TECHNICAL MEMORANDUM

To: Mr. Joe Hunt, LHG
From: Craig Hultgren, LHG
Date: July 15, 2024
Site: JJ Wood Energy – 90 Tenant Way, Longview, Washington
VCP#: SW1648
Subject: Remedial Excavations

INTRODUCTION

HydroCon Environmental, LLC (HydroCon) is submitting this technical memorandum to document the results of two remedial excavations at the above referenced site.

BACKGROUND

The JJ Wood property (herein referred to as "the Site") is located at 90 Tennant Way in Longview, Washington (Figure 1). The Site is zoned "heavy industrial" and is comprised of an approximately 4.35-acre tract of land (tax lot 10659). It is surrounded by other heavy industrial properties including Swanson Bark and Wood Products, Lakeside Industries, Ferrellgas, Gerhart Gardens (former landfill), and the Cowlitz County Landfill (Figure 2).

Prior to development, the Site was mixed woodlands and wetlands. The entire area was filled with Columbia River dredge sand covering the native alluvial soils. From approximately 1953 to 1986[1] Weyerhaeuser operated a shake mill at the Site. During operation, a maintenance shop was used to service equipment used at the mill. Interviews with former employees and operators indicated that the mill did not use wood treatment chemicals.

JJ Wood and surrounding properties utilize municipal water as a potable water source. WAC 173-160-171 stipulates that a domestic supply well shall not be located within 1,000 feet from the boundary of a permitted or previously permitted solid waste landfill. The Cowlitz County landfill and Gerhart Gardens (former landfill) are located adjacent to the site. Therefore, the Site must use City/public water supply and is prohibited from installing a water supply well.

While site characterization included assessment of soil and groundwater conditions at the entire site, the primary focus of environmental investigation has been around the former maintenance shop where residual contamination above regulatory cleanup levels was discovered. A remedial excavation was performed in 2014 to remove petroleum contaminated soil (PCS) that was detected in temporary borings drilled near the former maintenance building. A total of 338 tons of PCS was removed along with 1,000

[1] Northern Resources Consulting, *Phase I Environmental Site Assessment – Swanson Bark & Wood Products, Inc. Property*, February 20, 2012.

gallons of water that had collected in the excavation pit. A total of 150 pounds of ORC was placed on the bottom of the excavation prior to backfilling. Results of confirmation soil sampling indicated that one sidewall sample (EX-NCW-8.5') had a combined total petroleum hydrocarbon (TPH) of 2,130 mg/kg which exceeds the MTCA Method A cleanup level (CUL) of 2,000 mg/kg. That pocket of contaminated soil was left in place because field screening indicated that the extent of PCS had been removed during excavation and lab results weren't obtained until a week after the completion of the excavation. This memorandum documents the results of the follow up remedial excavations to further remove PCS from the impacted areas of the site.

Post remediation groundwater sampling has been performed on numerous occasions and analytical results have shown that residual diesel and/or oil range petroleum hydrocarbons (DRPH and ORPH) is still present along with arsenic. Recent changes in groundwater cleanup regulations include elevating the arsenic CUL from 5 ug/L to 8 ug/L and the acceptance of using silica gel cleanup for sites like this one where relatively old DRPH and ORPH is present and that their breakdown products (polar metabolites) constitute a large percentage of the remaining diesel range organics detected by the Northwest TPH-Dx analysis.

Review of chromatograms by APEX Laboratory's forensic chemist (Mr. Kurt Johnson) has revealed that the parent compound detected in the majority of groundwater samples is from one primary source (mineral oil). This substance is detected using the same laboratory method as has been historically used at the site (Northwest Method NWTPH-Dx). Mr. Johnson has had conversations with and provided documentation to Ecology regarding this subject.

In order to achieve regulatory closure, Ecology requested removal of the PCS above the CUL located at the original remedial excavation near sample EX-NCW-8.5'. This report documents this remedial action.

FIELDWORK

On June 17, 2024, HydroCon directed 2 remedial excavations. One was to remove the soil from sample EX-NCW-8.5' location and the other was to remove the soil in between MW07 and the original remedial excavation. Details are provided below.

Health and Safety Plan

HydroCon updated the site-specific health and safety plan (HASP) to govern health and safety protocols used during this investigation. Work was performed using Occupational Safety and Health Administration (OSHA) Level D work attire consisting of hard hats, safety glasses, protective gloves, and protective boots.

Underground Utility Locates

Prior to the commencement of subsurface activities, a public utility notification was requested through the Washington One Call service (Locate ticket number: 24214824). In addition, a private locating company (All County Locates) was retained to clear the excavation locations of potential public and private utility conflicts.

Remedial Excavations

Clark Construction was contracted to perform the excavations using a tracked excavator. The location of the excavations was identified by using a scaled map generated by using the survey coordinates of the original remedial excavation and monitoring well locations. HydroCon utilized a scaled ruler to obtain the distance of the original remedial excavation between monitoring wells MW04 and MW05 and used a wheel measurement tool to mark those locations. Photographs are included in Appendix A.

