

January 15, 2020

Marcus Graefenhain Project Developer Cypress Creek Renewables 3402 Pico Blvd. Santa Monica, California 90405

# Cypress Creek Renewables – Ostrea Solar Project Draft Geotechnical Report

ANS Geo, Inc. is pleased to provide this Draft Geotechnical Report (Report) to Cypress Creek Renewables (CCR) to summarize the results of our geotechnical field investigation in support of the proposed Ostrea Solar project located in Moxee, Washington. To guide the design and construction of the proposed solar facility, ANS Geo developed and implemented a geotechnical investigation program which encompassed a brief desktop study of local geologic conditions, soil borings, test pit excavations, field electrical resistivity testing, preliminary environmental due diligence sampling, laboratory thermal resistivity testing, and laboratory soil material testing.

It is expected that the successful EPC selected to perform final design and construction will perform supplemental investigations and studies, including pile load testing, to confirm the information presented and develop more detailed information which may be required for the final design.

## 1. Methodology

#### 1.1 Soil Borings

ANS Geo retained Elite Drilling Services (EDS) of Denver, Colorado to advance 16 soil borings completed at select locations across the project site between December 2 and 7, 2020. The soil boring locations are depicted in the Investigation Location Plan, provided as **Attachment A**. It should be noted that the original scope of work included 29 soil borings; however, shallow rock was encountered throughout the site. Therefore, during our investigation program it was agreed, between ANS Geo and CCR, that test pit excavations would be better suited to observe geologic conditions in replacement of soil borings at several locations. As such, soil boring and test pit IDs may appear interchanged and/or missing (ie. B-01, TP-02, B-03, TP-04, etc.).

Each soil boring was advanced to practical refusal, generally encountered between 1.4 and 9.8 feet below ground surface (BGS). A track-mounted Mobile B-57 drill rig was used to collect soil samples using the Standard Penetration Test (SPT) Method through hollow-stem augers in accordance with ASTM Standard D1586. Soil samples were collected continuously to the termination depth in each boring. Soil borings, proposed by ANS Geo and confirmed by Cypress Creek review, were distributed throughout the project's array area to provide coverage across development areas. One boring, B-SS-1, was situated within the proposed substation footprint. At the substation location (B-SS-1), rock coring was conducted using a wireline setup in accordance with ASTM D2113 to confirm the presence and quality of bedrock. All soil borings were overseen and logged by an ANS Geo representative under the direction of a Professional Engineer licensed in the State of Washington. Typed soil boring logs are presented within **Attachment B**.

At select soil boring locations, auger cuttings were collected within four (4) feet of grade with the purpose of obtaining bulk soil samples for laboratory California Bearing Ratio (CBR), thermal resistivity testing (TRT), and corrosivity testing. Upon completion, each borehole was backfilled to its existing grade with soil cuttings.

#### 1.2 Test Pits

As discussed in the previous section, 13 test pits were excavated by EDS at select locations across the project site between December 4 and 5, 2020. The test pit locations are depicted in the Investigation Location Plan, provided as **Attachment A**.

All test pits were excavated using a John Deere 26G excavator and were overseen and documented by a ANS Geo geotechnical representative under the direction of a Professional Engineer licensed in the State of Washington. Soil strata changes, soil classification, and excavation depths were documented during each test pit excavation and are presented within the test pit logs provided as **Attachment C**. Test pits were all excavated to bedrock which was encountered between 1.0 and 4.3 feet below grade. Similar to soil boring locations, bulk samples were collected from select test pits for laboratory testing. Upon completion, each test pit excavation was backfilled with native soil cuttings, bucket-tamped, and tracked over with the excavator to minimize any post-excavation settlement.

### 1.3 Electrical Resistivity Testing

As part of our field investigation program, ANS Geo performed field Electrical Resistivity Tomography (ERT) testing on October 29 and 30, 2020. Testing was conducted at 14 locations within the proposed array area(s) and one (1) location within the proposed substation footprint. In-situ soil resistivity measurements were obtained by utilizing the Wenner 4-Pin Method in accordance with ASTM G57 and IEEE Standard 80.

Two (2) mutually perpendicular traverses were collected at each location utilizing "a"-spacings of 1, 1.5, 2, 3, 4.5, 7, 10, 15, 22.5, 35, 50, and 75 feet within the array areas, with additional 100 and 150-foot spacings at the substation location. Test results are presented as **Attachment D**.

### 2. Geology and Subsurface Conditions

ANS Geo conducted a brief, desktop review of surficial and bedrock geology maps and reports made available by the United States Geological Survey (USGS) prior to conducting our field investigation. The available mapping indicates that the site lies within Quaternary nonmarine deposits. This particular surficial unit includes eolian deposits consisting of light brown, homogenous loessial silt with minor gravel, boulders, and sand inclusions.

Bedrock geology of the area consists of Miocene volcanic rocks Unit from the Middle Miocene age. The unit is generally known as Yakima ballast, and locally interchanged with Columbia River Basalts. The bedrock is described as dark-gray to black, dense, aphanitic basalt flows; commonly columnar jointed Dark-gray to black, dense aphanitic basalt flows; commonly columnar jointed, less commonly irregularly and platy jointed; some flows vesicular, grading to scoriaceous; includes minor pillow lava, palagonite beds, and interbedded soil profiles and sedimentary beds; contains diatomite beds locally. Maximum thickness in south-central Washington may be in excess of 10,000 feet; much thinner in western Washington, where flows are mostly associated with marine sedimentary rocks. Includes acidic and intermediate volcanic rocks in northern Cascade Mountains. The mapped surficial unit is mostly consistent with the findings of our field investigations.

ANS Geo has provided the generalized subsurface conditions within Table 1 based upon the observations made during our geotechnical investigation for the Ostrea Solar project. Soil boring and test pit logs have been provided as **Attachments B** and **C**, respectively, and should be reviewed for specific soil condition observations.



Table 1 - Generalized Subsurface Profile

Average Depth (ft)	Material	Average Consistency	Description
0' – 0.5'	Topsoil	-	Approximately three (3) to nine (9) inches of topsoil existed at the surface throughout most of the project area.
0.5 – 3'	Silt (ML)	Medium Stiff	Light brown silt with varying amounts of sand, gravel, and clay were encountered beneath the topsoil layer in most locations. This material was noted to be very dry and predominantly nonplastic. Gravels and rock fragments were frequently encountered near the bottom of this stratum.
3' – 4'	Gravel / Cobbles (GM)	Dense	Dense silty gravel and/or cobbles were frequently encountered beneath the silt layer.
4' +	Basalt	-	Strong, generally moderately weathered basalt bedrock was encountered or inferred at all investigation locations beginning between one (1) and 9.8 feet below grade.

# 3. Laboratory Results

### 3.1 Soil Index Testing

Representative soil samples were collected during our investigation and submitted to ANS's accredited materials testing laboratory. A summary of the index laboratory test results is provided within Table 2. Asreceived laboratory test results are included within **Attachment E**.

Table 2 - Soil Index Testing Summary

Davina ID	Commis ID	Double (foot)	0/ C	0/ Cand	% F	ines	O/ Majatura
Boring ID	Sample ID	Depth (feet)	% Gravel	% Sand	% Silt	% Clay	% Moisture
B-01	S-3	4 – 6	5.6	29.5	57.8	7.1	6.5
B-07	S-2	2 – 4	58.7	24.1	17	7.2	2.9
B-10	S-2	2 – 4	28.3	50.8	20	).9	8.8
B-18	S-3	4 – 6	32.4	53.1	14	1.5	8.4
B-20	S-1	0 – 2	0	33.6	60.5	5.9	6.7
B-21	S-2	2 – 4	25.9	28.6	45	5.5	7.1
B-24	S-1	0 – 2	4.9	27.0	68	3.1	5.8
B-26	S-2	2 – 4	24.1	37.9	38	3.0	5.6
B-SS-1	S-2	2 – 4	32.1	53.4	14	1.5	5.5
Boring ID	Sample ID	Depth (feet)	Liquid Limit	Plastic Limit	Plastici	ty Index	% Moisture
B-13	S-2	2 – 4	28.0	19.6	8	.4	4.8
B-27	S-1	0 – 2	28.3	19.7	8	.6	6.1

### 3.2 Thermal Resistivity Testing

ANS Geo collected bulk samples from eight (8) investigation locations generally between one (1) and four (4) feet below grade for laboratory testing of Thermal Resistivity. Soils were collected in a five-gallon bucket and delivered to ANS Consultants' accredited laboratory for testing. The soil was compacted to 85 percent of its Standard Proctor Density in accordance with ASTM D698, and Thermal Resistivity Testing was conducted in



accordance with IEEE Standard 442-2017. Results of the thermal testing are summarized within Table 3. Complete, as-received results have been provided within **Attachment E**.

Table 3 – Thermal Resistivity Testing Summary

		Thermal F	Resistivity Va	alues at Vario	ous Moisture	Contents	Received	Do Moldad Dwy	
Boring ID	Material Type	% water	% water	% water	% water	% water	Moisture	Re-Molded Dry Density (lb/ft³)	
		(°C-cm/W)	(°C-cm/W)	(°C-cm/W)	(°C-cm/W)	(°C-cm/W)	Content (%)		
TP-02	Silt, little Sand	0	4	8	12	16.2	3.9	90.7	
17-02	(ML)	779	315	178	145	135	5.9	90.7	
TP-05	Silt, little Gravel	0	3.5	7.2	11.1	14.9	4.1	87.2	
17-05	(ML)	754	314	181	142	126	4.1	07.2	
TP-09	Silt, little Sand	0	5	10	15	19.1	6.7	87.0	
17-09	(ML)	773	322	152	98	86	0.7	67.0	
TP-16	Silt, little Sand	0	4	8	12	16.1	4.03	85.5	
17-10	(ML)	740	308	178	139	125	4.03	00.0	
TP-17	Silt, little Sand	0	4	8	12	15.7	4.07	90.7	
IF-17	(ML)	615	247	126	79	70	4.07	90.7	
B-23	Silt, some Sand	0	4	8	12	15.4	4.06	89.5	
D-23	(ML)	762	325	192	149	132	4.00	69.5	
TP-28	Silt, little Sand	0	3.5	7.8	12	15.6	4.76	88.3	
17-20	(ML)	768	328	194	150	133	4.70	00.3	
B-SS-01	Gravelly Sand	0	4	8	12	15.4	4.81	89.1	
D-33-01	(SM)	588	228	132	109	99	4.01	09.1	

# 3.3 Corrosivity Testing

ANS Geo collected additional samples from one (1) to three (3) feet below grade for corrosivity testing. The results of the testing, completed by ANS Consultants, have been summarized within Table 4 and are detailed within **Attachment E**.

Table 4 - Corrosivity Testing Summary

			rooming rooming can	· ,			
Boring/Test pit ID	рН	Sulfate (mg/kg)	Chloride (mg/kg)	Soil Box (Calculated Resistivity) (Ω/cm)	Redox Potential (average) (mV)		
B-01	6.38	14	30	9,000	193		
TP-02	6.27	0	15	11,000	236		
TP-05	6.44	15	25	9,000	215		
B-07	6.59	17	90	8,000	190		
B-10	6.76	9	50	6,000	183		
B-13	6.88	6	25	7,000	177		
TP-16	6.47	16	45	6,000	187		
TP-17	5.10	27	40	8,500	186		
B-18	6.76	14	35	7,000	172		
TP-19	6.74	22	35	9,000	221		
TP-22	6.52	20	55	10,000	203		
TP-23	6.72	11	30	9,000	211		
TP-25	5.91	15	35	10,500	197		
TP-28	5.72	18	60	13,000	195		



#### 3.4 California Bearing Ratio

ANS Geo collected an additional sample at three (3) locations from one (1) to three (3) feet below grade for testing of California Bearing Ratio (CBR) in accordance with ASTM D1883. The results of the testing, completed by ANS Consultants, have been summarized within Table 5 and are detailed within **Attachment E**.

Table 5 - California Bearing Ratio Summary

Location ID	CBR Ratio (%)
TP-09	6.2
B-23	3.3
B-SS-01	4.2

# 4. Environmental Sampling

Although no "recognized environmental considerations" ("RECs") were observed during the Phase I Environmental Site Assessment (ESA) conducted for the Ostrea project site, ANS Geo collected three grab soil samples to evaluate for background soil characteristics.

ANS Geo proposed and conducted a sampling and evaluation methodology during our investigation program as follows:

- 1. Advance excavation to a shallow depth (0 2 foot interval), and utilize a MiniRae 3000 photo-ionization detector (PID) to screen the sample and bottom of excavation for any indications of volatile organic content readings.
- 2. Visually screen soil samples for staining, discoloration, foreign debris (man-made fill), as well as note any odors. Preserve each sample in glass jars.
- 3. Using the PID equipment and observations, target the highest reading for environmental testing. If none of the samples were observed to have a reading or visual/odor marker, take a near-surface sample (1- 2 foot depth) and perform a full environmental test suite for volatile organics, semi-volatile organics (BTEX, MTBE, typical gas/diesel range organics), and metals.

Using this evaluation method and procedure, ANS Geo collected three surficial grab samples to determine baseline/background soil environmental characteristics. Samples were collected within TP-04, TP-11, and TP-19 and submitted for laboratory testing to evaluate the presence of specific compounds and their concentrations within the project area. These select samples were submitted to Cascade Analytical, a USEPA-accredited environmental laboratory, for testing in accordance with their respective methods and standards. A summary of the compounds detected, and their concentration, is presented within Table 6. Complete environmental sampling results are provided within **Attachment F**.



Table 6 - Summary of Environmental Exceedances

Compounds	<b>TP-04</b> (1'-2')	<b>TP-11</b> (1'-2')	<b>TP-19</b> (1'-2')
Arsenic	5.2	3.3	-
Cadmium	0.083 J	0.091 J	-
Chromium	16	15	-
Lead	8.5	6.4	-
Mercury	0.018 J	0.020 J	-
Motor Oil	33 J	31 J	36 J
Naphthalene	-	6.7 J B	-

#### Table Notes

- Only concentrations above their respective method detection limits are summarized.
- Concentrations in bold text are greater than or equal to their respective reporting limits.
- All concentrations are reported in mg/Kg (parts per billion).
- J = approximate value
- B = compound detected in both blank and sample

#### 5. Seismic Site Classification

Based on the observations recorded within our subsurface investigation program and utilizing the N-Value method as prescribed in Chapter 20 of ASCE 7-16, Site Class C, at minimum, can be assumed as the average condition across the project site.

The following Site Class C seismic ground motion values were obtained from the USGS Seismic Hazard Maps, referenced in ASCE 7-16 Standard, for this site:

- 0.2 second spectral response acceleration, S<sub>S</sub>= 0.422 g
- 1 second spectral response acceleration, S<sub>1</sub>= 0.172 g
- Maximum spectral acceleration for short periods, S<sub>MS</sub>= 0.549 g
- Maximum spectral acceleration for a 1-second period, S<sub>M1</sub>= 0.257 g
- 5% damped design spectral acceleration at short periods, S<sub>DS</sub>= 0.366 g
- 5% damped design spectral acceleration at 1-second period, S<sub>D1</sub>= 0.172 g

#### 5.1 Preliminary Seismic Evaluation

The designated seismic site class is anticipated based on results from our limited investigation program and using select areas of the site which have been investigated by ANS Geo. Backup data for the site class determination is provided as **Attachment G**. Based on our observation of subsurface conditions, estimated Site Class rating, and review of USGS's 2018 National Seismic Hazard Map, ANS Geo concludes that there is a low to moderate risk of significant seismic activity which may impact the proposed solar facility.

#### 6. Foundation Considerations

ANS Geo anticipates that, as typical with solar farm construction, embedded posts, such as W6x9 H-piles, will be used to support the proposed solar panels. Conventional shallow foundations such as sonotubes, spread footings, or similar systems may also be utilized for equipment pads and associated support structures.



#### 6.1 Corrosion Considerations

Given the soil's measured acidity, sulfate and chloride concentrations, resistivity, and redox potential summarized in **Section 3.3** (Table 4), in consideration with the soil and moisture conditions observed, the influence of corrosion attack on embedded steel piles is considered to be generally mild.

#### 6.2 Frost & Adfreeze Considerations

Within Yakima County, Washington, frost depth is mapped to exist at approximately 18 inches below grade. As such, ANS Geo recommends that all structural foundations be founded at 18 inches (1.5 feet) below grade or deeper to ensure adequate protection from frost conditions which may jeopardize the integrity of subgrade soils and associated substructure.

Given the location of the project and soils encountered, the potential for frost heave against post foundations should be considered. Fine-grained soils, or granular soils with greater than 10 percent fine-grained content are frost-susceptible due to the inability of entrapped moisture from infiltrating or evaporating prior to freezing. Trapped moisture will begin to create ice lenses, which will grip the steel posts or embedded structures, followed by ice-jacking due to frost heave. The phenomenon is more commonly referred to as "adfreeze stress", which can be considered as an external, upward force applied to the post. The magnitude of the upward force will depend on the depth/thickness of the frost zone, the interface bond stress between embedded structure/material and the surrounding area, and the surface area of the structure/material in contact with this bond stress. As predominantly silty soils were observed near grade, ANS Geo recommends that an unfactored adfreeze (uplift) stress of 1,500 pounds per square foot (10.4 psi) be considered for the upper 1.5 feet of overburden soil during panel foundation sizing and design.

#### 6.3 Recommended Soil Parameters

Based on our interpretation of the subsurface conditions observed within our limited investigation program, and the laboratory testing results, ANS Geo recommends that the soil parameters, as depicted within Table 7, be considered for preliminary design purposes.

		Tubio			mary con r an			
Depth	Material	Total Unit Weight	Weight Friction Cohesion Soil S		Soil Strain (E <sub>50</sub> )	Allowable Bearing Capacity	Allowable Side Resistance	
0' – 1.5'	Topsoil / Upper Silt	95 lb/ft <sup>3</sup>	20°	0 lb/ft <sup>2</sup>	20 lb/in <sup>3</sup>	-	300 lb/ft <sup>2</sup>	0 lb/ft <sup>2</sup>
1.5' – 3'	Silt (ML)	105 lb/ft <sup>3</sup>	31°	0 lb/ft <sup>2</sup>	100 lb/in <sup>3</sup>	-	2,000 lb/ft <sup>2</sup>	50 lb/ft <sup>2</sup>
3' – 4'	Gravel (GM)	120 lb/ft <sup>3</sup>	35°	0 lb/ft <sup>2</sup>	250 lb/in <sup>3</sup>	-	4,000 lb/ft <sup>2</sup>	100 lb/ft <sup>2</sup>
4' +	Basalt (bedrock)	140 lb/ft <sup>3</sup>	37°	0 lb/ft <sup>2</sup>	500 lb/in <sup>3</sup>	0.001	6,000 lb/ft <sup>2</sup>	400 lb/ft <sup>2</sup>

Table 7 - Recommended Preliminary Soil Parameters

ANS Geo recommends that allowable side resistance within the upper 1.5 feet be neglected due to anticipated surficial disturbance, and adfreeze stresses as noted in **Section 6.2** should be considered. These allowable capacities and resistances provided are based on a serviceability limit of one-inch of maximum deflection/settlement. It should also be noted that these parameters have been established based on our engineering judgment. A detailed investigation program, including pile load testing, should be performed to confirm and calibrate these values prior to construction.



#### 7. Construction Recommendations

#### 7.1 Excavation

Based on the encountered subsurface conditions and anticipated foundation configurations, some excavations may extend deeper than four feet below grade. As such, excavations deeper than four feet should be shored or sloped and benched, in accordance with OSHA regulations, to ensure safe working conditions within the excavations. For benching purposes, overburden soils may be considered as "Type C" material and should be sloped no steeper than 1.5H:1V (horizontal to vertical). Intact basalt bedrock, if deemed stable, may be vertically cut within shallow temporary excavations and trenches. OSHA soil classifications should be field-determined by the contractor's "competent person" prior to excavation. Any proposed shoring systems should be designed by the contractor's "competent person", be certified by a Professional Engineer licensed in the State of Washington, and should be submitted to the engineer for review.

The contractor should expect cobbles, boulders, and bedrock within shallow excavations and earthwork activities. ANS Geo notes that pre-drilling for post locations to clear cobbles, boulders, and bedrock should be anticipated and is further discussed in **Section 7.6**.

#### 7.2 Dewatering

ANS Geo did not encounter groundwater at the time of our investigation program. Notwithstanding, the contractor should be prepared to manage any perched water and/or infiltrated stormwater as needed using localized pump-and-sump or similar techniques to allow for concrete foundation construction in-the-dry. Water discharge should be managed in compliance with applicable state and local regulations. The contractor should be sure to grade the surface as necessary to divert stormwater away from open excavation to the extent possible.

### 7.3 Subgrade Preparation

Prior to the installation of shallow concrete foundations, ANS Geo recommends overexcavating the subgrade by at least four (4) inches, lining the exposed material with a geotextile separation fabric, and bringing the subgrade back up to the design foundation elevation with compacted structural fill as specified within Table 8. Native material beneath the separation fabric should be inspected for unsatisfactory conditions such as standing water, frozen soil, organics, or deleterious materials. Should any unsatisfactory conditions exist within the native subgrade, the excavation should be undercut an additional four inches (8 total inches beneath proposed foundation depth) prior to placement of the geotextile separation fabric.

Sieve Size	Percent Passing
3-inch	100
1 ½-inch	60 – 100
No. 4	30 – 60
No. 200	0 – 10

Table 8 - Recommended Gradation of Structural Fill

Structural fill material should be placed in loose lifts not exceeding eight (8) inches in height and be compacted to at least 95 percent of its Modified Proctor Density in accordance with ASTM D1557.

### 7.4 Backfilling and Re-use of Native Soils

ANS Geo notes that native fine-grained soils (silts) on site will likely be difficult to handle, place, and compact without proper moisture conditioning and protection. ANS Geo recommends the following measures be considered to reduce the adverse impacts of moisture-sensitive soils:



- Positive measure should be implemented and maintained to intercept and direct surface water away from moisture-sensitive subgrade surfaces.
- Subgrade surfaces should be sloped and, as appropriate, seal-rolled to facilitate proper drainage.
   Surfaces should be properly prepared in anticipation of inclement weather. Moisture should not be allowed to collect on subgrade surfaces.
- To the extent practical, the limits of exposed subgrade soils should be minimized.
- Construction traffic should be limited to properly constructed haul roads.
- Disturbed soils should be removed and replaced with compacted controlled fill material.
- In place moisture contents should be maintained with two percent wet/dry of the optimum moisture content as determined by the Modified Proctor Test (ASTM D1557).

These soils may be re-used across the project area for fill in landscaped areas; however, it should not be used under or above foundations or load-bearing structures where typically imported structural fill is used. Native material used as backfill for cable trenches should be handled and placed at a moisture content at or above its optimum value to ensure representative thermal properties are maintained.

In areas around and above installed foundations, large utilities, and other buried site features, ANS Geo recommends importing a clean granular material with less than 15 percent fine-grained content for use as general backfill. General backfill material should not be used beneath any load-bearing structures and should be placed in loose lift thicknesses not exceeding 12 inches and be compacted to at least 95 percent of its Modified Proctor Density (ASTM D1557). Soil used as backfill should not be handled when frozen and should be free of excessive moisture, organics, and deleterious material.

In fill areas beneath foundations, access roads, and load-bearing structures, ANS Geo recommends structural fill as described in **Section 7.3** and Table 8.

#### 7.5 Access Roads

ANS Geo understands that an access road will likely be required to enter and exit the project site as well as provide access to the equipment pad locations. It is also our understanding that this access road will likely be unpaved, to accommodate occasional light vehicular traffic such as utility pickup truck or similar vehicle. As such, ANS Geo recommends that access roads be constructed with at least six (6) inches of crushed stone as specified within Table 9.

Sieve Size	Percent Passing
1 ½-inch	100
¾-inch	55 – 90
No. 4	25 – 50
No. 50	5 – 20
No. 200	3 – 10

Table 9 - Recommended Gradation of Crushed Stone

Prior to roadway construction, the subgrade should be stripped of vegetation and topsoil, and be proof-rolled with at least four (4) roundtrip passes of a smooth-drum roller with a minimum operating weight of eight (8) tons. The prepared subgrade should be confirmed to maintain a minimum CBR value of 10. Although not anticipated, if required, additional stabilization may be obtained through chemical treatment of the subgrade including introduction of lime or cement. Crushed stone should be placed in loose lifts not exceeding eight (8) inches in height and be compacted to at least 95 percent of its Modified Proctor Density (ASTM D1557).

#### 7.6 Pile Drivability

ANS Geo anticipates that, as typical with solar farm construction, solar panels will be supported by steel H-Piles (wide-flanged sections) driven to approximately 8 to 10 feet below grade. It is ANS Geo's professional opinion that the parameters provided in **Section 6.3** may be used to preliminarily size the proposed piles,



however, piles should be axially and laterally load tested to confirm their capacities at representative locations prior to final design and construction. These steel piles are typically installed via direct-push, vibration, and/or percussive hammer methods.

Based on our observations within our investigation program, Based on our observations within our investigation program, we expect that regular obstructions or refusals associated with bedrock, cobbles, and/or boulders will be encountered as shallow as two feet below grade. As such, ANS Geo recommends that the contractor pre-drill all proposed post locations. We recommend that pre-drilled holes be completed to a diameter slightly smaller than the diagonal dimension of the proposed pile section to ensure a tight fit once the pile is driven to its targeted depth. For example, a six (6)-inch diameter hole may be drilled and utilized for W6x9 section (approx. 7.1-inch diagonal measurement). The contractor should be aware, however, that heavier sections (ie. W6x12 or W6x15) may have limiting "bending" capacity in its flanges, and therefore require a hole of a slightly larger proportion.

#### 8. Limitations

ANS Geo notes that the findings and recommendations presented within this Draft Geotechnical Report are based on our limited investigation program conducted in October through December 2020 and our engineering judgment. A load testing program should be completed prior to conducting a detailed post foundation design. Should the scope of the project or proposed site layout change, ANS Geo should be given the opportunity to review the applicability of the collected information and modify our recommendations, as needed.

We sincerely appreciate the opportunity to support this project, and please feel free to contact us should you have any questions regarding the findings of this Report.

Yours Truly,

Vatsal Shah, PE, Ph.D, D.GE

Wall-

Principal Engineer ANS Geo, Inc.

(908) 754-8800

vatsal.shah@ansgeo.com

Eric Pauli, PE Senior Engineer ANS Geo, Inc.

