 14,000 mg/kg near the central portion of the impacted area. As shown above in Table 2 (and on Figures 3 and 4), all the confirmation samples collected from the final margins of the remedial excavation, except for soil samples SS23-24 and SS24-24, were either below the laboratory reporting limit (RL) or the 4,000 mg/kg MTCA Method A soil cleanup level for mineral oil. Laboratory analysis of soil samples SS23-24 and SS24-24, which were collected from the final base of the remedial excavation, indicated respective mineral oil concentrations of 5,200 and 4,900 mg/kg, which both exceed the 4,000 mg/kg CUL.

In addition to the performance and confirmation samples discussed above, stockpile samples from the additional material excavated from the area outside the remedial excavation (see Figure 3) were also analyzed to determine if these materials were suitable for use as backfill. Approximately 60 cubic yards of material from this area were deemed "clean enough" to use as backfill based on visual and olfactory field screening. The rest of the materials excavated from this area (~180 cubic yards) were considered "suspect" based on field screening results and added to the materials to be hauled off site. For the 60 cubic yards of material deemed suitable for use as backfill, four stockpile soil samples (designated as SP1 through SP4) were analyzed for mineral oil. Laboratory analyses of these stockpile samples indicated mineral concentrations of <110, 240, 200, and <110 mg/kg, respectively, with an average concentration of 138 mg/kg. These values are within the criteria specified in Table 12.1 of Ecology's Guidance for Remediation of Petroleum Contaminated Sites (Ecology Publication No. 10-09-057) for use as backfill above the water table. Table 3 below presents the analytical results for the stockpile samples. The complete laboratory results are provided in Appendix C.

Table 3 Soil Analytical Results (stockpile samples)

Sample Number	Result (mg/kg)
SP1	<110
SP2	240
SP3	200
SP4	<110
Average	138

2.1.2 Sample Collection Procedures, Laboratory Qualifications, and Analytical QA/QC

All soil samples for this project were collected directly into pre-cleaned, laboratory-supplied, 4oz glass jars. Samples to be delivered to Libby's fixed laboratory were placed in a cooler containing Blue Ice® and maintained at temperatures below 4° Celsius pending delivery to the laboratory. Samples delivered to the on-site mobile laboratory were either analyzed immediately or preserved as appropriate by Libby's on-site chemist. All soil samples were delivered to the laboratory under appropriate chain-of-custody procedures and analyzed within prescribed holding times.

The laboratory utilized for this project (Libby Environmental, Inc.) is accredited in the State of Washington for the particular analyses performed. Libby provided required QA/QC analyses with each of their laboratory reports. Our review of these QA/QC analyses did not reveal any discrepancies that would affect our final interpretations, conclusions, and/or use of these data. The complete laboratory reports from Libby, including the required QA/QC analyses, are included in Appendix C.

2.2 ORC Application and Backfill

Prior to backfilling the remedial excavation, 760 lbs. of an oxygen release compound (Regenesis ORC-Advanced®) was applied over the base of the excavation. The intent of the ORC application is to treat residual contamination through enhancement of bioremediation. Following placement of the ORC, the excavation was backfilled with clean imported material to approximately 13 feet below the existing grade. The 60 yards of material with low-level mineral oil impact (discussed above in Section 2.1.1) was then placed between approximately 13 to 12 feet bgs and the remainder of the excavation backfilled with additional clean imported material to grade.

2.3 Disposal

US Ecology/NRC had the impacted soils transported from the site to the Rosevelt Regional Landfill via Rosevelt Services' Seattle transfer station. Disposal records indicate that a total of 2,224.65 tons of impacted soils were removed from the site and delivered to the landfill. A copy of the disposal record is included in Appendix A.

3 Summary of Remedial Actions

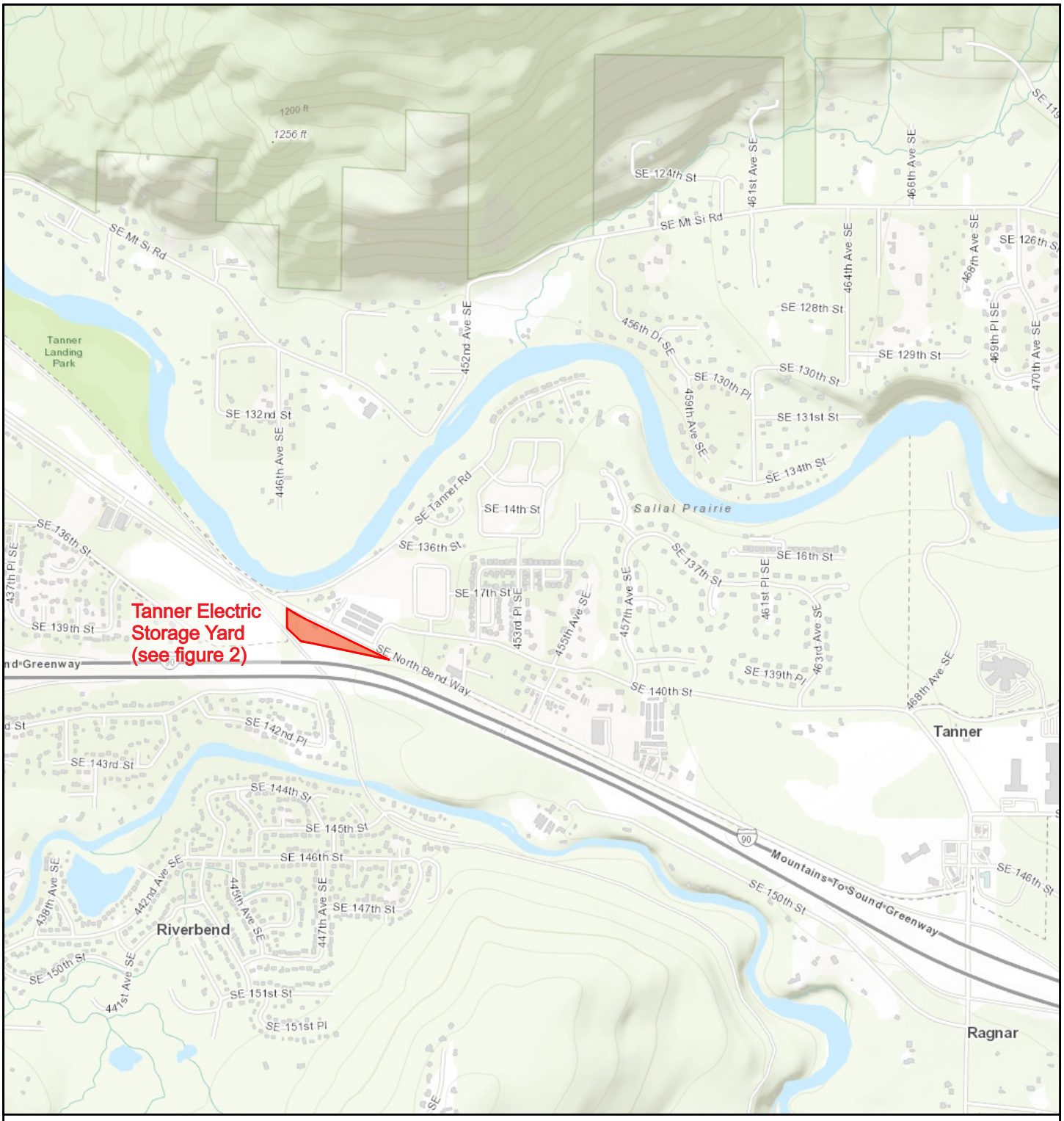
As a result of vandalism, approximately 2,800 gallons of dielectric fluid (mineral oil) was released from a substation-type transformer being stored at Tanner Electric's storage yard in North Bend, Washington. Approximately 2,225 tons of soil impacted by the release were excavated and transported off-site to a permitted disposal facility. Rough estimates suggest that approximately half the mineral oil released was recovered through remedial excavation. The remaining oil has likely been dispersed through the porous alluvium at the site and is unlikely to be recoverable. Field observations, together with confirmation sampling indicate that all the impacted soil to a depth of approximately 24 feet was successfully excavated, but some residual soil impacts remain below this depth. Prior to backfilling, the residual contamination at the base of the remedial excavation was treated with ORC to enhance bioremediation. It is our opinion that Tanner Electric has to date made all reasonable efforts to address and remediate the release, and additional remedial actions will likely have minimal effect.

Tanner Electric is planning to develop the storage yard property as an electrical substation with a projected completion date some time in 2026. The planned development includes oil spill containment and increased security measures, which should significantly reduce the possible recurrence of similar releases in the future.

4 Limitations

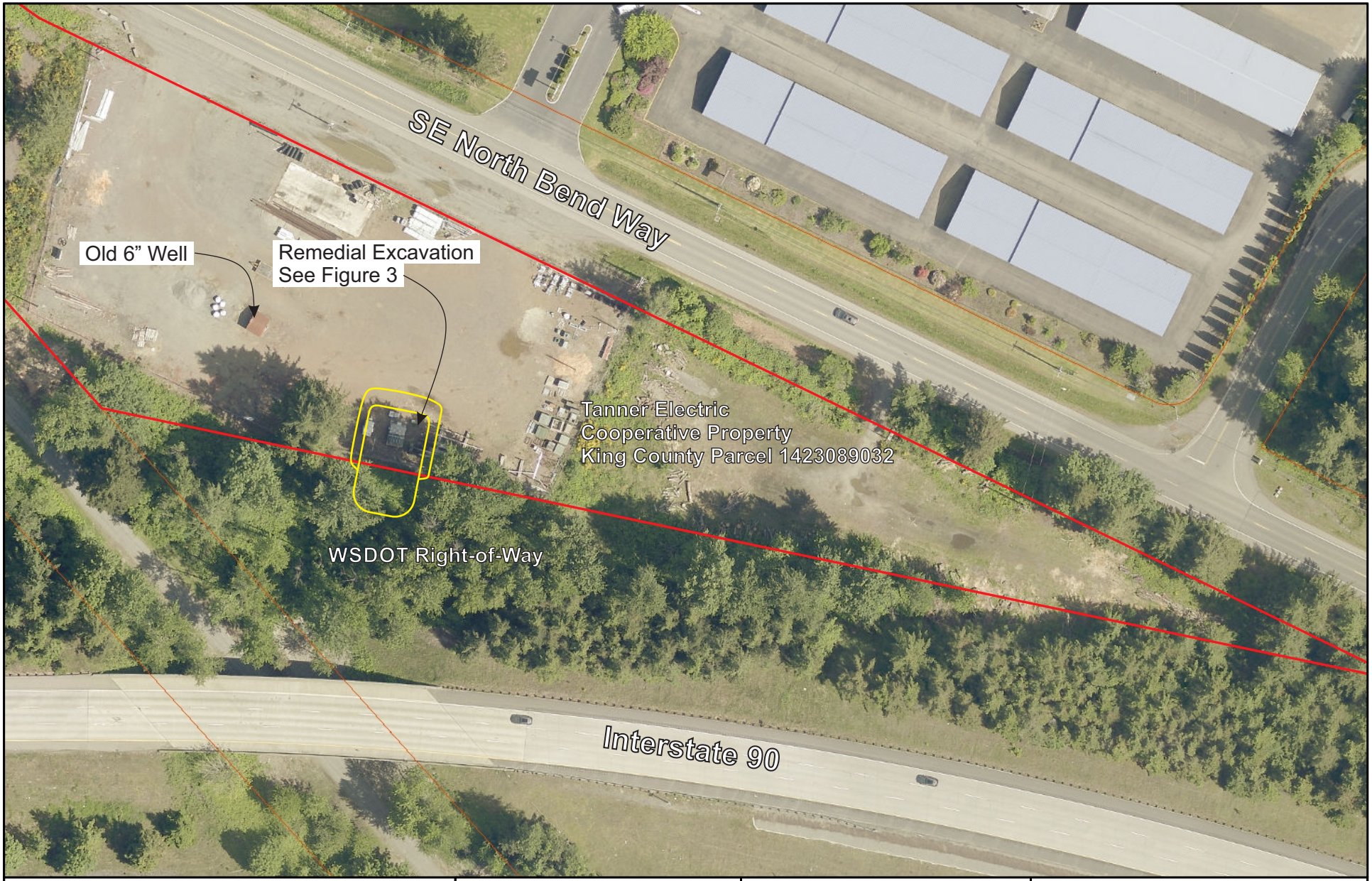
This document was prepared solely for Tanner Electric Cooperative in accordance with professional standards at the time the services were performed and in accordance with the contract between Tanner

Figures



Basemap Source: King County iMap. August 23, 2023

SAFETY FIRST	CLIENT: Tanner Electric Cooperative	**Vicinity Map**
ROBINSON NOBLE a terraphase company	PROJECT: North Bend Transformer Spill 44711 SE North Bend Way	
	PROJECT NUMBER: W105.001.001	**FIGURE 1**