The excavation process included placing clean overburden on the ground surface until field screening indicated the presence of potential PCS. All soil that exhibited the potential to contain PCS was loaded directly into a truck and pup. The PCS was transported to Headquarters Landfill in Castle Rock, Washington for disposal under permit. A total of 18.5 tons of PCS was disposed at the landfill. A copy of the disposal documentation is included in Appendix B.

The first excavation began immediately southeast of monitoring well MW07 and was advanced towards the original remedial excavation performed in 2014. The purpose of this excavation was to remove any remaining PCS that was left in place during the previous excavation. This excavation measured 15 feet wide by 12 feet long by 9 feet deep.

The second excavation was performed near sample EX-NCW-8.5' and was advanced approximately 10 feet north. The location of both excavations is shown on Figure 3. Groundwater was encountered in both excavations at a depth of approximately 8 feet bgs. Each excavation was advanced approximately 1 foot below the water table. Confirmation soil samples were collected from both excavations.

Field Screening

HydroCon utilized field screening to assess subsurface conditions and direct both excavations. Field screening consisted of volatile organic vapor measurements using a photoionization detector (PID), sheen testing, visual observations (staining, etc.), and olfactory observations. A portion of each soil sample was placed in a sealable plastic baggie. The tip of the PID was inserted into the plastic bag in the airspace above the soil sample and the PID measurement was recorded. The PID was calibrated before use at the Site to a test gas standard consisting of 100 parts per million (ppmv) isobutylene. Because several factors can affect PID readings (e.g., moisture, temperature, and background conditions), HydroCon determined that a value of 2 ppm or greater may indicate the presence of organic vapors originating from contaminants at the site. Field screening results are discussed below.

Confirmation Soil Sampling

Once field screening indicated that the majority of contamination had been removed, a confirmation soil sample was collected from the sidewalls and floor of the excavation. The samples were collected directly out of the excavation bucket and placed into labeled laboratory-supplied glass sample jars. The sample jars were placed into a chilled cooler along with chain-of-custody documentation. The sample cooler was transported to APEX Laboratory in Tigard, Oregon for analysis.

Each sidewall sample was collected above the groundwater interface at a depth of approximately 7.5 feet bgs. Floor samples were collected at approximately 9 feet bgs in the saturated zone. One sample (EXC2-5) was collected from an approximately 1.5-foot layer of soil with abundant bark and wood debris. This soil was removed by excavation. The location of the confirmation soil samples is shown on Figure 3. Soil analytical results are discussed below.

Backfilling

At the conclusion of sampling, each excavation was backfilled using clean imported granular fill and clean overburden stockpiled at the site. The backfill was compacted in 2-foot lifts using a plate compactor attachment. Approximately 2-feet of ¾-inch minus gravel was placed on the ground surface and compacted to match existing conditions.

RESULTS OF THE INVESTIGATION

A discussion of the results of the remedial excavations is provided below.

Subsurface Conditions

Soil encountered during excavation consisted of an approximate 2-foot surface layer consisting of compact sand and gravel (road base). Brown to gray colored silty sand was present from approximately 2 to 6 feet bgs. Gray low plastic silt was present from 6 to 9 feet bgs. As discussed above, a localized 1.5-foot layer of silty sand with abundant bark and wood debris was present near sample EX-NCW-8.5' location. Groundwater was present in both excavations at approximately 8 feet bgs.

The gray dredge sand backfill soil used in the original remedial excavation was observed in both excavations. The excavation near MW07 removed approximately 6 feet of soil before the dredge sand was encountered. All of that soil was sent to the landfill. The excavation near sample EX-NCW-8.5' location had dredge sand present along the southwest sidewall and floor.

Field Screening Results

Field screening results are summarized below.

Excavation near MW07 – There was no odor or sheen observed in any soil samples collected from this excavation. There was no PID readings above 0.0 ppm in any sample. As a precautionary measure, the soil removed near MW07 that wasn't excavated during the 2014 excavation was sent to the landfill and clean backfill was put in its place.

Excavation near Sample EX-NCW-8.5' Location – A localized faint petroleum-like odor was observed around 8 feet bgs and was removed by excavation. No sample exhibited a sheen. PID readings above 0.0 ppm was recorded for samples EXC2-5 (0.6 ppm), EXC2-SWE-7.5 (0.5 ppm), EXC2-SWN-7.5 (0.4 ppm) and EXC2-SWW-7.5 (0.2 ppm). All soil below 5 feet bgs was removed and sent to the landfill.

Soil Analytical Results

Soil analytical results are reported as milligrams per kilogram (mg/kg) and are summarized on Table 1 and Figure 3. The laboratory reports and chain-of-custody documentation is provided in Appendix C. Results are summarized below.

DRPH – One sample (EXC2-5 which had abundant bark and wood debris) had a detection of DRPH above the MRL at a concentration of 57.8 mg/kg. This concentration is below the CUL of 2,000 mg/kg. This soil was removed during the excavation process.