Gin Paul

(908) 754-8800

eric.pauli@ansgeo.com

#### **Attachments**

Attachment A - Investigation Location Plan

Attachment B - Soil Boring Logs

Attachment C – Test Pit Photo Logs

Attachment D – Electrical Resistivity Results

Attachment E – Geotechnical Laboratory Test Results

Attachment F - Environmental Sampling Results

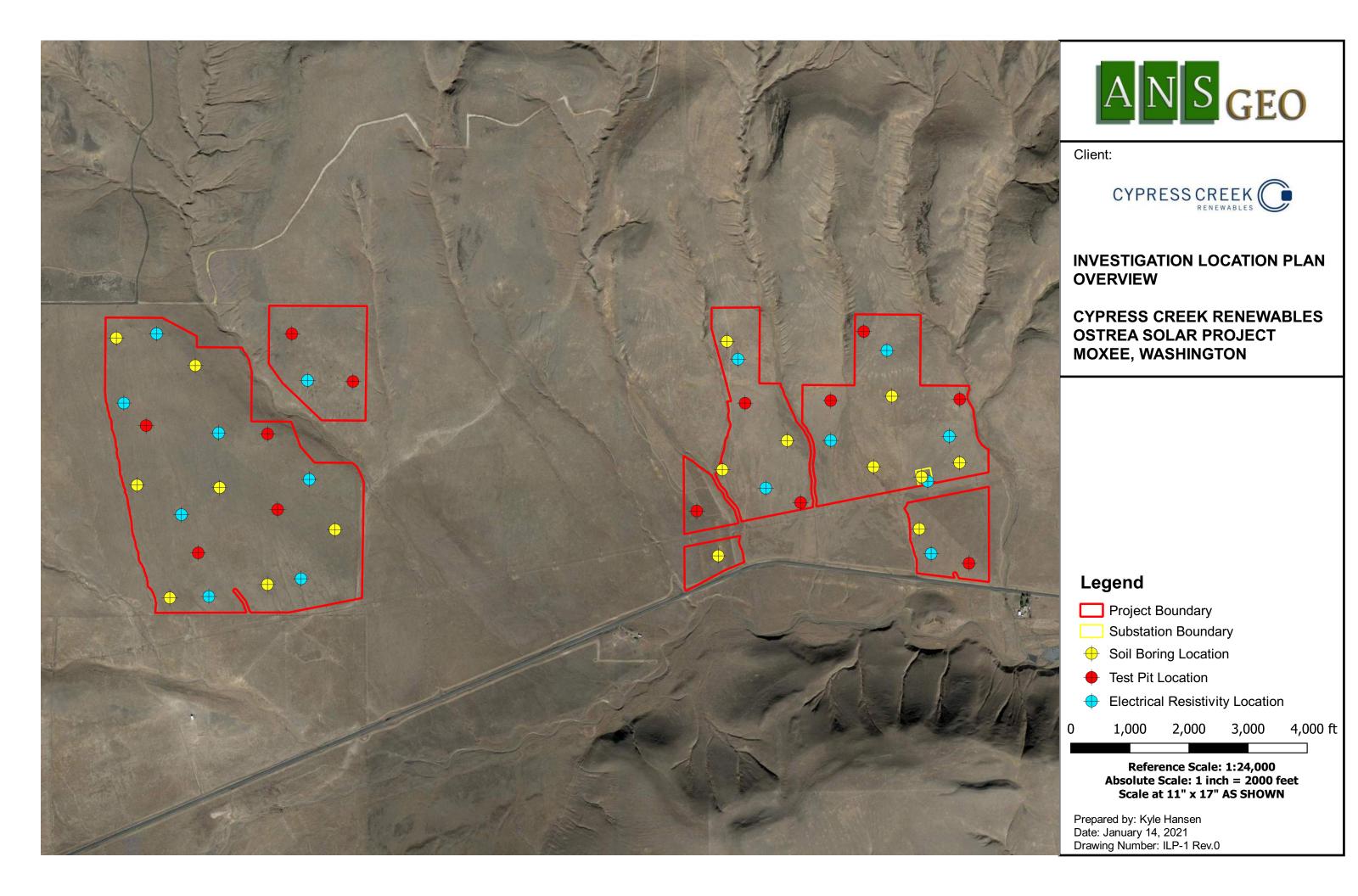
Attachment G - Seismic Support Data

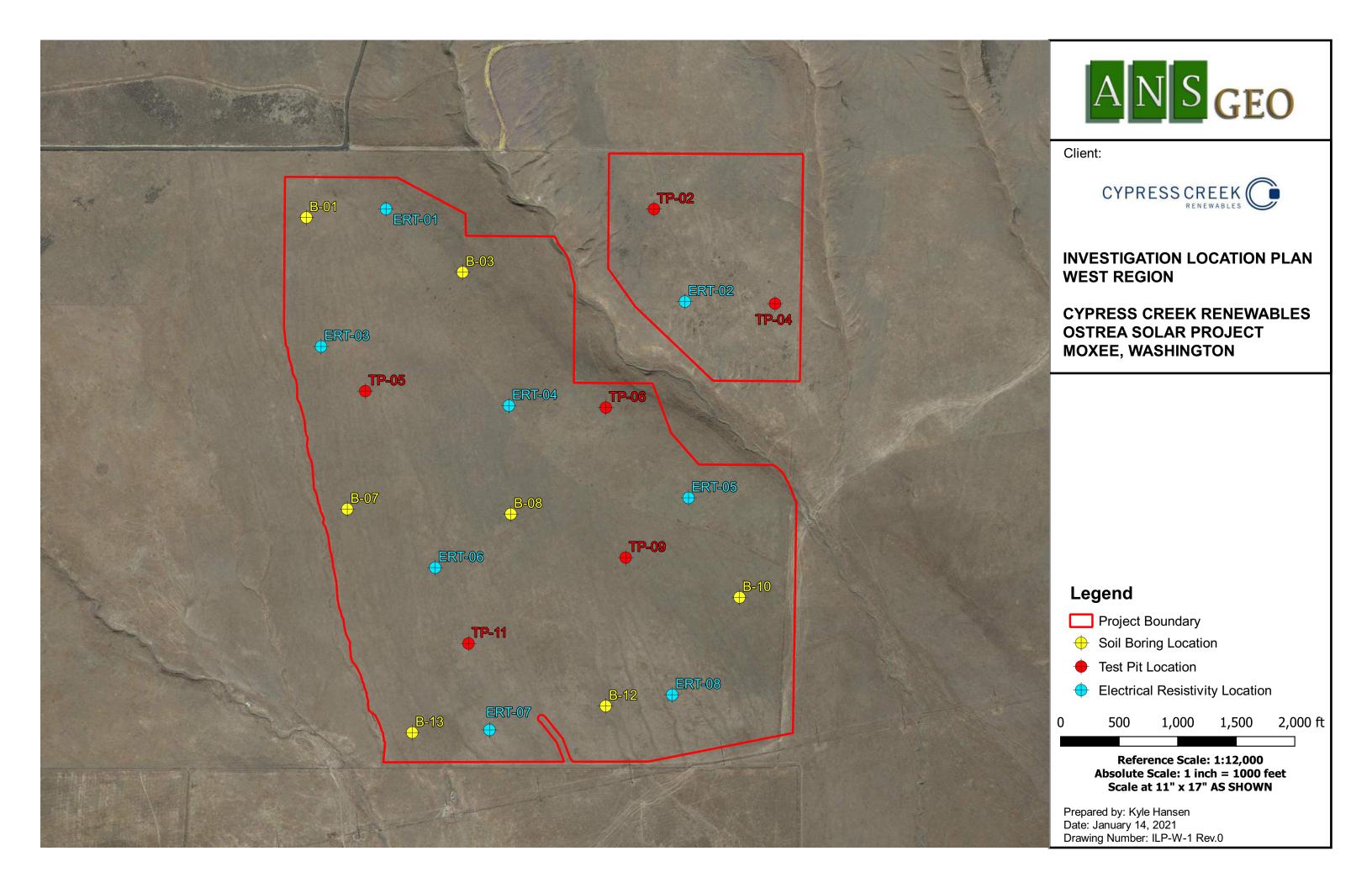


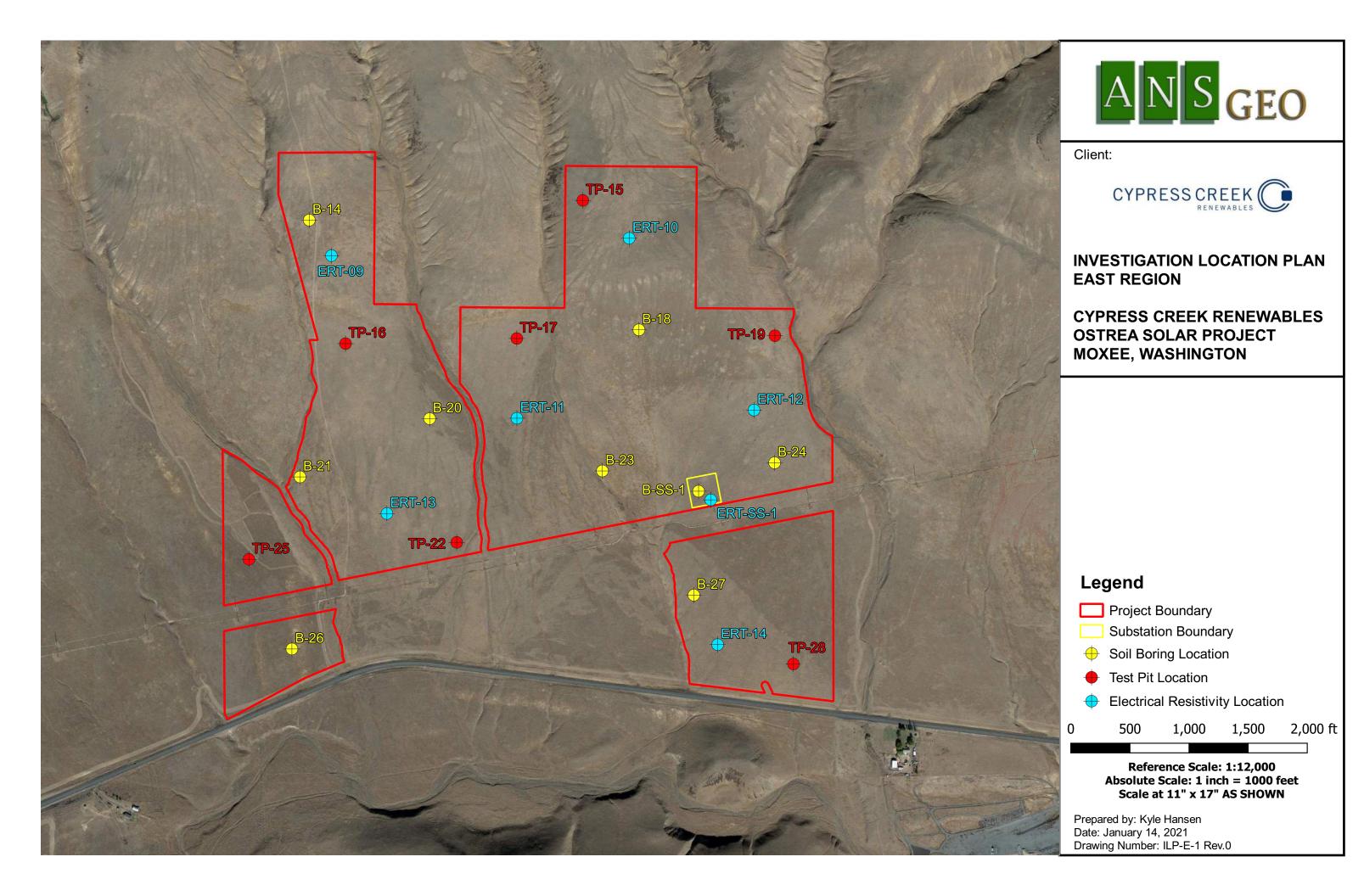
# **Attachment A**

**Investigation Location Plan** 









**Attachment B** 

**Soil Boring Logs** 



AN	SG	EO								SOI	LE	ORING L	.0	G							BORING NO.: <b>B-01</b> Page 1 of 1
Projec		Ostrea S	Solar											Project No.:			N	I/A			r age i oi i
Location		Moxee, \	Washing	gton										Project Mgr:				I/A			
Client:		Cypress	Creek I	Renew	able	s								Field Eng. Sta	ff:		_1	<u>/lihir</u>	Sha	ah	
Drilling		Elite Dri												Date/Time Sta							0 at 12:05 pm
	Helper:	Lenny J	ecminek ical Datu		1		_							Date/Time Fin	_		_		0 at 12:35 pm		
Item	1: Grade ft	Casing			Core	Barrel	Вс	oring Lo	cation:	See Boring L	_ocati	on Plan			_					1: NAD 19	<b>_ong:</b> -119.954184° 83
Туре		HSA	S	s		-	Rig Make & Model: Mobile B-57 Hammer Type									Dril	ling	Flui		Drill Ro	d Size:
Length Inside Di	a. (in.)	5 ft 4.25		ft 375		-	□ Truck     □ Tripod     □ Cat-Head     □ Safety       ■ ATV     □ Geoprobe     ■ Winch     □ Doughnut					☐ Safety ☐ Doughnut			ntor lym				Casing Advance		
Hammer	Wt. (lb.)	140	14	40		-	$\mathbf{Z}$	▼ Track					Wa	ater				Hollow Stem Auger			
Hammer	Fall (in.)	30	3	0		-	7	Skid				Cutting Head		<u>                                     </u>	<u>  M</u>	No Fie		Tes	ts T		
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Gra	phic	USCS Group Symbo	ı ا		) cor optiona	Density/cornstituents, pal description	nsiste partic	entification & Dency, color, Groule size, structure geologic interpre	up N e, m	Name, noisture,			Toughness	ticity	Dry Strength		Remarks
	S-1	10	1	31 1/2	::'/	NAI.	0		- TOPS		441	diama ta fina O and		(8.41.)		-	-	-	-	PID = 0	
	0.0'- 2.0'		1			ML		Soft	, light bi	own SIL1, lit	ttie me	edium to fine Sand	i, ary	y (ML)				ıl			
			2															ı			
_							2	.0	0									ı			
	S-2	6	5	00	9	GP			se, gray dry (GF		ne GR	AVEL, little mediu	m to	o fine Sand, trace		-	-	-	-	Gravel is	Basalt.
-	2.0'- 4.0'		14 20	1) -	29													ı			
			9		$\Box$													ı			
							4	.0										ı			
	S-3	10	20 23			ML				ght brown SIL ravel, dry (ML		me medium to fine	Saı	and, trace Clay,		-	-	, -	-		
<del></del> 5	4.0'- 6.0'		24								,							ı			
			28															ıl			
-				$\coprod$			6	.0													
	S-4	4	7 50/4"		H	GM			dense Silt, dry		to fin	e GRAVEL, little m	nediu	um to fine Sand,		-	-	-	-	Gravel is	Basalt.
-	6.0'- 6.8'		00/4	7-			- 10	Spo	on Refu	sal at 6.8 fee	et BG	S.			-			ı			
										sal at 7 feet E ng at 6.8 feet								ı			
-										ckfilled with								ıl			
-																		ı			
																		ı			
<del></del> 10																		ı			
																		ıl			
-																		ıl			
																		ıl			
-																		ı			
																		ıl			
-																		ıl			
																		ıl			
-																		ıl			
																		ıl			
<del></del> 15																		,			
																		,			
-																		,			
																		,			
-																		,			
																		,			
-																		,			
																		,			
-																		,			
																		,			
		Water Le	evel Data	 a			+	S	Sample	Туре		Notes:									
D-1	T'	Elapsed	De	epth in		to:	$\dashv$		en En		T										
Date	Time	Time (hr)	Bot. of Casing			Wate	r I		in-Wal												
		` '					_			ed Sample	,										
				-			- 1			on Sample	- 1										
							_		ab San	=										Dawle M	- D 04
Fiold To	st Legeno	l· Dila	tancy:	I NI	- No	ne S	. 91	ow R-	Rania	<u> </u>	Plac	ticity: NP	- No	on-Plastic L - L	OW !	N/I	Ma	-di-			o.: <b>B-01</b>
. i <del>c</del> iu 10	or reality		ghness:	L	- Lov	<u>v M</u> -l	Med	dium F	1 - Higl	<u>'</u>				ne L-Low M-							ery High
	1.) "ppd" de													average axial pock							
	ು.) Maximu	m Particle	Size is d	etermir	ned by	/ arrect c	bse	rvation v	vitnin lir	nitations of s	sampl	er sıze. 4.) Soil i	aent	uncations and field	tests	bas	sed	on \	ısua	ı-manual r	nethods per ASTM D2488.

AN	SG	ЕО						SOI	L BORING L	.OG							BORING NO.: B-03
Project	t: on:	Ostrea S Moxee,	Washingt							Project No.: Project Mgr:			N/A	4			Page <b>1</b> of <b>1</b>
Client: Drilling			Creek R		es					Field Eng. Staf Date/Time Star					Sha mbe		O at 12:45 pm
-	•	Lenny Je								Date/Time Finis		l:					0 at 1:10 pm
	n: Grade f		ical Datu			Borin	g Locatio	n:See Boring								Long: -119.948883°	
Item Type		Casing HSA	Sam	oler Cor	e Barre	Ria M	ake & Mo	del: Mobile B	-57	Hammer Type					atur id	n: NAD 1 Drill Ro	
Length	!- (! \	5 ft	2 f	1		☐ Tru	ck 🗆	Tripod	☐ Cat-Head	☐ Safety		Ben	itoni	te			Casing Advance
Inside D Hammer	ia. (in.) · Wt. (lb.)	4.25 140	1.37			<b>⊻</b> AT\ <b>⊻</b> Tra		Geoprobe Air Track	<ul><li>✓ Winch</li><li>☐ Roller Bit</li></ul>	☐ Doughnut ☑ Automatic	□ \	Wa <sup>1</sup>		r		1	Hollow Stem Auger
Hammer	Fall (in.)	30	30		- 1	□ Ski	d [		✓ Cutting Head					4	. T		
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic		1	c	(Density/co	nal Identification & D nsistency, color, Grou particle size, structure ons, geologic interpret	p Name, , moisture,	Dilatancy Toughness Plasticity Dry Strength						Remarks
	S-1	14	4	7/1/V 1/1/	4	0.5	(6") - TOP	SOIL			1	-	-	-	-	PID = 0	
	0.0'- 2.0' 0.5'-'		4 12 2		ML		Very stiff, I	ight brown Sar	dy SILT, trace fine Grave	el, dry (ML)	]	-	- N	Р	-		
	S-2	12	10		ML		Hard light	brown Sandy	SILT, little coarse to fine 0	Gravel dry (ML)			_	ıΡ		Gravel is	Basalt
-	2.0'- 4.0'	12	18 21 50/5"		IVIL		riaru, iigini	brown bandy v	JET, mue coarse to mile c	Stavel, dry (WE)						Graver 13	Basait.
	S-3	0	50/1"			4.1	Spoon Ref	fusal at 4.1 feet	BGS.		-	.	-	-	-		
<b>—</b> 5	4.0'- 6.0'					1	End of Bor	usal at 4.1 feet ring at 4.1 feet backfilled with s	BGS.								
-																	
-																	
-																	
<del></del> 10																	
-																	
-																	
<del></del> 15																	
-																	
						_					_	_		_	_		
			evel Data		at to:	$\vdash$	Samp	le Type	Notes:					_			
Date	Time	Elapsed Time	Bot. of		Water	0	Open Er										
		(hr)	Casing			<b>Ⅎ</b> '	Thin-Wa										
						U		bed Sample									
					<del>                                     </del>	S G	Grab Sa	oon Sample imple									
												_					o.: <b>B-03</b>
Field Te	st Legen		tancy: ghness:				R - Rapi n H - Hiç			Non-Plastic L - Lo one L - Low M - I							ery High
	1.) "ppd" de 3.) Maximu	enotes soil	sample av	erage diar	netral poc	ket pen	etrometer		ppa" denotes soil sample	e average axial pocket	pene	tron	nete	rea	adin	g.	thods per ASTM D2488.

AN	SG	EO					SOII	L BORING LO	)G						-	BORING NO.: B-07	
Project Location Client: Drilling	: on: J Co.:	Ostrea S Moxee, ' Cypress Elite Dri	Washingt Creek R Iling Serv	enewable ices	es				Project No.: Project Mgr: Field Eng. Staff Date/Time Star	ted:		D	/A ihir ece		er 2, 202	Page 1 of 1  0 at 11:30 am	
	Helper:		ecminek /						Date/Time Finis	_						0 at 11:50 am	
Item	i: Grade ft	Casing	ical Datum Samp		e Barrel	Boring Location: See Boring Location Plan									1: NAD 198	<b>.ong:</b> -119.952795°	
Туре		HSA	SS		-	Rig Make & Model: Mobile B-57 Hammer Type						ing					
Length		5 ft	2 f				☐ Truck ☐ Tripod ☐ Cat-Head ☐ Safety						te		Casing Advance		
Inside Di Hammer		4.25 140	1.37			☑ AT ☑ Tra						yme ter	r			Hollow Stem Auger	
Hammer		30	30			☐ Sk		✓ Cutting Head		<b>Y</b>							
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic		.	(Density/con constituents, p	nsistency, color, Group loarticle size, structure, r	Identification & Description tency, color, Group Name, icle size, structure, moisture, geologic interpretation, Symbol)					Dry Strength 6		Remarks	
	S-1	24	3	7,1%. 7,1%	1	0.5	(6") - TOPSOIL				-	-	- [	-	PID = 0		
	0.0'- 2.0'		4 20		ML	1.0	(6") - Light brown SILT, de	ry (ML)									
-			24	P P	GM		(12") - Gray to brown coa Sand, dry (GM)	rse to fine GRAVEL, little S	Silt, trace fine								
_				547													
_	S-2 2.0'- 3.0'	7	36 50/3"		GM	3.0	little Silt, dry (GM)	to fine GRAVEL, some coa	arse to fine Sand,		-	-	-	-		nding from 1 to 2 feet BGS. thin round Basalt	
-							Spoon Refusal at 2.75 fe Auger Refusal at 3 feet B Offset Auger Refusal at 2 End of Boring at 3 feet Bt Borehole backfilled with s	BGS. 2 feet BGS. GS.							rragments		
- - - - - - 10																	
- 15 - 15																	
			evel Data	oth in for	t to:	F	Sample Type	Notes:									
Date	Time	Elapsed Time		oth in fee Bottom		-	Open End Rod										
Date	iiiie	(hr)	Casing	of Hole	Water	T	Thin-Wall Tube										
		··· <i>j</i>	- aonig	2. 1.016		∣։	Undisturbed Sample										
						- 1	· ·										
						S	Split Spoon Sample										
						G	Grab Sample								Roring N	B 07	
Eiold To	et I ogor	ı. Dila	tancy:	NI NI	ne c	Slow	R - Ranid	 Plasticity: NP - N	Ion-Plastic I I a	NA/ N	1	Mar	dio			э.: <b>В-07</b>	
riela le	st Legend		tancy: ghness:	IN - INC L - Lo	אוע S - W M - N	oıow Jediu			lon-Plastic L - Lo ne L - Low M - l							ery High	
NOTES:	1.) "ppd" de							"ppa" denotes soil sample						_		, · ··ʊ··	
							ation within limitations of sa									nethods per ASTM D2488.	

AN	I S G	EO						S	OII	BORING L	.00	G							BORING NO.: <b>B-08</b> Page 1 of 1
Projec		Ostrea S	Solar								P	Project No.:			N/A	١	_		i aye i oi i
Location			Washingt	ton								Project Mgr:			N/A				
Client:			Creek R		es							ield Eng. Staff		-			Sha		
Drilling	g Co.: Helper:		lling Serv									Date/Time Start Date/Time Finis							0 at 1:45 pm
	n: Grade		ecminek /			B	oring L	ocation:See E	Roring	ocation Plan		Jate/Time Fins		_					0 at 2:00 pm Long: -119.947247°
Item		Casing		pler Co	re Barre	İ	•						Hor	izc	nta	l Da	atuı	m: NAD 1	983
Type Length		HSA 5 ft	2 f		-		ig Make Truck	& Model: Mo		57 □ Cat-Head		Hammer Type  Safety			<b>ng F</b> toni		id	Drill Ro	od Size: Casing Advance
Inside D		4.25	1.37	75	-	$\mathbf{Z}$	ATV	☐ Geop	robe	<b>✓</b> Winch		Doughnut	□F	oly	/me				Hollow Stem Auger
Hammer Hammer	· Wt. (lb.) · Fall (in.)	140 30	30		-		Track Skid	☐ Air Tr	ack	☐ Roller Bit  Cutting Head		Automatic	□ V <b>☑</b> N						J
	Sample							Vieual	Manu	al Identification & D	)occr	rintion			ld T			•	
Depth/ Elev. (ft)	No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	Symb	pΙ		(Dens	ity/cor ents, p	aridentification & D asistency, color, Group particle size, structure ons, geologic interpret	ip Na e, mo	ame, pisture,	Dilatancy		lougnness	Plasticity	Dry Strength		Remarks
	S-1	14	3	711	4		. ,	- TOPSOIL					-	T	_	-	7	PID = 0 Gravel is	Rasalt
	0.0'- 1.6'		4 43	641	GM		0.8 Ligh	nt brown to grav	/ coars	e to fine GRAVEL, some	Silt I	little medium to	-						nding from 1 to 1.6 feet BGS.
-			50/1"		J			Sand, dry (GM		e to line GIVAVEE, Some	Oiit, i	iittie medium to							
						7	Spo	on Refusal at 1	l.6 feet	BGS.			1						
-								er Refusal at 1 et Auger Refus											
							00	or / tago: 1 to tac	, a. a	0.1001.200.									
-																			
-																			
<del></del> 5																			
-																			
-																			
-																			
-																			
<del></del> 10																			
-																			
-																			
_																			
<b>—</b> 15																			
10																			
_					1														
_					1														
					1														
_					1														
					1														
					1														
					1														
															$\perp$				
			evel Data		ot to:	7	S	Sample Type	)	Notes:						_	_		
Date	Time	Elapsed Time		Bottom		$\exists$	<b>O</b> Op	en End Rod											
		(hr)		of Hole		r		in-Wall Tube											
				-	1			ndisturbed Sa											
						_		lit Spoon Sa	mple										
					1	$\dashv$	<b>G</b> Gr	ab Sample										Boring N	o.: <b>B-08</b>
Field Te	st Legen		tancy:		one S							-Plastic L - Lov					m H	H - High	
NOTES:	1 ) "nnd" -		ghness:		ow M -					· · ·		L - Low M - N		_			<u> </u>		ery High
								meter reading. vithin limitations		ppa" denotes soil sample npler size.    4.) Soil iden									thods per ASTM D2488.