N

0 50 100 200 Feet

1 inch = 100 feet

Source: Imagery taken from King County iMap
https://gismaps.kingcounty.gov/iMap/

SAFETY FIRST

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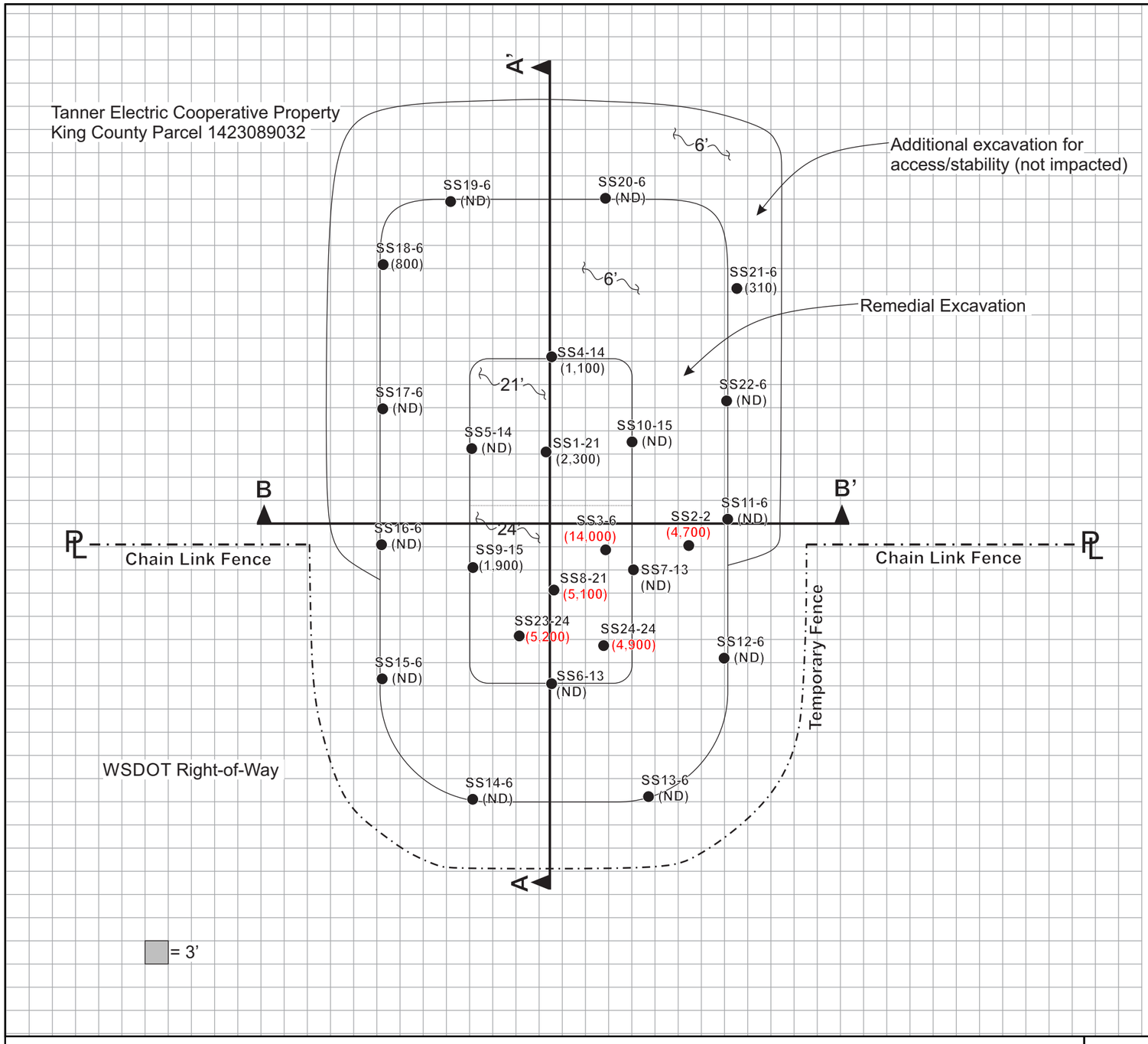
a terraphase company

CLIENT:	Tanner Electric Cooperative
PROJECT:	North Bend Transformer Spill 44711 SE North Bend Way
PROJECT NUMBER:	W105.001.001

Site Map

FIGURE 2



Legend

SS1-21 (2,300) Soil Sample Location with Mineral Oil Concentration in mg/kg

Note: MTCA Method A Cleanup Level for Mineral Oil is 4,000 mg/kg

0 7.5 15 30 Feet

1 inch = 15 feet

N

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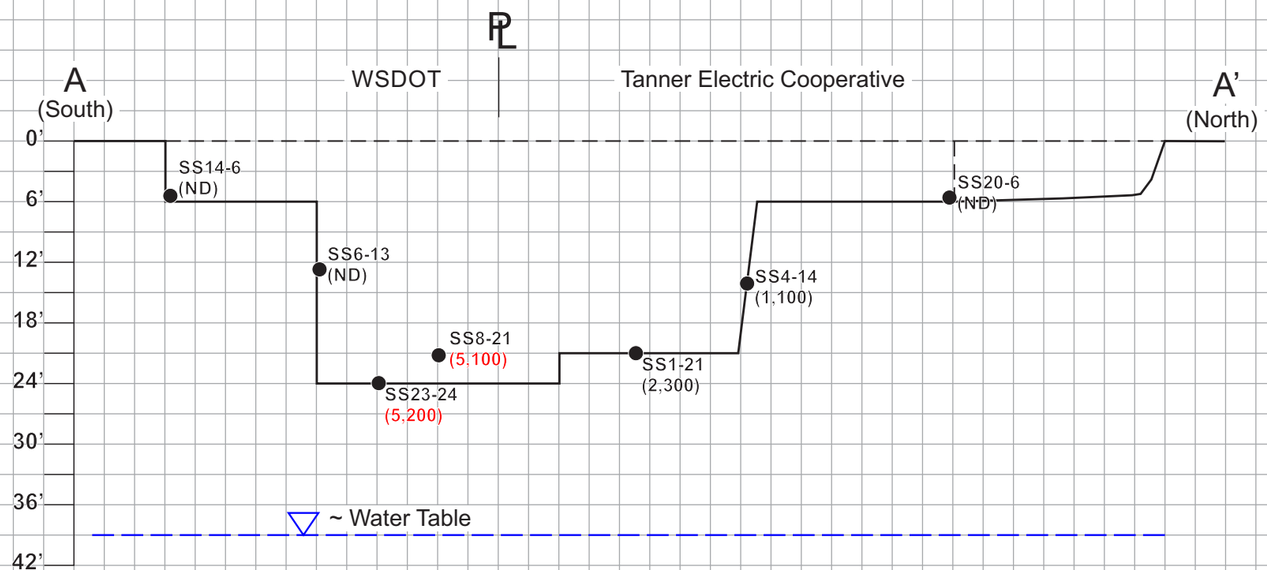
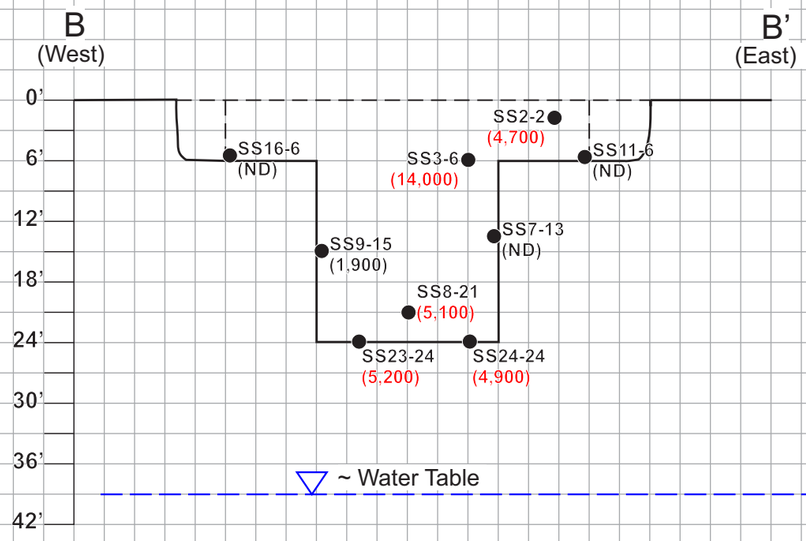
a terraphase company

CLIENT:	Tanner Electric Cooperative
PROJECT:	North Bend Transformer Spill 44711 SE North Bend Way
PROJECT NUMBER:	W105.001.001

Remedial Excavation and Sample Location Map

FIGURE 3





= 3'

Legend

SS1-21 (2,300) Soil Sample Location with Mineral Oil Concentration in mg/kg

Note: MTCA Method A Cleanup Level for Mineral Oil is 4,000 mg/kg

0 7.5 15 30 Feet

1 inch = 15 feet

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CLIENT: Tanner Electric Cooperative

PROJECT: North Bend Transformer Spill
44711 SE North Bend Way

PROJECT NUMBER: W105.001.001

Cross Sections

FIGURE 4

Appendix A

Key Documents

ERTS Incident #724369

Environmental Report Tracking - *Generated 8/22/2023, 5:01 PM*

Primary Initial Report - Reported: 07/26/23 14:24

Reference ID - 214894

Where did it happen?

Location name:
Physical address: 44711 SE North Bend Way
North Bend WA 98045
US
County: King
Ecology region: NWRO
Lat, long:
Directions/Landmarks:

What happened?

Incident date: 07/25/23 07:00
Activity: Suspected illegal activity
Cause:
Medium: Ground - Soil
Source: Facility - Power generation utility
Substance: Oil - Mineral oil/Transformer oil
Substance amount: 2800 U.S. gallons

Who might be responsible?

Name:
Organization:
Tanner Electric Cooperative
Email:
Phone number(s):
Mailing address:

How was it reported?

Intake type: Call
Reported date: 07/26/23 14:24
Entered by: Kelli Price
Entered at: 07/26/23 14:32

Who reported it?

Do they want this to be confidential? No

Reporter type:
Private Company
Name:
Andrew Burd
Organization:
Tanner Electric Cooperative
Email:
andrew@tannerelectric.coop
Phone number(s):
(425) 888-0623
(425) 518-3558
Mailing address:
Are they anonymous? No
Are they self-reporting? Yes
External reference number:

Comments/notes

Tanner Electric Cooperative called to report vandalism on a non-energized substation transformer in storage caused type 2 non-PCB mineral oil to spill to soil and concrete in the storage facility. Caller estimates up to 2,800 gallons spilled. Companies are being bided for cleanup right now. An environmental consultant is observing and organizing the cleanup (Russel Post, 253-448-7509).

Incident details

Life cycle status: Follow-up assigned
Incident Date: 07/25/23 07:00
Was it self-reported?: Yes
Show to public?: No

Program owners

Kelli Price **(Primary)**

Location

Location name:
Physical Address: 44711 SE North Bend Way
North Bend WA 98045
US
County: King
Lat, long:

Who might be responsible?

NWRO - Spill Prevention, Preparedness & Response
Comments:

Donna Kirkman (Primary)
NWRO - Toxics Cleanup
Comments:

Name:
Organization:
Tanner Electric Cooperative
Email:
Phone number(s):
Mailing address:

Follow-ups

Program: Toxics Cleanup - Subject: Oil Spill to Land
Reference ID - 223344

What happened?

Primary activity

Activity:
Suspected illegal activity

Primary detail

Medium:
Ground - Soil
Source:
Facility - Power generation utility
Substance:
Oil - Mineral oil/Transformer oil
Substance amount: 2800 U.S. gallons

Action history

Status	Action	Date
In progress	Requested information	08/01/2023 14:43:44
Accepted	Follow-up ownership accepted	07/27/2023 12:26:21
Started	Follow-up owner assigned	07/27/2023 12:26:19

Comments

Comment about update *08/01/2023 14:43:44*

Created By: Donna Kirkman

Donna Kirkman, Andrew Weinrich, and Michael Warfel are in email contact with Tanner Electric Coop regarding cleanup.

Follow-up owners

Status	Organization	First name	Last name	Is external?	Email	Phone number	Comments
Accepted	WA Ecology	Donna	Kirkman	N	dmus461@ecy.wa.gov	(425) 301-6080	

Program: Spill Prevention, Preparedness & Response - Subject: Oil Spill to Land
Reference ID - 223310

What happened?

Primary activity

Action history

Activity:
Suspected illegal activity

Status	Action	Date
Accepted	Follow-up ownership accepted	07/31/2023 13:12:14
Started	Follow-up owner assigned	07/26/2023 14:32:42

Primary detail

Medium:
Ground - Soil
Source:
Facility - Power generation utility
Substance:
Oil - Mineral oil/Transformer oil
Substance amount: 2800 U.S. gallons

Follow-up owners

Status	Organization	First name	Last name	Is external?	Email	Phone number	Comments
Accepted	WA Ecology	Andy	Quast	N	aqua461@ecy.wa.gov	(360) 927-2237	

Incident attachments

Contact Ecology if you would like a copy of any of these attachments

File name	File description	Section/Reference ID	Date uploaded
RE Update - ERTS 724369 (Tanner Electric) 3.msg	Kirkman to Tanner Electric re TCP cleanup process & GW questions.	Follow-up - 223344	08/01/2023

AVO DIAGNOSTIC SERVICES
3035 PROSPECT PARK DRIVE + RANCHO CORDOVA, CA + 95670
916 455 2284 + 916 455 0191
WWW.AVODIAGNOSTICS.COM

REVISED TEST REPORT
01-7642763-699931-01

SV Electrical Testing

PORT ORCHARD, WA 98367 US
ATTN: SIMME VELDMAN
PO#: 23011
Project ID: 23011
Customer ID: SPARE XFMR

Serial#: 20151400621
Location: LAYDOWN YARD
Equipment: TRANSFORMER
Compartment: MAIN(BOTTOM)
Breathing: SEAL
Bank: 1 **Phase:** 3
Fluid: MIN **USGal:** 2815

Mfr: CG POWER SYSTEM
kV: 115
kVA: 25000
Year Mf'd: 2015
Syringe ID: 81082502
Bottle ID: LAYDOWN
Sampled By: S Veldman

Control#: 7642763
Order#: 699931
Account: 114843
Received: 05/17/2023
Reported: 06/02/2023

	Lab Control Number:	7642763	7473496
	Date Sampled:	05/10/2023	07/27/2021
	Order Number:	699931	658591
	Oil Temp:	18	20
Dissolved Gas Analysis (DGA)	**O2/N2 Ratio:**	0.05	0.05
ASTM	**Transformer Age (yrs):**	8	6
D-3612[1]	**Hydrogen (H2) (µL/L):**	<2	<2
	Methane (CH4) (µL/L):	3	2
	Ethane (C2H6) (µL/L):	<1	<1
	Ethylene (C2H4) (µL/L):	2	1
	Acetylene (C2H2) (µL/L):	<1	<1
	Carbon Monoxide (CO) (µL/L):	65	56
	Carbon Dioxide (CO2) (µL/L):	287	244
	Nitrogen (N2) (µL/L):	84029	72910
	Oxygen (O2) (µL/L):	4079	3609

Dissolved Gas Analysis Diagnostics – IEEE Std C57.104-2019

	Absolute Gas Levels (µL/L)		Gas Level Deltas(µL/L) (2 most recent samples)		Gas Generation Rates (µL/L per yr) (3-6 most recent samples within 4-24 mos.)	
Gas	**Level**	**Diagnostic**	**Delta**	**Diagnostic**	**Rate**	**Diagnostic**
Hydrogen (H2)	<2	Normal (<= 75)	0	Normal Variation (<= 40)		
Methane (CH4)	3	Normal (<= 45)	1	Normal Variation (<= 30)		
Ethane (C2H6)	0	Normal (<= 30)	0	Normal Variation (<= 25)		
Ethylene (C2H4)	2	Normal (<= 20)	1	Normal Variation (<= 20)		
Acetylene (C2H2)	<1	Normal (<= 1)	0	Normal Variation (<= 0)		
Carbon Monoxide (CO)	65	Normal (<= 900)	9	Normal Variation (<= 250)		
Carbon Dioxide (CO2)	287	Normal (<= 5000)	43	Normal Variation (<= 2500)		

DGA Diagnostics **Roger's Ratio**	Diagnostic not applicable - Gas levels normal.
Duval Triangles	Diagnostic not applicable – Triangle 1 gas levels normal. Diagnostic not applicable – Triangle 4 gas levels normal. Diagnostic not applicable – Triangle 5 gas levels normal.
Duval Pentagons	Diagnostic not applicable - Gas levels normal.
Cellulose insulation	CO and CO2 levels are normal. No indication of a fault involving paper.
DGA Status	Status 1 - Normal gas levels and no Indication of gassing. Continue routine DGA and normal transformer operation.
Resampling Protocol	Routine Screening
AVO Resampling Recommendation	Resample within 1 year.