ORPH - One sample (EXC2-5) had a detection of ORPH above the MRL at a concentration of 169 mg/kg. This concentration is below the CUL of 2,000 mg/kg. This soil was removed during the excavation process.

Mineral Oil – Three samples (EXC-SWN-7.5, EXC-SWS-7.5 and EXC2-F1-9) had mineral oil detected above the MRL at a concentration up to 1,170 mg/kg. None of the concentrations exceed the CUL of 4,000 mg/kg.

Sample Results after Silica Gel Cleanup – Only one sample (EXC2-5) had DRPH and ORPH detected above the MRL. After silica gel cleanup there was no detection of DRPH above the MRL and ORPH was 74.6 mg/kg (approximately 56% reduction). The soil from this sample ware removed during the remedial excavation.

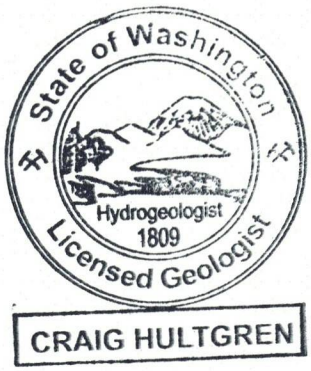
The concentration of mineral oil in the three samples that had a detection above the MRL was less after silica gel cleanup. EXC-SWN-7.5 (from 1,170 mg/kg to 900 mg/kg), EXC-SWS-7.5 (from 322 mg/kg to 266 mg/kg) and EXC-F1-9 (from 50 mg/kg to 47.7 mg/kg).

CLOSING

Two remedial excavations were performed at the site to remove PCS from the subsurface. The location of the 2014 excavation was successfully located using the scaled site map and measuring

wheel tool. This was confirmed during excavation as dredge sand fill used during the original excavation was encountered in both excavations. A total of 18.5 tons of PCS was removed and disposed at the Headquarters Landfill in Castle Rock, Washington. Confirmation soil samples were collected at the sidewalls and floor of both excavations. Soil analytical results indicated that all PCS above their respective CUL has been successfully removed. No further remedial excavation is warranted at the site.

Memorandum prepared by:



Craig Hultgren, LHG

ATTACHMENTS

Figures
Figure 1 – Site Location Map
Figure 2 – Adjacent Properties
Figure 3 – Remedial Excavation Analytical Results

Appendices
Appendix A – Photo Documentation
Appendix B – Disposal Documentation
Appendix C – Laboratory Report and Chain-of-Custody Documentation

APPENDIX A

PHOTO DOCUMENTATION

PHOTO 1
Excavator.

PHOTO 2
Excavation near MW07 - contact of original soil vs. dredge sand fill from 2014 remedial excavation.

HydroCon
1339 Commerce Ave, Suite 211, Longview, Wa. 98632
Ph (360)-703-6086

DATE: 7-9-24
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO:
10015-001.00

PHOTOPLATE 1
SITE PHOTOGRAPHS

JJ WOOD ENERGY
90 TENNANT WAY
LONGVIEW, WA.

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PHOTO 3
2 remedial excavations.

PHOTO 4
Abundant bark and wood debris at 5' bgs in Excavation 2.

Hydro Con
1339 Commerce Ave, Suite 211, Longview, Wa. 98632
Ph (360)-703-6086

DATE: 7-9-24
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO:
10015-001.00

PHOTOPLATE 2
SITE PHOTOGRAPHS

JJ WOOD ENERGY
90 TENNANT WAY
LONGVIEW, WA.

I:\Autocad Files\Hydrocon-Autocad\10015-001.00 JJ Wood Energy\2024\June 2024\10015-001.00_BM-062824.dwg

PHOTO 5
Backfill and Compaction.

PHOTO 6
Final surface restoration.

Hydro Con
1339 Commerce Ave, Suite 211, Longview, Wa. 98632
Ph (360)-703-6086

DATE: 7-9-24
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO:
10015-001.00

PHOTOPLATE 3
SITE PHOTOGRAPHS

JJ WOOD ENERGY
90 TENNANT WAY
LONGVIEW, WA.

APPENDIX B

DISPOSAL DOCUMENTATION

COWLITZ COUNTY DEPARTMENT OF PUBLIC WORKS
1600 13TH AVENUE SOUTH * KELSO, WA 98626
PHONE 577-3035 * LANDFILL SITE 274-6492
3434 SOUTH SILVER LAKE RD. * CASTLE ROCK, WA 98611
www.co.cowlitz.wa.us

R E C E I P T

Transaction # 674829

	Time	Date	Lane
In:	12:19 PM	06/17/24	01
Out:	12:41 PM	06/17/24	02

Truck/Card#: 22LROCK
Fleet #:
Trailer:
Bill Acct: 8390
Company: HYDROCON ENVIRONMENTAL LLC