AN	I S G	EO						SOII	L BORING LO	OG	3							BORING NO.: <b>B-10</b> Page 1 of 1
Project		Ostrea S	Solar							F	Project No.:		_	N/	Ά			rage rorr
Location	on:	Moxee, \	Nashingt	.on						F	Project Mgr:			N/	Α			
Client:			Creek R		es						Field Eng. Staff					Sha		
Drilling			lling Serv ecminek								Date/Time Start Date/Time Finis							0 at 2:10 pm
	Helper: : Grade ft.		cal Datum			Б		ation: See Boring L	agation Dian		Date/Time Finis							0 at 2:50 pm Long: -119.939489°
Item	Grade it	Casing	Samp		re Barrel	В	ornig Loca	ation. See Boiling D	ocalion Flair			_					: NAD 19	
Type		HSA 5 ft	SS 2 f		-			Model: Mobile B-5		Ļ	Hammer Type				Flui	id	Drill Ro	
Length Inside Di	a. (in.)	4.25	1.37		-		Truck ATV	<ul><li>☐ Tripod</li><li>☐ Geoprobe</li></ul>	☐ Cat-Head  ✓ Winch		☐ Safety ☐ Doughnut		Beni Poly					Casing Advance
Hammer Hammer		140 30	140 30		-		Track	☐ Air Track	☐ Roller Bit  Cutting Head	75	✓ Automatic							Hollow Stem Auger
панние	`	30	30		<del>-</del>	٣	Skid			1 -					est	ts T		
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	Symbo	p		(Density/cor constituents, p ptional descriptio	al Identification & Des sistency, color, Group I particle size, structure, n ens, geologic interpretati	Na mo	ime, pisture,	Social	T.	2	ticity	Dry Strength		Remarks
	S-1	16	2	7, N. 7,	<u>'</u>		(8") - <sup>-</sup>	TOPSOIL					-   -	- [	-	-	PID = 0	
_	0.0'- 2.0'		3 5		ML	Ť	Mediu		to gray Gravelly SILT, little	me	edium to fine							
			11				Sand,	, dry (ML)										
_				ШЦ			2.0											
	S-2	7	9 50/5"		∷∏SM			dense, gray to brow el, some Silt, dry (SI	n coarse to fine SAND, sor M)	me	coarse to fine		-   -	-	-	-	Gravel is	Basalt.
-	2.0'- 4.0'		50/5				4.0	.,,	,									
-	S-3	14	9	٥٩٠	GP	Ť	Very o		to fine GRAVEL, little medi	lium	n to fine Sand,	┥.	-   -	-	-	-	Gravel is	
	4.0'- 5.9'		26	60°C	4		trace	Silt, dry (GP)									Auger grii BGS.	nding from 2.5 to 5.5 feet
<del>-</del> 5			42 50/5"	00	1													
			00/0	$\circ$	الا	Ę	5.9											
-								n Refusal at 5.9 fee r Refusal at 5.5 feet										
							End o	of Boring at 5.9 feet	BGS.									
-				ĺ			Богег	nole backfilled with	son cuttings.									
				ĺ														
-				ĺ														
-				ĺ														
<del></del> 10				ĺ														
-				ĺ														
-				ĺ														
-				ĺ														
-				ĺ														
<del></del> 15																		
-				1														
				1														
-				1														
				1														
-				1														
-				1														
				1														
		Water Le	vel Data			$\dashv$	9-	mple Type	Notes:				$\perp$		丄			
_		Elapsed	Dep	oth in fe		⇉		-	1101001						_			
Date	Time	Time (hr)	Bot. of Casing			r		en End Rod n-Wall Tube										
		(111)	Jasilly	OI HOIG		$\exists$		i-vvaii Tube listurbed Sample										
					$\perp$	4		t Spoon Sample										
					<u> </u>	$\exists$		b Sample										
		. 5"				$\Box$			Distriction ND 11	1	Disserting 1 1	•	, -	4.	10.			o.: <b>B-10</b>
rield Te	st Legend		tancy: ghness:	N - N L - L	ow M-	- SI Me	low R-I dium H	каріа - High			n-Plastic L - Lo L - Low M - I							ery High
		enotes soil	sample av	erage dia	ametral po	cke	et penetron	neter reading. 2.)	"ppa" denotes soil sample	e av	verage axial pocke	t pen	etro	me	ter r	read	ing.	<i>.</i>
	3.) Maximu	m Particle	Size is de	ermined	by direct of	obse	ervation wi	thin limitations of s	ampler size. 4.) Soil iden	ntifi	ications and field t	ests	base	ed c	n vi	isua	l-manual r	nethods per ASTM D2488.

AN	SG	EO						SOI	L BORING LO	00	G							BORING NO.: <b>B-12</b> Page <b>1</b> of <b>1</b>
Project		Ostrea S	Solar								Project No.:			N	/A			rage rorr
Location	-	Moxee, \	Washingt	on							Project Mgr:			N	/A			
Client:			Creek R		es						Field Eng. Staf					Sha		
Drilling			lling Serv								Date/Time Star							0 at 3:15 pm
	Helper: : Grade ft.		cal Datum					O D			Date/Time Finis	_		_				0 at 3:30 pm Long: -119.944029°
Item	i. Grade it.	Casing	Samp		re Barrel	Bor	ing Locat	ion: See Boring L	ocation Plan			_					: NAD 19	
Туре		HSA	SS	;	-			Model: Mobile B-		1	Hammer Type	D	rill	ing	Flui		Drill Ro	d Size:
Length Inside Di	a. (in.)	5 ft 4.25	2 f		-	□ T   <b>V</b> A		<ul><li>☐ Tripod</li><li>☐ Geoprobe</li></ul>	☐ Cat-Head  ✓ Winch		<ul><li>☐ Safety</li><li>☐ Doughnut</li></ul>			nton vme				Casing Advance
Hammer	Wt. (lb.)	140	140	)	-	<b>☑</b> T	rack	☐ Air Track	☐ Roller Bit		M Automatic		Wa	ter				Hollow Stem Auger
Hammer	Fall (in.)	30	30	$\vdash$	<del>_</del>	<u>    s</u>	skid		✓ Cutting Head		Ш			ne Id 1	Γρε	te T		
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	USCS Group Symbo	p		(Density/cor constituents, p tional description	ual Identification & Densistency, color, Group particle size, structure, ons, geologic interpreta	p Na , ma	lame, oisture,	youthin	Т	ıς	ticity	Dry Strength 6		Remarks
	S-1	14	2 9	\\ \frac{1}{2\ldots} \cdot \fr	4	0.6		OPSOIL					- [	-	-	-		
_	0.0'- 1.4'		9 50/5"		GP				to fine GRAVEL, little me	ediu	ım to fine Sand,	╡.	-	-	-	-	PID = 0 Gravel is	Pacalt
	0.6'-'			00°	1	1.4	1 '`	Refusal at 1.4 fee				_					Graveris	Dasail.
		Water Le		th in for			Offset , End of Boreho	Refusal at 2 feet E Auger Refusal at Boring at 1.4 feet le backfilled with	1.5 feet BGS. BGS.									
_		Elapsed	Dep	th in fee		丁		-	1									
Date	Time	Time	Bot. of	Bottom	Water	7 5		End Rod										
		(hr)	casing	of Hole	+	┦'		Wall Tube										
						٦ u		sturbed Sample										
					+-	$\exists s$		Spoon Sample Sample										
					$\pm$	G	grab	оапріе	<u> </u>								Boring N	o.: <b>B-12</b>
Field Te	st Legend		tancy:	N - N	lone S	- Slo	w R-R	apid			n-Plastic L - Lo					m l	H - High	
UOTTE E	4 \ 11		ghness:		1 - M wc				_ · _ ·		e L-Low M-							ery High
								eter reading. 2.7	) "ppa" denotes soil samp ampler size. 4.) Soil ide									nethods per ASTM D2488.

AN	I S c	EO						SOII	L BORIN	G LO	)G						BORING NO.: B-13
Project		Ostrea	Solar								Project No.:			N/A			Page <b>1</b> of <b>1</b>
Location			Washingt	on						_	Project Mgr:		-	N/A			
Client:		Cypress	Creek R	enewab	les						Field Eng. Staff	:		Mih	ir Sh	ah	
Drilling			Iling Serv							_	Date/Time Star		-				0 at 10:40 am
	Helper: n: Grade ft		ecminek /					0 0 1	Bi	_	Date/Time Finis		_				0 at 11:15 am Long: -119.950592°
Item	i. Grade it	Casing			re Barrel	Borin	ig Location	: See Boring Lo	ocation Plan							n: NAD 19	
Туре		HSA	SS					lel: Mobile B-5			Hammer Type			ng Fl		Drill Ro	
Length Inside Di	a. (in.)	5 ft 4.25	2 f		-	□ Trı ☑ AT		Tripod Geoprobe	☐ Cat-Head  ✓ Winch		☐ Safety ☐ Doughnut	片		tonite mer			Casing Advance
Hammer Hammer		140 30	140 30			<b>⊻</b> Tra □ Sk		Air Track	☐ Roller Bit  Cutting Head	1	☑ Automatic						Hollow Stem Auger
namme		30	30		T						<u> </u>			d Te	sts	1	
Depth/ Elev.	Sample No. / Interval	Rec. (in)	Sample Blows	Stratun Graphi				(Density/con	ial Identification sistency, color, article size, stru	Group I	Name,	NO.	9000	ity ity	Strength		Remarks
(ft)	(ft)		per 6"				•	•	ns, geologic int	erpretati	ion, Symbol)	Dilatanov	) F	Plasticity	Dry S		
	S-1	18	2 2	7, 1×. 7,	-	0.5	(6") - TOPS		011 - 11111 - 11		0 1 1 (11)	╝.	-	-   -	-	PID = 0	
	0.0'- 2.0'		3		ML		Medium st	liff, light brown	SILT, little mediur	n to fine :	Sand, dry (ML)						
			4														
	S-2	19	5		CL	2.0	Stiff, light l	brown Silty CL	AY, little medium	to fine Sa	and, dry (CL)	┦.	.   .	. L	-		
	2.0'- 4.0'		5		7												
			5 5		1												
						4.0											
•	S-3	24	8	FY T	∫ GM	1.0		e, light brown t	o gray coarse to fi	ne GRAV	/EL, little Silt,	┨-	-	-   -	-	Gravel is	Basalt. nding from 4 to 6 feet BGS.
<b>-</b> 5	4.0'- 6.0'		20 35	B PK			trace medi	ium to ime Sar	iu, ury (Givi)							Auger gill	nulling from 4 to 0 feet boo.
ŭ			40	[6]	7												
					1	6.0											
	S-4	11	20 38	000	GP			e, light brown t nd, trace Silt, d		ne GRAV	/EL, little medium	-	-	-   -	-	Gravel is Auger gri	
	6.0'- 7.2'		50/3"	200		7.2											
							Auger Refu	fusal at 7.2 fee usal at 7 feet B	GS.								
								ring at 7 feet Bo ackfilled with									
<del></del> 10																	
,																	
'																	
<del></del> 15																	
						$\perp$											
		Water Le Elapsed	evel Data Der	oth in fe	et to:	+		e Type	Notes:								
Date	Time	Time	Bot. of	Botton	1 Water	10	Open Er										
		(hr)	Casing	of Hole		Ţ	Thin-Wa	all Tube rbed Sample									
	-					s		oon Sample									
						Ğ	Grab Sa	-								David 11	D 40
Field Te	st Legen	l: Dila	tancy:	N - N	lone S-	Slow	R - Rapi	id	Plasticity:	NP - N	on-Plastic L - Lo	w M	1 - 1	/ledi			o.: <b>B-13</b>
		Tou	ghness:	L-L	ow M-N	lediu	m H-Hig	gh	Dry Strength:	N - Nor	ne L-Low M-I	Mediu	ım	Н-	Higl	n VH-V	ery High
IOTES:	1 ) "nnd" d	anotae enil	cample a	in ancra	ametral noc	kat na	netrometer	reading 2 \	"nna" denotes so	il camnla	average axial nocke	t nend	etro	mata	r read	lina	

3.) Maximum Particle Size is determined by direct observation within limitations of sampler size. 4.) Soil identifications and field tests based on visual-manual methods per ASTM D2488.

AN	S G	EO							SOII	BORING	LO	G							BORING NO.: <b>B-14</b> Page 1 of 1
Project		Ostrea	Solar									Project No	).:			N/A			rage For F
Location			Washing	ton								Project Mo				N/A			
Client:			Creek R		les							Field Eng.			_		ir Sh		
Drilling	•		Iling Serv									Date/Time							0 at 12:00 pm
	Helper: : Grade ft		ecminek ical Datun			_			0 0 1			Date/Time	Finis		_				<u>0 at 12:35 pm</u> Long: -119.913149°
Item	i. Grade it	Casing			re Barrel	Boi	ring Lo	cation:	See Boring L	ocation Plan								n: NAD 19	
Туре		HSA	SS	3	-				l: Mobile B-5			Hammer T	уре	D	rillir	ıg Flı	uid	Drill Ro	d Size:
Length Inside Di	a. (in.)	5 ft 4.25	2 f		-		Truck ATV		Tripod Geoprobe	☐ Cat-Head  ☑ Winch		☐ Safety ☐ Doughnu	t			onite mer			Casing Advance
Hammer	Wt. (lb.)	140	14	0	-	₹.	Track		Air Track	☐ Roller Bit		Matomati		□ v	Vate	er			Hollow Stem Auger
Hammer	` , _ ,	30	30	<u> </u>	Ť	<del>       </del>	Skid			Cutting Head		Ш				d Te	sts	1	
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratun Graphi	USCS Group Symbol	p		COI	Density/cornstituents, p	al Identification & sistency, color, Grarticle size, structurs, geologic interp	oup N ıre, m	lame, noisture,	ı	Dilatancv	, a	Τ	Dry Strength		Remarks
	S-1	14	4	7/1 /N. 1/1	<u>'</u>	0.		- TOPS	OIL					T-	Τ-	-	-		
	0.0'- 2.0'		9 17	ΗŤ	ML	U.		t brown	SILT, little m	edium to fine Sand, d	ry (ML	.)		╡.	-	-	-	PID = 0	
	0.6'-'		50/1"															Gravel in	tip of spoon is Basalt.
						2.	.0												
							Aug Offs End	er Refu et, Aug of Bori	isal at 1.6 fee saal at 2 feet E er Refusal at ng at 2 feet B ackfilled with	GS. 1.5 feet BGS. GS.									
-																			
		Mot!	ual Det			$\bot$		`an1-	Time	l Natac:									
		Water Le Elapsed	evel Data De	oth in fe	et to:	+		Sample		Notes:									
Date	Time	Time	Bot. of	Botton	1 Wato	r I		en En											
		(hr)	Casing	of Hole	e vvale				I Tube										
				<del>                                     </del>	+				ed Sample										
						։			on Sample										
						$\exists$	<b>G</b> Gr	ab Sar	nple									Boring M	o · <b>D 1</b> /
Field Te	st Legeno	l: Dila	tancy:	N - N	lone S	- Slo	w R	- Ranic	ı	_  Plasticity: NF	2 - Na	on-Plastic I	L - I o	w N	- N	1edi:			o.: <b>B-14</b>
			ghness:	<u>L - L</u>	ow M -	Med	ium F	1 - Higi	h			ne L - Low							ery High
	1.) "ppd" de									"ppa" denotes soil sa									
	3.) Maximu	m Particle	Size is de	termined	by direct of	obser	rvation v	within lii	mitations of s	ampler size. 4.) Soi	ıı ident	titications and	I field t	ests b	ase	d on	visua	al-manual ı	methods per ASTM D2488.

AN	SG	EO							SOI	L BORING	LO	G								BORING NO.: <b>B-18</b> Page 1 of 1
Project		Ostrea S	Solar								_	Pr	oject No.:			N	/A			r age r or r
Location	on:	Moxee,	Washing	ton							_	Pr	oject Mgr:			N	/A			
Client:			Creek F		oles						-		eld Eng. Staff					Sha		
Drilling			Iling Sen								-		ate/Time Star							0 at 9:00 am
	Helper: Grade ft.		ecminek ical Datur			_		-4'	D D		-	Da	ate/Time Finis	_						0 at 10:00 am Long: -119.902071°
Item	i. Grade it.	Casing			ore Barrel	В	oring Loc	ation: 3	see Boring L	ocation Plan				$\overline{}$					: NAD 19	
Туре		HSA	S		-				: Mobile B-			_	lammer Type				Flu	id	Drill Ro	
Length Inside Di	a. (in.)	5 ft 4.25	1.3		-		Truck ATV		Tripod Geoprobe	☐ Cat-Head  ☑ Winch			Safety Doughnut							Casing Advance
Hammer	Wt. (lb.)	140	14		-	$\blacksquare$	Track		Air Track	☐ Roller Bit			Automatic		Wa	ter				Hollow Stem Auger
Hammer	rali (in.)	30	30	<del></del>	<del>-</del>	4	Skid			✓ Cutting Head		<u>                                      </u>					Tes	ts		
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Graph	ic Symb	pΙ		(I con optiona	Density/cor stituents, p I description	al Identification and insistency, color, Go particle size, structions, geologic inter	roup N ture, m	Nam nois	ne, iture,	F		ς <sub>2</sub>	ticity	Dry Strength		Remarks
	S-1	16	2	7,1/27	<u>'</u>		(7") - 0.6	TOPSO	OIL						-	-	-	-		
	0.0'- 2.0'		3		ML	Ť		um stiff	, light brown	SILT, some medium	to fine	Sar	nd, dry (ML)	╡.	-	-	-	-	PID = 0	
	0.6'-'		6																	
_							2.0													
	S-2	20	16	12	J GM				brown to gra ine Sand, dr	y coarse to fine GRA (GM)	AVEL, s	some	e Silt, little		-	-	-	-		
	2.0'- 4.0'		35 10	15-17.	$\triangleleft$				,,	()										
			9	[94	$\neg$															
							4.0							_						
	S-3	13	4 7		∷ SM		Medi dry (S		ise, light bro	wn Gravelly coarse to	o fine S	ANE	O, little Silt,		-	-	-	-		
<b>-</b> 5	4.0'- 6.0'		10					,												
			5																	
-			_		<u> </u>	6	6.0							_						
	S-4	16	9 16	000	J GP			e, gray Silt, dr		e GRAVEL, some m	nedium	to fi	ne Sand,		-	-	-	-	Gravel is	Basalt.
-	6.0'- 7.7'		32		$\triangleleft$															
			50/2"	00	$\neg$		7.7													
-						T	Spoo		sal at 7.7 fee											
							End o	of Borin	al at 7 feet E g at 7.7 feet	BGS.										
-							Borel	hole ba	ckfilled with	soil cuttings.										
<del></del> 10																				
-																				
-																				
-																				
<del></del> 15																				
				1																
-																				
				1																
-																				
				1																
-																				
				1																
-																				
		Water Le				$\rightrightarrows$	Sa	ample	Туре	Notes:					_		'			
Date	Time	Elapsed Time	De Bot. of	pth in fo	<u> </u>	$\dashv$	<b>O</b> Ope	en End	l Rod											
_4.0	0	(hr)	Casing			r		n-Wall												
					+	$\dashv$			ed Sample											
						╛	-		on Sample											
						$\dashv$	<b>G</b> Gra	ab Sam	ple									1	Borina N	o.: <b>B-18</b>
Field Te	st Legend		tancy:	N -	None S	- SI	low R-	Rapid					Plastic L - Lo					m l	H - High	
NOTE:	4 \ " '" '		ghness:		_ow M -					<del>, , , , , , , , , , , , , , , , , , , </del>			L - Low M - I					<u> </u>		ery High
	1.) "ppd" de 3.) Maximu									"ppa" denotes soil s ampler size. 4.) So										methods per ASTM D2488.

AN	I S G	EO								SOII	L BO	RING L	.00	3							BORING NO.: B-20
Project		Ostrea	Solar											Project No.:			N	l/A			Page <b>1</b> of <b>1</b>
Location			Washing	ton										Project Mgr:				I/A			
Client:		Cypress	Creek R	enew	able	s								Field Eng. Staf	f:		_N	1ihir	Sha	ah	
Drilling	g Co.:		Iling Serv											Date/Time Star							0 at 1:20 pm
	Helper:		ecminek											Date/Time Finis	_		_				0 at 2:20 pm
Elevation Item	1: Grade ft	Casing	ical Datun Sam		Core	Barrel	Bo	oring Locati	on:	See Boring Lo	ocation Pla	an								1: NAD 19	Long: -119.909104°
Туре		HSA	SS	3		-				el: Mobile B-5				Hammer Type		rill	ing	Flu		Drill Ro	d Size:
Length Inside Di	a (in )	5 ft 4.25	1.3	_		-		Truck ATV		Tripod Geoprobe	☐ Cat-H			☐ Safety ☐ Doughnut	H		ntor				Casing Advance
Hammer	Wt. (lb.)	140	14	0		-	Ø	Track		Air Track	☐ Rolle	r Bit		M Automatic		Wa	ter	JI			Hollow Stem Auger
Hammer	Fall (in.)	30	30	) <u> </u>		-	4	Skid			<b>✓</b> Cuttir	ng Head	L	<u> </u>				Tes	te T		
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Grap	ohic	USCS Group Symbo	p	•	co ion	sual - Manu (Density/con nstituents, p al descriptio	nsistency particle si	, color, Grou ze, structure	ip Na e, mo	ame, oisture,	F	Т	"	Plasticity 0	Dry Strength		Remarks
	S-1	18	3	7/1/	***		C	).5 (6") - TC								-	-	-	-		
	0.0'- 2.0'		3			ML		Medium	sti	ff, light brown	Sandy SIL	T, trace Clay,	dry (	(ML)		-	-	NP	-	PID = 0	
	0.5'-'		3																		
	S-2	14	7			ML		Stiff, lig	ht b	rown Sandy S	SILT, dry (N	ΛL)				-	-	NP	-	PID = 0	
	2.0'- 4.0'		6 5 7																		
	S-3	20	5		10	SM	-4	1.0 Medium	ı de	nse, light brov	wn Siltv me	edium to fine s	Sand	I. drv (SM)	$\dashv$	.	_	_	_	PID = 0	
	4.0'- 6.0'		7	[::]::						··, ·· <b>g</b> ···	,			,, (,							
-5			10 9				6	5.0													
	S-4	10	16	60		GP				, gray to light l fine Sand, tra			RAVE	L, some		-	-	-	-	Gravel is Auger gri	Basalt. nding from 6.5 to 11 feet
	6.0'- 8.0'		20 32 22	$\mathcal{K}_{\mathcal{C}}$						,	,,	, (=- ,								BGS.	
	S-5	14	16	<u> </u>	$^{\circ}$ d	GP		Verv de	nse	aray to light l	hrown coa	erse to fine GR	2Δ\/F	L, little medium							
	8.0'- 10.0'		22 42 50/4"	00	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	- 51				d, dry (GP)	brown ood		V (V L	e, itali modum							
— 10 ·					0		1	11.0	Dof.	usal at 9.8 feet	+ DCC										
								Auger F End of E	Refu Bori	asal at 9.6 leet ng at 11 feet I ackfilled with s	BGS. BGS.	gs.									
<del></del> 15																					
,																					
,																					
,																					
			evel Data		_		ightharpoons	Sam	ple	е Туре	Note	s:				_	_!				
Date	Time	Elapsed Time	De Bot. of	pth in Bott			$\dashv$	O Open	En	d Rod											
-410		(hr)	Casing			Wate	r	-		Il Tube											
							$\dashv$			bed Sample											
							╛	•	-	on Sample											
							4	<b>G</b> Grab	Saı	mple										Borina N	o.: <b>B-20</b>
Field Te	st Legen	ı: Dila	itancy:					ow R-Ra			I Plasticity	/: NP -	Nor	n-Plastic L - Lo	w N	Λ-	Ме	diu			D-2U
		Tou	ighnéss:	L.	- Lov	v M-	Med	dium H - I	Hig	h	Dry Strer	ngth: N - N	Vone	E L - Low M -	Medi	um	ı F	<del> </del> -	ligh	vH - V	ery High
								t penetrome ervation with		reading. 2.) mitations of sa				verage axial pocker fications and field							nethods per ASTM D2488.
	,		c uc		- ~ )					5. 5. 50	, 012	, 5510		aoiu							, = ==

AN	I S G	EO					SO	L BORING	LO	G							BORING NO.: B-21
Project Location Client:	t: on:	Ostrea : Moxee, Cypress	Solar Washingt Creek R	enewable	es					Project No.: Project Mgr: Field Eng. Staf Date/Time Star			N M		r Sha		Page <b>1</b> of <b>1</b>
-	Helper:	Lenny J	ecminek .	/Greg						Date/Time Finis	shed	:	D	ece	emb	er 4, 202	0 at 11:30 am
Elevation	າ: Grade ft		ical Datum			Boring L	ocation: See Boring	Location Plan									<b>_ong:</b> -119.913460°
Item Type		Casing HSA	Samp SS		e Barrel	Dia Maka	e & Model: Mobile B	57		Hammer Type				I Da Flui		Drill Ro	
Length		5 ft	2 f		-	☐ Truck	☐ Tripod	☐ Cat-Head		☐ Safety		Ben			iu	Dilli Ko	Casing Advance
Inside Di		4.25	1.37			<b>✓</b> ATV	Geoprobe	Winch		☐ Doughnut		Poly					Hollow Stem Auger
Hammer Hammer		140 30	30			☑ Track ☐ Skid	☐ Air Track	☐ Roller Bit  ☑ Cutting Head		Automatic							· ·
			T .			1	Vieuel Men	ual Identification &	Dage	avintian				Tes	sts		
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	Symbo	d	(Density/co constituents, optional descripti	nsistency, color, Gro particle size, structu ons, geologic interpi	oup N ire, m	Name, noisture,	_	_	Loughness	Plasticity	Dry Strength		Remarks
	S-1	18	3 9	7/1/27/1	-	0.5	) - TOPSOIL					-	-	-	-		
_	0.0'- 2.0'		11		GM	Lig Sa	ght brown to gray Silty nd, dry (GM)	coarse to fine GRAVE	L, littl	le medium to fine	- 1	-	-	-	-	PID = 0	
	0.5'-'		10	6°47<			,, (,										
						2.0											
-	S-2	19	3		ML			SILT, some coarse to f	fine G	Gravel, some		-	- 1	NP	-	Gravel is	Basalt.
	2.0'- 4.0'		5 10 7			CO	arse to fine Sand, dry	(IVIL)									
-						4.0					_						
	S-3	14	24 21		GM		nse, light brown to gr e Sand, little Silt, dry	ay coarse to fine GRA\ (GM)	/EL, s	some coarse to	-	-	-	-	-		
<del>-</del> 5	4.0'- 6.0'		19	541	1			,									
ŭ			50/2"														
					1	6.0											
-							oon Refusal at 5.8 fe										
						En	d of Boring at 6 feet I	BGS.									
-						Во	rehole backfilled with	soil cuttings.									
-																	
_																	
<del></del> 10																	
<del></del> 10																	
-																	
-																	
-																	
_																	
-																	
<del></del> 15																	
-																	
-																	
-																	
			evel Data				Sample Type	Notes:						二			
Data	Time	Elapsed		oth in fee		┦ <b>。</b> 。	pen End Rod										
Date	iiiie	Time (hr)	Casing	Bottom of Hole	Water	.	hin-Wall Tube										
		. ,				7	ndisturbed Sample	e									
				<u> </u>			plit Spoon Sample										
						_	rab Sample										
																	o.: <b>B-21</b>
Field Te	st Legend		itancy:	N - No	one S-	Slow R	: - Rapid H - High			on-Plastic L - Lo							ery High
NOTES:	1 ) "nnd" d		ighness: I sample av					.) "ppa" denotes soil sa		ne L - Low M -					_		ory ringir
							within limitations of										nethods per ASTM D2488.