Comment: LARGE BUBBLE IN SYRINGE AS RECEIVED, MAY AFFECT DGA RESULT.

Notations: 1. Analysis is ISO/IEC 17025:2017 accredited, ANAB Accredited Certificate Number L2303.05 2. This test is conducted by a subcontracted laboratory. 3. Subcontracted laboratory has received ISO Standard 17025 accreditation for this test. 5. This test is conducted by AVO Diagnostic Services Laboratory other than Primary Lab. 6. AVO Diagnostic Services Laboratory has received ISO Standard 17025 accreditation for this test. 7. Imported Sample: AVO Diagnostic Services accepts no responsibility for these results; accreditation status does not apply to these results. 8. Imported Equipment 10. mg/kg , µg/g, µg/mL, µL/L = ppm, µg/L = ppb, mN/m = dynes/cm, mm²/s = cSt

AVO DIAGNOSTIC SERVICES
3035 PROSPECT PARK DRIVE + RANCHO CORDOVA, CA + 95670
916 455 2284 + 916 455 0191
WWW.AVODIAGNOSTICS.COM

REVISED TEST REPORT
01-7642763-699931-01

SV Electrical Testing

PORT ORCHARD, WA 98367 US
ATTN: SIMME VELDMAN
PO#: 23011
Project ID: 23011
Customer ID: SPARE XFMR

Serial#: 20151400621
Location: LAYDOWN YARD
Equipment: TRANSFORMER
Compartment: MAIN(BOTTOM)
Breathing: SEAL
Bank: 1 **Phase:** 3
Fluid: MIN **USGal:** 2815

Mfr: CG POWER SYSTEM
kV: 115
kVA: 25000
Year Mf'd: 2015
Syringe ID: 81082502
Bottle ID: LAYDOWN
Sampled By: S Veldman

Control#: 7642763
Order#: 699931
Account: 114843
Received: 05/17/2023
Reported: 06/02/2023

		Lab Control Number:	7642763	7473496
		Date Sampled:	05/10/2023	07/27/2021
		Order Number:	699931	658591
		Oil Temp:	18	20
General Oil Quality (GOQ)				
ASTM D-1533[1]	**Moisture in Oil**	**(mg/kg):**	7	5
ASTM D-971[1]	**Interfacial Tension**	**(mN/m):**	41.34	43.23
ASTM D-974[1]	**Acid Number**	**(mg KOH/g):**	0.005	0.002
ASTM D-1500[1]	**Color Number**	**(ASTM):**	L1.5	L1.5
ASTM D-1524[1]	**Visual Exam.**	**(Relative):**	PASS CLR&BRIGHT	PASS CLR&BRIGHT
ASTM D-1524[1]	**Sediment Exam.**	**(Relative):**	TRACE	TRACE
ASTM D-1816[1]	**Dielectric Breakdown 1 mm**	**(kV °C):**	42 (23 C)	41 (21°C)
ASTM D-924[1]	**Power Factor @ 25°C (Routine)**	**(%):**	0.014	
ASTM D-4052[1]	**Density @15°C**	**(g/mL):**	0.8879	0.8873
ASTM D-2668[5, 6]	**Oxidation Inhibitor**	**(wt. %)**	0.152	

GOQ Diagnostics	**Moisture in Oil:**	Acceptable for in-service oil (25 mg/kg max).
PER IEEE C57.106-2015	**Interfacial Tension:**	Acceptable for in-service oil (30 mN/m min).
(most recent sample)	**Acid Number:**	Acceptable for in-service oil (0.15 mg KOH/g max).
	Color Number and Visual:	Diagnostic not applicable. Diagnostic not applicable.
	Dielectric Breakdown ASTM D-1816:	Acceptable for in-service oil (28 kV min @ 1mm).
	Power Factor @ 25°C (Routine):	Acceptable for in-service oil (0.5% max).
	Oxidation Inhibitor:	Exceeds limit for in-service oil Type I (0.0% min and 0.08% max). Acceptable for in-service oil type II (0.08% min and 0.3% max).

Comment:

End of Test Report

Authorized By: _____
JAWIED ANWAR
SENIOR CHEMIST

Notations: 1. Analysis is ISO/IEC 17025:2017 accredited, ANAB Accredited Certificate Number L2303.05 2. This test is conducted by a subcontracted laboratory. 3. Subcontracted laboratory has received ISO Standard 17025 accreditation for this test. 5. This test is conducted by AVO Diagnostic Services Laboratory other than Primary Lab. 6. AVO Diagnostic Services Laboratory has received ISO Standard 17025 accreditation for this test. 7. Imported Sample: AVO Diagnostic Services accepts no responsibility for these results; accreditation status does not apply to these results. 8. Imported Equipment 10. mg/kg , µg/g, µg/mL, µL/L = ppm, µg/L = ppb, mN/m = dynes/cm, mm²/s = cSt

New Search | Property Tax Bill | Map This Property | Glossary of Terms | Area Report | Print Property Detail

PARCEL DATA

Parcel	142308-9032
Name	TANNER ELECTRIC COOP
Site Address	44711 SE NORTH BEND WAY
Geo Area	95-40
Spec Area	
Property Name	PLEM Co

Jurisdiction	NORTH BEND
Levy Code	1925
Property Type	C
Plat Block / Building Number	
Plat Lot / Unit Number	
Quarter-Section-Township-Range	SE-14-23-8

Legal Description

BEG SW COR OF SE 1/4 TH N 00-21-38 E 1343.38 FT TO SW COR OF NW 1/4 OF SE 1/4 TH S 86-27-49 E 751.15 FT TO E LN OF W 750 FT OF SD SUBD TH N 00-21-38 E 437.47 FT TO NELY MGN OF 100 FT WIDE CHICAGO, MILWAUKEE & ST PAUL RR R/W & TPOB TH CONTG N 00-21-38 E 175.64 FT TO SLY MGN OF 100 FT WIDE ST OF WASH R/W FOR PRIMARY ST HWY NO 2 TH S 63-38-03 E 1201.17 FT TO NLY R/W MGN FOR STATE OF WASH HWY SR 90, ECHO LAKE INTERCHANGE TO TANNER, TH N 77-04-10 W ALG NLY MGN 980.65 FT TO NELY MGN OF CHICAGO, MILWAUKEE & ST PAUL R/W TH N 41-17-42 W ALG SD R/W 184.16 FT TO TPOB
PLat Block:
Plat Lot:

LAND DATA

Click the camera to see more pictures.

Highest & Best Use As If Vacant	COMMERCIAL SERVICE
Highest & Best Use As Improved	(unknown)
Present Use	Vacant(Commercial)
Land SqFt	148,975
Acres	3.42

Percentage Unusable	
Restrictive Size Shape	YES
Zoning	EP-1
Water	WATER DISTRICT
Sewer/Septic	PUBLIC RESTRICTED
Road Access	PUBLIC
Parking	ADEQUATE
Street Surface	PAVED

Views

Rainier	
Territorial	
Olympics	
Cascades	
Seattle Skyline	
Puget Sound	
Lake Washington	
Lake Sammamish	
Lake/River/Creek	
Other View	

Waterfront

Waterfront Location	
Waterfront Footage	0
Lot Depth Factor	0
Waterfront Bank	
Tide/Shore	
Waterfront Restricted Access	
Waterfront Access Rights	NO
Poor Quality	NO
Proximity Influence	NO

Designations

Historic Site	
Current Use	(none)
Nbr Bldg Sites	
Adjacent to Golf Fairway	NO
Adjacent to Greenbelt	NO
Other Designation	NO
Deed Restrictions	NO
Development Rights Purchased	NO
Easements	NO
Native Growth Protection Easement	NO
DNR Lease	NO

Nuisances

Topography	
Traffic Noise	
Airport Noise	
Power Lines	NO
Other Nuisances	NO

Problems

Water Problems	NO
Transportation Concurrency	NO
Other Problems	NO

Environmental

Environmental	NO

BUILDING

Reference Link

- King County Tax Links
- Property Tax Adv
- Washington State Department of Revenue (Externa link)
- Washington State Board of Tax Appeals (External link)
- Board of Appeals/Equaliza
- Districts Report
- iMap
- Recorder's Office

Scanned images surveys and othe map documents

Notice mailing date: 08/03/2023

TAX ROLL HISTORY

Account	Valued Year	Tax Year	Omit Year	Levy Code	Appraised Land Value ($)	Appraised Imps Value ($)	Appraised Total Value ($)	New Dollars ($)	Taxable Land Value ($)	Taxable Imps Value ($)	Taxable Total Value ($)	Tax Value Reason
142308903202	2023	2024		1925	1,787,700	0	1,787,700	0	1,787,700	0	1,787,700	
142308903202	2022	2023		1925	1,340,700	0	1,340,700	0	1,340,700	0	1,340,700	
142308903202	2021	2022		1925	446,900	0	446,900	0	446,900	0	446,900	
142308903202	2020	2021		1925	446,900	0	446,900	0	446,900	0	446,900	
142308903202	2019	2020		1925	446,900	0	446,900	0	446,900	0	446,900	
142308903202	2018	2019		1925	335,100	1,000	336,100	0	335,100	1,000	336,100	
142308903202	2017	2018		1925	335,100	1,000	336,100	0	335,100	1,000	336,100	
142308903202	2016	2017		1925	372,400	1,000	373,400	0	372,400	1,000	373,400	
142308903202	2015	2016		1925	372,400	1,000	373,400	0	372,400	1,000	373,400	
142308903202	2014	2015		1925	521,400	1,000	522,400	0	521,400	1,000	522,400	
142308903202	2013	2014		1925	521,400	1,000	522,400	0	521,400	1,000	522,400	
142308903202	2012	2013		1925	670,300	1,000	671,300	0	670,300	1,000	671,300	
142308903202	2011	2012		1925	670,300	1,000	671,300	0	670,300	1,000	671,300	
142308903202	2010	2011		1925	670,300	1,000	671,300	0	670,300	1,000	671,300	
142308903202	2009	2010		6675	670,300	1,000	671,300	0	670,300	1,000	671,300	
142308903202	2008	2009		6675	558,600	21,000	579,600	0	558,600	21,000	579,600	
142308903202	2007	2008		6675	521,400	1,000	522,400	0	521,400	1,000	522,400	
142308903202	2006	2007		6675	281,500	18,500	300,000	0	281,500	18,500	300,000	
142308903202	2005	2006		6675	297,900	26,700	324,600	0	297,900	26,700	324,600	
142308903202	2004	2005		6675	297,900	1,000	298,900	0	297,900	1,000	298,900	
142308903202	2003	2004		6675	297,900	1,000	298,900	0	297,900	1,000	298,900	
142308903202	2002	2003		6675	186,200	1,000	187,200	0	186,200	1,000	187,200	
142308903202	2001	2002		6675	148,900	1,000	149,900	0	148,900	1,000	149,900	
142308903202	2000	2001		6675	111,700	5,000	116,700	0	111,700	5,000	116,700	
142308903202	1999	2000		6675	111,700	5,000	116,700	0	111,700	5,000	116,700	
142308903202	1998	1999		6675	111,700	5,000	116,700	0	111,700	5,000	116,700	
142308903202	1997	1998		6675	0	0	0	0	100,000	5,000	105,000	
142308903202	1996	1997		6675	0	0	0	0	100,000	5,000	105,000	
142308903202	1994	1995		6675	0	0	0	0	100,000	5,000	105,000	
142308903202	1992	1993		6675	0	0	0	0	68,400	14,000	82,400	
142308903202	1990	1991		6675	0	0	0	0	51,300	14,000	65,300	
142308903202	1988	1989		6675	0	0	0	0	51,300	14,000	65,300	
142308903202	1986	1987		6675	0	0	0	0	44,400	14,000	58,400	
142308903202	1985	1986		6675	0	0	0	0	24,600	14,000	38,600	
142308903202	1984	1985		6675	0	0	0	0	15,600	14,000	29,600	
142308903202	1982	1983		6675	0	0	0	0	8,200	15,000	23,200	

SALES HISTORY

Excise Number	Recording Number	Document Date	Sale Price	Seller Name	Buyer Name	Instrument	Sale Reason
2709150	20150108001612	1/6/2015	$350,000.00	ANDERSON KATHLEEN R MOON+ANDERSON VICTOR ALLEN+RUSSELL DEAN	TANNER ELECTRIC COOPERATIVE	Statutory Warranty Deed	Estate Settlement
1671116	199903051700	2/11/1999	$0.00	ANDERSON RUTH V	ANDERSON VICTOR A ET AL	Quit Claim Deed	Partial Interest (love and affection, gift)

REVIEW HISTORY

PERMIT HISTORY

HOME IMPROVEMENT EXEMPTION

New Search | Property Tax Bill | Map This Property | Glossary of Terms | Area Report | Print Property Detail

Tanner Electric Cooperative
PO Box 1426
North Bend, WA 98045

Attention: Nick Himebauch

Subject: Pilot Infiltration Test Results / Design Infiltration Rate
Middle Fork Substation

Mr. Himebauch:

The purpose of this letter is to present the results from our recent infiltration testing on the subject property. We have determined that a design infiltration rate of ***27 inches per hour*** should be used for receptor soils on the subject property that are 4 feet below the ground surface or greater. For the sake of brevity, this letter will assume that readers are familiar with the subject property and the proposed development.