Vehicle: Truck Trailer
Origin: IN COUNTY
Destination: Not Specified

Material: PCS - 30

Gross:	39.79 tons	79580 lbs
Tare:	21.29 tons	42580 lbs
Net:	18.50 tons	37000 lbs

Billing Information:

Payment Type: 1 - Charge

Tip Fee:	555.00 @	30.00/TN
Special Fees:	75.00	
Standard Waste Approval Fee		
Agency Fee:	0.00	
Excise Tax:	0.00	
Cleanup Fee:	0.00	
Tax:	19.98	
Total Fee:	649.98	

Notes:

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(1)

APPENDIX C

LABORATORY REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION

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

ANALYTICAL REPORT

Thursday, June 27, 2024

Craig Hultgren
ACC Environmental Consultants, Inc.
3925 NE 72nd Ave. Suite 103
Vancouver, WA 98661

RE: A4F1245 - JJ Wood - 10015-001.00

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

Enclosed are the results of analyses for work order A4F1245, which was received by the laboratory on 6/17/2024 at 2:09:00PM.

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

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

Cooler Receipt Information
Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.
(See Cooler Receipt Form for details)
Default Cooler 1.6 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.
All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.

Apex Laboratories

Cameron O'Brien, Project Manager

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

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

ANALYTICAL REPORT

ACC Environmental Consultants, Inc.	Project: **JJ Wood**	
3925 NE 72nd Ave. Suite 103	Project Number: **10015-001.00**	**Report ID:**
Vancouver, WA 98661	Project Manager: **Craig Hultgren**	**A4F1245 - 06 27 24 1343**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EXC-F1-9	A4F1245-01	Soil	06/17/24 09:32	06/17/24 14:09
EXC-F2-9	A4F1245-02	Soil	06/17/24 09:48	06/17/24 14:09
EXC-SWN-7	A4F1245-03	Soil	06/17/24 09:58	06/17/24 14:09
EXC-SWS-7	A4F1245-04	Soil	06/17/24 10:05	06/17/24 14:09
EXC2-5	A4F1245-05	Soil	06/17/24 10:32	06/17/24 14:09
EXC2-F-9	A4F1245-06	Soil	06/17/24 10:40	06/17/24 14:09
EXC2-SWE-7	A4F1245-07	Soil	06/17/24 10:50	06/17/24 14:09
EXC2-SWN-7	A4F1245-08	Soil	06/17/24 11:00	06/17/24 14:09
EXC2-SWW-7	A4F1245-09	Soil	06/17/24 11:06	06/17/24 14:09

Apex Laboratories

Cameron O'Brien, Project Manager

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ORELAP ID: OR100062

ANALYTICAL REPORT

ACC Environmental Consultants, Inc.
3925 NE 72nd Ave. Suite 103
Vancouver, WA 98661

Project: JJ Wood
Project Number: 10015-001.00
Project Manager: Craig Hultgren

Report ID:
A4F1245 - 06 27 24 1343

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
EXC-F1-9 (A4F1245-01)				**Matrix: Soil**		**Batch: 24F0595**		
Diesel	ND	---	23.6	mg/kg dry	1	06/19/24 05:22	NWTPH-Dx	
Oil	ND	---	47.2	mg/kg dry	1	06/19/24 05:22	NWTPH-Dx	
Mineral Oil	**50.0**	---	47.2	mg/kg dry	1	06/19/24 05:22	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 91 %*	*Limits: 50-150 %*		*1*	*06/19/24 05:22*	*NWTPH-Dx*	
EXC-F2-9 (A4F1245-02)				**Matrix: Soil**		**Batch: 24F0595**		
Diesel	ND	---	21.4	mg/kg dry	1	06/19/24 05:42	NWTPH-Dx	
Oil	ND	---	42.7	mg/kg dry	1	06/19/24 05:42	NWTPH-Dx	
Mineral Oil	ND	---	42.7	mg/kg dry	1	06/19/24 05:42	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 94 %*	*Limits: 50-150 %*		*1*	*06/19/24 05:42*	*NWTPH-Dx*	
EXC-SWN-7 (A4F1245-03)				**Matrix: Soil**		**Batch: 24F0595**		
Diesel	ND	---	21.3	mg/kg dry	1	06/19/24 06:03	NWTPH-Dx	
Oil	ND	---	42.6	mg/kg dry	1	06/19/24 06:03	NWTPH-Dx	
Mineral Oil	**1170**	---	42.6	mg/kg dry	1	06/19/24 06:03	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 73 %*	*Limits: 50-150 %*		*1*	*06/19/24 06:03*	*NWTPH-Dx*	
EXC-SWS-7 (A4F1245-04)				**Matrix: Soil**		**Batch: 24F0595**		
Diesel	ND	---	22.7	mg/kg dry	1	06/19/24 06:37	NWTPH-Dx	
Oil	ND	---	45.4	mg/kg dry	1	06/19/24 06:37	NWTPH-Dx	
Mineral Oil	**322**	---	45.4	mg/kg dry	1	06/19/24 06:37	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 86 %*	*Limits: 50-150 %*		*1*	*06/19/24 06:37*	*NWTPH-Dx*	
EXC2-5 (A4F1245-05)				**Matrix: Soil**		**Batch: 24F0595**		
Diesel	**57.8**	---	29.9	mg/kg dry	1	06/19/24 07:08	NWTPH-Dx	**F-17**
Oil	**169**	---	59.8	mg/kg dry	1	06/19/24 07:08	NWTPH-Dx	**F-17**
Mineral Oil	ND	---	59.8	mg/kg dry	1	06/19/24 07:08	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 67 %*	*Limits: 50-150 %*		*1*	*06/19/24 07:08*	*NWTPH-Dx*	
EXC2-F-9 (A4F1245-06)				**Matrix: Soil**		**Batch: 24F0595**		
Diesel	ND	---	23.0	mg/kg dry	1	06/19/24 08:05	NWTPH-Dx	
Oil	ND	---	46.0	mg/kg dry	1	06/19/24 08:05	NWTPH-Dx	
Mineral Oil	ND	---	46.0	mg/kg dry	1	06/19/24 08:05	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 97 %*	*Limits: 50-150 %*		*1*	*06/19/24 08:05*	*NWTPH-Dx*	