AN	I S G	EO						SOI	L BORIN	G LC	OG						BORING NO.: B-23
Projec		Ostrea S	Solar								Project No.:			N/A			Page <b>1</b> of <b>1</b>
Locati			Washingt								Project Mgr:		_	N/A	01		
Client: Drilling			Creek R		ies						Field Eng. Star Date/Time Sta			Mihi Dec			0 at 11:45 am
Driller	Helper:	Lenny J	ecminek /	'Greg							Date/Time Fini	shed	: _	Dec	emb	er 5, 202	0 at 12:10 pm
Elevatio Item	n: Grade	ft. Vert	ical Datu		re Barre	Borir	g Location	on:See Boring	Location Plan							6.540931° <b>ım:</b> NAD 1	Long: -119.903300°
Type		HSA	SS	;	-			odel: Mobile B			Hammer Type	D	rilliı	ng Fl	uid		od Size:
Length Inside D		5 ft 4.25	2 f		-	☐ Tru <b>Y</b> AT	V [	☐ Tripod ☐ Geoprobe	☐ Cat-Head  ✓ Winch		☐ Safety ☐ Doughnut	□F	Poly	onite mer	•		Casing Advance Hollow Stem Auger
	r Wt. (lb.) r Fall (in.)	140 30	30		-	▼ Tra		☐ Air Track	☐ Roller Bit  Cutting Hea	ıd	✓ Automatic	□ \ <b>∀</b> 1	Vate Von	er e			Hollow Otelli Augel
	Sample				1			/isual - Manı	ial Identification		scription			d Te		<u> </u>	
Depth/ Elev.	No. /	Rec.	Sample Blows	Stratur	_ Grou	o		(Density/co	nsistency, color	, Group	Name,		99	3 ≥	Strength		Remarks
(ft)	Interval (ft)	(in)	per 6"	Graphi	Symb	ol			particle size, sti ons, geologic ir			Dilatanov	Tolichness	Plasticity	Dry Str		
	S-1	12	2	71 1/2 1/1	7/	0.5	(6") - TOP	SOIL				<del> </del> -	_	-	-	PID = 0	
	0.0'- 2.0'		3 7		ML	0.5			T, some coarse to	fine Sand	d, little coarse to	╡-	-	NF	-		
	0.5'-'		8				line Grave	el, dry (ML)									
-					l												
	S-2	10	12 21		ML			y to light brown avel, dry (ML)	SILT, some coars	e to fine S	Sand, some coarse	-	-	NF	-	Gravel is	Basalt.
-	2.0'- 4.0'		31														
			45														
_	S-3	0	50/2"		+	4.1	Snoon Bo	fusal at 4.2 feet	PCS			┦.	-	-	-		
_	4.0'- 6.0'						Auger Re	fusal at 4.2 feet ring at 4.2 feet	BGS.								
<del></del> 5							Borehole	backfilled with s	oil cuttings.								
_																	
_																	
-																	
_																	
<del></del> 10																	
10																	
_																	
_																	
-																	
_																	
<del></del> 15																	
<b> </b>																	
F																	
<u> </u>																	
L																	
		Waterl	evel Data			+	Come	le Type	Notes:								
		Elapsed	Dep	oth in fe		1			140.65.								
Date	Time	Time (hr)	Bot. of Casing	Bottor of Hol	n e Wate	r o	Open E Thin-Wa										
						ا ت		rbed Sample									
					$\perp$	s		oon Sample									
						G	Grab Sa	ample								Boring N	o.: <b>B-23</b>
Field Te	st Legen		tancy:				R - Rap		Plasticity:		on-Plastic L - Lo					H - High	
NOTES:	1.) "ppd" de		ghness: sample av				m H - Hi netrometer		Dry Strength: 'ppa" denotes soil		ne L - Low M - average axial pocke						ery migri
								imitations of sa									thods per ASTM D2488.

A N	SG	EO					SOIL	BORING LO	G							BORING NO.: B-24 Page 1 of 1
Project	t:	Ostrea S	Solar						Project No.:			N/	Ά		L	r ago r or r
Location	on:	Moxee,	Washingt	on					Project Mgr:			N/	Ά			
Client:			Creek R		bles				Field Eng. Staff	:				Sha		
Drilling			Iling Serv						Date/Time Start							) at 10:50 am
	Helper:		ecminek /						Date/Time Finis	_						) at 11:40 am
Item	i: Grade ft.	Casing	ical Datum Samp		ore Barrel	Borir	ng Location: See Boring Loc	cation Plan		-					.541120° L 1: NAD 198	ong: -119.897513°
Туре		HSA	Samp		ore barrer	Rig N	Make & Model: Mobile B-57		Hammer Type		rilli Orilli				Drill Roc	
Length		5 ft	2 f		-	□ Tr			☐ Safety		Ben					Casing Advance
Inside Di Hammer		4.25 140	1.37		-	✓ AT			☐ Doughnut <b>☑</b> Automatic		Poly Wat		r		H	Hollow Stem Auger
Hammer		30	30			☐ Sk		☑ Roller Bit ☑ Cutting Head			Non					
	Sample						Visual - Manua	I Identification & Desc	rintion		Fiel	ld T				
Depth/ Elev.	No. /	Rec.	Sample Blows	Stratu	IM USCS		(Density/cons	istency, color, Group N	lame,		>	SS	,	Strength		Remarks
(ft)	Interval (ft)	(in)	per 6"	Graph	Symb			rticle size, structure, m s, geologic interpretation		.	Dilatancy	Toughness	Plasticity	Stre		
	S-1	10			. /	_								ο̈́		
		19	3 4	<u>1 1//</u> . \		0.6					-	-	-	-		
_	0.0'- 2.0'		10		ML		Medium stiff, brown SILT, s Gravel, dry (ML)	some coarse to fine Sand,	trace fine		-	-	-	-	PID = 0	
	0.6'-'		21				, , , ,									
_	S-2	7	42		) GM	2.0	Very dense, light brown to	grov aparas to fine CBAVI	El little medium	4		_	_			
		,	50/4"	[6 / A	J GW		to fine Sand, little Silt, dry		EL, illie medium		-	-	-			
_	2.0'- 3.0'				$\longrightarrow$	3.0	Spoon Refusal at 2.8 feet I	PC6		4						
							Auger Refusal at 3 feet BG	SS.								
_							Offset, Auger Refusal at 2. End of Boring at 2.5 feet B	GS.								
							Borehole backfilled with so	oil cuttings.								
<del></del> 5																
_																
-																
-																
_																
<del></del> 10																
-																
_																
-																
_																
<del></del> 15																
L																
L .																
ļ																
		Water Le	vel Data	<u> </u>		+	Sample Type	Notes:								
		Elapsed	Dep		eet to:	⇉		INULES.								
Date	Time	Time (hr)	Bot. of Casing			r o	•									
		(111)	Casing	01 110	10	∣՝	Thin-Wall Tube Undisturbed Sample									
						∃s	Split Spoon Sample									
						∃Ğ									_ ,	<b>-</b> • ·
Eigld T-	et I oger	ı. Dila	tancy:	NI NI	None S		·	lasticity: NP - No	n-Plastic L - Lov	A/ N	./ '	Maa	dicor		Boring No	∴ <b>B-24</b>
rielu 1e	st Legend		ghness:						e L - Low M - N							ery High
								ppa" denotes soil sample								athede wer ACTM DOLOG
	ა.) Maximu	m Particle	Size is de	ermine	u by airect o	pserva	ation within limitations of sar	ripier size. 4.) Soil identi	ilications and field to	ests	pas	ea o	יח עו	ısua	ıı-manual m	ethods per ASTM D2488.

AN	I S G	EO								SOI	L BC	RING LO	)(	G							BORING NO.: B-26 Page 1 of 1
Project		Ostrea S	Solar											Project No.:			N,	/A			rage I of I
Location	-		Washing	ton										Project Mgr:			N				
Client:		Cypress	Creek R	enew	ables	S								Field Eng. Staf	f:		_M	ihir	Sha	ah	
Drilling			Iling Ser											Date/Time Star							0 at 9:50 am
	Helper:		ecminek ical Datun				_							Date/Time Fini	_						<u>0 at 10:30 am</u> <b>_ong:</b> -119.913732°
Item	: Grade ft.	Casing			Core	Barrel	Во	ring Loc	ation:	See Boring L	ocation F	an an			_					: NAD 19	
Туре		HSA	SS	3		-				I: Mobile B-5			Į,	Hammer Type	D	rill	ing	Flui		Drill Ro	d Size:
Length Inside Di	a. (in.)	5 ft 4.25	1.3			-		Truck ATV		Tripod Geoprobe	☐ Cate	-Head nch		<ul><li>☐ Safety</li><li>☐ Doughnut</li></ul>			ntoni vme				Casing Advance
Hammer	Wt. (lb.)	140	14	0		-	$\mathbf{V}$	Track		Air Track	☐ Roll	er Bit		M Automatic	D	Wa	ter	•			Hollow Stem Auger
Hammer	Fall (in.)	30	30	<u>,                                     </u>	$\neg$	-	7	Skid			•	ting Head		⊔			ne Id T	es	ts T		
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Grap	ohic	USCS Group Symbo	<b>)</b>		cor optiona	Density/cor nstituents, p al description	nsistenc particle s	tification & Des y, color, Group size, structure, logic interpreta	Na mo	ame, oisture,	F		ıς	ticity	Dry Strength		Remarks
	S-1	24	3	7/1/N	<u>:://</u>		0	.5	TOPS							-	-	-	-		
	0.0'- 2.0'		5 5			ML		Light	brown	SILT, some	medium	to fine Sand, dry	(ML	L)	-	-	- 1	NΡ	-	PID = 0	
	0.5'-'		3																		
_																					
	S-2	11	4			ML		Hard, (ML)		rown to gray	Sandy S	ILT, some coarse	e to	fine Gravel, dry		-	- 1	NΡ	-	Gravel is	Basalt.
	2.0'- 4.0'		20 30					()													
			34																		
					Ш		4	.0													
	S-3	7	21	12	H	GM				light brown t , little Silt, dr		parse to fine GRA	VE	EL, little medium		-	-	-		Gravel is Auger gri	Basalt. nding from 3 to 5.5 feet
<b>—</b> 5	4.0'- 5.5'		22 50/4"	50							, (- ,									BGS.	3
Ü					Ы		5	5.5													
										sal at 5.3 fee sal at 5.5 feel											
								Offse	et, Auge	er Refusal at ng at 5.5 feet	5 feet BC	SS.									
_										ckfilled with		ngs.									
_																					
-																					
10																					
<del></del> 10																					
-																					
-																					
-																					
-																					
<del></del> 15																					
-																					
-																					
-																					
-																					
		Water Le			_		#	Sa	ample	Туре	Not	es:				_			_		
Date	Time	Elapsed Time	De Bot. of	oth in Bott			$\dashv$	<b>О</b> Оре	en End	d Rod											
_4.0		(hr)	Casing			Wate	<u> </u>			I Tube											
					$\dashv$		$\dashv$			ed Sample	:										
							_		-	on Sample											
							$\dashv$	<b>G</b> Gra	ab San	nple									F	Borina N	o.: <b>B-26</b>
Field Te	st Legend		tancy:	N	- No	ne S-	- Slo	ow R-	Rapid		Plastici			n-Plastic L - Lo					n I	H - High	
		Tou	ghness:	L.	- Lov	v M-I	Med	dium H	- High	1	Dry Stre			e L-Low M-					<u> </u>		ery High
	1.) "ppd" de 3.) Maximu									eading. 2.) nitations of s				average axial pocker fications and field							nethods per ASTM D2488.

A	I S G	EO						;	SOII	BORING I	LO	G								BORING NO.: <b>B-27</b> Page <b>1</b> of <b>1</b>	_
Project		Ostrea	Solar									Pro	oject No.:			N/	A			age i oi i	_
Location			Washing	ton									oject Mgr:			N/	Α				
Client:			Creek R		les								eld Eng. Staff					Sha			
Drilling			Iling Serv										te/Time Star							0 at 12:15 pm	
	Helper: n: Grade ft		ecminek i ical Datum					O D				ра	te/Time Finis							0 at 12:45 pm Long: -119.900227°	_
Item	i. Grade it	Casing			re Barrel	Bo	ring Location	on: See B	oring Lo	ocation Plan									: NAD 19		_
Туре		HSA	SS	3	-		Make & M					_	lammer Type	D	rilli	ng I	lui		Drill Ro	d Size:	_
Length Inside Di	a (in )	5 ft 4.25	2 f		-		Truck ATV	☐ Tripo ☐ Geop		☐ Cat-Head  ✓ Winch			Safety Doughnut							Casing Advance	_
Hammer	Wt. (lb.)	140	140	)	-		Track	☐ Air Tı		☐ Roller Bit			Automatic	□ v	۷at	ter	,			Hollow Stem Auger	
Hammer	Fall (in.)	30	30		-	<u> </u>	Skid			✓ Cutting Head		□.		M V				<u>.                                      </u>			_
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratun Graphi	USCS Group Symbo	p	opti	(Dens constitu onal des	ity/con ents, p	al Identification & sistency, color, Groarticle size, structuans, geologic interpr	oup N re, m	lam ioist	e, ture,	Dilatancy	Т	Longhness T	ticity	Dry Strength 6		Remarks	
	S-1	18	2	71 N. 71	<u>'</u>	0.	.5 (6") - TC	PSOIL						-			-	-			
	0.0'- 2.0'		3 2	///	CL			stiff, light	brown	Silty CLAY, little media	um to	fine	Sand, dry	┨-		-	ᅵ	-	PID = 0		
	0.5'-'		2		1		(CL)														
	S-2	12	_		1	2.		ight brow	n to are	y coarse to fine GRAV	/E1 1i+	ttlo r	madium to	4					Gravel is	Pacalt	
·	2.0'- 3.8'	13	5 16 32 50/4"		GM	3.	fine San	ignt brow d, little Si			'EL, III	ttie r	medium to	-			-		Graveris	basait.	
						3.	Spoon F Auger R Offset, A		3.5 feet usal at 3	BGS. 3 feet BGS.											
-5							End of E Borehol	Boring at 3 e backfille	3.8 feet l ed with s	BGS. soil cuttings.											
<b>—</b> 10																					
<b>-</b> 15																					
		Water Le Elapsed	evel Data Dei	oth in fe	et to:	+		ple Typ		Notes:											_
Date	Time	Time	Bot. of	Botton	1 Wate	rl		End Roo													
		(hr)	Casing	of Hole	e vvale	$\dashv$		Vall Tub													
								urbed S	•												
						_		poon Sa	ample												
					1	$\dashv$	<b>G</b> Grab	Sample										ı	Borina N	o.: <b>B-27</b>	
Field Te	st Legen		tancy:	N - N	lone S	- Slc	w R-Ra	pid					Plastic L - Lo					n I	H - High		_
		Tou	ghness:				ium H-F						L - Low M - I							ery High	_
							penetrome rvation withi			"ppa" denotes soil sar ampler size. 4.) Soil										nethods per ASTM D2488.	_

A N	SG	EO							SOI	L BORING	LO	G								BORING NO.: <b>B-SS-1</b> Page 1 of 1
Project		Ostrea Solar Project No.:											N/A					1 age 1 or 1		
Location:		Moxee, Washington									Project Mgr:					N/A				
Client:			Cypress Creek Renewables								Field Eng. Staff:						flihir Shah			
Drilling			Elite Drilling Services								_		ate/Time Star							0 at 1:00 pm
	Helper: Grade ft.		ecminek ical Datun			D		4	D D		_	Da	ate/Time Finis	_						<u>0 at 9:00 am</u> <b>_ong:</b> -119.900067°
Item	i. Grade it.	Casing			re Barrel	Bori	ng Loc	cation: 3	See Boring L	ocation Plan				$\overline{}$					: NAD 19	
Туре		HSA	SS		NQ				: Mobile B-5			_ }			ing Fluid			Drill Ro		
Length Inside Dia. (in.)		5 ft 4.25	1.3				☐ Truck ☑ ATV		Tripod Geoprobe	☐ Cat-Head  ✓ Winch			Safety Doughnut			tonit /mer				Casing Advance
Hammer Wt. (lb.)		140	140 140		-		☑ Track ☐ Air Track ☐		☐ Roller Bit		☑ Automatic			νat	er				Hollow Stem Auger	
Hammer	Fall (in.)	30	30	<u> </u>	<del>-</del>	<u>□ s</u>	kid			Cutting Head		Ш				e d T	oet	·e T		
Depth/ Elev. (ft)	Sample No. / Interval (ft)	Rec. (in)	Sample Blows per 6"	Stratum Graphic	Symbo	o		l) cor optiona	Density/cor stituents, p Il description	ial Identification isistency, color, G article size, struc ns, geologic inter	Group Noture, m	Nam าois	ne, sture,	Vodetello	T	Seample		Dry Strength 6		Remarks
	S-1	24	2	7, 1/2	<u>'</u>	0.5	(6") -	- TOPS	OIL						- [	-	- [	-		
	0.0'- 2.0'		4		ML		(12")	- Brow	n Sandy SILT	, dry (ML)				-	•	-	-	-	PID = 0	
	0.5'-'		38			1.5														
_				6 X }	) GM	2.0	)			GRAVEL, little Silt,										
	S-2	10	15		∴ SM		Very	dense,	gray Gravell	coarse to fine SAN	ND, little	Silt	, dry (SM)	-	•	-	-	-	Gravel is	Basalt.
-	2.0'- 4.0'		15 47 50/1"																	
-				·	1	4.0	Auge		al at 4 feet E	GS.				1						
<b>—</b> 5									g =-g.											
-																				
-																				
-																				
-																				
<del></del> 10																				
_																				
-																				
-																				
_																				
<del></del> 15																				
-																				
-																				
-																				
-																				
			vel Data		at to:	Ŧ	S	ample	Туре	Notes:										
Date	Time	Elapsed Time		oth in fee Bottom		_ ∘	Ор	en End	l Rod											
-	-	(hr)		of Hole		<u>г</u> т	Thi	in-Wall	Tube											
					+	<b>⊣</b> ս			ed Sample											
						⊟ s			on Sample											
					+	_  G	Gra	ab San	ple									ŗ	Borina Na	o.: <b>B-SS-1</b>
Field Te	st Legend		tancy:	N - N	lone S	- Slov	v R-	Rapid					Plastic L - Lo					n H	H - High	
NOTES	1 \ "		ghness:		ow M -								L - Low M - I					_		ery High
	1.) "ppd" de 3.) Maximu									"ppa" denotes soil : ampler size. 4.) S										nethods per ASTM D2488.

CORE BORING LOG  BORING NO.: B-SS-1 Page 1 of 1									B-SS-1							
Projec			Ostrea Solar Project No.: N/A													
Location	on:		Moxee,	Wash	ington					Project Mgr:	N/A					
Client:					k Rene		3			Field Eng. Sta	Mihir Sh					
Drilling	-	_			Services					Date/Time St		per 5, 202	•			
Driller/			_enny 、	Jecmin	ek /Gre					Date/Time Finished:					20 at 9:00 am	
Elevation Item	n: Grad	de ft.	Cas	ina		al Datu		ore Bit	Boring Location: See Boring Location Plan			Coord.:	Lat: 46.54	0462° <b>L</b> o	ong: -119.900067°	
Туре			HS			NQ		. Diamond	Horizontal Datum: NAD 1983			Drilling N	/lethod: Wi	reline		
Length	- C \	_	51			5 ft		6 in	Rig Make & Model: Mobile B-57							
Depth/	Avg Core	Depth	4.2 Run/	Rec	RQD	.875		1.875 Stratum	Visual Identification, Description and (Rock type, colour, texture, weath	nering,	Depth	Discontinuitie		s		
Elev. (ft)	Rate (min	(ft)	(Box) No.	(in. / %)	(in / %)	Kock	Core	Graphic	field strength, discontinuity space optional additional geological obser	rvations)	(ft.)	(See Legend for	Rock Description	n System)	Remarks	
. ,	`/ft)			,		Hard.	Weath		SEE TEST BORING LOG FOR OVERBURD			Type Dip I				
<del></del> 5	1.50	4.0							BASALT, gray, fine grained, highly weather extremely close spaced discontinuities 4' - 7' Highly Weathered zone	red, strong,					Loss of water at 4.5 feet BGS.	
_	1.00		R-1	16 44%	0 0%	R4	н									
-	0.75	7.0														
_	1.50	7.0							BASALT, gray, fine grained, highly weather extremely close spaced discontinuities 7' - 11' Highly Weathered zone	red, strong,					Loss of water at	
-	2.00	R-2 24 50%	24 0	0 0%	R4	н								8 feet BGS.		
<del></del> 10	2.50	+		0070	070										Loss of water at 9.75 feet BGS.	
-	2.00								BASALT, gray, fine grained, highly weathe	red strong						
_	1.25	11.0							extremely close spaced discontinuities 11' - 15' Highly Weathered zone	rou, suorig,						
-	2.00		R-3	21 44%	0 0%	R4	н									
-	2.25															
<del></del> 15	1.50	15.0							End of Boring at 15 feet BGS.							
- - - -									Borehole backfilled with soil cuttings.							
-																
Date	Tim	E	lapsed Time (hr)	Bot.	ata Depth of Bong of	ottom	to: Water	Notes	···							
		+						1								

Boring No.: **B-SS-1** 

**Attachment C** 

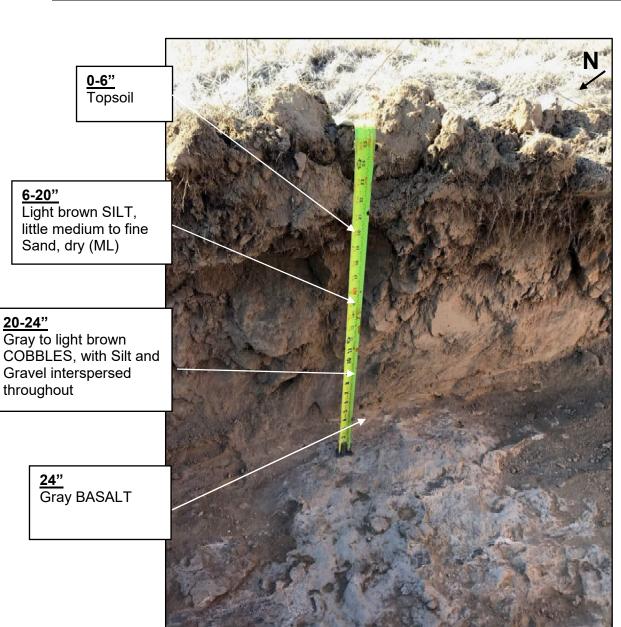
**Test Pit Photo Logs** 



# **TEST PIT PHOTO LOG**



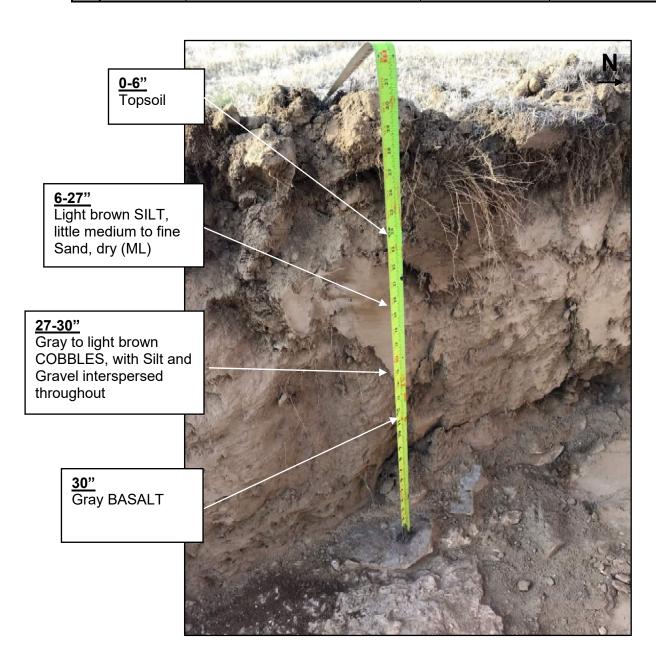
Project Name	Ostrea Solar	Test Pit ID	TP-02
Site Location	Moxee, Washington	Date	12/4/2020
Test Pit Contractor	Elite Drilling Services	ANS Geo Representative	Mihir Shah
Equipment Used	John Deere 26G	Weather/Temp	40°F / Sunny
Final Test Pit Depth	24 inches (2.0 feet)	Time Opened	1:20 PM
Groundwater Depth	Not Encountered	Time Closed	1:45 PM



# **TEST PIT PHOTO LOG**



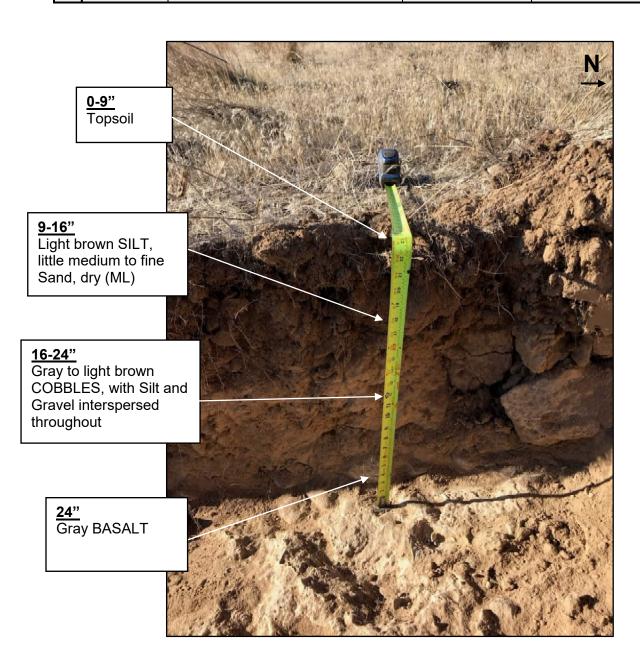
Project Name	Ostrea Solar	Test Pit ID	TP-04
Site Location	Moxee, Washington	Date	12/4/2020
Test Pit Contractor	Elite Drilling Services	ANS Geo Representative	Mihir Shah
Equipment Used	John Deere 26G	Weather/Temp	40°F / Sunny
Final Test Pit Depth	30 inches (2.5 feet)	Time Opened	12:45 PM
Groundwater Depth	Not Encountered	Time Closed	1:10 PM



# **TEST PIT PHOTO LOG**



Project Name	Ostrea Solar	Test Pit ID	TP-05
Site Location	Moxee, Washington	Date	12/4/2020
Test Pit Contractor	Elite Drilling Services	ANS Geo Representative	Mihir Shah
Equipment Used	John Deere 26G	Weather/Temp	35°F / Sunny
Final Test Pit Depth	24 inches (2.0 feet)	Time Opened	10:40 AM
Groundwater Depth	Not Encountered	Time Closed	11:05 AM