Summary of Subsurface Exploration and Geology
The referenced geotechnical site investigation for the proposed development (Columbia West Engineering, Inc., October 9, 2014) was provided for our review prior to our fieldwork. We agree with the geologic classification of the native soils as Quaternary-age alluvial sediments and the resulting design recommendations and conclusions set forth in this report.

Reason for Additional Study/Testing
A falling head infiltration test was performed for the referenced geotechnical investigation, but this test was performed at a depth of approximately 3 feet below the ground surface. Based on our extensive nearby project experience, we anticipated that the coarser-grained sediments encountered at greater depths would have higher measured infiltration rates. After corresponding with Bob Carpenter, PE, the project civil engineer, additional deeper infiltration testing was requested, and South Fork Geosciences was authorized by Tanner Electric Cooperative to perform the additional testing.

Subsurface Exploration and Infiltration Testing Performed
South Fork Geosciences was onsite on March 8, 2019 to perform the infiltration testing. The excavations were made with a Cat 312D track mounted excavator and the water for the infiltration test was provided by a 5,000-gallon water truck, both provided by Northwest Excavation and Trucking Co., Inc. Two soil exploration pits were excavated and two pilot infiltration test (PIT) were performed on the subject property. The pilot infiltration test is a constant head infiltration test and the procedure is set forth in the referenced Department of Ecology Stormwater Manual. The locations of the soil explorations and tests and the associated soil logs are attached to this letter. We interpreted the native soils as Quaternary alluvial sediments. Our interpretation agrees with the referenced geologic mapping (Booth et al, 2007, and Dragovich et al, 2009) and the referenced geotechnical investigation.

Measured Infiltration Rate

As previously stated, two small-scale pilot infiltration tests (PIT) were performed in accordance with the procedure set forth in the referenced DOE Manual. The locations and soil logs of the exploration pits/infiltration tests are attached to this letter. The results of the infiltration tests are shown in the table below:

Test # & Depth	Basal Area (ft^2)	Flow rate at end of test (gal/min)	Measured Rate (in/hr)
IT-1 – -6ft	28	18.7	**64.3 in/hr**
IT-2 – -6ft	24	10.5	**42.1 in/hr**
		Average Rate	**53.2 in/hr**

Design Infiltration Rate

The average measured rate of 53.2 inches per hour does not have factors of safety applied. In Section 5.4.1 (Design Infiltration Rate) of the 2009 King County Surface Water Design Manual, there is a "Simplified Method" set forth for determining a design infiltration rate by applying some coefficients or factors of safety for the testing method, facility geometry and the soils. This is set forth by the following equation, and we have determined the values by using the criteria in the section. We have shown the equation below, along with the values used:

$$I_{design} = I_{measured} \times F_{testing} \times F_{geometry} \times F_{plugging}$$

Where,

$F_{testing}$ = 0.5 for Pilot Infiltration Test
$F_{geometry}$ = 1 for bioswale/infiltration trench
$F_{plugging}$ = 1 for coarse sands or cobbles

$$I_{design} = I_{measured} \times 0.5$$

$$I_{design} = 53.2 \text{ in/hr} \times 0.5$$

I_{design} **= 27 inches per hour** (26.6 rounded to nearest whole number)

Groundwater Level Measurements/Seasonal High Groundwater Level

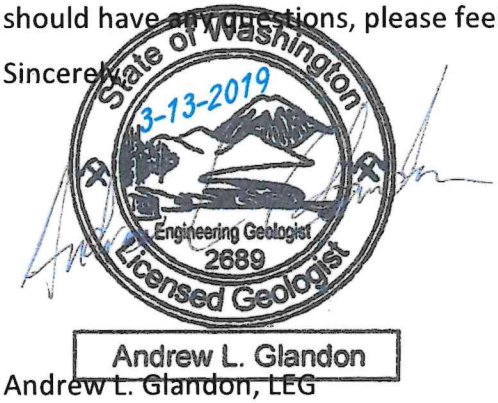
Based on our correspondence with Bob Carpenter, the project civil engineer, it is our understanding that the City of North Bend staff is concerned that high groundwater may affect the infiltration facilities. Though high groundwater and flooding occur frequently in other parts of North Bend, this area is not in a floodplain-type geologic setting, as the nearby Middle Fork of the Snoqualmie River has down cut into the alluvial sediments and the river elevation near the project site is well below the project ground elevation.

At 09:37 on March 8, 2019 the water level in the well was 31.09 feet below the ground surface/below top of casing. This water level was within the previous measured range. Though there is a pump and pipe installed in this well, we did not observe an electrical connection and according to Tanner Electric Cooperative representatives the well was inactive. Based on our review of the water level measurements and our knowledge of the local hydrogeologic setting, it is our opinion that the seasonal high groundwater water level is greater than 20 feet below the ground surface at the subject property. As such, the base level of all infiltration facilities will easily be 3 feet above the seasonal high groundwater level, as required by the KCSWDM.

Closure

We trust that this information will aid in the design and permitting of your project. If you should have any questions, please feel free to contact us.

Sincerely,



Andrew L. Glandon, LEG
Engineering Geologist / Owner
South Fork Geosciences, PLLC

Attachments: Exploration Pit/Infiltration Test Locations
Exploration Pit/Infiltration Test Soil Logs
Water Table Measurements

References:

"Geotechnical Site Investigation, Middle Fork Substation, North Bend, Washington, October 9, 2014", Columbia West Engineering, Inc., Project #14227

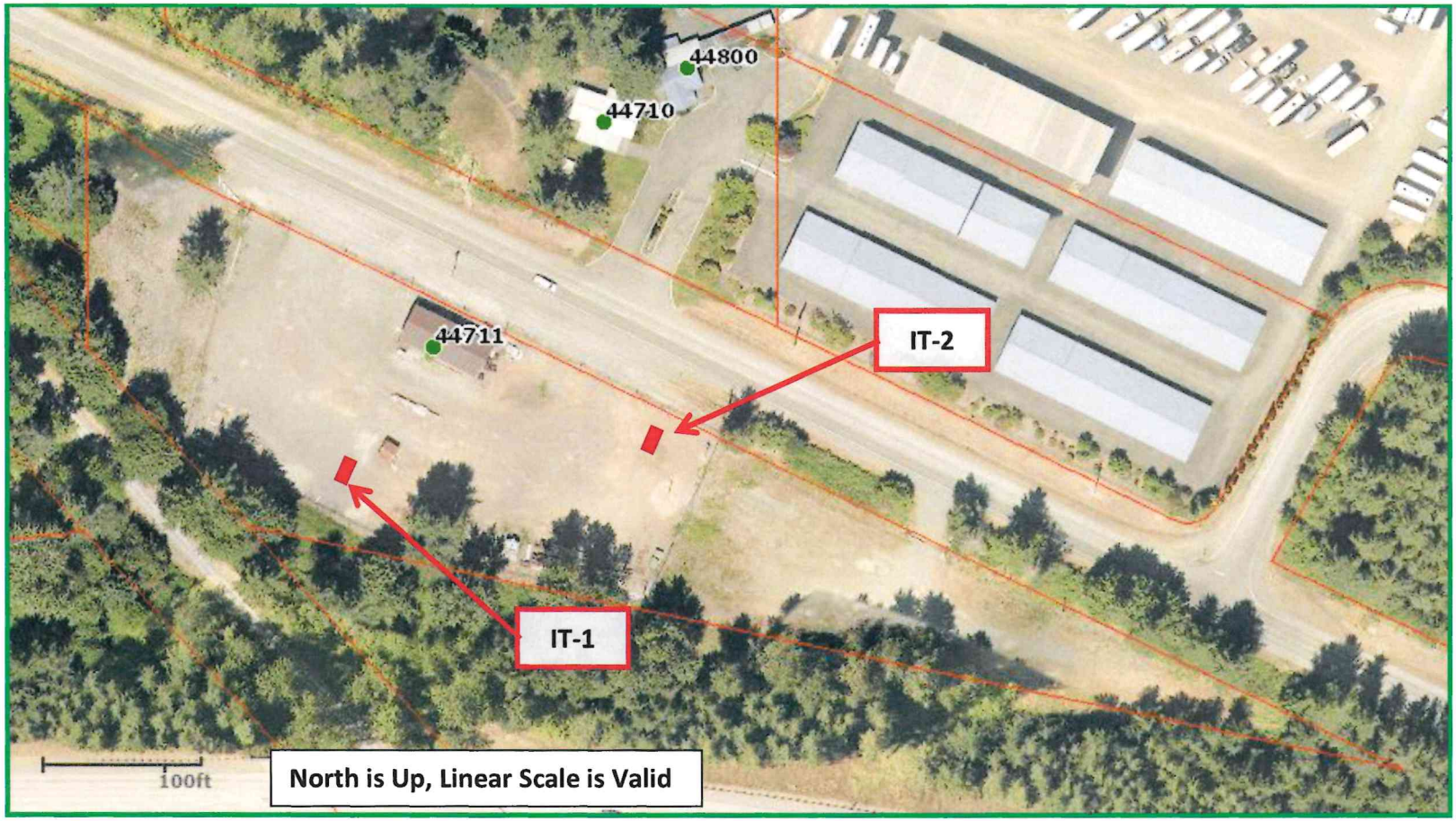
"Geologic Map of King County" Compiled by Derek B. Booth, Kathy A. Troost & Aaron P. Wisher, March 2007

Dragovich, Joe D., Timothy J. Walsh, Megan L. Anderson, Renate Hartog, S. Andrew DuFrane,

Jeff Vervoot, Stephanie A. Williams, Recep Cakir, Kelsay Davis Stanton, Fritz E. Wolff, David K. Norman, and Jessica L. Czajkowski, Geologic Map of the North Bend 7.5-minute Quadrangle, King County, Washington, with a discussion of Major Faults, Folds, and Basins in the Map Area, Washington State Dept. of Natural Resources, Division of Geology and Earth Resources, 2009.

"2012 Stormwater Management Manual for Western Washington", as Amended in December 2014, Publication Number 14-10-055, Washington State Department of Ecology

"Surface Water Design Manual, King County", Department of Natural Resources and Parks, January 9, 2009



Source: King County iMap

Exploration Pit/Infiltration Test Locations

Exploration Pit/Infiltration Test Soil Logs

IT-1 3-8-2019

0-4in – Crushed rock surfacing [Fill]

4in-2ft – medium dense, moist, brown-gray GRAVEL with fine to coarse sand (GW) [Fill]

2-3ft – medium dense, damp to moist, light brown fine to coarse SAND with gravel (SW) [Quaternary Alluvium]

3-6ft – medium dense to dense, damp, brown-gray GRAVEL with medium to coarse sand, cobbles and boulders present (GW) [Quaternary Alluvium]

6-10ft – medium dense to dense, wet (due to testing), brown-gray GRAVEL with medium to coarse sand, cobbles and boulders present (GW) [Quaternary Alluvium]

Total Depth = 10 feet

Small Scale Pilot Infiltration Test performed at 6ft bgs, excavated to 10ft after test performed

No groundwater seepage observed, no signs of past high groundwater observed, minor caving observed due to non-cohesive soils

IT-2 3-8-2019

0-4in – Crushed rock surfacing [Fill]

4in-2ft – medium dense, damp to moist, brown-gray GRAVEL with fine to coarse sand (GW) [Fill]

2-6ft – medium dense, damp to moist, light brown to brown-gray GRAVEL with medium to coarse sand, cobbles and boulders present (GW) [Quaternary Alluvium]

6-11ft – medium dense to dense, wet (due to testing), brown-gray GRAVEL with medium to coarse sand, cobbles and boulders present (GW) [Quaternary Alluvium]

- Increased cobbles/boulders 8-11 feet

Total Depth = 11 feet

Small Scale Pilot Infiltration Test performed at 6ft bgs, excavated to 11ft after test performed

No groundwater seepage observed, no signs of past high groundwater observed, minor caving observed due to non-cohesive soils

Water Table Measurements

The measurements in the table below were provided to us via email by Bob Carpenter on Novemebr 1, 2018.

Onsite monitoring of water table depth was conducted monthly starting in January 2017 to January 2018 with the highest water table elevation recorded at 23 ft below ground surface in the month of April. The onsite well shaft that has not been in service for many years and has no pump was used by lowering a float and measuring depth to water surface.

Jan 25, 2017	-	33' bgs (below ground surface)
Feb 22	-	28'
Mar 23	-	24'
April 25	**-**	**23'**
May 23	-	30'
June 15	-	30'
July 19	-	32'
Aug 16	-	31'
Sep 25	-	31'
Oct 23	-	33'
Nov 15	-	37
Dec 13	-	32.5'
Jan 9, 2018	-	27.6'

While onsite on March 8, 2019 we measured the water level in the well.
At 09:37 on March 8, 2019 the water level in the well was 31.09 feet below the ground surface/below top of casing.