Apex Laboratories

Cameron O'Brien, Project Manager

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503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

ACC Environmental Consultants, Inc.	Project: **JJ Wood**	
3925 NE 72nd Ave. Suite 103	Project Number: **10015-001.00**	**Report ID:**
Vancouver, WA 98661	Project Manager: **Craig Hultgren**	**A4F1245 - 06 27 24 1343**

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
EXC2-SWE-7 (A4F1245-07)				**Matrix: Soil**		**Batch: 24F0595**		
Diesel	ND	---	22.7	mg/kg dry	1	06/19/24 08:26	NWTPH-Dx	
Oil	ND	---	45.3	mg/kg dry	1	06/19/24 08:26	NWTPH-Dx	
Mineral Oil	ND	---	45.3	mg/kg dry	1	06/19/24 08:26	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 81 %*		*Limits: 50-150 %*	*1*	*06/19/24 08:26*	*NWTPH-Dx*	
EXC2-SWN-7 (A4F1245-08)				**Matrix: Soil**		**Batch: 24F0595**		
Diesel	ND	---	24.1	mg/kg dry	1	06/19/24 08:47	NWTPH-Dx	
Oil	ND	---	48.2	mg/kg dry	1	06/19/24 08:47	NWTPH-Dx	
Mineral Oil	ND	---	48.2	mg/kg dry	1	06/19/24 08:47	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 89 %*		*Limits: 50-150 %*	*1*	*06/19/24 08:47*	*NWTPH-Dx*	
EXC2-SWW-7 (A4F1245-09)				**Matrix: Soil**		**Batch: 24F0595**		
Diesel	ND	---	22.7	mg/kg dry	1	06/19/24 09:18	NWTPH-Dx	
Oil	ND	---	45.3	mg/kg dry	1	06/19/24 09:18	NWTPH-Dx	
Mineral Oil	ND	---	45.3	mg/kg dry	1	06/19/24 09:18	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		*Recovery: 76 %*		*Limits: 50-150 %*	*1*	*06/19/24 09:18*	*NWTPH-Dx*	

Apex Laboratories

Cameron O'Brien, Project Manager

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ANALYTICAL REPORT

ACC Environmental Consultants, Inc.	Project: JJ Wood	
3925 NE 72nd Ave. Suite 103	Project Number: 10015-001.00	Report ID:
Vancouver, WA 98661	Project Manager: Craig Hultgren	A4F1245 - 06 27 24 1343

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
EXC-F1-9 (A4F1245-01)				**Matrix: Soil**		**Batch: 24F0599**		
% Solids	**76.6**	---	1.00	%	1	06/19/24 07:31	EPA 8000D	
EXC-F2-9 (A4F1245-02)				**Matrix: Soil**		**Batch: 24F0599**		
% Solids	**84.6**	---	1.00	%	1	06/19/24 07:31	EPA 8000D	
EXC-SWN-7 (A4F1245-03)				**Matrix: Soil**		**Batch: 24F0599**		
% Solids	**78.5**	---	1.00	%	1	06/19/24 07:31	EPA 8000D	
EXC-SWS-7 (A4F1245-04)				**Matrix: Soil**		**Batch: 24F0599**		
% Solids	**79.0**	---	1.00	%	1	06/19/24 07:31	EPA 8000D	
EXC2-5 (A4F1245-05)				**Matrix: Soil**		**Batch: 24F0599**		
% Solids	**56.4**	---	1.00	%	1	06/19/24 07:31	EPA 8000D	
EXC2-F-9 (A4F1245-06)				**Matrix: Soil**		**Batch: 24F0599**		
% Solids	**77.4**	---	1.00	%	1	06/19/24 07:31	EPA 8000D	
EXC2-SWE-7 (A4F1245-07)				**Matrix: Soil**		**Batch: 24F0599**		
% Solids	**74.0**	---	1.00	%	1	06/19/24 07:31	EPA 8000D	
EXC2-SWN-7 (A4F1245-08)				**Matrix: Soil**		**Batch: 24F0599**		
% Solids	**73.7**	---	1.00	%	1	06/19/24 07:31	EPA 8000D	
EXC2-SWW-7 (A4F1245-09)				**Matrix: Soil**		**Batch: 24F0599**		
% Solids	**74.6**	---	1.00	%	1	06/19/24 07:31	EPA 8000D	