Project Name	Ostrea Solar	Test Pit ID	TP-06		
Site Location	Moxee, Washington	e, Washington Date 1			
Test Pit Contractor	Elite Drilling Services	ANS Geo Representative	Mihir Shah		
Equipment Used	John Deere 26G	Weather/Temp	40°F / Sunny		
Final Test Pit Depth	14 inches (1.2 feet)	Time Opened	11:15 AM		
Groundwater Depth	Not Encountered	Time Closed	11:40 AM		

<u>0-6"</u> Topsoil

6-8" Light brown SILT, little medium to fine Sand, dry (ML)

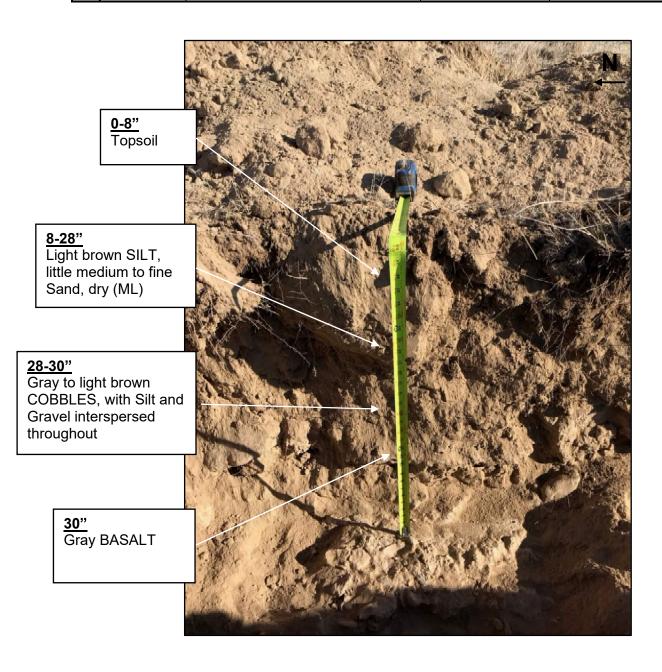
8-14"
Gray to light brown
COBBLES, with Silt and
Gravel interspersed
throughout

<u>**14"</u>** Gray BASALT</u>



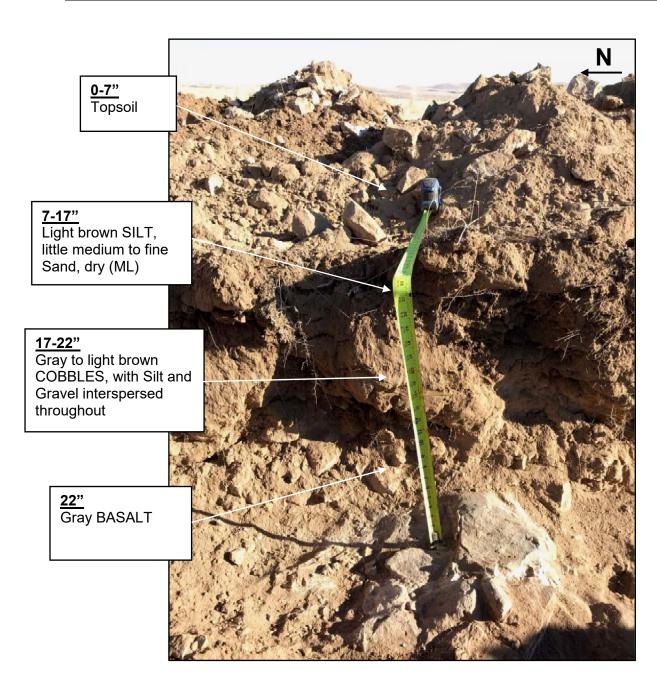


Project Name	Ostrea Solar	Test Pit ID	TP-09		
Site Location	Moxee, Washington	Date	12/4/2020		
Test Pit Contractor	Elite Drilling Services	ANS Geo Representative	Mihir Shah		
Equipment Used	John Deere 26G	Weather/Temp	40°F / Sunny		
Final Test Pit Depth	30 inches (2.5 feet)	Time Opened	11:45 AM		
Groundwater Depth	Not Encountered	Time Closed	12:20 PM		



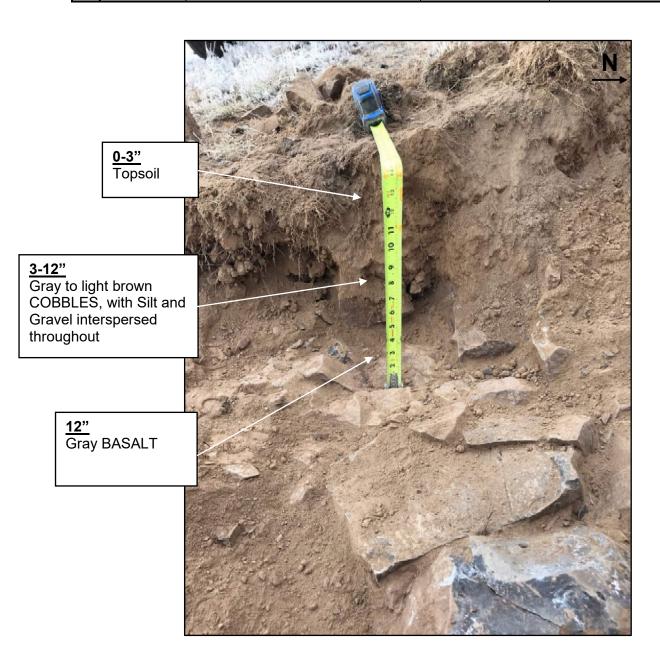


Project Name	Ostrea Solar	Test Pit ID	TP-11
Site Location	Moxee, Washington	Date	12/4/2020
Test Pit Contractor	Elite Drilling Services	ANS Geo Representative	Mihir Shah
Equipment Used	John Deere 26G	Weather/Temp	35°F / Sunny
Final Test Pit Depth	22 inches (1.8 feet)	Time Opened	10:05 AM
Groundwater Depth	Not Encountered	Time Closed	10:35 AM



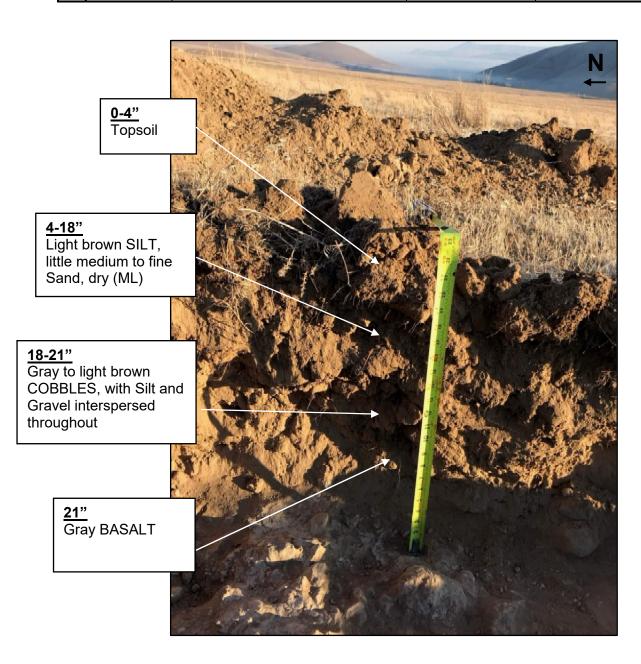


Project Name	Ostrea Solar	Test Pit ID	TP-15		
Site Location	Moxee, Washington	Date	12/5/2020		
Test Pit Contractor	Elite Drilling Services	ANS Geo Representative	Mihir Shah		
Equipment Used	John Deere 26G	Weather/Temp	25°F / Cloudy		
Final Test Pit Depth	12 inches (1.0 feet)	Time Opened	11:40 AM		
Groundwater Depth	Not Encountered	Time Closed	12:15 PM		



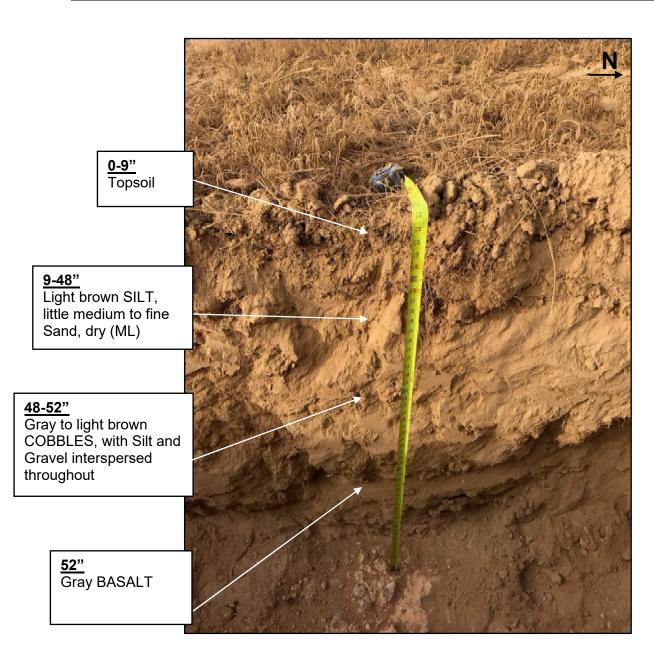


Project Name	Ostrea Solar	Test Pit ID	TP-16		
Site Location	Moxee, Washington	Date	12/4/2020		
Test Pit Contractor	Elite Drilling Services	ANS Geo Representative	Mihir Shah		
Equipment Used	John Deere 26G	Weather/Temp	40°F / Sunny		
Final Test Pit Depth	21 inches (1.8 feet)	Time Opened	2:50 PM		
Groundwater Depth	Not Encountered	Time Closed	3:25 PM		



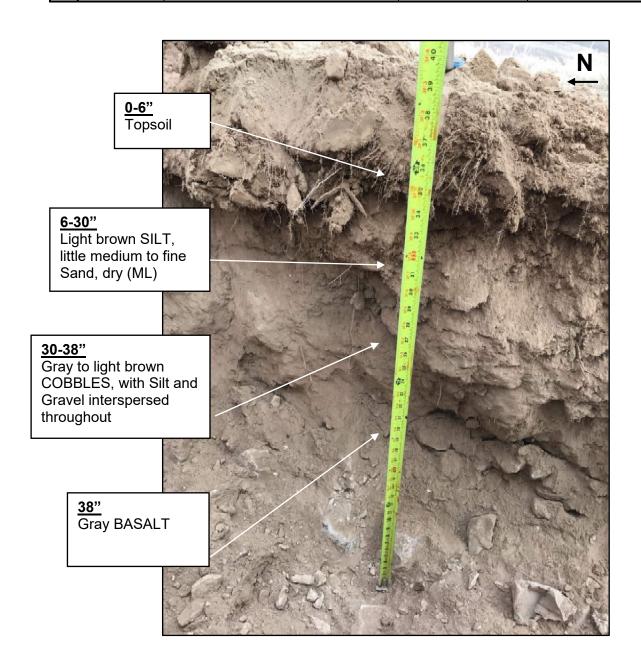


Project Name	Ostrea Solar	Test Pit ID	TP-17		
Site Location	Moxee, Washington	shington Date 1			
Test Pit Contractor	Elite Drilling Services	ANS Geo Representative	Mihir Shah		
Equipment Used	John Deere 26G	Weather/Temp	20°F / Cloudy		
Final Test Pit Depth	52 inches (4.3 feet)	Time Opened	8:55 AM		
Groundwater Depth	Not Encountered	Time Closed	9:20 AM		



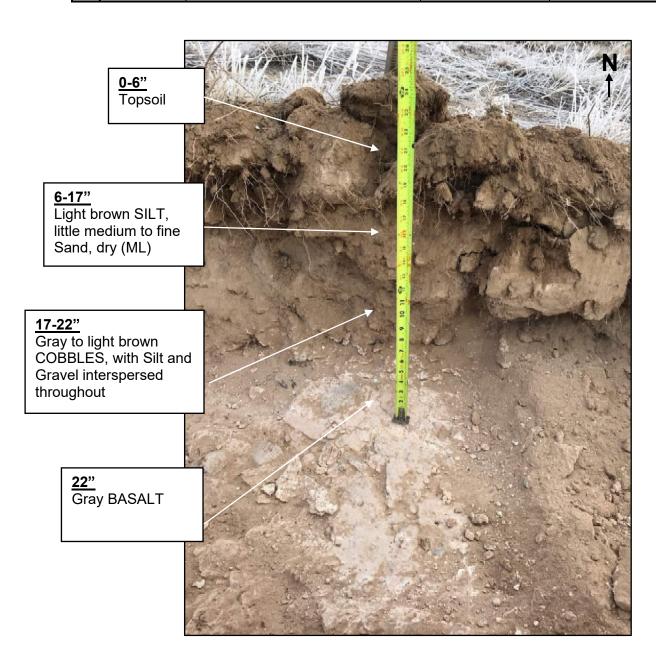


Project Name	Ostrea Solar	Test Pit ID	TP-19		
Site Location	Moxee, Washington	Date	12/5/2020		
Test Pit Contractor	Elite Drilling Services	ANS Geo Representative	Mihir Shah		
Equipment Used	John Deere 26G	Weather/Temp	25°F / Cloudy		
Final Test Pit Depth	38 inches (3.2 feet)	Time Opened	10:45 AM		
Groundwater Depth	Not Encountered	Time Closed	11:20 AM		



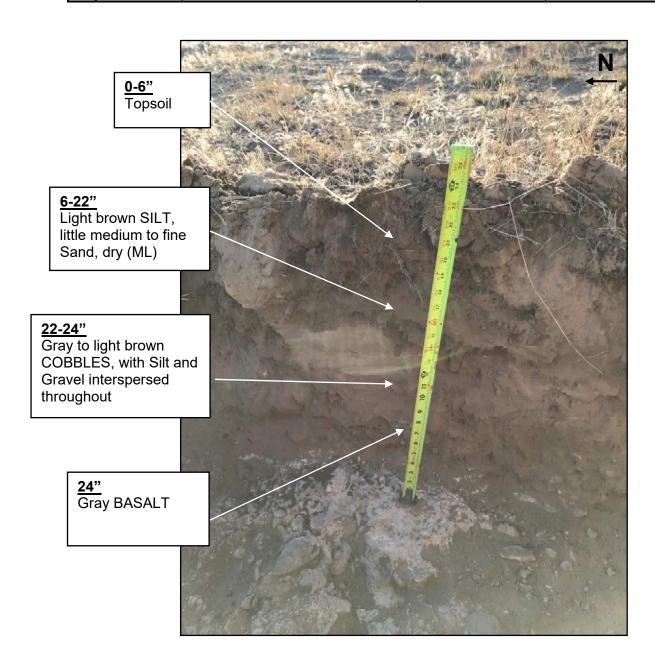


Project Name	Ostrea Solar	Test Pit ID	TP-22		
Site Location	Moxee, Washington	Date	12/5/2020		
Test Pit Contractor	Elite Drilling Services	ANS Geo Representative	Mihir Shah		
Equipment Used	John Deere 26G	Weather/Temp	15°F / Cloudy		
Final Test Pit Depth	22 inches (1.8 feet)	Time Opened	7:50 AM		
Groundwater Depth	Not Encountered	Time Closed	8:30 AM		



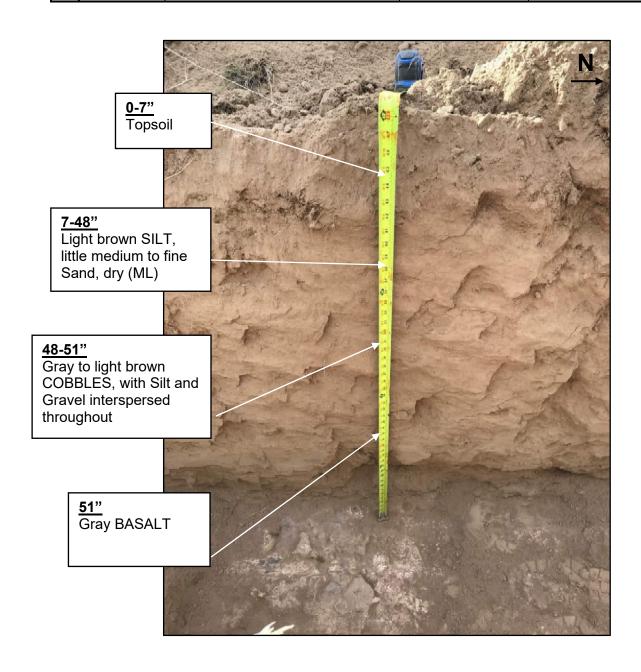


Project Name	Ostrea Solar	Test Pit ID	TP-25
Site Location	Moxee, Washington	Date	12/4/2020
Test Pit Contractor	Elite Drilling Services	ANS Geo Representative	Mihir Shah
Equipment Used	John Deere 26G	Weather/Temp	40°F / Sunny
Final Test Pit Depth	24 inches (2.0 feet)	Time Opened	2:15 PM
Groundwater Depth	Not Encountered	Time Closed	2:40 PM





Project Name	Ostrea Solar	Test Pit ID	TP-28		
Site Location	Moxee, Washington	Date	12/5/2020		
Test Pit Contractor	Elite Drilling Services	ANS Geo Representative	Mihir Shah		
Equipment Used	John Deere 26G	Weather/Temp	25°F / Cloudy		
Final Test Pit Depth	51 inches (4.3 feet)	Time Opened	12:45 PM		
Groundwater Depth	Not Encountered	Time Closed	1:15 PM		



## **Attachment D**

**Electrical Resistivity Results** 





Client:	Cypress Creek Renewables	Date:	October 29-30, 2020					
Project Name:	Ostrea Solar	Weather:	Sunny					
Project Location:	Moxee, Washington	Temperature:	60 - 65° F					
Equipment:		AGI MiniSting						
Test Method:	W	Wenner 4 Electrode Array						

Δ		Dete						Array sp	acing (ft)					
Array		Data	1.0	1.5	2.0	3.0	4.5	7.0	10.0	15.0	22.5	35.0	50.0	75.0
ERT-01	N-S	Measured Resistance (Ω)	344.00	202.00	139.40	68.41	64.07	22.19	13.92	7.30	3.91	2.20	1.42	0.66
	IN-3	Apparent Resistivity (Ω-m)	658.67	580.34	534.01	393.19	552.30	297.52	266.64	209.76	168.68	147.22	136.25	95.04
EKI-UI	E-W	Measured Resistance (Ω)	321.30	213.70	104.70	56.95	31.96	22.12	13.30	7.24	3.78	1.81	1.39	0.95
	E-VV	Apparent Resistivity (Ω-m)	615.39	613.87	401.12	327.05	275.42	296.51	254.75	207.93	163.01	121.46	133.17	136.03
	N-S	Measured Resistance (Ω)	375.30	220.00	158.30	108.80	64.44	39.96	24.85	17.10	11.50	7.90	4.59	2.60
ERT-02	IN-3	Apparent Resistivity (Ω-m)	718.72	631.85	606.25	625.14	555.35	535.53	476.10	491.34	495.60	529.44	439.52	372.77
ERT-UZ	E-W	Measured Resistance (Ω)	364.60	307.40	174.40	90.23	55.24	38.26	23.99	16.49	9.99	6.31	4.17	2.68
	E-VV	Apparent Resistivity (Ω-m)	698.30	883.01	667.82	518.46	476.10	512.98	459.33	473.66	430.99	422.76	398.68	384.35
	N-S	Measured Resistance (Ω)	405.10	256.40	169.70	85.18	38.25	18.34	9.75	7.58	5.85	4.36	2.80	1.64
ERT-03	IN-3	Apparent Resistivity (Ω-m)	776.02	736.40	649.83	489.51	329.49	245.85	186.72	217.66	253.99	291.97	268.16	235.49
EK1-05	E-W	Measured Resistance (Ω)	414.80	259.30	151.80	83.06	41.33	16.23	9.79	7.87	5.72	4.00	2.86	1.64
	E-VV	Apparent Resistivity (Ω-m)	794.31	744.93	581.25	477.32	356.31	217.51	187.48	226.10	246.55	267.80	273.44	236.19
	N-S	Measured Resistance (Ω)	193.10	138.10	93.64	59.35	42.02	24.48	16.38	11.68	9.95	8.42	6.90	4.78
ERT-04	IN-S	Apparent Resistivity (Ω-m)	369.72	396.54	358.75	341.07	362.10	328.27	313.64	335.58	428.55	564.79	660.81	686.10
EK1-04	F \A/	Measured Resistance (Ω)	258.50	114.90	99.24	62.10	44.98	24.60	16.02	11.86	10.02	9.43	7.61	4.65
	E-W	Apparent Resistivity (Ω-m)	495.00	329.79	380.09	356.87	387.71	329.79	306.93	340.77	431.60	632.46	728.78	668.43
		Site Average (Ω)	375.59	198.35	129.69	65.41	36.15	19.01	12.19	8.37	6.26	4.61	3.40	2.24
		Site Average (Ω-m)	719.30	569.77	496.73	375.84	311.58	254.83	233.28	240.68	355.18	309.24	326.58	321.95



Client:	Cypress Creek Renewables	Date:	October 29-30, 2020
Project Name:	Ostrea Solar	Weather:	Sunny
Project Location:	Moxee, Washington	Temperature:	60 - 65° F
Equipment:		AGI MiniSting	
Test Method:	W	enner 4 Electrode Array	

Δ		Dete						Array sp	acing (ft)					
Arı	ay	Data	1.0	1.5	2.0	3.0	4.5	7.0	10.0	15.0	22.5	35.0	50.0	75.0
	N-S	Measured Resistance (Ω)	182.40	100.10	67.74	36.85	22.81	12.08	7.50	5.19	3.85	3.05	2.58	2.19
ERT-05	IN-3	Apparent Resistivity (Ω-m)	349.30	287.64	259.48	211.71	196.57	162.00	143.53	148.99	165.84	204.43	246.71	314.55
EK1-05	E-W	Measured Resistance (Ω)	218.90	121.60	87.44	49.77	25.77	12.12	5.97	4.33	4.26	3.71	3.27	2.50
	E-VV	Apparent Resistivity (Ω-m)	419.40	349.30	334.98	285.93	222.05	162.52	114.36	124.36	183.70	248.78	313.33	359.36
	N-S	Measured Resistance (Ω)	399.00	230.10	177.50	108.60	56.62	26.44	15.91	11.20	9.09	6.32	5.15	3.67
ERT-06	IN-3	Apparent Resistivity (Ω-m)	764.13	661.11	679.70	623.62	487.98	354.48	304.68	321.56	391.67	423.37	492.86	526.69
EK1-00	E-W	Measured Resistance (Ω)	367.60	252.30	203.60	111.90	60.91	24.66	16.12	10.82	8.98	6.74	4.77	3.11
	E-VV	Apparent Resistivity (Ω-m)	704.09	724.81	779.98	643.13	524.87	330.40	308.76	310.90	386.79	451.41	453.85	446.23
	N-S	Measured Resistance (Ω)	187.80	105.40	58.33	23.41	11.72	8.28	7.22	5.65	5.06	4.20	3.83	2.92
ERT-07	IN-3	Apparent Resistivity (Ω-m)	359.66	302.70	223.42	134.51	101.01	111.04	138.26	162.28	218.15	281.54	366.67	419.40
ENT-U/	E-W	Measured Resistance (Ω)	170.90	106.40	57.72	25.27	14.13	8.11	6.49	5.99	5.41	4.29	3.22	2.29
	E-VV	Apparent Resistivity (Ω-m)	327.05	305.71	221.07	145.18	121.77	108.75	124.21	172.12	233.26	287.40	308.15	329.18
	N-S	Measured Resistance (Ω)	289.70	176.30	118.40	56.40	24.83	13.45	9.27	7.42	6.58	5.38	4.66	3.66
ERT-08	IN-3	Apparent Resistivity (Ω-m)	554.74	506.27	453.54	324.00	214.00	180.17	171.51	213.18	283.71	360.88	445.92	525.78
ER1-08	E-W	Measured Resistance (Ω)	283.00	173.20	104.70	50.57	23.23	12.37	9.22	7.31	6.61	6.21	5.02	4.01
	⊏-VV	Apparent Resistivity (Ω-m)	541.93	497.43	400.81	290.57	200.19	165.87	176.48	209.98	2849.58	416.36	480.06	575.16
		Site Average (Ω)	262.41	158.18	109.43	57.85	30.00	14.69	9.71	7.24	6.23	4.99	4.06	3.04
		Site Average (Ω-m)	524.43	478.19	430.35	341.82	266.42	203.12	191.85	209.55	586.30	327.34	378.34	423.28



Client:	Cypress Creek Renewables	Date:	October 29-30, 2020
Project Name:	Ostrea Solar	Weather:	Sunny
Project Location:	Moxee, Washington	Temperature:	60 - 65° F
Equipment:		AGI MiniSting	
Test Method:	W	enner 4 Electrode Array	

0		Data						Array sp	acing (ft)					
Arı	ray	Data	1.0	1.5	2.0	3.0	4.5	7.0	10.0	15.0	22.5	35.0	50.0	75.0
	N-S	Measured Resistance (Ω)	497.70	259.70	158.20	60.05	24.05	15.87	10.15	7.15	6.03	5.62	5.02	3.88
ERT-09	IN-3	Apparent Resistivity (Ω-m)	953.11	746.15	605.94	345.03	207.29	212.72	194.43	205.25	251.70	376.43	480.97	556.87
EK1-09	E-W	Measured Resistance (Ω)	455.70	207.20	157.10	62.33	31.38	15.57	10.62	7.26	6.08	5.56	4.60	3.63
	E-VV	Apparent Resistivity (Ω-m)	872.64	595.27	601.68	358.14	270.45	208.73	203.39	208.57	261.95	373.68	440.44	520.60
	N-S	Measured Resistance (Ω)	824.60	343.90	210.50	115.60	73.25	41.25	27.34	19.42	15.35	11.45	8.01	4.24
ERT-10	IN-3	Apparent Resistivity (Ω-m)	1579.17	987.86	806.20	664.16	631.24	552.91	523.65	557.78	661.42	767.49	766.88	608.38
EK1-10	E-W	Measured Resistance (Ω)	840.60	335.60	207.70	120.40	69.31	42.42	29.72	21.30	16.93	12.90	8.28	4.98
	E-VV	Apparent Resistivity (Ω-m)	1609.95	964.08	795.53	691.90	597.41	568.76	569.37	611.43	729.39	864.41	816.86	715.06
	N-S	Measured Resistance (Ω)	661.50	250.00	149.30	95.58	52.18	23.84	11.75	5.44	3.25	1.32	0.60	0.42
ERT-11	IN-3	Apparent Resistivity (Ω-m)	1266.75	718.11	571.80	549.25	449.58	319.74	225.06	156.15	139.87	88.54	57.73	59.68
CKI-TI	E-W	Measured Resistance (Ω)	656.40	287.90	201.60	85.81	55.35	25.27	11.70	5.50	3.08	1.32	0.57	0.38
	E-VV	Apparent Resistivity (Ω-m)	1257.30	827.23	772.36	492.86	477.01	338.63	224.12	158.04	132.80	88.15	54.96	55.05
	N-S	Measured Resistance (Ω)	256.60	149.70	99.46	35.73	15.46	7.11	4.00	1.97	0.99	0.64	0.52	0.32
EDT 12	IN-S	Apparent Resistivity (Ω-m)	491.34	430.07	381.00	205.28	133.23	95.25	76.69	56.66	42.85	42.67	50.11	46.57
ERT-12	E 14/	Measured Resistance (Ω)	254.10	141.40	100.40	36.55	15.64	6.90	4.04	1.96	1.11	0.65	0.52	0.32
	E-W	Apparent Resistivity (Ω-m)	486.46	405.99	384.35	210.01	134.78	92.45	77.33	56.42	47.61	43.28	49.50	45.42
		Site Average (Ω)	555.90	246.93	160.53	76.51	42.08	22.28	13.67	8.75	6.60	4.93	3.52	2.27
		Site Average (Ω-m)	1080.52	704.09	658.25	489.72	412.46	315.19	263.36	252.22	276.29	309.19	311.02	303.40