Detail Contract Activity Report

All Ticket Types
History and Waiting
* - Confirmed Qty Applied to Billing

July 01, 2023 to August 22, 2023
Specific Contract(s) : 'TB-11079'

All Facilities

TB-11079

Ticket Date	Facility & Ticket Number	Customer	Truck	Material	Contract Rate	Billing Quantity	Ordered Quantity	Minimum Quantity	Maximum Quantity	Material Total	Tax Total	Total
08/03/2023 I	01 1015771	015343 - NRC Environmental Services	31 L&D	SW-CONT SOIL	66.00 F	32.07 TN	0.00	$0.00	$0.00	$2,116.62	$0.00	$2,116.62
08/03/2023 I	01 1015773	015343 - NRC Environmental Services	01 MLC	SW-CONT SOIL	66.00 F	28.32 TN	0.00	$0.00	$0.00	$1,869.12	$0.00	$1,869.12
08/03/2023 I	01 1015776	015343 - NRC Environmental Services	31 L&D	SW-CONT SOIL	66.00 F	33.54 TN	0.00	$0.00	$0.00	$2,213.64	$0.00	$2,213.64
08/03/2023 I	01 1015777	015343 - NRC Environmental Services	22254 US I	SW-CONT SOIL	66.00 F	32.96 TN	0.00	$0.00	$0.00	$2,175.36	$0.00	$2,175.36
08/03/2023 I	01 1015778	015343 - NRC Environmental Services	31 L&D	SW-CONT SOIL	66.00 F	31.61 TN	0.00	$0.00	$0.00	$2,086.26	$0.00	$2,086.26
08/03/2023 I	01 1015779	015343 - NRC Environmental Services	01 MLC	SW-CONT SOIL	66.00 F	35.22 TN	0.00	$0.00	$0.00	$2,324.52	$0.00	$2,324.52
08/04/2023 I	01 1015783	015343 - NRC Environmental Services	31 L&D	SW-CONT SOIL	66.00 F	32.03 TN	0.00	$0.00	$0.00	$2,113.98	$0.00	$2,113.98
08/04/2023 I	01 1015785	015343 - NRC Environmental Services	01 MLC	SW-CONT SOIL	66.00 F	35.33 TN	0.00	$0.00	$0.00	$2,331.78	$0.00	$2,331.78
08/04/2023 I	01 1015786	015343 - NRC Environmental Services	35 MATERI	SW-CONT SOIL	66.00 F	32.60 TN	0.00	$0.00	$0.00	$2,151.60	$0.00	$2,151.60
08/04/2023 I	01 1015788	015343 - NRC Environmental Services	31 L&D	SW-CONT SOIL	66.00 F	32.38 TN	0.00	$0.00	$0.00	$2,137.08	$0.00	$2,137.08
08/04/2023 I	01 1015789	015343 - NRC Environmental Services	01 MLC	SW-CONT SOIL	66.00 F	34.46 TN	0.00	$0.00	$0.00	$2,274.36	$0.00	$2,274.36
08/04/2023 I	01 1015791	015343 - NRC Environmental Services	35 MATERI	SW-CONT SOIL	66.00 F	27.71 TN	0.00	$0.00	$0.00	$1,828.86	$0.00	$1,828.86
08/04/2023 I	01 1015797	015343 - NRC Environmental Services	31 L&D	SW-CONT SOIL	66.00 F	31.47 TN	0.00	$0.00	$0.00	$2,077.02	$0.00	$2,077.02
08/04/2023 I	01 1015800	015343 - NRC Environmental Services	01 MLC	SW-CONT SOIL	66.00 F	33.58 TN	0.00	$0.00	$0.00	$2,216.28	$0.00	$2,216.28
08/04/2023 I	01 1015804	015343 - NRC Environmental Services	35 MATERI	SW-CONT SOIL	66.00 F	30.23 TN	0.00	$0.00	$0.00	$1,995.18	$0.00	$1,995.18
08/04/2023 I	01 1015806	015343 - NRC Environmental Services	31 L&D	SW-CONT SOIL	66.00 F	32.17 TN	0.00	$0.00	$0.00	$2,123.22	$0.00	$2,123.22
08/04/2023 I	01 1015807	015343 - NRC Environmental Services	01 MLC	SW-CONT SOIL	66.00 F	31.98 TN	0.00	$0.00	$0.00	$2,110.68	$0.00	$2,110.68
08/07/2023 I	01 1015814	015343 - NRC Environmental Services	01 MLC	SW-CONT SOIL	66.00 F	31.05 TN	0.00	$0.00	$0.00	$2,049.30	$0.00	$2,049.30
08/07/2023 I	01 1015817	015343 - NRC Environmental Services	121 K&A	SW-CONT SOIL	66.00 F	34.72 TN	0.00	$0.00	$0.00	$2,291.52	$0.00	$2,291.52
08/07/2023 I	01 1015819	015343 - NRC Environmental Services	24 NW SAI	SW-CONT SOIL	66.00 F	34.51 TN	0.00	$0.00	$0.00	$2,277.66	$0.00	$2,277.66
08/07/2023 I	01 1015820	015343 - NRC Environmental Services	31 L&D	SW-CONT SOIL	66.00 F	34.22 TN	0.00	$0.00	$0.00	$2,258.52	$0.00	$2,258.52
08/07/2023 I	01 1015822	015343 - NRC Environmental Services	35 MATERI	SW-CONT SOIL	66.00 F	28.68 TN	0.00	$0.00	$0.00	$1,892.88	$0.00	$1,892.88
08/07/2023 I	01 1015826	015343 - NRC Environmental Services	121 K&A	SW-CONT SOIL	66.00 F	33.01 TN	0.00	$0.00	$0.00	$2,178.66	$0.00	$2,178.66
08/07/2023 I	01 1015829	015343 - NRC Environmental Services	24 NW SAI	SW-CONT SOIL	66.00 F	30.80 TN	0.00	$0.00	$0.00	$2,032.80	$0.00	$2,032.80
08/07/2023 I	01 1015832	015343 - NRC Environmental Services	31 L&D	SW-CONT SOIL	66.00 F	32.39 TN	0.00	$0.00	$0.00	$2,137.74	$0.00	$2,137.74
08/07/2023 I	01 1015833	015343 - NRC Environmental Services	35 MATERI	SW-CONT SOIL	66.00 F	28.19 TN	0.00	$0.00	$0.00	$1,860.54	$0.00	$1,860.54
08/07/2023 I	01 1015836	015343 - NRC Environmental Services	121 K&A	SW-CONT SOIL	66.00 F	33.69 TN	0.00	$0.00	$0.00	$2,223.54	$0.00	$2,223.54
08/07/2023 I	01 1015837	015343 - NRC Environmental Services	24 NW SAI	SW-CONT SOIL	66.00 F	32.17 TN	0.00	$0.00	$0.00	$2,123.22	$0.00	$2,123.22
08/07/2023 I	01 1015839	015343 - NRC Environmental Services	31 L&D	SW-CONT SOIL	66.00 F	34.15 TN	0.00	$0.00	$0.00	$2,253.90	$0.00	$2,253.90
08/07/2023 I	01 1015842	015343 - NRC Environmental Services	35 MATERI	SW-CONT SOIL	66.00 F	32.33 TN	0.00	$0.00	$0.00	$2,133.78	$0.00	$2,133.78
08/07/2023 I	01 1015847	015343 - NRC Environmental Services	121 K&A	SW-CONT SOIL	66.00 F	32.59 TN	0.00	$0.00	$0.00	$2,150.94	$0.00	$2,150.94
08/07/2023 I	01 1015850	015343 - NRC Environmental Services	31 L&D	SW-CONT SOIL	66.00 F	33.39 TN	0.00	$0.00	$0.00	$2,203.74	$0.00	$2,203.74
08/08/2023 I	01 1015859	015343 - NRC Environmental Services	24 NW SAI	SW-CONT SOIL	66.00 F	28.02 TN	0.00	$0.00	$0.00	$1,849.32	$0.00	$1,849.32
08/08/2023 I	01 1015860	015343 - NRC Environmental Services	31 L&D	SW-CONT SOIL	66.00 F	32.83 TN	0.00	$0.00	$0.00	$2,166.78	$0.00	$2,166.78
08/08/2023 I	01 1015863	015343 - NRC Environmental Services	01 MLC	SW-CONT SOIL	66.00 F	34.29 TN	0.00	$0.00	$0.00	$2,263.14	$0.00	$2,263.14
08/08/2023 I	01 1015864	015343 - NRC Environmental Services	23 N.W.SA	SW-CONT SOIL	66.00 F	28.45 TN	0.00	$0.00	$0.00	$1,877.70	$0.00	$1,877.70
08/08/2023 I	01 1015867	015343 - NRC Environmental Services	24 NW SAI	SW-CONT SOIL	66.00 F	29.15 TN	0.00	$0.00	$0.00	$1,923.90	$0.00	$1,923.90
08/08/2023 I	01 1015868	015343 - NRC Environmental Services	31 L&D	SW-CONT SOIL	66.00 F	32.82 TN	0.00	$0.00	$0.00	$2,166.12	$0.00	$2,166.12

Detail Contract Activity Report

All Ticket Types | July 01, 2023 to August 22, 2023 | All Facilities

History and Waiting | Specific Contract(s) : 'TB-11079'

* - Confirmed Qty Applied to Billing

08/08/2023	I	01	1015870	015343 - NRC Environmental Service:	01 MLC	SW-CONT SOIL	66.00	F	35.21	TN	0.00	$0.00	$0.00	$2,323.86	$0.00	$2,323.86
08/08/2023	I	01	1015872	015343 - NRC Environmental Service:	23 N.W.SA	SW-CONT SOIL	66.00	F	28.59	TN	0.00	$0.00	$0.00	$1,886.94	$0.00	$1,886.94
08/08/2023	I	01	1015873	015343 - NRC Environmental Service:	24 NW SAI	SW-CONT SOIL	66.00	F	31.69	TN	0.00	$0.00	$0.00	$2,091.54	$0.00	$2,091.54
08/08/2023	I	01	1015876	015343 - NRC Environmental Service:	31 L&D	SW-CONT SOIL	66.00	F	33.14	TN	0.00	$0.00	$0.00	$2,187.24	$0.00	$2,187.24
08/08/2023	I	01	1015877	015343 - NRC Environmental Service:	23 N.W.SA	SW-CONT SOIL	66.00	F	34.49	TN	0.00	$0.00	$0.00	$2,276.34	$0.00	$2,276.34
08/09/2023	I	01	1015941	015343 - NRC Environmental Service:	31 L&D	SW-CONT SOIL	66.00	F	32.37	TN	0.00	$0.00	$0.00	$2,136.42	$0.00	$2,136.42
08/11/2023	I	01	1016026	015343 - NRC Environmental Service:	121 K&A	SW-CONT SOIL	66.00	F	32.51	TN	0.00	$0.00	$0.00	$2,145.66	$0.00	$2,145.66
08/11/2023	I	01	1016029	015343 - NRC Environmental Service:	24 NW SAI	SW-CONT SOIL	66.00	F	31.95	TN	0.00	$0.00	$0.00	$2,108.70	$0.00	$2,108.70
08/11/2023	I	01	1016031	015343 - NRC Environmental Service:	23 N.W.SA	SW-CONT SOIL	66.00	F	32.11	TN	0.00	$0.00	$0.00	$2,119.26	$0.00	$2,119.26
08/11/2023	I	01	1016034	015343 - NRC Environmental Service:	31 L&D	SW-CONT SOIL	66.00	F	32.64	TN	0.00	$0.00	$0.00	$2,154.24	$0.00	$2,154.24
08/11/2023	I	01	1016039	015343 - NRC Environmental Service:	121 K&A	SW-CONT SOIL	66.00	F	36.70	TN	0.00	$0.00	$0.00	$2,422.20	$0.00	$2,422.20
08/11/2023	I	01	1016040	015343 - NRC Environmental Service:	24 NW SAI	SW-CONT SOIL	66.00	F	36.47	TN	0.00	$0.00	$0.00	$2,407.02	$0.00	$2,407.02
08/11/2023	I	01	1016041	015343 - NRC Environmental Service:	23 N.W.SA	SW-CONT SOIL	66.00	F	33.15	TN	0.00	$0.00	$0.00	$2,187.90	$0.00	$2,187.90
08/11/2023	I	01	1016046	015343 - NRC Environmental Service:	31 L&D	SW-CONT SOIL	66.00	F	31.85	TN	0.00	$0.00	$0.00	$2,102.10	$0.00	$2,102.10
08/11/2023	I	01	1016050	015343 - NRC Environmental Service:	121 K&A	SW-CONT SOIL	66.00	F	36.75	TN	0.00	$0.00	$0.00	$2,425.50	$0.00	$2,425.50
08/11/2023	I	01	1016054	015343 - NRC Environmental Service:	24 NW SAI	SW-CONT SOIL	66.00	F	30.11	TN	0.00	$0.00	$0.00	$1,987.26	$0.00	$1,987.26
08/11/2023	I	01	1016056	015343 - NRC Environmental Service:	23 N.W.SA	SW-CONT SOIL	66.00	F	30.93	TN	0.00	$0.00	$0.00	$2,041.38	$0.00	$2,041.38
08/11/2023	I	01	1016060	015343 - NRC Environmental Service:	31 L&D	SW-CONT SOIL	66.00	F	33.59	TN	0.00	$0.00	$0.00	$2,216.94	$0.00	$2,216.94
08/14/2023	I	01	1016091	015343 - NRC Environmental Service:	01 MLC	SW-CONT SOIL	66.00	F	34.33	TN	0.00	$0.00	$0.00	$2,265.78	$0.00	$2,265.78
08/14/2023	I	01	1016092	015343 - NRC Environmental Service:	23 N.W.SA	SW-CONT SOIL	66.00	F	33.44	TN	0.00	$0.00	$0.00	$2,207.04	$0.00	$2,207.04
08/14/2023	I	01	1016096	015343 - NRC Environmental Service:	121 K&A	SW-CONT SOIL	66.00	F	33.83	TN	0.00	$0.00	$0.00	$2,232.78	$0.00	$2,232.78
08/14/2023	I	01	1016098	015343 - NRC Environmental Service:	24 NW SAI	SW-CONT SOIL	66.00	F	35.48	TN	0.00	$0.00	$0.00	$2,341.68	$0.00	$2,341.68
08/14/2023	I	01	1016103	015343 - NRC Environmental Service:	01 MLC	SW-CONT SOIL	66.00	F	36.97	TN	0.00	$0.00	$0.00	$2,440.02	$0.00	$2,440.02
08/14/2023	I	01	1016105	015343 - NRC Environmental Service:	23 N.W.SA	SW-CONT SOIL	66.00	F	32.48	TN	0.00	$0.00	$0.00	$2,143.68	$0.00	$2,143.68
08/14/2023	I	01	1016109	015343 - NRC Environmental Service:	121 K&A	SW-CONT SOIL	66.00	F	35.81	TN	0.00	$0.00	$0.00	$2,363.46	$0.00	$2,363.46
08/14/2023	I	01	1016118	015343 - NRC Environmental Service:	24 NW SAI	SW-CONT SOIL	66.00	F	32.82	TN	0.00	$0.00	$0.00	$2,166.12	$0.00	$2,166.12
08/16/2023	I	01	1016243	015343 - NRC Environmental Service:	121 K&A	SW-CONT SOIL	66.00	F	35.52	TN	0.00	$0.00	$0.00	$2,344.32	$0.00	$2,344.32
08/16/2023	I	01	1016259	015343 - NRC Environmental Service:	121 K&A	SW-CONT SOIL	66.00	F	31.30	TN	0.00	$0.00	$0.00	$2,065.80	$0.00	$2,065.80
08/16/2023	I	01	1016279	015343 - NRC Environmental Service:	121 K&A	SW-CONT SOIL	66.00	F	33.05	TN	0.00	$0.00	$0.00	$2,181.30	$0.00	$2,181.30
08/21/2023	I	01	1016446	015343 - NRC Environmental Service:	2188 US E(	SW-CONT SOIL	66.00	F	36.26	TN	0.00	$0.00	$0.00	$2,393.16	$0.00	$2,393.16