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Cameron O'Brien, Project Manager

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

ANALYTICAL REPORT

ACC Environmental Consultants, Inc.	Project: JJ Wood	
3925 NE 72nd Ave. Suite 103	Project Number: 10015-001.00	Report ID:
Vancouver, WA 98661	Project Manager: Craig Hultgren	A4F1245 - 06 27 24 1343

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24F0595 - EPA 3546 (Fuels)							Soil					
Blank (24F0595-BLK1)		Prepared: 06/18/24 07:54 Analyzed: 06/18/24 22:08										
NWTPH-Dx												
Diesel	ND	---	20.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	40.0	mg/kg wet	1	---	---	---	---	---	---	
Mineral Oil	ND	---	40.0	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 98 %*		*Limits: 50-150 %*			*Dilution: 1x*					
LCS (24F0595-BS1)		Prepared: 06/18/24 07:54 Analyzed: 06/18/24 22:28										
NWTPH-Dx												
Diesel	116	---	20.0	mg/kg wet	1	125	---	92	38 - 132%	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 99 %*		*Limits: 50-150 %*			*Dilution: 1x*					
Duplicate (24F0595-DUP2)		Prepared: 06/18/24 10:34 Analyzed: 06/19/24 09:38										
QC Source Sample: EXC2-SWW-7 (A4F1245-09)												
NWTPH-Dx												
Diesel	ND	---	22.7	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	ND	---	45.4	mg/kg dry	1	---	ND	---	---	**---**	**30%**	
Mineral Oil	ND	---	45.4	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)		*Recovery: 92 %*		*Limits: 50-150 %*			*Dilution: 1x*					

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QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24F0599 - Total Solids (Dry Weight) - 2022												Soil
Duplicate (24F0599-DUP1)		Prepared: 06/18/24 09:13		Analyzed: 06/19/24 07:31								
QC Source Sample: EXC-F1-9 (A4F1245-01)												
EPA 8000D												
% Solids	**76.6**	---	1.00	%	1	---	76.6	---	---	0.1	10%	
Duplicate (24F0599-DUP2)		Prepared: 06/18/24 09:13		Analyzed: 06/19/24 07:31								
QC Source Sample: EXC-F2-9 (A4F1245-02)												
EPA 8000D												
% Solids	**84.1**	---	1.00	%	1	---	84.6	---	---	0.6	10%	
Duplicate (24F0599-DUP3)		Prepared: 06/18/24 09:13		Analyzed: 06/19/24 07:31								
QC Source Sample: EXC-SWN-7 (A4F1245-03)												
EPA 8000D												
% Solids	**77.9**	---	1.00	%	1	---	78.5	---	---	0.7	10%	
Duplicate (24F0599-DUP4)		Prepared: 06/18/24 09:13		Analyzed: 06/19/24 07:31								
QC Source Sample: EXC-SWS-7 (A4F1245-04)												
EPA 8000D												
% Solids	**78.5**	---	1.00	%	1	---	79.0	---	---	0.7	10%	

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SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24F0595							
A4F1245-01	Soil	NWTPH-Dx	06/17/24 09:32	06/18/24 10:34	11.06g/5mL	10g/5mL	0.90
A4F1245-02	Soil	NWTPH-Dx	06/17/24 09:48	06/18/24 10:34	11.06g/5mL	10g/5mL	0.90
A4F1245-03	Soil	NWTPH-Dx	06/17/24 09:58	06/18/24 10:34	11.96g/5mL	10g/5mL	0.84
A4F1245-04	Soil	NWTPH-Dx	06/17/24 10:05	06/18/24 10:34	11.14g/5mL	10g/5mL	0.90
A4F1245-05	Soil	NWTPH-Dx	06/17/24 10:32	06/18/24 10:34	11.85g/5mL	10g/5mL	0.84
A4F1245-06	Soil	NWTPH-Dx	06/17/24 10:40	06/18/24 10:34	11.24g/5mL	10g/5mL	0.89
A4F1245-07	Soil	NWTPH-Dx	06/17/24 10:50	06/18/24 10:34	11.93g/5mL	10g/5mL	0.84
A4F1245-08	Soil	NWTPH-Dx	06/17/24 11:00	06/18/24 10:34	11.25g/5mL	10g/5mL	0.89
A4F1245-09	Soil	NWTPH-Dx	06/17/24 11:06	06/18/24 10:34	11.83g/5mL	10g/5mL	0.85