Client:	Cypress Creek Renewables	Date:	October 29-30, 2020
Project Name:	Ostrea Solar	Weather:	Sunny
Project Location:	Moxee, Washington	Temperature:	60 - 65° F
Equipment:		AGI MiniSting	
Test Method:	W	enner 4 Electrode Array	

۸۳	rav	Data						Array sp	acing (ft)					
, ,		Data	1.0	1.5	2.0	3.0	4.5	7.0	10.0	15.0	22.5	35.0	50.0	75.0
	N-S	Measured Resistance (Ω)	507.20	173.50	115.80	58.26	26.15	8.29	4.15	2.35	1.68	1.07	0.76	0.52
ERT-13	IN-3	Apparent Resistivity (Ω-m)	971.40	498.35	443.48	334.67	225.34	111.16	79.40	67.51	72.45	71.90	72.42	74.68
EV1-12	E-W	Measured Resistance (Ω)	377.90	171.60	151.60	71.54	24.65	7.68	4.60	2.66	1.58	0.89	0.72	0.49
	E-VV	Apparent Resistivity (Ω-m)	723.90	493.17	580.64	410.87	212.38	102.90	88.09	76.47	68.06	59.77	68.55	70.10
	N-S	Measured Resistance (Ω)	362.70	214.10	126.40	31.45	14.82	10.06	8.79	6.88	5.44	4.05	2.72	1.31
ERT-14	IN-3	Apparent Resistivity (Ω-m)	694.64	614.78	484.33	180.69	127.68	134.78	168.25	197.75	234.24	271.39	260.36	188.43
EN1-14	E-W	Measured Resistance (Ω)	307.80	176.90	92.20	43.10	18.45	10.72	9.10	8.01	5.39	3.17	2.33	1.29
	E-VV	Apparent Resistivity (Ω-m)	589.48	508.10	353.26	247.65	159.01	143.65	174.19	230.06	232.20	212.72	223.33	185.07
		Site Average (Ω)	349.47	187.53	219.35	79.90	43.43	21.68	12.16	6.46	4.14	2.62	1.86	1.04
		Site Average (Ω-m)	669.34	538.68	597.41	334.39	235.64	179.00	163.97	153.86	153.47	152.85	156.17	128.88



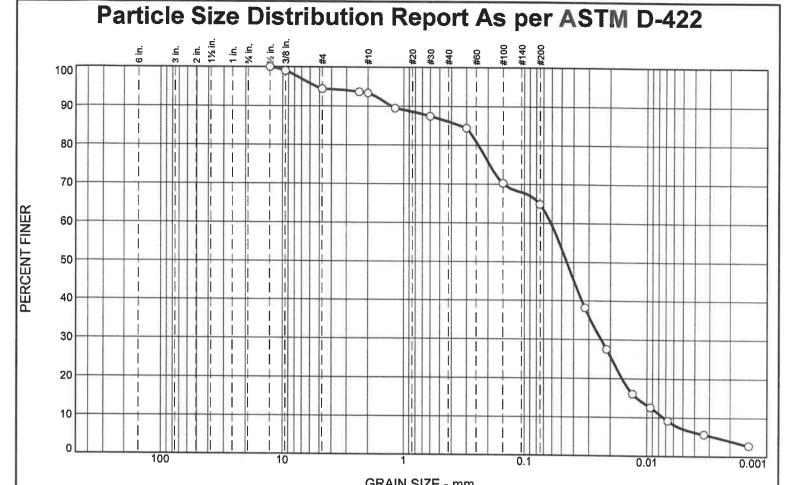
Client:	Cypress Creek Renewables	Date:	October 29-30, 2020
Project Name:	Ostrea Solar	Weather:	Sunny
Project Location:	Moxee, Washington	Temperature:	60 - 65° F
Equipment:		AGI MiniSting	
Test Method:	We	enner 4 Electrode Array	

Λ		Data							Array sp	acing (ft)						
Arr	ау	Data	1.0	1.5	2.0	3.0	4.5	7.0	10.0	15.0	22.5	35.0	50.0	75.0	100.0	150.0
	N-S	Measured Resistance (Ω)	237.60	129.50	76.87	33.76	19.43	16.06	11.75	7.95	5.13	2.70	1.61	0.77	0.36	0.13
EDT CC 1	IN-3	Apparent Resistivity (Ω-m)	455.07	372.16	294.44	193.94	167.46	215.28	225.03	228.36	221.13	180.84	153.77	110.55	68.85	38.56
ERT-SS-1	E 14/	Measured Resistance (Ω)	251.40	132.30	76.98	35.41	22.19	15.57	12.33	8.08	5.29	2.74	1.62	0.77	0.37	0.16
	E-W	Apparent Resistivity (Ω-m)	481.28	380.09	294.83	203.42	191.26	208.73	236.07	243.72	228.14	183.79	155.05	111.13	70.50	45.87
		Site Average (Ω)	244.50	130.90	76.93	34.59	20.81	15.82	12.04	8.02	5.21	2.72	1.61	0.77	0.36	0.15
		Site Average (Ω-m)	468.17	376.12	294.63	198.68	179.36	212.00	230.55	236.04	224.64	182.32	154.41	110.84	69.68	42.21

## Attachment E

**Geotechnical Laboratory Test Results** 





% +3"	% Gravel			% Sand		% Fines		
70 . 0	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
0.0	0.0	5.6	1.0	7.3	21.2	57.8	7.1	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1/2	100.0		
3/8	99.0		
#4	94.4		
#8	93.7		
#10	93.4		
#16	89.5		
#30	87.5		
#50	84.4		
#100	70.3		
#200	64.9		
		1	

	Material Description color. sandy silt. Silt Lo	
PL= NP	Atterberg Limits LL= NV	PI= NP
D <sub>90</sub> = 1.2657 D <sub>50</sub> = 0.0455 D <sub>10</sub> = 0.0073	Coefficients D <sub>85</sub> = 0.3352 D <sub>30</sub> = 0.0238 C <sub>u</sub> = 8.34	D <sub>60</sub> = 0.0611 D <sub>15</sub> = 0.0121 C <sub>c</sub> = 1.27
USCS= ML	Classification AASHTO	= A-4(0)
In-Situ %MC=6.5 F.M.=0.81	Remarks	

(no specification provided)

Location: B-1, S-3, 4'-6' Sample Number: S-18

**Depth:** 4'-6'

Date:

ANS CONSULTANTS, INC.

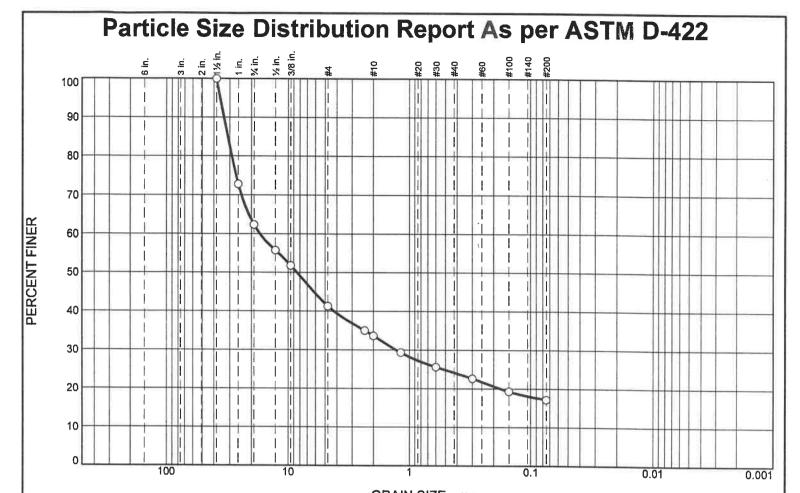
Client: ANS GEO Inc.

Project: CypressCreek-Ostrea Solar, Moxee, WA

South Plainfield, New Jersey

Project No: AOB-5632

Figure 18 F 1



GRAIN SIZE - mm. % Gravel % Sand % Fines % +3" Coarse Fine Medium Coarse Fine Siit Clay 0.0 37.7 21.0 7.6 9.5 7.0 17.2

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1.5	100.0		
1	72.8		
3/4	62.3		
1/2	55.7		
3/8	51.8		
#4	41.3		
#8	35.0		
#10	33.7		
#16	29.3		
#30	25.6		
#50	22.6		
#100	19.3		
#200	17.2		

silty gravel with sa	Material Description and	
PL= NP	Atterberg Limits LL= NV	PI= NP
D <sub>90</sub> = 33.3005 D <sub>50</sub> = 8.4783 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 31.0311 D <sub>30</sub> = 1.2908 C <sub>u</sub> =	D <sub>60</sub> = 17.0801 D <sub>15</sub> = C <sub>c</sub> =
USCS= GM	Classification AASHTO=	- A-1-b
In-Situ %MC=2.9 F.M.=5.13	<u>Remarks</u>	

(no specification provided)

Location: B-7, S-2, 2'-4' Sample Number: S-19

Depth: 2'-4'

Date:

ANS CONSULTANTS, INC.

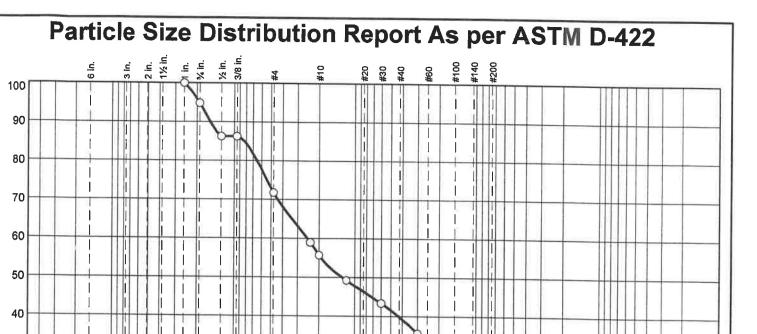
Client: ANS GEO Inc.

Project: CypressCreek-Ostrea Solar, Moxee, WA

South Plainfield, New Jersey

Project No: AOB-5632

Figure 19 F 1



GRAIN SIZE - mm.

% +3"	% Gr	avel		% Sand		% Fine	95
70.0	Coarse	Fine	Coarse	Medium	Fine	Silt	Cláy
0.0	5.2	23.1	16.0	15.8	19.0	20.9	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1	100.0		
3/4	94.8		
1/2	86.3		
3/8	86.3		1
#4	71.7		
#8	59.0		
#10	55.7		
#16	49.2		
#30	43.4	1	
#50	35.6		
#100	26.0		
#200	20.9		

silty sand with grav	aterial Description	
PL= NP	Atterberg Limits LL= NV	PI= NP
D <sub>90</sub> = 15.6966 D <sub>50</sub> = 1.2848 D <sub>10</sub> =	Coefficients D85= 8.2809 D30= 0.2036 Cu=	D <sub>60</sub> = 2.4913 D <sub>15</sub> = C <sub>c</sub> =
USCS= SM	Classification AASHTO=	A-1-b
In-Situ %MC=8.8 F.M.=3.34	Remarks	

\* (no specification provided)

Location: B-10, S-2, 2'-4' Sample Number: S-20

30

20

10

Depth: 2'-4'

Date:

0.01

0.001

ANS CONSULTANTS, INC.

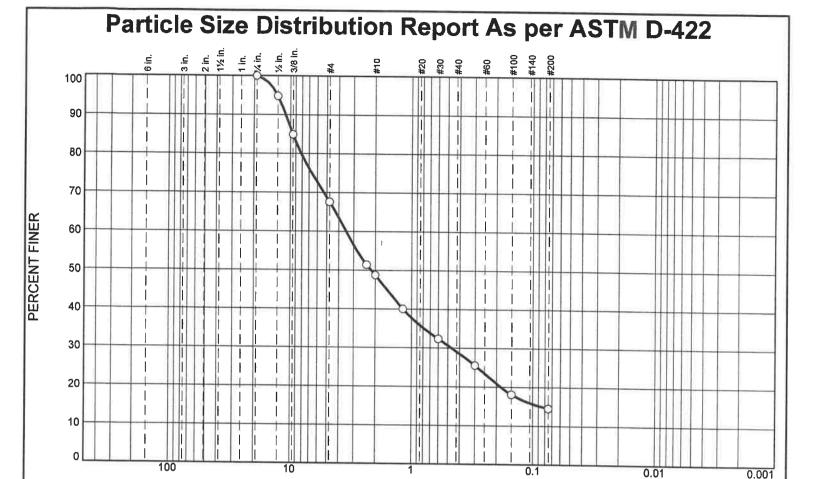
Client: ANS GEO Inc.

Project: CypressCreek-Ostrea Solar, Moxee, WA

South Plainfield, New Jersey

Project No: AOB-5632

Figure 20 F 1



GRAIN SIZE - mm. % Gravel % Sand % Fines % +3" Coarse Fine Coarse Medium Fine Silt Clay 0.0 0.0 32.4 18.9 19.6 14.6 14.5

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
3/4	100.0		
1/2	94.8		
3/8	84.9		
#4	67.6		
#8	51.4		
#10	48.7		
#16	40.0		
#30	32.4		
#50	25.5		
#100	18.1		
#200	14.5		
		1	

silty sand with grav	<b>flaterial Descriptio</b> vel	on .
PL= NP	Atterberg Limits LL= NV	PI= NP
D <sub>90</sub> = 10.9640 D <sub>50</sub> = 2.1658 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 9.5481 D <sub>30</sub> = 0.4673 C <sub>u</sub> =	D <sub>60</sub> = 3.4759 D <sub>15</sub> = 0.0852 C <sub>c</sub> =
USCS= SM	Classification AASHT	O= A-1-a
In-Situ %MC=8.4 F.M.=3.80	Remarks	

\* (no specification provided)

**Location:** B-18, S-3, 4'-6' **Sample Number:** S-22

Depth: 4'-6'

Date:

ANS CONSULTANTS, INC.

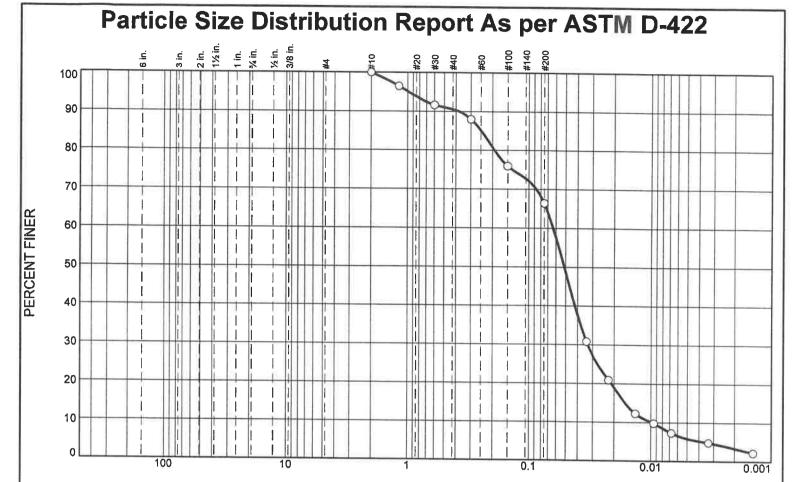
Client: ANS GEO Inc.

Project: CypressCreek-Ostrea Solar, Moxee, WA

South Plainfield, New Jersey

Project No: AOB-5632

Figure 22 F 1



GRAIN SIZE - mm. % Gravel % Sand % Fines % +3" Coarse Fine Coarse Medium Fine Silt Clay 0.0 0.0 0.0 0.0 9.4 24.2 60.5 5.9

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
#10	100.0		
#16	96.5		
#30	91.6		
#50	88.0		
#100	75.9		
#200	66.4		
* (no spe	cification provided	l)	

sandy silt	Material Descriptio	<u>n</u>
PL= NP	Atterberg Limits	PI= NP
D <sub>90</sub> = 0.3759 D <sub>50</sub> = 0.0513 D <sub>10</sub> = 0.0098	Coefficients D <sub>85</sub> = 0.2485 D <sub>30</sub> = 0.0330 C <sub>u</sub> = 6.45	D <sub>60</sub> = 0.0633 D <sub>15</sub> = 0.0161 C <sub>c</sub> = 1.75
JSCS= ML	Classification AASHT	O= A-4(0)
In-Situ %MC=6 F.M.=0.48	Remarks 7	

**Location:** B-20, S-1, 0'-2' **Sample Number:** S-23

Depth: 0'-2'

Date:

ANS CONSULTANTS, INC.

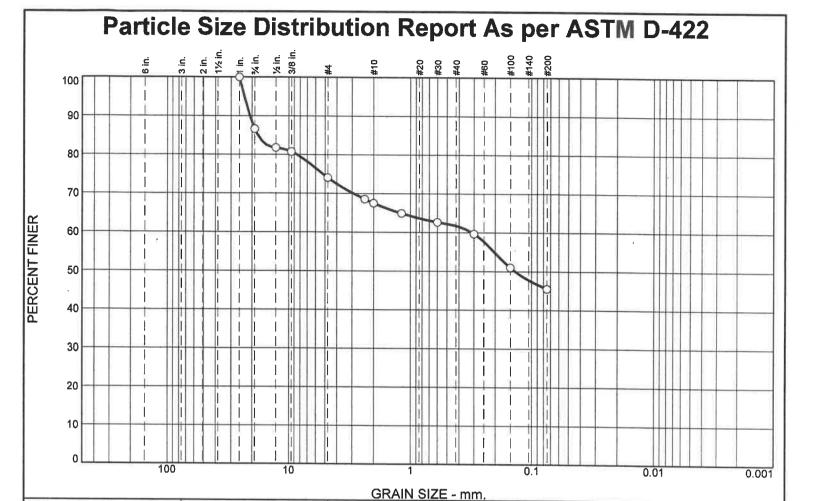
Client: ANS GEO Inc.

Project: CypressCreek-Ostrea Solar, Moxee, WA

South Plainfield, New Jersey

Project No: AOB-5632

Figure 23 F 1



% Sand

Fine

16.2

Medium

5.8

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1	100.0		
3/4	86.6		
1/2	81.8		
3/8	80.8		
#4	74.1		
#8	68.6		
#10	67.5		
#16	64.9		
#30	62.6		
#50	59.7	-	
#100	51.0		
#200	45.5		

silty sand with grav	<b>flaterial Description</b> vel	1
PL= NP	Atterberg Limits LL= NV	PI= NP
D <sub>90</sub> = 20.8195 D <sub>50</sub> = 0.1364 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 17.9775 D <sub>30</sub> = C <sub>u</sub> =	D <sub>60</sub> = 0.3119 D <sub>15</sub> = C <sub>c</sub> =
USCS= SM	Classification AASHTO	O= A-4(0)
In-Situ %MC=7.1 F.M.=2.52	<u>Remarks</u>	

% Fines

45.5

Clay

Silt

(no specification provided)

Location: B-21, S-2, 2'-4' Sample Number: S-24

% +3"

0.0

Depth: 2'-4'

% Gravel

Fine

12.5

Coarse

6.6

Coarse

13.4

ANS CONSULTANTS, INC.

Client: ANS GEO Inc.

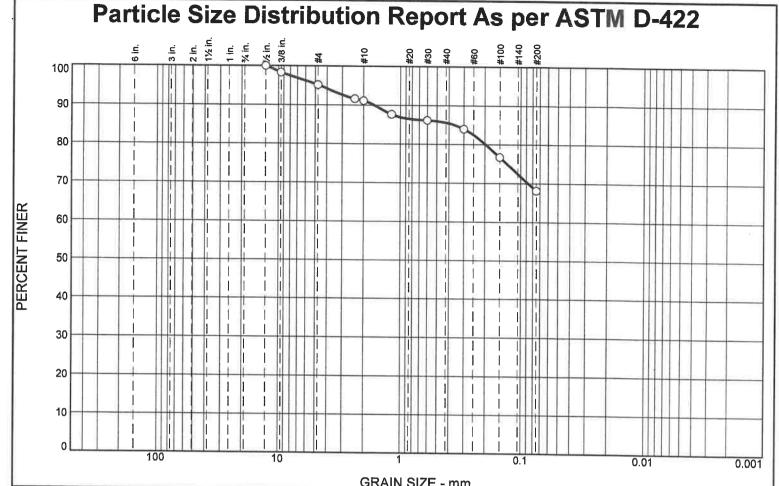
Project: CypressCreek-Ostrea Solar, Moxee, WA

South Plainfield, New Jersey

Project No: AOB-5632

Figure 24 F 1

Date:



% +3"		avel	% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.9	4.0	5.5	17.5	68,1	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1/2	100.0		
3/8	98.3		
#4	95.1		
#8	91.6		
#10	91.1		
#16	87.6		
#30	86.2		
#50	84.0		
#100	76.8		
#200	68.1		

sandy silt	laterial Description	<u>on</u>
sandy sin		
PL= NP	Atterberg Limits LL= NV	PI= NP
D <sub>90</sub> = 1.6396 D <sub>50</sub> = D <sub>10</sub> =	Coefficients D85= 0.3594 D30= Cu=	D60= D15= Cc=
USCS= ML	Classification AASHT	O= A-4(0)
IN-Situ %MC=5.8 F.M.=0.80	Remarks	

(no specification provided)

**Location:** B-24, S-1, 0'-2' **Sample Number:** S-25

**Depth:** 0'-2'

Date:

ANS CONSULTANTS, INC.

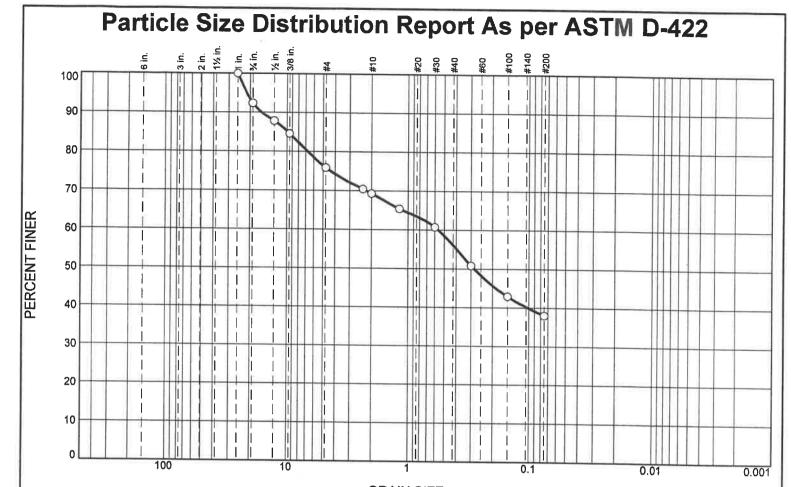
Client: ANS GEO Inc.

Project: CypressCreek-Ostrea Solar, Moxee, WA

South Plainfield, New Jersey

Project No: AOB-5632

Figure 25 F 1



GRAIN SIZE - mm. % Gravel % Fines % +3" Coarse Fine Coarse Medium Fine Silt Clay 0.0 7.7 16.4 6.6 13.2 18.1 38.0

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
1	100.0		
3/4	92.3		
1/2	87.8		
3/8	84.6		
#4	75.9		
#8	70.5		
#10	69.3		
#16	65.4		
#30	60.7		
#50	50.8		
#100	42.9		
#200	38.0		

Material Description silty sand with gravel								
PL= NP	Atterberg Limits	PI= NP						
D <sub>90</sub> = 16.2607 D <sub>50</sub> = 0.2834 D <sub>10</sub> =	<u>Coefficients</u> D <sub>85</sub> = 9.8590 D <sub>30</sub> = C <sub>u</sub> =	D <sub>60</sub> = 0.5623 D <sub>15</sub> = C <sub>c</sub> =						
USCS= SM	Classification AASHTO=	A-4(0)						
In-Situ %MC=5.6 F.M.=2.57	<u>Remarks</u>							

(no specification provided)

**Location:** B-26, S-2, 2'-4' **Sample Number:** S-26

Depth: 2'-4'

Date:

ANS CONSULTANTS, INC.

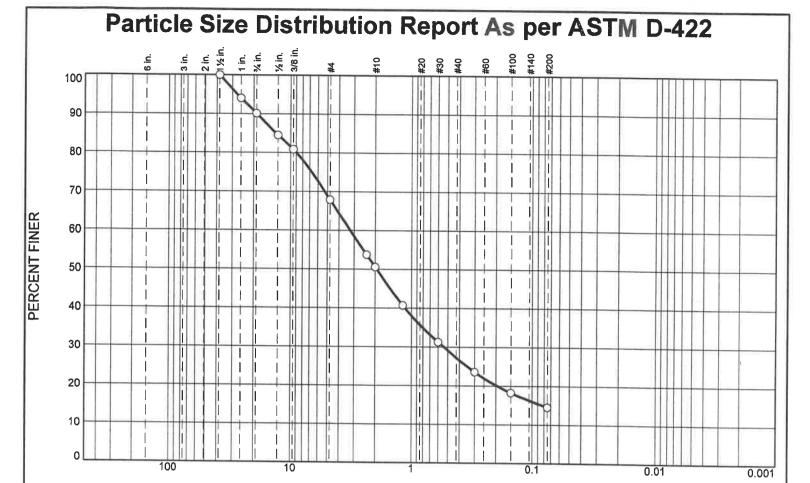
Client: ANS GEO Inc.