Tickets Reported: 68 Items Reported: 68 Contract Totals: $146,826.90 $0.00 $146,826.90

Material Summary	Weight Inbound	Weight Outbound		Volume Inbound	Volume Outbound		Count Inbound	Count Outbound	Billing Quantity	Material Total	Tax Total	Total
VG - SW-CONT SOIL	2,224.65	0.00	TN	0.00	0.00	YD	0.00	0.00	2,224.65 TN	$146,826.90	$0.00	$146,826.90

				Cash Totals:	$0.00	$0.00	$0.00
				Invoice Totals:	$146,826.90	$0.00	$146,826.90
Tickets Reported:	68	Items Reported:	68	Report Totals:	$146,826.90	$0.00	$146,826.90

Appendix B

Photographs

Photograph 1:

Transformer Manufacture's Placard

Photograph 2:

Transformer Placard Near Drain

Photograph 3:

View of release area prior to remedial excavation

Photograph 4:

View of remedial excavation looking southeast

Photograph 5:

View of excavation from land surface toward the south (WSDOT right-of-way in the background)

Photograph 6:

View of excavation looking up toward the northwest (note; typical alluvial materials)

Appendix C

Laboratory Reports

Libby Environmental, Inc.

3322 South Bay Road NE • Olympia, WA 98506-2957

Phone (360) 352-2110 • libbyenv@gmail.com

August 14, 2023

Max Wills
Robinson Noble, Inc.
17625 130th Avenue NE, Suite 102
Woodinville, WA 98072

RE: North Bend Transformer Spill
Work Order Number: L23H033

Enclosed are the results of analyses for samples received by our laboratory on 8/10/2023.

Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of within 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please feel free to contact us. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry Chilcutt
Senior Chemist

L23H033

Libby Environmental, Inc.

4139 Libby Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Chain of Custody Record

Date: 8/8/2023 Page: 1 of 1

Client: Robinson Noble
Address: 17625 130th Ave NE, Woodinville, WA
Phone: 425 488 0599 Fax:
Client Project # W105.001.001

Project Manager: Max Wiles
Project Name: North Bend Transformer Spill
Location: 44801 SE N Bend Way City: North Bend, WA
Collector: RWCM Date of Collection: 8/8/23

	Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	NWTPH-HCID	NWTPH-Gx	NWTPH-Dx	NWTPH-Dx Ext.	PAH 8270	PCB's 8082	MTCA 5 Metals	Arsenic Only	Field Notes
1	SS1-21	21'	930	Soil	Jar													8/9/23
2	SS2-2	2'	1030															
3	SS3-6	6'	1035															
4	SS4-14	14'	9:10													X		8/10/23
5	SS5-14	14'	9:00													X		
6	SS6-13	13	1030													X		
7	SS7-13	13	1035													X		
8	SP-1	-	1040													X		
9	SS8-21	21	11:40													X		
10	SS9-15	15	1145													X		
11	SS10-15	15	1150													X		
12	SS11-6	6	1240													X		
13	SS12-6	6	1241													X		
14	SS13-6	6	1242													X		
15	SS14-6	6	1244													X		
16	SS15-6	6	1245													X		
17	SS16-6	6	1250													X		
18																		

Relinquished by:	Date / Time	Received by:	Date / Time
[signature]	8/10/23 14:18	[signature] Paul Bath	8/10/23 14:18
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt:

Good Condition?	
Cold?	
Seals Intact?	
Total Number of Containers	

Remarks: EIM

Distribution: White - Lab, Yellow - File, Pink - Originator

Libby Environmental, Inc.

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Notes and Definitions

Item	Definition
F	High concentration of co-eluting target compounds interfering with surrogate recovery. Outlying surrogate recoveries expected.
RL	Reporting Limit
ND	Analyte NOT DETECTED at or above the reporting limit
DET	Analyte DETECTED at or above the reporting limit
Qual	Qualifier
	All results reported on an "as received" basis unless indicated by "Dry"
RPD	Relative Percent Difference
%REC	Percent Recovery
Parent	Sample that was matrix spiked or duplicated

Work Order Sample Summary

Lab ID	Sample	Matrix	Date Sampled	Date Received
L23H033-01	SS1-21	Soil	08/09/2023	08/10/2023
L23H033-02	SS2-2	Soil	08/09/2023	08/10/2023
L23H033-03	SS3-6	Soil	08/09/2023	08/10/2023
L23H033-04	SS4-14	Soil	08/10/2023	08/10/2023
L23H033-05	SS5-14	Soil	08/10/2023	08/10/2023
L23H033-06	SS6-13	Soil	08/10/2023	08/10/2023
L23H033-07	SS7-13	Soil	08/10/2023	08/10/2023
L23H033-08	SP-1	Soil	08/10/2023	08/10/2023
L23H033-09	SS8-21	Soil	08/10/2023	08/10/2023
L23H033-10	SS9-15	Soil	08/10/2023	08/10/2023
L23H033-11	SS10-15	Soil	08/10/2023	08/10/2023
L23H033-12	SS11-6	Soil	08/10/2023	08/10/2023
L23H033-13	SS12-6	Soil	08/10/2023	08/10/2023
L23H033-14	SS13-6	Soil	08/10/2023	08/10/2023
L23H033-15	SS14-6	Soil	08/10/2023	08/10/2023
L23H033-16	SS15-6	Soil	08/10/2023	08/10/2023
L23H033-17	SS16-6	Soil	08/10/2023	08/10/2023

Electric and Robinson Noble/Terraphase Engineering dated August 5, 2023. The statements and conclusions provided in this report are based on generally accepted geologic and environmental practices. Some information referenced in this report was provided by outside sources, which are presumed to be fully accurate. Unless specifically stated in this report, no warranty, expressed or implied, is made.

5 References

Tabor, R.W., Frizzell Jr., V.A., Booth, D.B., and Waitt, R.B, 2000; Geologic Map of the Snoqualmie Pass 30x60 min. Quadrangle, Washington, USGS Geologic Investigations Series, Map I-2538.

Washington State Department of Ecology, Toxics Cleanup Program and The Ecology Environmental Laboratory, Analytical Methods for Petroleum Hydrocarbons, June 1997, Publication No. ECY 97-602.

Washinton State Department of Ecology, Toxics Cleanup Program, Model Toxics Control Act Cleanup Regulation and Statute, Chapter 173-340 WAC (Chapter 70.105D RCW), amended February 2001, Publication No. 94-06.

Washington State Department of Ecology, Toxics Cleanup Program, Guidance for Remediation of Petroleum Contaminated Sites, Revised June 2016, Publication No. 10-09-057.

Washington State Department of Ecology, Toxics Cleanup Program, Cleanup Levels and Risk Calculations (CLARC II), updated July 2022, Publication No. 94-145.

Libby Environmental, Inc.

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Libby Environmental Sample Detection Summary

Analyte	Result	Qual	Units	RL	Method
Sample: **SS1-21**			Lab#: L23H033-01		
Mineral Oil	2300		mg/kg dry	110	NWTPH-Dx/Dx
Sample: **SS2-2**			Lab#: L23H033-02		
Mineral Oil	4700		mg/kg dry	330	NWTPH-Dx/Dx
Sample: **SS3-6**			Lab#: L23H033-03		
Mineral Oil	14000		mg/kg dry	320	NWTPH-Dx/Dx
Sample: **SS4-14**			Lab#: L23H033-04		
Mineral Oil	1100		mg/kg dry	110	NWTPH-Dx/Dx
Sample: **SS8-21**			Lab#: L23H033-09		
Mineral Oil	5100		mg/kg dry	110	NWTPH-Dx/Dx
Sample: **SS9-15**			Lab#: L23H033-10		
Mineral Oil	1900		mg/kg dry	100	NWTPH-Dx/Dx

Note: If no entry is made, then no target compounds were detected.

Robinson Noble, Inc.
17625 130th Avenue NE, Suite 102
Woodinville, WA 98072

Project: North Bend Transformer Spill
Project Number: W105.001.001
Project Manager: Max Wills

City/State: North Bend, WA
Work Order: L23H033
Reported: 08/14/2023 13:09

Sample Results

Client Sample ID: SS1-21

Lab ID: L23H033-01 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	2300		110	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*130%*	*F*	*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	9.1		0.50	%	08/11/2023	SG

Robinson Noble, Inc.
17625 130th Avenue NE, Suite 102
Woodinville, WA 98072

Project: North Bend Transformer Spill
Project Number: W105.001.001
Project Manager: Max Wills

City/State: North Bend, WA
Work Order: L23H033
Reported: 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS2-2

Lab ID: L23H033-02 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	4700		330	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*150%*	*F*	*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	9.8		0.50	%	08/11/2023	SG

Robinson Noble, Inc.
17625 130th Avenue NE, Suite 102
Woodinville, WA 98072

Project: North Bend Transformer Spill
Project Number: W105.001.001
Project Manager: Max Wills

City/State: North Bend, WA
Work Order: L23H033
Reported: 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS3-6

Lab ID: L23H033-03 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	14000		320	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*278%*	*F*	*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	5.0		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS4-14

Lab ID: L23H033-04 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	1100		110	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*113%*		*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	9.7		0.50	%	08/11/2023	SG

Robinson Noble, Inc.
17625 130th Avenue NE, Suite 102
Woodinville, WA 98072

Project: North Bend Transformer Spill
Project Number: W105.001.001
Project Manager: Max Wills

City/State: North Bend, WA
Work Order: L23H033
Reported: 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS5-14

Lab ID: L23H033-05 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*80.2%*		*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	6.2		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS6-13

Lab ID: L23H033-06 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*78.6%*		*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	6.2		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS7-13

Lab ID: L23H033-07 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*78.0%*		*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	4.9		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SP-1

Lab ID: L23H033-08 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*82.1%*		*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	8.6		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS8-21

Lab ID: L23H033-09 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	5100		110	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*268%*	*F*	*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	6.7		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS9-15

Lab ID: L23H033-10 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	1900		100	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*150%*	*F*	*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	4.6		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS10-15

Lab ID: L23H033-11 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*83.1%*		*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	6.0		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS11-6

Lab ID: L23H033-12 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*95.8%*		*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	5.0		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS12-6

Lab ID: L23H033-13 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*76.3%*		*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	8.0		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS13-6

Lab ID: L23H033-14 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*92.0%*		*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	7.1		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS14-6

Lab ID: L23H033-15 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*104%*		*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	7.5		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS15-6

Lab ID: L23H033-16 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		100	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*79.3%*		*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	2.6		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Sample Results (Continued)

Client Sample ID: SS16-6

Lab ID: L23H033-17 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/10/2023	PB
Surrogate: 2-FBP	*89.0%*		*43.6-129*		*08/10/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	7.7		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Quality Control

Mineral Oil by NWTPH-Dx/Dx

Analyte	Result	Qual	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BXH0064 - Extraction										
Blank (BXH0064-BLK1)					Prepared & Analyzed: 8/10/2023					
Mineral Oil	ND		100	mg/kg wet						
Surrogate: 2-FBP			*23.3*	*ug/mL*	*20.0*		*117*	*43.6-129*		
Duplicate (BXH0064-DUP1)		**Parent: L23H033-08**			Prepared & Analyzed: 8/10/2023					
Mineral Oil	ND		110	mg/kg dry		ND				35
Surrogate: 2-FBP			*15.8*	*ug/mL*	*20.0*		*79.1*	*43.6-129*		
Duplicate (BXH0064-DUP2)		**Parent: L23H033-17**			Prepared & Analyzed: 8/10/2023					
Mineral Oil	ND		110	mg/kg dry		ND				35
Surrogate: 2-FBP			*16.5*	*ug/mL*	*20.0*		*82.5*	*43.6-129*		

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** North Bend Transformer Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H033 **Reported:** 08/14/2023 13:09

Quality Control
(Continued)

Moisture by ASTM D2216-19

Analyte	Result	Qual	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BXH0061 - Gen Chem										
LCS (BXH0061-BS1)					Prepared & Analyzed: 8/11/2023					
Moisture	17			%	17.0		101	90-115		
LCS (BXH0067-BS1)					Prepared & Analyzed: 8/11/2023					
Moisture	17			%	17.0		101	90-115		

Libby Environmental, Inc.

3322 South Bay Road NE • Olympia, WA 98506-2957

Phone (360) 352-2110 • libbyenv@gmail.com

August 14, 2023

Max Wills
Robinson Noble, Inc.
17625 130th Avenue NE, Suite 102
Woodinville, WA 98072

RE: Tanner Electric, NB Spill
Work Order Number: L23H044

Enclosed are the results of analyses for samples received by our laboratory on 8/10/2023.

Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of within 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please feel free to contact us. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry Chilcutt
Senior Chemist

Libby Environmental, Inc.