Percent Dry Weight

Prep: Total Solids (Dry Weight) - 2022

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24F0599							
A4F1245-01	Soil	EPA 8000D	06/17/24 09:32	06/18/24 09:13			NA
A4F1245-02	Soil	EPA 8000D	06/17/24 09:48	06/18/24 09:13			NA
A4F1245-03	Soil	EPA 8000D	06/17/24 09:58	06/18/24 09:13			NA
A4F1245-04	Soil	EPA 8000D	06/17/24 10:05	06/18/24 09:13			NA
A4F1245-05	Soil	EPA 8000D	06/17/24 10:32	06/18/24 09:13			NA
A4F1245-06	Soil	EPA 8000D	06/17/24 10:40	06/18/24 09:13			NA
A4F1245-07	Soil	EPA 8000D	06/17/24 10:50	06/18/24 09:13			NA
A4F1245-08	Soil	EPA 8000D	06/17/24 11:00	06/18/24 09:13			NA
A4F1245-09	Soil	EPA 8000D	06/17/24 11:06	06/18/24 09:13			NA

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3925 NE 72nd Ave. Suite 103	Project Number: **10015-001.00**	**Report ID:**
Vancouver, WA 98661	Project Manager: **Craig Hultgren**	**A4F1245 - 06 27 24 1343**

QUALIFIER DEFINITIONS

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

Apex Laboratories

F-17 No fuel pattern detected. The Diesel result represents carbon range C10 to C25, and the Oil result represents >C25 to C40.

Apex Laboratories

Cameron O'Brien, Project Manager

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.

ND Analyte NOT DETECTED at or above the detection or reporting limit.

NR Result Not Reported.

RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

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

Reporting Limits: Limit of Quantitation (LOQ)

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

Reporting Conventions:

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

" dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

" wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

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

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

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL).
Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.
-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.
'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

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

Soil and Sediment Samples:

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

Sampling and Preservation Notes:

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

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

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

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

Apex Laboratories

Cameron O'Brien, Project Manager

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3925 NE 72nd Ave. Suite 103	Project Number: **10015-001.00**	**Report ID:**
Vancouver, WA 98661	Project Manager: **Craig Hultgren**	**A4F1245 - 06 27 24 1343**

LABORATORY ACCREDITATION INFORMATION

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

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

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

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

Secondary Accreditations

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

Subcontract Laboratory Accreditations

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

Field Testing Parameters

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

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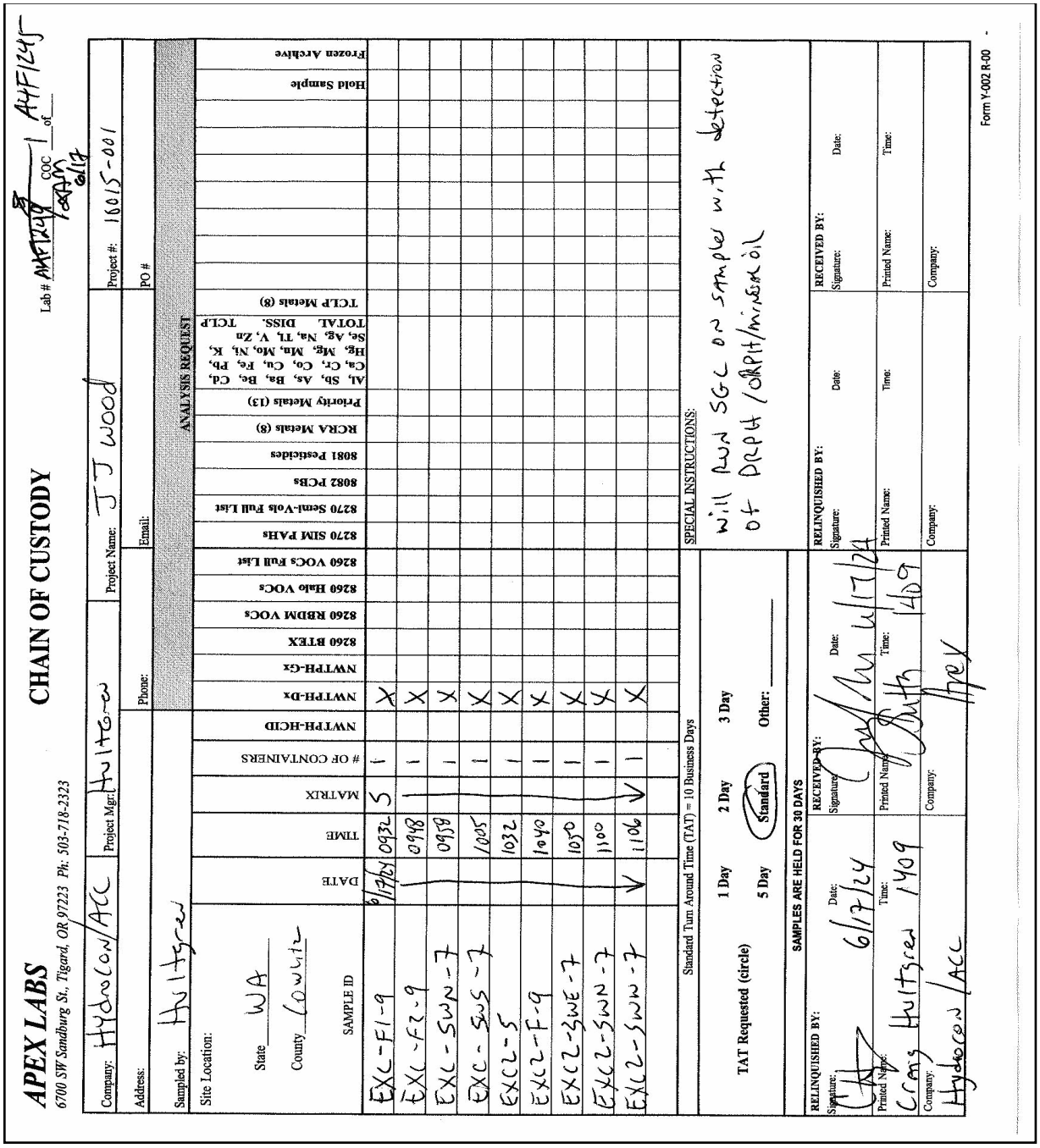