Project: CypressCreek-Ostrea Solar, Moxee, WA

South Plainfield, New Jersey

Project No: AOB-5632

Figure 26 F 1



				G	RAIN SIZE -	mm.			
% +3		% Gravel			% Sand		% Fines		
70.0		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay	
0.0		9.9	22.2	17.3	23.4	3.4 12.7	14.5		
SIEVE SIZE	PERCENT FINER	SPEC.	1	.	Material Description  Grayish brown in color. silty sand with gravel				
1.5	100.0				Grayish brown in color, sitty sand with graver				

	SIZE	FINER	PERCENT	(X=NO)
	1.5	100.0		
	1	94.0		
	3/4	90.1		
	1/2	84.5		
	3/8	80.9		
	#4	67.9		
	#8	53.7		
	#10	50.6		
	#16	40.7		
	#30	31.3		
- 1	#50	23.6		
	#100	18.3		
	#200	14.5		

Grayish brown in	color. silty sand with gr	avel
PL= NP	Atterberg Limits LL= NV	PI= NP
D <sub>90</sub> = 18.9057 D <sub>50</sub> = 1.9415 D <sub>10</sub> =	Coefficients D <sub>85</sub> = 13.1761 D <sub>30</sub> = 0.5384 C <sub>U</sub> =	D <sub>60</sub> = 3.2362 D <sub>15</sub> = 0.0822 C <sub>c</sub> =
USCS= SM	Classification AASHTO	= A-1-b
In-Situ %MC=5.5 F.M.=3.93	<u>Remarks</u>	

(no specification provided)

Location: B-SS-1, S-2, 2'-4' Sample Number: S-17

Depth: 2'-4'

ANS CONSULTANTS, INC.

Client: ANS GEO Inc.

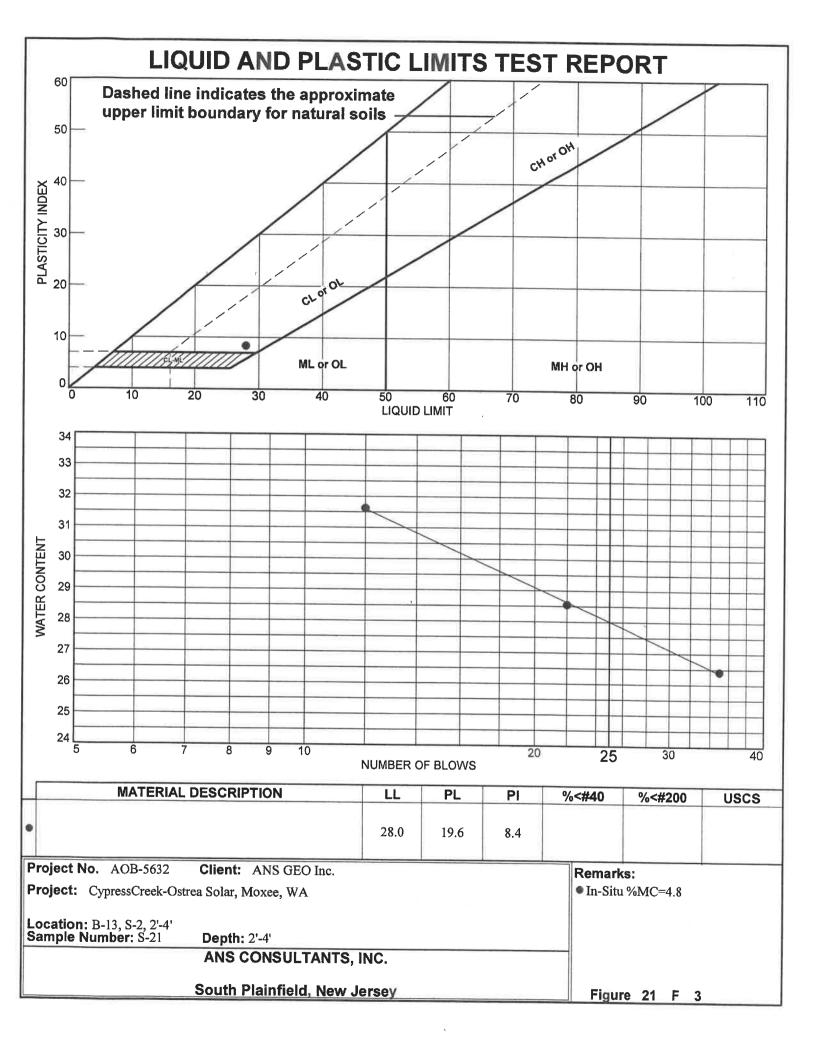
Project: CypressCreek-Ostrea Solar, Moxee, WA

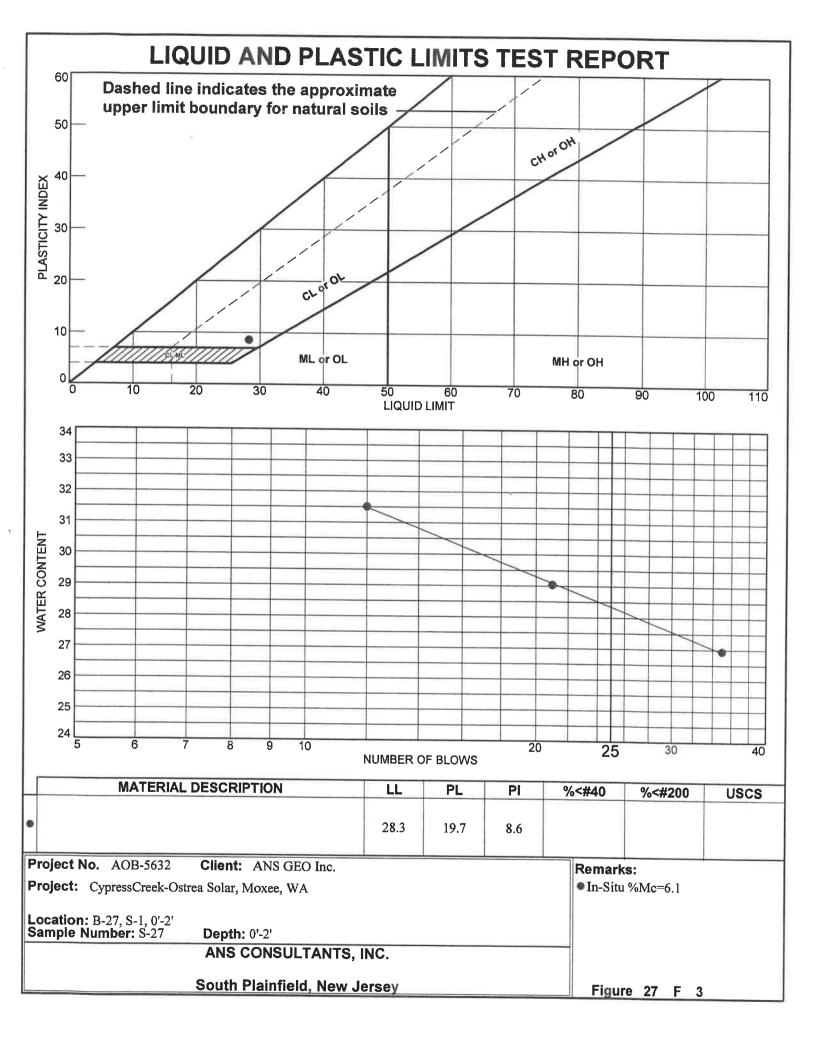
South Plainfield, New Jersey

Project No: AOB-5632

Figure 17 F 1

Date:







Tel: (800) 545-ATUL (908) 754-8383

Fax: (908) 754-8633

#### NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified www.ANSConsultants.net

Soil, Concrete, Masonry, Rebar, Asphalt, Structural Steel, Precast, Piles, Caissons, Fire-proofing, Roofing, Soil Boring, Concrete/Rock Coring, UST Removal, Environmental Testing & Reports

#### CERTIFICATE OF TEST ANALYSIS

CLIENT: ANS GEO Inc.

4405 South Clinton Avenue

South Plainfield, NJ 07080

DATE:

12/21/2020

FILE NO.:

AOB-5632

PROJECT: Cypress Creek

Ostrea Solar Moxee, WA

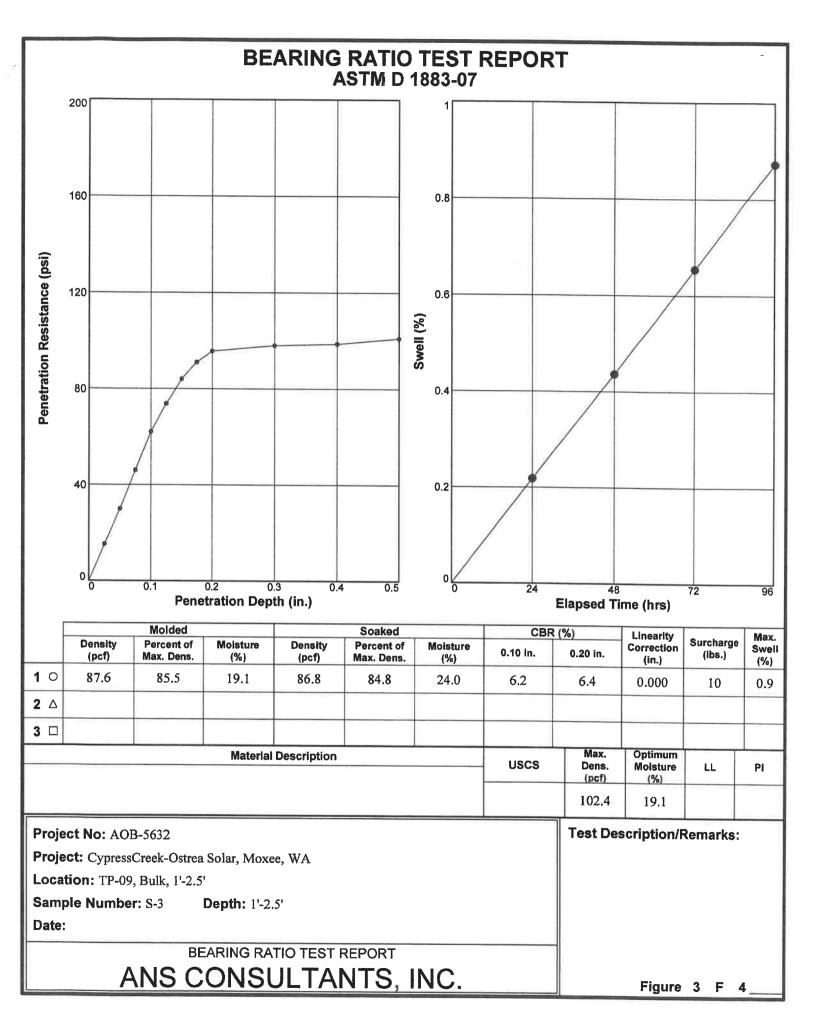
**REPORT NO.:** S, 6-9,12-27

**TEST PERFORMED:** 

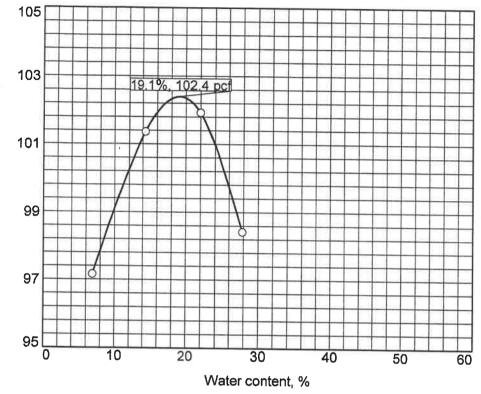
Standard Test Method for Moisture Content

as per ASTM-D 2216

Report No.	Sample ID	Moisture Content %
S - 6	TP-1, Bulk, 1'-2.5'	7.6
S - 7	TP-19, bulk, 05'-2.5'	5.8
S - 9	TP-25, Bulk, 1'-2'	7.9
S - 12	B-1, Bag, 1'-3'	4.4
S - 13	B-7, Bag, 1'-3'	4.7
S -14	B-10, Bag 1'-3'	3.1
S - 15	B-13, Bag, 1'-3'	7.0
S -16	B-16, Bulk, 1'-3'	5.3
S -17	B-SS-01,S-2, Bag, 2'-4'	5.5
S - 18	B-1,S-3 Bag, 1-'3'	6.5
S - 19	B-7, S-2,, 0'-2', bag	2.9
S -20	B-10, S-2, 2'-4', bag	8.8
S -21	B-13, S-2, 2'-4', bag	4.8
S - 22	B-18, S-3, 4'- 5', bag	8.4
S - 23	B-20, S-1, 0'-2'bag	6.7
S - 24	B-21, S-2, 2'-4' bag	7.1
S -25	B-24, S-1, 0'-2', bag	5.8
S - 26	B-26, S-2, 2'-4', bag	5.6
S - 27	B-27, S-1, 0'-2', bag	6.1



# **COMPACTION TEST REPORT**



Dry density, pcf

Curve No. S-3

## **Test Specification:**

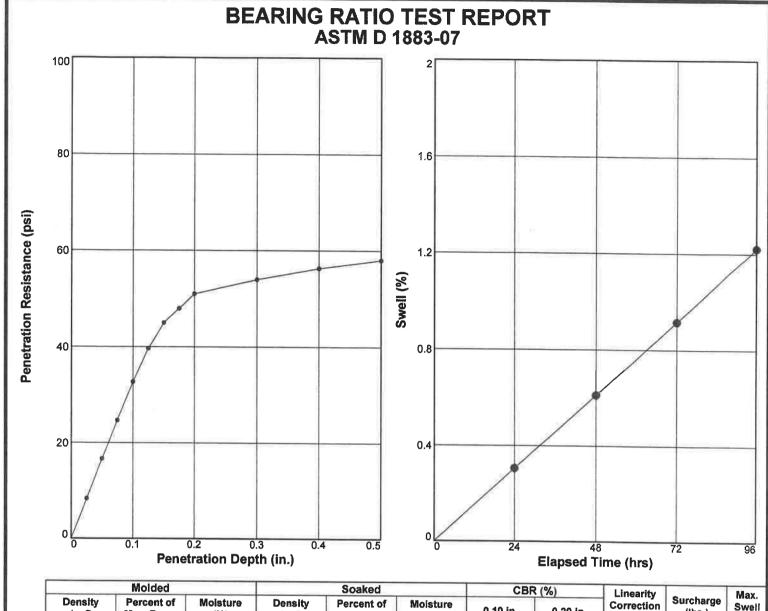
ASTM D 1557-12 Method C Modified

Preparation N	-	
Hammer Wt.		10 lb.
Hammer Drop		18 in.
Number of La	yers	five
Blows per Lay	yer	56
Mold Size	0.	075 cu. ft.
Test Performe Passing		
Passing _	3/4 i _ LL	n. Sieve
Passing NM Sp.G. (ASTM	3/4 i _ LL	n. Sieve
Passing _	3/4 i LL D 854)	n. Sieve
Passing NM Sp.G. (ASTM   %>3/4 in	3/4 i LL D 854)	n. Sieve
Passing NM Sp.G. (ASTM   %>3/4 in	3/4 i _ LL D 854) AAS	n. Sieve
Passing _ NM _ Sp.G. (ASTM   %>3/4 in USCS	3/4 i _ LL D 854) AAS	n. Sieve

#### **TESTING DATA**

_	TESTINO DATA						
	1	2	3	4	5	6	
WM + WS	21.54	22.44	23.07	23.18		-	
WM	13.75	13.75	13.75	13.75			
WW + T #1	708.6	655.1	877.4	872.9			
WD + T #1	662.8	572.8	719.3	682.9			
TARE #1	0.0	0.0	0.0	0.0			
WW + T #2				0.0			
WD + T #2							
TARE #2							
MOISTURE	6.9	14.4	22.0	27.8			
DRY DENSITY	97.2	101.4	101.9	98.4			

TEST RESULTS	Material Description
Maximum dry density = 102.4 pcf	•
Optimum moisture = 19.1 %	Remarks:
Project No. AOB-5632 Client: ANS GEO Inc.	
Project: CypressCreek-Ostrea Solar, Moxee, WA	
○ Location: TP-09, Bulk, 1'-2.5' Depth: 1'-2.5' S	mple Number: S-3 Checked by:
ANS CONSULTANTS, INC.	Title:
South Plainfield, New Jerse	Figure 3 F 2



		Molded		Soaked			CBF	₹ (%)	Linearity a	Max.	
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.	Correction (in.)	Surcharge (ibs.)	Swell (%)
10	89.8	85.3	15.4	88.7	84.3	23.9	3.3	3.4	0.000	10	1.2
2 🛆											
3 □											

Material Description	uscs	Max. Dens. (pcf)	Optimum Molsture (%)	LL	PI
		105.3	15.4		

Project No: AOB-5632

Project: CypressCreek-Ostrea Solar, Moxee, WA

Location: B-23, Bulk, 1'-3'

Sample Number: S-8 Depth: 1'-3'

Date:

BEARING RATIO TEST REPORT

ANS CONSULTANTS, INC.

Test Description/Remarks:

Figure 8 F 4

# **COMPACTION TEST REPORT**

106.5
105
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
10

Curve No. S-8

**Test Specification:** 

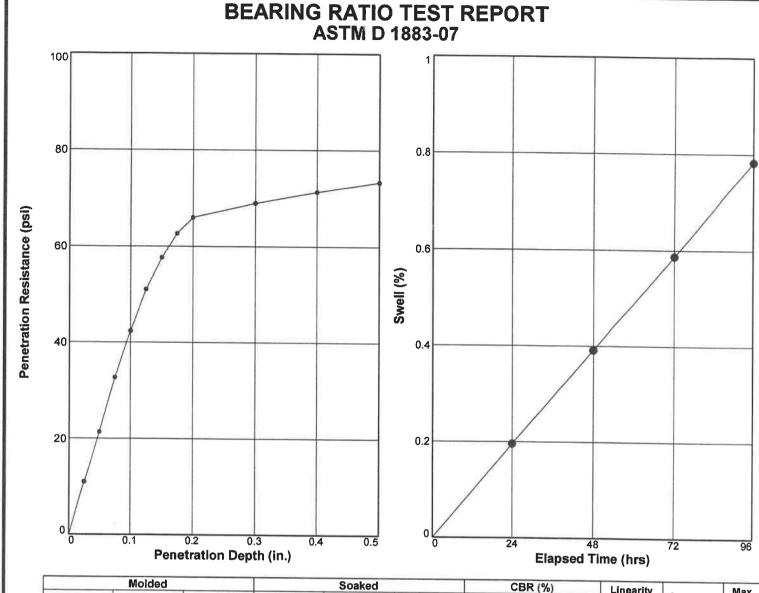
ASTM D 1557-12 Method C Modified

Preparation N	Method			
Hammer Wt.		10 lb.		
Hammer Drop		18 in.		
Number of La	yers	five		
Blows per La	yer	56		
Mold Size	0.07	75 cu. ft.		
Test Performe Passing	ed on Materi 3/4 in.			
NM	LL	PI		
Sp.G. (ASTM				
%>3/4 in.	% <n< td=""><td>o.200</td></n<>	o.200		
USCS	AASHTO			
Date Sample	d t	7		
Date Tested				
Tested By				

### **TESTING DATA**

	1	2	3	4	5	6
WM + WS	21.73	22.46	23.09	23.28		
WW	13.75	13.75	13.75	13.75		
WW + T #1	705.5	582.2	852.9	792.3		
WD + T #1	666.6	522.9	716.6	634.5		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	5.8	11.3	19.0	24.9		
DRY DENSITY	100.6	104.4	104.6	101.7		

TEST RESULTS	Material Description
Maximum dry density = 105.3 pcf	
Optimum moisture = 15.4 %	Remarks:
Project No. AOB-5632 Client: ANS GEO Inc.	
Project: CypressCreek-Ostrea Solar, Moxee, WA	
○ Location: B-23, Bulk, 1'-3' Depth: 1'-3' Sample Number: S-8	Checked by:
ANS CONSULTANTS, INC.	Title:
South Plainfield, New Jersey	Figure 8 F 2



		Molded		Soaked		CBR (%)		Linearity .		Max.	
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.	Correction (in.)	Surcharge (ibs.)	Swell (%)
1 0	89.4	85.7	15.4	88.7	85.1	23.4	4.2	4.4	0.000	10	0.8
2 🛆											
3 🗆											

Material Description	USCS	Max.	- p		
	0303	Dens. (pcf)	Moisture (%)	LL	Pi
		104.3	15.4		

Project No: AOB-5632

Project: CypressCreek-Ostrea Solar, Moxee, WA

Location: B-SS-01, Bulk, 1'-4'

Sample Number: S-11 Depth: 1'-4'

Date:

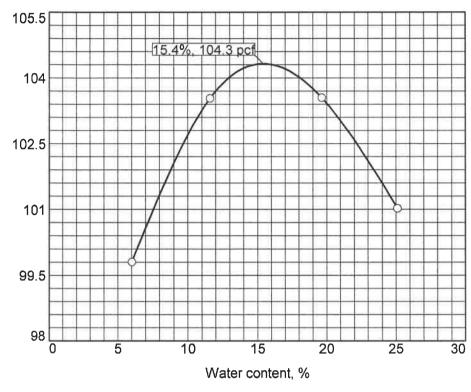
BEARING RATIO TEST REPORT

ANS CONSULTANTS, INC.

**Test Description/Remarks:** 

Figure 11 F 4

# **COMPACTION TEST REPORT**



Dry density, pcf

# Curve No. S-11

## **Test Specification:**

ASTM D 1557-12 Method C Modified

Hammer Wt.		10 lb.	
Hammer Drop		18 in.	
Number of Laye	ers	five	
Blows per Laye	r	56	
Mold Size	0.07	5 cu. ft.	
Doooling	2/4:	0'	
Passing		Sieve	
NM	LL	Sieve	
NMSp.G. (ASTM D	LL	PI	
NM Sp.G. (ASTM D %>3/4 in.	LL 854)	PI	
NMSp.G. (ASTM D %>3/4 inUSCS	LL 854) % <ne< th=""><th>PI</th></ne<>	PI	
NM Sp.G. (ASTM D %>3/4 in. USCS	LL 854) % <ne< td=""><td>PI</td></ne<>	PI	

### **TESTING DATA**

	1	2	3	4	5	6
WM + WS	21.68	22.41	23.04	23.23		
WM	13.75	13.75	13.75	13.75		
WW + T #1	705.5	582.2	855.9	792.3		
WD + T #1	665.4	521.7	715.4	633.3		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	6.0	11.6	19.6	25.1		
DRY DENSITY	99.8	103.5	103.5	101.0		

TEST RESULTS	Material Description
Maximum dry density = 104.3 pcf	
Optimum moisture = 15.4 %	Remarks:
Project No. AOB-5632 Client: ANS GEO Inc.	
Project: CypressCreek-Ostrea Solar, Moxee, WA	
O Location: B-SS-01, Bulk, 1'-4' Depth: 1'-4' Sample Number: S-11	Checked by:
ANS CONSULTANTS, INC.	Title:
South Plainfield, New Jersey	Figure 11 F 2



Tel: (800) 545-ATUL (908) 754-8383

Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified www.ANSConsultants.net

Soil, Concrete, Masonry, Rebar, Asphalt, Structural Steel, Precast, Piles, Caissons, Fire-proofing, Roofing, Soil Boring, Concrete/Rock Coring, UST Removal, Environmental Testing & Reports

## THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.

4405 South Clinton Avenue, Suite#A

South Plainfield, NJ 07080

**DATE:** 12/22/2020

**FILE NO: AOB-5632** 

PROJECT: Cypress Creek- Ostrea Solar

Moxee, WA

**REPORT NO: S-1** 

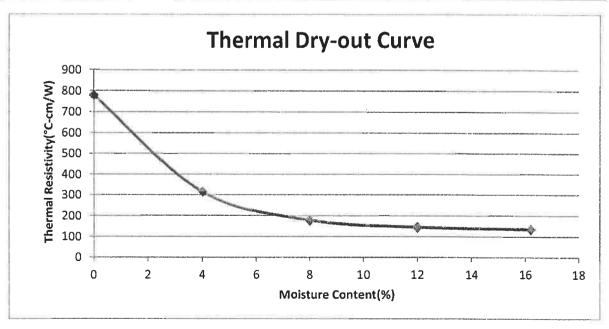
Test Data- Sample No. S-1 (TP-02, Bulk, 1'-2')

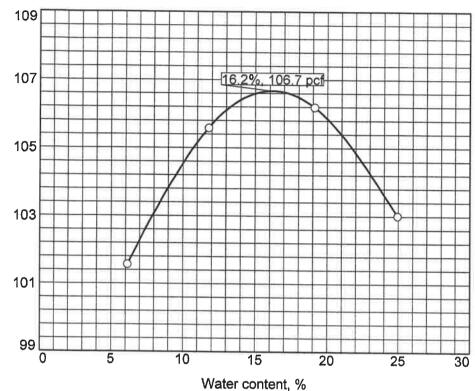
Standard Proctor Value: 106.7

Remolded Dry Density: 90.695 (85%)

Optimum Moisture Content: 16.2% In-Situ Moisture Content: 3.9%

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	26.2	779
4	25.8	315
8	25.3	178
12	24.9	145
16.2	24.8	135





Curve No. S-1

Test Specification:

ASTM D 1557-12 Method C Modified

Preparation I	Method			
Hammer Wt.		10 lb.		
Hammer Dro	pp 18 in.			
Number of La	ayers	five		
Blows per La	yer	56		
Mold Size	0.0	75 cu. ft.		
Test Perform	ed on Mate	rial		
Passing <sub>-</sub>	3/4 in	Sieve		
NM	LL	PI		
Sp.G. (ASTM	D 854)			
%>3/4 in.	% <i< td=""><td>No.200</td></i<>	No.200		
USCS	AASI	łTO		
Date Sample	d			
-ara campic				
Date Tested				

	1	2	3	4	5	6
WM + WS	21.83	22.60	23.23	23.40		
WM	13.75	13.75	13.75	13.75		
WW + T #1	819.1	628.0	736.8	868.1		
WD + T #1	771.7	561.8	618.6	694.8		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	6.1	11.8	19.1	24.9		
DRY DENSITY	101.6	105.6	106.2	103.0		

TEST RESULTS	Material Description
Maximum dry density = 106.7 pcf	
Optimum moisture = 16.2 %	Remarks:
Project No. AOB-5632 Client: ANS GEO Inc.	itemarks.
Project: CypressCreek-Ostrea Solar, Moxee, WA	
O Location: TP-02, Bulk, 1'-2' Depth: 1'-2' Sample Number: S-1	Checked by:
ANS CONSULTANTS, INC.	Title:
South Plainfield, New Jersey	Figure 1 F 2



### CONSULTANTS, INC. 4405 South Clinton Avenue South Plainfield, NJ 07080

Tel: (800) 545-ATUL (908) 754-8383

Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified www.ANSConsultants.net

Soil, Concrete, Masonry, Rebar, Asphalt, Structural Steel, Precast, Piles, Caissons, Fire-proofing, Roofing, Soil Boring, Concrete/Rock Coring, UST Removal, Environmental Testing & Reports

# THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.

4405 South Clinton Avenue, Suite#A

South Plainfield, NJ 07080

**DATE:** 12/22/2020

FILE NO: AOB-5632

PROJECT: Cypress Creek- Ostrea Solar

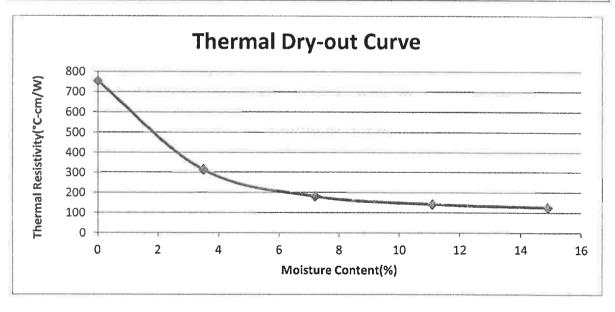
Moxee, WA

**REPORT NO: S-2** 

Test Data- Sample No. S-2 (TP-05, Bulk, 1'-2')