3322 South Bay Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Chain of Custody Record

www.LibbyEnvironmental.com

Date: 8/10/23 Page: 1 of 1

Client: ROBINSON NOBLE / TEI
Project Manager: MAX WILLS
Address: 17625 130th AVE NE SUITE 102
Project Name: TANNER ELECTRIC, NB SPILL
City: WOODINVILLE State: WA Zip: 98072
Location: NORTH BEND City, State: WA
Phone: (206) 550-7215 Fax:
Collector: MTW Date of Collection: 8/10/23
Client Project # W105.001.001
Email: MAX.WILLS@TERRAPHASE.COM

	Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	PCE & Daughter Prod.	NWTPH-Gx	BTEX (8260) / (8021)	NWTPH-HCID	NWTPH-Dx / Dx	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	cPAH 8270	PAH 8270	Semi Vol 8270	MIP OIL		Field Notes
1	SS17-6	6	1405	Soil	4oz												X			
2	SS18-6	6	1406														X			
3	SS19-6	6	1407														X			
4	SS20-6	6	1408														X			
5	SS21-6	6	1411														X			
6	SS22-6	6	1415														X			
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				

Relinquished by:	Date / Time	Received by:	Date / Time
MTJ	8/10/23 14:18	[signature]	8/10/23 14:18
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt

Good Condition?	Y	N
Cooler Temp.		°C
Sample Temp.		°C
Total Number of Containers		

Remarks: RUSH TAT
EIM

TAT: 24HR 48HR 5-DAY

Distribution: White - Lab, Yellow - Originator

Libby Environmental, Inc.

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** Tanner Electric, NB Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H044 **Reported:** 08/14/2023 12:41

Notes and Definitions

Item	Definition
RL	Reporting Limit
ND	Analyte NOT DETECTED at or above the reporting limit
DET	Analyte DETECTED at or above the reporting limit
Qual	Qualifier

All results reported on an "as received" basis unless indicated by "Dry"

Work Order Sample Summary

Lab ID	Sample	Matrix	Date Sampled	Date Received
L23H044-01	SS17-6	Soil	08/10/2023	08/10/2023
L23H044-02	SS18-6	Soil	08/10/2023	08/10/2023
L23H044-03	SS19-6	Soil	08/10/2023	08/10/2023
L23H044-04	SS20-6	Soil	08/10/2023	08/10/2023
L23H044-05	SS21-6	Soil	08/10/2023	08/10/2023
L23H044-06	SS22-6	Soil	08/10/2023	08/10/2023

Libby Environmental, Inc.

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** Tanner Electric, NB Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H044 **Reported:** 08/14/2023 12:41

Libby Environmental Sample Detection Summary

Analyte	Result	Qual	Units	RL	Method
Sample: **SS18-6**			Lab#: L23H044-02		
Mineral Oil	800		mg/kg dry	110	NWTPH-Dx/Dx
Sample: **SS21-6**			Lab#: L23H044-05		
Mineral Oil	310		mg/kg dry	250	NWTPH-Dx/Dx

Note: If no entry is made, then no target compounds were detected.

Libby Environmental, Inc.

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** Tanner Electric, NB Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H044 **Reported:** 08/14/2023 12:41

Sample Results

Client Sample ID: SS17-6

Lab ID: L23H044-01 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/11/2023	PB
Surrogate: 2-FBP	*99.2%*		*43.6-129*		*08/11/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	6.8		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** Tanner Electric, NB Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H044 **Reported:** 08/14/2023 12:41

Sample Results (Continued)

Client Sample ID: SS18-6

Lab ID: L23H044-02 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	800		110	mg/kg dry	08/11/2023	PB
Surrogate: 2-FBP	*90.9%*		*43.6-129*		*08/11/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	6.5		0.50	%	08/11/2023	SG

Robinson Noble, Inc.
17625 130th Avenue NE, Suite 102
Woodinville, WA 98072

Project: Tanner Electric, NB Spill
Project Number: W105.001.001
Project Manager: Max Wills

City/State: North Bend, WA
Work Order: L23H044
Reported: 08/14/2023 12:41

Sample Results (Continued)

Client Sample ID: SS19-6

Lab ID: L23H044-03 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/11/2023	PB
Surrogate: 2-FBP	*92.9%*		*43.6-129*		*08/11/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	9.6		0.50	%	08/11/2023	SG

Robinson Noble, Inc.
17625 130th Avenue NE, Suite 102
Woodinville, WA 98072

Project: Tanner Electric, NB Spill
Project Number: W105.001.001
Project Manager: Max Wills

City/State: North Bend, WA
Work Order: L23H044
Reported: 08/14/2023 12:41

Sample Results (Continued)

Client Sample ID: SS20-6

Lab ID: L23H044-04 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/11/2023	PB
Surrogate: 2-FBP	*77.4%*		*43.6-129*		*08/11/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	11		0.50	%	08/11/2023	SG

Robinson Noble, Inc.
17625 130th Avenue NE, Suite 102
Woodinville, WA 98072

Project: Tanner Electric, NB Spill
Project Number: W105.001.001
Project Manager: Max Wills

City/State: North Bend, WA
Work Order: L23H044
Reported: 08/14/2023 12:41

Sample Results (Continued)

Client Sample ID: SS21-6

Lab ID: L23H044-05 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	310		250	mg/kg dry	08/11/2023	PB
Surrogate: 2-FBP	*73.6%*		*43.6-129*		*08/11/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	19		0.50	%	08/11/2023	SG

Robinson Noble, Inc.
17625 130th Avenue NE, Suite 102
Woodinville, WA 98072

Project: Tanner Electric, NB Spill
Project Number: W105.001.001
Project Manager: Max Wills

City/State: North Bend, WA
Work Order: L23H044
Reported: 08/14/2023 12:41

Sample Results (Continued)

Client Sample ID: SS22-6

Lab ID: L23H044-06 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/11/2023	PB
Surrogate: 2-FBP	*90.8%*		*43.6-129*		*08/11/2023*	*PB*
Moisture by ASTM D2216-19						
Moisture	7.3		0.50	%	08/11/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** Tanner Electric, NB Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H044 **Reported:** 08/14/2023 12:41

Quality Control

Mineral Oil by NWTPH-Dx/Dx

Analyte	Result	Qual	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BXH0062 - Extraction										
Blank (BXH0062-BLK1)					Prepared & Analyzed: 8/11/2023					
Mineral Oil	ND		100	mg/kg wet						
Surrogate: 2-FBP			*17.6*	*ug/mL*	*20.0*		*88.1*	*43.6-129*		
Duplicate (BXH0062-DUP1)		**Parent: L23H044-06**			Prepared & Analyzed: 8/11/2023					
Mineral Oil	ND		110	mg/kg dry		ND				35
Surrogate: 2-FBP			*19.6*	*ug/mL*	*20.0*		*98.2*	*43.6-129*		

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** Tanner Electric, NB Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H044 **Reported:** 08/14/2023 12:41

Quality Control
(Continued)

Moisture by ASTM D2216-19

Analyte	Result	Qual	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BXH0060 - Gen Chem										
LCS (BXH0060-BS1)					Prepared & Analyzed: 8/11/2023					
Moisture	17			%	17.0		101	90-115		

Libby Environmental, Inc.

3322 South Bay Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@gmail.com

W105.001.001 Project
Robinson Noble, Inc.
Libby Work Order # L23H044
Date Received 8/10/2023
Time Received 2:18 PM

Received By PB

Sample Receipt Checklist

Chain of Custody

1. Is the Chain of Custody is complete?	☑ Yes	☐ No	
2. How was the sample delivered?	☑ Hand Delivered	☐ Picked Up	☐ Shipped

Log In

3. Cooler or Shipping Container is present.	☑ Yes	☐ No	☐ N/A
4. Cooler or Shipping Container is in good condition.	☑ Yes	☐ No	☐ N/A
5. Cooler or Shipping Container has Custody Seals present.	☐ Yes	☑ No	☐ N/A
6. Was an attempt made to cool the samples?	☐ Yes	☑ No	☐ N/A
7. Temperature of cooler (0°C to 8°C recommended)	19.5 °C		
8. Temperature of sample(s) (0°C to 8°C recommended)	19.5 °C		
9. Did all containers arrive in good condition (unbroken)?	☑ Yes	☐ No	
10. Is it clear what analyses were requested?	☑ Yes	☐ No	
11. Did container labels match Chain of Custody?	☑ Yes	☐ No	
12. Are matrices correctly identified on Chain of Custody?	☑ Yes	☐ No	
13. Are correct containers used for the analysis indicated?	☑ Yes	☐ No	
14. Is there sufficient sample volume for indicated analysis?	☑ Yes	☐ No	
15. Were all containers properly preserved per each analysis?	☑ Yes	☐ No	
16. Were VOA vials collected correctly (no headspace)?	☐ Yes	☐ No	☑ N/A
17. Were all holding times able to be met?	☑ Yes	☐ No	

Discrepancies/ Notes

18. Was client notified of all discrepancies?	☐ Yes	☐ No	☑ N/A

Person Notified: _____ Date: _____

By Whom: _____ Via: _____

Regarding: _____

19. Comments. Samples were collected during a mobile lab job, samples were not chilled ahead of time. Put into cooler at time of receipt.

Libby Environmental, Inc.

3322 South Bay Road NE • Olympia, WA 98506-2957

Phone (360) 352-2110 • libbyenv@gmail.com

August 14, 2023

Max Wills
Robinson Noble, Inc.
17625 130th Avenue NE, Suite 102
Woodinville, WA 98072

RE: Tanner Electric, NB Spill
Work Order Number: L23H049

Enclosed are the results of analyses for samples received by our laboratory on 8/11/2023.

Applicable detection limits and QA/QC data are included. The sample(s) will be disposed of within 30 days unless we are contacted to arrange long term storage.

Libby Environmental, Inc. appreciates the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please feel free to contact us. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry Chilcutt
Senior Chemist

Libby Environmental, Inc.

Chain of Custody Record

www.LibbyEnvironmental.com

3322 South Bay Road NE
Olympia, WA 98506
Ph: 360-352-2110
Fax: 360-352-4154

Date: 8/11/23 Page: 1 of 1

Client: ROBINSON NOBLE
Project Manager: MAX WILLS
Address: 17625 130th AVE NE SUITE 102
Project Name: TANNER ELECTRIC, NO SPILL
City: WOODINVILLE State: WA Zip: 98072
Location: NORTH BEND City, State: WA
Phone: (206)550-7625 Fax:
Collector: MTW Date of Collection: 8/11/23
Client Project # W105.001.001
Email: MAX.WILLS@~~TERRA~~TERRAPHASE.COM

	Sample Number	Depth	Time	Sample Type	Container Type	VOC 8260	NWTPH-Gx	BTEX 8021	NWTPH-HCID	NWTPH-Dx	NWTPH-Dx/Dx	c PAH 8270	PAH 8270	Semi Vol 8270	PCB 8082	MTCA 5 Metals	RCRA 8 Metals	MTP OIL		Field Notes
1	SS23-24	24	1400	Soil	4oz												X			
2	SS24-24	24	1405														X			
3	SP2	-	1410														X			
4	SP3	-	1415														X			
5	SP4	-	1420														X			
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				

Relinquished by:	Date / Time	Received by:	Date / Time
[signature]	8/11/23 4:29PM	Jodie Chalfant	8/11/23 429p
Relinquished by:	Date / Time	Received by:	Date / Time
Relinquished by:	Date / Time	Received by:	Date / Time

Sample Receipt

Good Condition?	Y	N
Cooler Temp.		°C
Sample Temp.		°C
Total Number of Containers		

Remarks:
RUSH
EIM

TAT: 24HR 48HR 5-DAY

Distribution: White - Lab, Yellow - File, Pink - Originator

Libby Environmental, Inc.

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** Tanner Electric, NB Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H049 **Reported:** 08/14/2023 15:06

Notes and Definitions

Item	Definition
RL	Reporting Limit
ND	Analyte NOT DETECTED at or above the reporting limit
DET	Analyte DETECTED at or above the reporting limit
Qual	Qualifier

All results reported on an "as received" basis unless indicated by "Dry"

Work Order Sample Summary

Lab ID	Sample	Matrix	Date Sampled	Date Received
L23H049-01	SS 23-24	Soil	08/11/2023	08/11/2023
L23H049-02	SS 24-24	Soil	08/11/2023	08/11/2023
L23H049-03	SP2	Soil	08/11/2023	08/11/2023
L23H049-04	SP3	Soil	08/11/2023	08/11/2023
L23H049-05	SP4	Soil	08/11/2023	08/11/2023

Libby Environmental, Inc.

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Libby Environmental Sample Detection Summary

Analyte	Result	Qual	Units	RL	Method
Sample: **SS 23-24**			Lab#: L23H049-01		
Mineral Oil	5200		mg/kg dry	110	NWTPH-Dx/Dx
Sample: **SS 24-24**			Lab#: L23H049-02		
Mineral Oil	4900		mg/kg dry	540	NWTPH-Dx/Dx
Sample: **SP2**			Lab#: L23H049-03		
Mineral Oil	240		mg/kg dry	110	NWTPH-Dx/Dx
Sample: **SP3**			Lab#: L23H049-04		
Mineral Oil	200		mg/kg dry	100	NWTPH-Dx/Dx

Note: If no entry is made, then no target compounds were detected.

Libby Environmental, Inc.