APEX LABS
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

Lab # A4F1245 COC 1 of 1

Company: Hydrocon/ACC | Project Mgr: Hultgren | Project Name: JJ Wood | Project #: 10015-001
Address: | Phone: | Email: | PO #
Sampled by: Hultgren
Site Location: State WA County Lowlitz

SAMPLE ID	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pesticides	RCRA Metals (8)	Priority Metals (13)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS. TCLP	TCLP Metals (8)	Hold Sample	Frozen Archive
EXC-F1-9	6/17/24	0932	S	1		X															
EXC-F2-9		0948		1		X															
EXC-SWN-7		0959		1		X															
EXC-SWS-7		1005		1		X															
EXC2-5		1032		1		X															
EXC2-F-9		1040		1		X															
EXC2-SWE-7		1050		1		X															
EXC2-SWN-7		1100		1		X															
EXC2-SWW-7	↓	1106	↓	1		X															

Standard Turn Around Time (TAT) = 10 Business Days

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

SPECIAL INSTRUCTIONS:
will run SGC on sample with detection of DRPH/ORPH/mineral oil

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: | Printed Name: Craig Hultgren | Company: Hydrocon/ACC | Date: 6/17/24 | Time: 1409
RECEIVED BY: Signature: | Printed Name: | Company: | Date: | Time:
RELINQUISHED BY: Signature: | Printed Name: | Company: | Date: | Time:
RECEIVED BY: Signature: | Printed Name: | Company: | Date: | Time:

Form Y-002 R-00

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Vancouver, WA 98661	Project Manager: **Craig Hultgren**	**A4F1245 - 06 27 24 1343**

APEX LABS COOLER RECEIPT FORM

F1245

Client: HydroCon / ACC Element WO#: A4F1245

Project/Project #: JJ Wood 10015-001 2xDM 6/17

Delivery Info:

Date/time received: 6/17/24 @ 1409 By: JS

Delivered by: Apex__Client_X_ESS__FedEx__UPS__Radio__Morgan__SDS__Evergreen__Other__

From USDA Regulated Origin? Yes ____ No X

Cooler Inspection Date/time inspected: 6/17/24 @ 1410 By: JS

Chain of Custody included? Yes X No ____

Signed/dated by client? Yes X No ____

Contains USDA Reg. Soils? Yes ____ No X Unsure (email RegSoils) ____

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	1.6						
Custody seals? (Y/N)	N						
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	N						
Ice type: (Gel/Real/Other)	Real						
Condition (In/Out):	In						

Cooler out of temp? (Y/(N)) Possible reason why: ____

Green dots applied to out of temperature samples? Yes/(No)

Out of temperature samples form initiated? Yes/(No)

Sample Inspection: Date/time inspected: 6/17/24 @ 14:27 By: 2RM

All samples intact? Yes X No ___ Comments: ____

2xDM 6/17

Bottle labels/COCs agree? Yes X No X Comments: Containers for EXC-SWN-7; EXC-SWS-7 reads EXC-SWN-7.5; EXC-SWS-7.5.

COC/container discrepancies form initiated? Yes ___ No X

Containers/volumes received appropriate for analysis? Yes X No ___ Comments: ____

Do VOA vials have visible headspace? Yes ___ No ___ NA X

Comments ____

Water samples: pH checked: Yes___No___NA X pH appropriate? Yes___No___NA X pH ID:____

Comments: ____

Labeled by: 2RM Witness: JS Cooler Inspected by: 2RM

Form Y-003 R-02

Apex Laboratories

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