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** Tanner Electric, NB Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H049 **Reported:** 08/14/2023 15:06

Sample Results

Client Sample ID: SS 23-24

Lab ID: L23H049-01 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	5200		110	mg/kg dry	08/14/2023	KLI
Surrogate: 2-FBP	*85.5%*		*43.6-129*		*08/14/2023*	*KLI*
Moisture by ASTM D2216-19						
Moisture	9.4		0.50	%	08/14/2023	SG

Robinson Noble, Inc.
17625 130th Avenue NE, Suite 102
Woodinville, WA 98072

Project: Tanner Electric, NB Spill
Project Number: W105.001.001
Project Manager: Max Wills

City/State: North Bend, WA
Work Order: L23H049
Reported: 08/14/2023 15:06

Sample Results (Continued)

Client Sample ID: SS 24-24

Lab ID: L23H049-02 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	4900		540	mg/kg dry	08/14/2023	KLI
Surrogate: 2-FBP	*96.8%*		*43.6-129*		*08/14/2023*	*KLI*
Moisture by ASTM D2216-19						
Moisture	6.6		0.50	%	08/14/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** Tanner Electric, NB Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H049 **Reported:** 08/14/2023 15:06

Sample Results (Continued)

Client Sample ID: SP2

Lab ID: L23H049-03 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	240		110	mg/kg dry	08/14/2023	KLI
Surrogate: 2-FBP	*72.5%*		*43.6-129*		*08/14/2023*	*KLI*
Moisture by ASTM D2216-19						
Moisture	5.6		0.50	%	08/14/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** Tanner Electric, NB Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H049 **Reported:** 08/14/2023 15:06

Sample Results (Continued)

Client Sample ID: SP3

Lab ID: L23H049-04 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	200		100	mg/kg dry	08/14/2023	KLI
Surrogate: 2-FBP	*80.1%*		*43.6-129*		*08/14/2023*	*KLI*
Moisture by ASTM D2216-19						
Moisture	3.8		0.50	%	08/14/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** Tanner Electric, NB Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H049 **Reported:** 08/14/2023 15:06

Sample Results (Continued)

Client Sample ID: SP4

Lab ID: L23H049-05 (Soil)

Analyte	Result	Qual	RL	Units	Date Analyzed	Analyst Initials
Mineral Oil by NWTPH-Dx/Dx						
Mineral Oil	ND		110	mg/kg dry	08/14/2023	KLI
Surrogate: 2-FBP	*72.0%*		*43.6-129*		*08/14/2023*	*KLI*
Moisture by ASTM D2216-19						
Moisture	5.4		0.50	%	08/14/2023	SG

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** Tanner Electric, NB Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H049 **Reported:** 08/14/2023 15:06

Quality Control

Mineral Oil by NWTPH-Dx/Dx

Analyte	Result	Qual	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BXH0073 - Extraction										
Blank (BXH0073-BLK1)					Prepared & Analyzed: 8/14/2023					
Mineral Oil	ND		100	mg/kg wet						
Surrogate: 2-FBP			*17.1*	*ug/mL*	*20.0*		*85.7*	*43.6-129*		
Duplicate (BXH0073-DUP1)		**Parent: L23H045-01**			Prepared & Analyzed: 8/14/2023					
Mineral Oil	ND		120	mg/kg dry		ND				35
Surrogate: 2-FBP			*17.9*	*ug/mL*	*20.0*		*89.5*	*43.6-129*		

Robinson Noble, Inc. 17625 130th Avenue NE, Suite 102 Woodinville, WA 98072	**Project:** Tanner Electric, NB Spill **Project Number:** W105.001.001 **Project Manager:** Max Wills	**City/State:** North Bend, WA **Work Order:** L23H049 **Reported:** 08/14/2023 15:06

Quality Control
(Continued)

Moisture by ASTM D2216-19

Analyte	Result	Qual	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: BXH0074 - Gen Chem										
LCS (BXH0074-BS1)					Prepared & Analyzed: 8/14/2023					
Moisture	17			%	17.0		102	90-115		

Libby Environmental, Inc.

3322 South Bay Road NE
Olympia, WA 98506
Phone: (360) 352-2110
FAX: (360) 352-4154
Email: libbyenv@gmail.com

Tanner Electric, NB Spill Project
Robinson Noble, Inc.
Libby Work Order # L23H049
Date Received 8/11/2023
Time Received 4:29 PM

Received By JC

Sample Receipt Checklist

Chain of Custody

1. Is the Chain of Custody is complete?	☑ Yes	☐ No	
2. How was the sample delivered?	☐ Hand Delivered	☑ Picked Up	☐ Shipped

Log In

3. Cooler or Shipping Container is present.	☑ Yes	☐ No	☐ N/A
4. Cooler or Shipping Container is in good condition.	☑ Yes	☐ No	☐ N/A
5. Cooler or Shipping Container has Custody Seals present.	☐ Yes	☑ No	☐ N/A
6. Was an attempt made to cool the samples?	☑ Yes	☐ No	☐ N/A
7. Temperature of cooler (0°C to 8°C recommended)	0.2 °C		
8. Temperature of sample(s) (0°C to 8°C recommended)	10.9 °C		
9. Did all containers arrive in good condition (unbroken)?	☑ Yes	☐ No	
10. Is it clear what analyses were requested?	☑ Yes	☐ No	
11. Did container labels match Chain of Custody?	☑ Yes	☐ No	
12. Are matrices correctly identified on Chain of Custody?	☑ Yes	☐ No	
13. Are correct containers used for the analysis indicated?	☑ Yes	☐ No	
14. Is there sufficient sample volume for indicated analysis?	☑ Yes	☐ No	
15. Were all containers properly preserved per each analysis?	☑ Yes	☐ No	
16. Were VOA vials collected correctly (no headspace)?	☐ Yes	☐ No	☑ N/A
17. Were all holding times able to be met?	☑ Yes	☐ No	

Discrepancies/ Notes

18. Was client notified of all discrepancies?	☐ Yes	☐ No	☑ N/A

Person Notified: _____ Date: _____

By Whom: _____ Via: _____

Regarding: _____

19. Comments. _____

Gmail

Libby Environmental <libbyenv@gmail.com>

FINAL REPORT_RN_Tanner Electric, NB Spill_L23H049

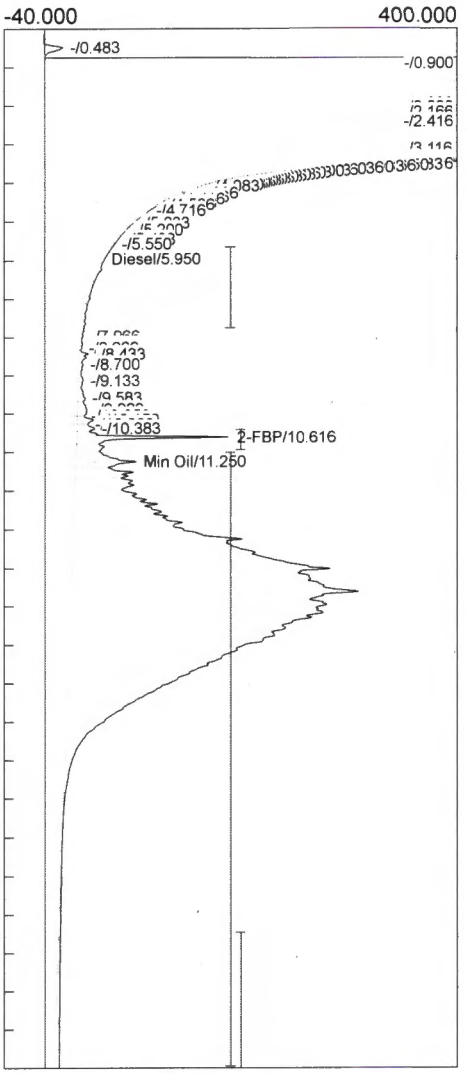
Max Wills <max.wills@terraphase.com> Wed, Aug 16; 2023 at 11:26 AM
To: Libby Environmental <libbyenv@gmail.com>

We are just looking for representative chromatograms for the project. Can you send us chromatograms for Samples SS1-21, SS3-6, SS9-15, and SS23-24.

Thank you

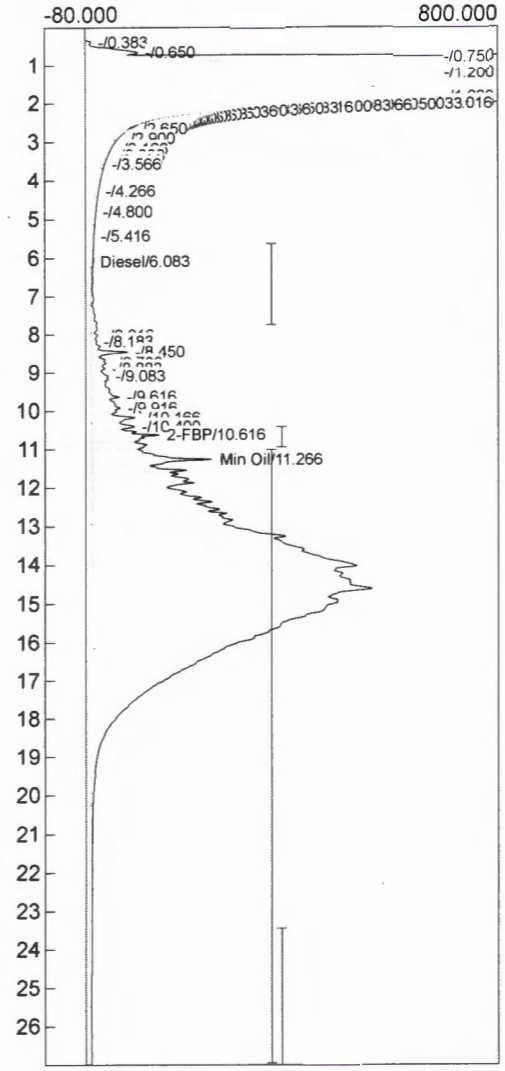
[Quoted text hidden]

Lab name: Libby Environmental, Inc.
Analysis date: 08/10/2023 10:32:57
Method: GC-FID
Lab ID: L23H033-01
Description: Sam Ch 1
Column: Rtx-5 #1632685
Carrier: Nitrogen
Data file: A7752.CHR ()
Sample: SS1-21
Operator: PB



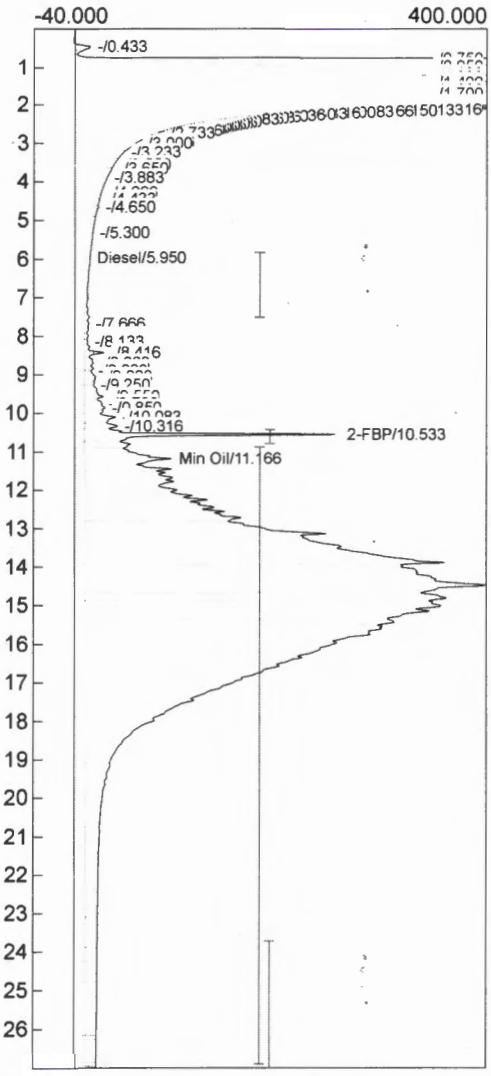
Component	Retention	Area	External	Units
Diesel	5.950	46.0780	2.1497	
2-FBP	10.616	845.4800	26.0148	
Min Oil	11.250	58317.2105	2656.6078	ppm
		59208.7685	2684.7722	

Lab name: Libby Environmental, Inc.
Analysis date: 08/10/2023 11:48:54
Method: GC-FID
Lab ID: L23H033-03@3
Description: Sam Ch 1
Column: Rtx-5 #1632685
Carrier: Nitrogen
Data file: A7754.CHR ()
Sample: 3 SS3-6
Operator: PB



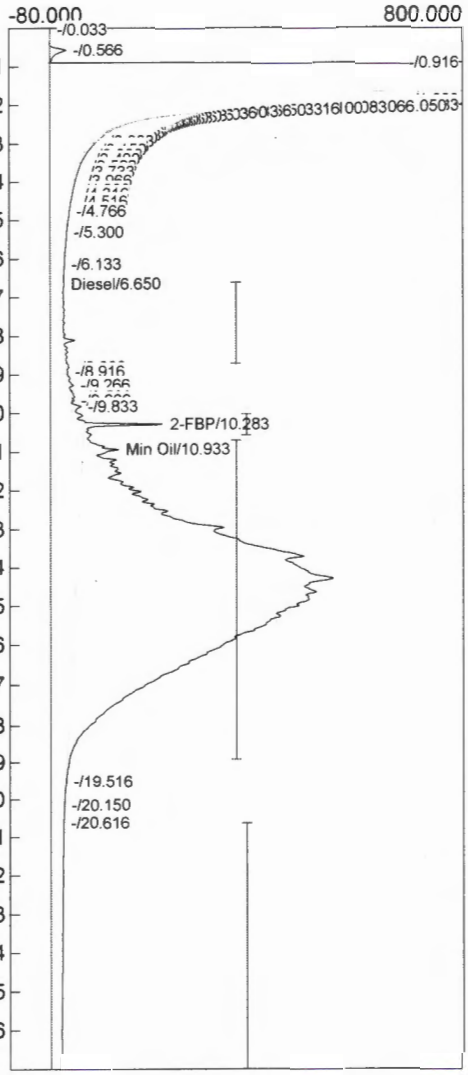
Component	Retention	Area	External	Units
Diesel	6.083	469.6960	21.9128	
2-FBP	10.616	1808.8480	55.6569	
Min Oil	11.266	118111.3255	5380.4951	ppm
		120389.8695	5458.0647	

Lab name: Libby Environmental, Inc.
Analysis date: 08/10/2023 12:40:28
Method: GC-FID
Lab ID: L23H033-10
Description: Sam Ch 2
Column: Rtx-5 #1632687
Carrier: Nitrogen
Data file: B7755.CHR ()
Sample: SS9-15
Operator: PB



Component	Ca	Retention	Area	External	Units
Diesel	N/D	0.000	5.950	78.8425	3.4951
2-FBP	.0000	0.000	10.533	1352.8940	30.0643
Min Oil	0000	0.000	11.166	91099.2945	2398.6704
	0.0000	5494.3137			
				92531.0310	2432.2298
	-74.2610	5494.3137			

Lab name: Libby Environmental, Inc.
Analysis date: 08/14/2023 10:49:36
Method: GC-FID
Lab ID: L23H049-01
Description: Sam Ch 1
Column: Rtx-5 #1632685
Carrier: Nitrogen
Data file: A7773.CHR ()
Sample: SS 23-24
Operator: KLI



Component	Retention	Area	External	Units
Diesel	6.650	202.1510	9.4310	
2-FBP	10.283	555.4950	17.0922	
Min Oil	10.933	104383.4900	4755.1312	ppm
		105141.1360	4781.6544	