Standard Proctor Value: 102.6 Remolded Dry Density: 87.21 (85%) Optimum Moisture Content: 14.9% In-Situ Moisture Content: 4.1%

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	24.3	754
3.5	24	314
7.2	23.9	181
11.1	23.7	142
14.9	23.6	126



103.5 102 100.5 99 97.5 96 0 5 10 15 20 25 30 Water content, % Curve No. S-2

**Test Specification:** 

ASTM D 1557-12 Method C Modified

<b>Preparation Me</b>	thod			
Hammer Wt.	10 lb.			
		18 in.		
Number of Laye				
Blows per Laye				
Mold Size	0.07	5 cu. ft.		
Test Performed				
Passing	3/4 in.	Sieve		
-	LL	PI		
NM	LL 854)	PI		
NM Sp.G. (ASTM D %>3/4 in.	LL 854) % <no< td=""><td>PI</td></no<>	PI		
NM Sp.G. (ASTM D	LL 854) % <no< td=""><td>D.200</td></no<>	D.200		
NMSp.G. (ASTM D %>3/4 inUSCSDate Sampled	LL 854) % <no  AASHT</no 	PI		

1	2	3	4	5	6
21.26	22.23	22.69	22.76		
13.75	13.75	13.75	13.75		
693.6	918.5	869.6	763.8		
678.0	825.2	746.1	631.3		
0.0	0.0	0.0	0.0		
2.3	11.3	16.6	21.0		
98.0	101.7	102.3			
	13.75 693.6 678.0 0.0	21.26 22.23 13.75 13.75 693.6 918.5 678.0 825.2 0.0 0.0	21.26     22.23     22.69       13.75     13.75     13.75       693.6     918.5     869.6       678.0     825.2     746.1       0.0     0.0     0.0	21.26     22.23     22.69     22.76       13.75     13.75     13.75     13.75       693.6     918.5     869.6     763.8       678.0     825.2     746.1     631.3       0.0     0.0     0.0     0.0	21.26     22.23     22.69     22.76       13.75     13.75     13.75     13.75       693.6     918.5     869.6     763.8       678.0     825.2     746.1     631.3       0.0     0.0     0.0     0.0

TEST RESULTS	Material Description
Maximum dry density = 102.6 pcf	·
Optimum moisture = 15.1 %	B 1
Project No. AOB-5632 Client: ANS GEO Inc. Project: CypressCreek-Ostrea Solar, Moxee, WA	Remarks:
○ Location: TP-05, Bulk, 1'-2' Depth: 1'-2' Sample Number: S-2	Checked by:
ANS CONSULTANTS, INC.	Title:
South Plainfield, New Jersey	Figure 2 F 2



### CONSULTANTS, INC. 4405 South Clinton Avenue South Plainfield, NJ 07080

Tel: (800) 545-ATUL (908) 754-8383

Fax: (908) 754-8633

NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified www.ANSConsultants.net

Soil, Concrete, Masonry, Rebar, Asphalt, Structural Steel, Precast, Piles, Caissons, Fire-proofing, Roofing, Soil Boring, Concrete/Rock Coring, UST Removal, Environmental Testing & Reports

# THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.

4405 South Clinton Avenue, Suite#A

South Plainfield, NJ 07080

**DATE:** 12/22/2020

FILE NO: AOB-5632

PROJECT: Cypress Creek- Ostrea Solar

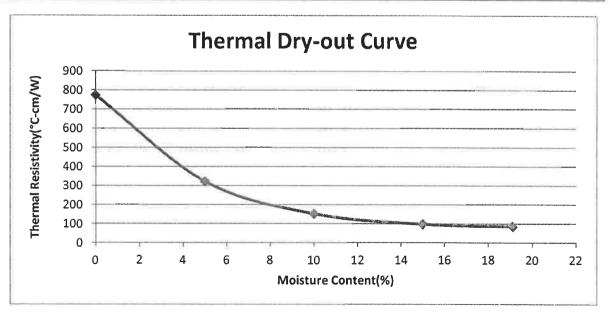
Moxee, WA

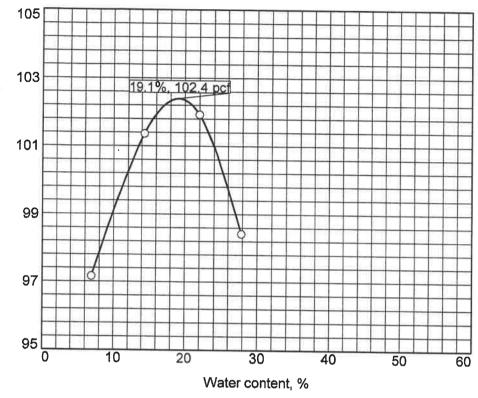
**REPORT NO: S-3** 

Test Data- Sample No. S-3 (TP-09, Bulk, 1'-2.5')

Standard Proctor Value: 102.4 Remolded Dry Density: 87.04 (85%) Optimum Moisture Content: 19.1% In-Situ Moisture Content: 6.17%

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	26.3	773
5	26	322
10	25.7	152
15	25.3	98
19.1	25.1	86





Dry density, pcf

Curve No. S-3

### **Test Specification:**

ASTM D 1557-12 Method C Modified

Preparation N	-	10.11	
Hammer Wt.	7.4	10 lb.	
Hammer Drop		18 in.	
Number of La	yers	five	
Blows per La	yer	56	
Mold Size	0	.075 cu. ft.	
Test Performe Passing			
Passing _	3/4 i	in. Sieve	
PassingNMSp.G. (ASTM	3/4 i LL D 854)	in. Sieve	
Passing _	3/4 i LL D 854)	in. Sieve	
Passing  NM  Sp.G. (ASTM %>3/4 in.	3/4 i LL D 854)	in. Sieve	
Passing  NM  Sp.G. (ASTM %>3/4 in.	3/4 i LL D 854)% AAS	in. Sieve	
Passing  NM  Sp.G. (ASTM %>3/4 in.  USCS	3/4 i LL D 854)% AAS	in. Sieve	

_	120 INO BAIA					
	1	2	3	4	5	6
WM + WS	21.54	22.44	23.07	23.18		0
WM	13.75	13.75	13.75	13.75		
WW + T #1	708.6	655.1	877.4	872.9		
WD + T #1	662.8	572.8	719.3	682.9		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	6.9	14.4	22.0	27.8		
DRY DENSITY	97.2	101.4	101.9	98.4		

TEST RESULTS	Material Description
Maximum dry density = 102.4 pcf	
Optimum moisture = 19.1 %	Remarks:
Project No. AOB-5632 Client: ANS GEO Inc.	Terrial RS:
Project: CypressCreek-Ostrea Solar, Moxee, WA	
O Location: TP-09, Bulk, 1'-2.5' Depth: 1'-2.5' Sample Number:	S-3 Checked by:
ANS CONSULTANTS, INC.	Title:
South Plainfield, New Jersey	Figure 3 F 2



### CONSULTANTS, INC. 4405 South Clinton Avenue South Plainfield, NJ 07080

Tel: (800) 545-ATUL (908) 754-8383

Fax: (908) 754-8633

# NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified www.ANSConsultants.net

Soil, Concrete, Masonry, Rebar, Asphalt, Structural Steel, Precast, Piles, Caissons, Fire-proofing, Roofing, Soil Boring, Concrete/Rock Coring, UST Removal, Environmental Testing & Reports

# THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.

4405 South Clinton Avenue, Suite#A

South Plainfield, NJ 07080

**DATE:** 12/22/2020

**FILE NO: AOB-5632** 

PROJECT: Cypress Creek- Ostrea Solar

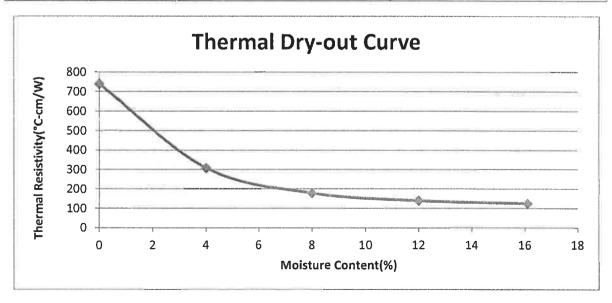
Moxee, WA

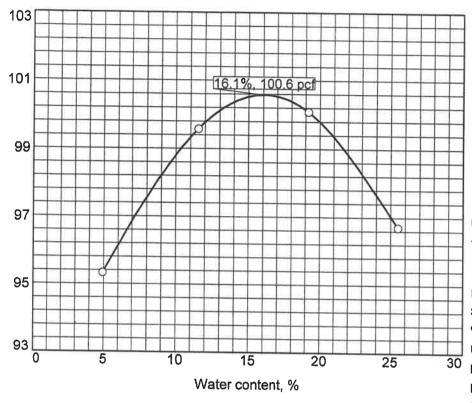
**REPORT NO: S-4** 

Test Data- Sample No. S-4 (TP-16, Bulk, 0.5'-2')

Standard Proctor Value: 100.6 Remolded Dry Density: 85.51 (85%) Optimum Moisture Content: 16.1% In-Situ Moisture Content: 4.03%

Moisture Contents (%)	Initial Soil Temperature (℃)	Thermal Resistivity (°C-cm/W)
0	25.1	740
4	24.7	308
8	24.2	178
12	24	139
16.1	23.8	125





Dry density, pcf

Curve No. S-4

**Test Specification:** 

ASTM D 1557-12 Method C Modified

Preparation Me	ethod	
Hammer Wt.		0 lb.
Hammer Drop		8 in.
Number of Lay		five
Blows per Laye		56
Mold Size	0.075	cu. ft.
Test Performed Passing		Sieve
NM	LL	PI
Sp.G. (ASTM D		
%>3/4 in	% <no.2< th=""><th>200</th></no.2<>	200
USCS	AASHTO	·
Date Sampled		
Date Tested		
Tested By		

	1	2	3	4	5	6
WM + WS	21.25	22.08	22.69	22.85		0
WM	13.75	13.75	13.75	13.75		
WW + T #1	706.0	599.5	857.6	810.2		
WD + T #1	672.8	537.5	719.5	645.6		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	4.9	11.5	19.2	25.5		
DRY DENSITY	95.3	99.6	100.1	96.7		

TEST RESULTS	Material Description
Maximum dry density = 100.6 pcf	
Optimum moisture = 16.1 %	Remarks:
Project No. AOB-5632 Client: ANS GEO Inc.	Remarks:
Project: CypressCreek-Ostrea Solar, Moxee, WA	
O Location: TP-16, Bulk, 0.5'-2' Depth: 0.5'-2' Sample Number: S-4	Checked by:
ANS CONSULTANTS, INC.	Title:
South Plainfield, New Jersey	Figure 4 F 2



### CONSULTANTS, INC. 4405 South Clinton Avenue South Plainfield, NI 07080

Tel: (800) 545-ATUL (908) 754-8383

Fax: (908) 754-8633

#### NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified www.ANSConsultants.net

Soil, Concrete, Masonry, Rebar, Asphalt, Structural Steel, Precast, Piles, Caissons, Fire-proofing, Roofing, Soil Boring, Concrete/Rock Coring, UST Removal, Environmental Testing & Reports

### THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.

4405 South Clinton Avenue, Suite#A

South Plainfield, NJ 07080

**DATE:** 12/22/2020

FILE NO: AOB-5632

PROJECT: Cypress Creek- Ostrea Solar

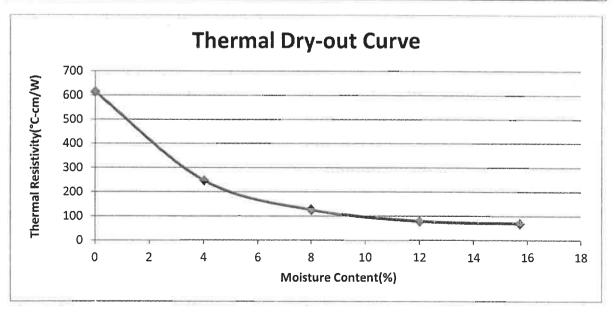
Moxee, WA

REPORT NO: S-5

Test Data- Sample No. S-5 (TP-17, Bulk, 2'-4')

Standard Proctor Value: 106.7 Remolded Dry Density: 90.695 (85%) Optimum Moisture Content: 15.7% In-Situ Moisture Content: 4.07%

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	24.8	615
4	24.3	247
8	24	126
12	23.8	79
15.7	23.7	70



107 105 103 101 99 0 5 10 15 20 25 30 Water content, % Curve No. S-5

**Test Specification:** 

ASTM D 1557-12 Method C Modified

Preparation M	ethod	
Hammer Wt.		10 lb.
Hammer Drop		18 in.
Number of Lay	ers	five
Blows per Lay	er	56
Mold Size	0.0	75 cu. ft.
Test Performe	d on Mate	rial
	3/4 in	. Sieve
Passing _		Sieve
Passing _	LL	PI
Passing _	LL ) 854)	PI
Passing NM Sp.G. (ASTM D	LL ) 854) %<[	PI
Passing  NM  Sp.G. (ASTM E %>3/4 in.	LL ) 854) % <i AASH</i 	PI No.200
PassingNMSp.G. (ASTM E %>3/4 in. USCS	LL ) 854) ——— % <br —— AASH	PI

	1	2	3	4	5	6
WM + WS	21.77	22.54	23.16	23.30		
WM	13.75	13.75	13.75	13.75		
WW + T #1	766.9	625.5	740.8	854.3		
WD + T #1	725.1	561.2	623.2	687.3		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	5.8	11.5	18.9	24.3		
DRY DENSITY	101.2	105.2	105.6	102.5		

TEST RESULTS	Material Description
Maximum dry density = 106.2 pcf	
Optimum moisture = 15.7 %	Remarks:
Project No. AOB-5632 Client: ANS GEO Inc.	
Project: CypressCreek-Ostrea Solar, Moxee, WA	
O Location: TP-17, Bulk, 2'-4' Depth: 2'-4' Sample Number: S-5	Checked by:
ANS CONSULTANTS, INC.	Title:
South Plainfield, New Jersey	Figure 5 F 2



### CONSULTANTS, INC. 4405 South Clinton Avenue South Plainfield, NJ 07080

Tel: (800) 545-ATUL (908) 754-8383

Fax: (908) 754-8633

# NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified www.ANSConsultants.net

Soil, Concrete, Masonry, Rebar, Asphalt, Structural Steel, Precast, Piles, Caissons, Fire-proofing, Roofing, Soil Boring, Concrete/Rock Coring, UST Removal, Environmental Testing & Reports

### THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.

4405 South Clinton Avenue, Suite#A

South Plainfield, NJ 07080

**DATE:** 12/22/2020

FILE NO: AOB-5632

PROJECT: Cypress Creek- Ostrea Solar

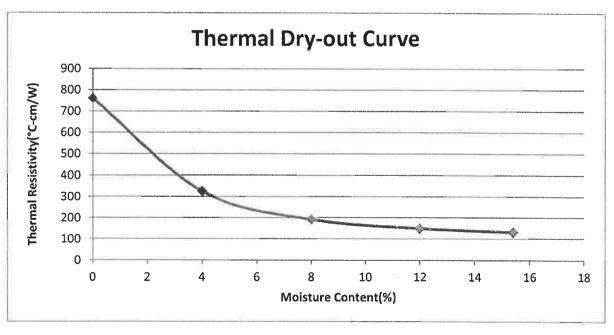
Moxee, WA

**REPORT NO: S-8** 

Test Data- Sample No. S-8 (B-23, Bulk, 1'-3')

Standard Proctor Value: 105.3 Remolded Dry Density: 89.505 (85%) Optimum Moisture Content: 15.4% In-Situ Moisture Content: 4.06 %

Moisture Contents (%)	Initial Soil Temperature (°C)	Thermal Resistivity (°C-cm/W)
0	25	762
4	24.6	325
8	24.2	192
12	24	149
15.4	23.8	132



106.5
105
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
100.5
10

Curve No. S-8

**Test Specification:** 

ASTM D 1557-12 Method C Modified

Preparation N	Method	
Hammer Wt.		10 lb.
Hammer Drop		18 in.
Number of La	yers	five
Blows per La	yer	56
Mold Size	0.07	75 cu. ft.
Test Performe Passing	ed on Materi 3/4 in.	
NM	LL	PI
Sp.G. (ASTM		
%>3/4 in.	% <n< td=""><td>o.200</td></n<>	o.200
USCS	AASH	то
Date Sample	d t	7
Date Tested		
Tested By		

	1	2	3	4	5	6
WM + WS	21.73	22.46	23.09	23.28		
WW	13.75	13.75	13.75	13.75		
WW + T #1	705.5	582.2	852.9	792.3		
WD + T #1	666.6	522.9	716.6	634.5		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	5.8	11.3	19.0	24.9		
DRY DENSITY	100.6	104.4	104.6	101.7		

TEST RESULTS	Material Description
Maximum dry density = 105.3 pcf	
Optimum moisture = 15.4 %	Remarks:
Project No. AOB-5632 Client: ANS GEO Inc.	
Project: CypressCreek-Ostrea Solar, Moxee, WA	
○ Location: B-23, Bulk, 1'-3' Depth: 1'-3' Sample Number: S-8	Checked by:
ANS CONSULTANTS, INC.	Title:
South Plainfield, New Jersey	Figure 8 F 2



### CONSULTANTS, INC. 4405 South Clinton Avenue South Plainfield, NI 07080

Tel: (800) 545-ATUL (908) 754-8383

Fax: (908) 754-8633

# NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified www.ANSConsultants.net

Soil, Concrete, Masonry, Rebar, Asphalt, Structural Steel, Precast, Piles, Caissons, Fire-proofing, Roofing, Soil Boring, Concrete/Rock Coring, UST Removal, Environmental Testing & Reports

# THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.

4405 South Clinton Avenue, Suite#A

South Plainfield, NJ 07080

**DATE:** 12/22/2020

**FILE NO: AOB-5632** 

PROJECT: Cypress Creek- Ostrea Solar

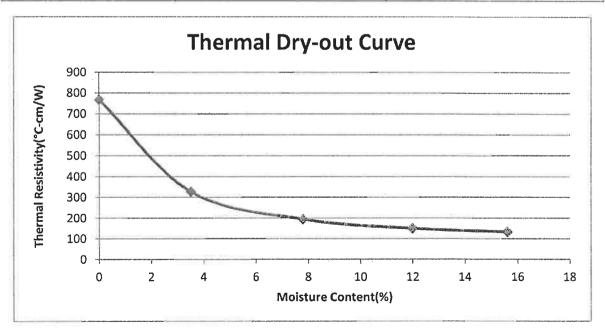
Moxee, WA

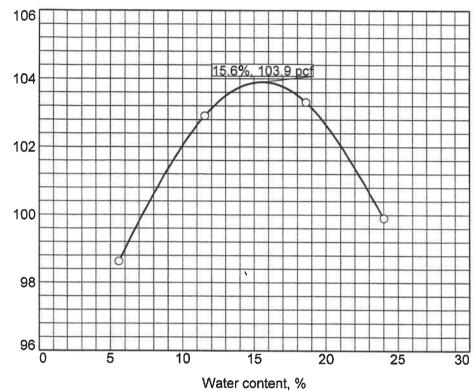
**REPORT NO: S-10** 

Test Data- Sample No. S-10 (TP-28, Bulk, 2'-4')

Standard Proctor Value: 103.9 Remolded Dry Density: 88.315 (85%) Optimum Moisture Content: 15.6% In-Situ Moisture Content: 4.76 %

Moisture Contents (%)	Initial Soil Temperature	Thermal Resistivity (°C-cm/W)
0	25.2	768
3.5	25	328
7.8	24.6	194
12	24.2	150
15.6	24.1	133





# Curve No. S-10

**Test Specification:** 

Tested By

ASTM D 1557-12 Method C Modified

Preparation Me	thod	
Hammer Wt.	10	lb.
Hammer Drop	13	8 in.
Number of Laye	ers	five
Blows per Laye	er	56
Mold Size	0.075 c	u. ft.
Test Performed Passing		Sieve
NM	LL	PI
Sp.G. (ASTM D	854)	
%>3/4 in	% <no.2< th=""><th>00</th></no.2<>	00
uscs	AASHTO	
<b>Date Sampled</b>		
Date Tested		

	1	2	3	4	5	6
WM + WS	21.56	22.36	22.94	23.04		
WM	13.75	13.75	13.75	13.75		
WW + T #1	774.9	662.9	902.1	781.5		
WD + T #1	734.0	594.3	760.6	630.2		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2			i.			
TARE #2						
MOISTURE	5.6	11.5	18.6	24.0		
DRY DENSITY	98.6	102.9	103.3	99.9		

TEST RESULTS	Material Description
Maximum dry density = 103.9 pcf	
Optimum moisture = 15.6 %	Remarks:
Project No. AOB-5632 Client: ANS GEO Inc.	
Project: CypressCreek-Ostrea Solar, Moxee, WA	
O Location: TP-28, Bulk, 2'-4' Depth: 2'-4 Sample Number: S-10	Checked by:
ANS CONSULTANTS, INC.	Title:
South Plainfield, New Jersey	Figure 10 F 2



### CONSULTANTS, INC. 4405 South Clinton Avenue South Plainfield, NJ 07080

Tel: (800) 545-ATUL (908) 754-8383

Fax: (908) 754-8633

# NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified www.ANSConsultants.net

Soil, Concrete, Masonry, Rebar, Asphalt, Structural Steel, Precast, Piles, Caissons, Fire-proofing, Roofing, Soil Boring, Concrete/Rock Coring, UST Removal, Environmental Testing & Reports

# THERMAL CONDUCTIVITY OF SOIL & SOFT ROCK BY THERMAL NEEDLE PROBE -IEEE 442

CLIENT: ANS Geo, Inc.

4405 South Clinton Avenue, Suite#A

South Plainfield, NJ 07080

**DATE:** 12/22/2020

FILE NO: AOB-5632

PROJECT: Cypress Creek- Ostrea Solar

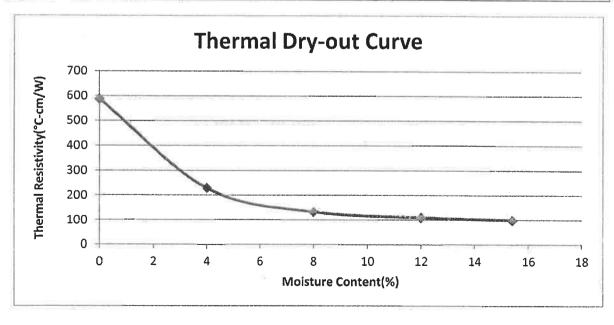
Moxee, WA

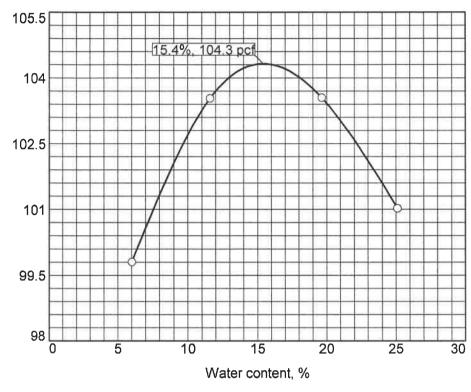
**REPORT NO: S-11** 

Test Data- Sample No. S-11 (B-SS-01, Bulk, 1'-4')

Standard Proctor Value: 104.8 Remolded Dry Density: 89.08 (85%) Optimum Moisture Content: 15.4% In-Situ Moisture Content: 4.81 %

Moisture Contents (%)	Initial Soil Temperature (℃)	Thermal Resistivity (°C-cm/W)
0	26.5	588
4	26	228
8	25.3	132
12	24.9	109
15.4	24.6	99





Dry density, pcf

# Curve No. S-11

### **Test Specification:**

ASTM D 1557-12 Method C Modified

Hammer Wt.		10 lb.	
Hammer Drop		18 in.	
Number of Laye	ers	five	
Blows per Laye	r	56	
Mold Size	0.07	5 cu. ft.	
Danning	2/4:	01	
Passing		Sieve	
NM	LL	Sieve	
NM Sp.G. (ASTM D	LL	PI	
NM Sp.G. (ASTM D %>3/4 in.	LL 854)	PI	
NMSp.G. (ASTM D %>3/4 inUSCS	LL 854) % <no< th=""><th>PI</th></no<>	PI	
NM Sp.G. (ASTM D %>3/4 in. USCS	LL 854) % <no< td=""><td>PI</td></no<>	PI	

	1	2	3	4	5	6
WM + WS	21.68	22.41	23.04	23.23		
WM	13.75	13.75	13.75	13.75		
WW + T #1	705.5	582.2	855.9	792.3		
WD + T #1	665.4	521.7	715.4	633.3		
TARE #1	0.0	0.0	0.0	0.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	6.0	11.6	19.6	25.1		
DRY DENSITY	99.8	103.5	103.5	101.0		

TEST RESULTS	Material Description
Maximum dry density = 104.3 pcf	
Optimum moisture = 15.4 %	Remarks:
Project No. AOB-5632 Client: ANS GEO Inc.	
Project: CypressCreek-Ostrea Solar, Moxee, WA	
O Location: B-SS-01, Bulk, 1'-4' Depth: 1'-4' Sample Number: S-11	Checked by:
ANS CONSULTANTS, INC.	Title:
South Plainfield, New Jersey	Figure 11 F 2



### CONSULTANTS, INC. 4405 South Clinton Avenue South Plainfield, NJ 07080

Tel: (800) 545-ATUL (908) 754-8383

Fax: (908) 754-8633

# NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified www.ANSConsultants.net

Soil, Concrete, Masonry, Rebar, Asphalt, Structural Steel, Precast, Piles, Caissons, Fire-proofing, Roofing, Soil Boring, Concrete/Rock Coring, UST Removal, Environmental Testing & Reports

### **CERTIFICATE OF TEST - CORROSION ANALYSIS**

CLIENT: ANS Geo, Inc.

4405 South Clinton Avenue, Suite # A

South Plainfield, NJ 07080

**DATE:** 12/22/2020

FILE NO: AOB-5632

PROJECT: Cypress Creek- Ostrea Solar

Moxee, WA

REPORT NO: S-1, S-2, S-4 to S-8

**TEST PERFORMED:** 1) Standard Test Method for Water Soluble Sulfate in Soil AS PER ASTM C-1580

- 2) Standard Test Method for measuring pH of Soil for use in Corrosion Testing AS PER ASTM G51-18
- 3) Standard Test Method for Measurement of Oxidation-Reduction Potential (ORP) of Soil AS PER ASTM G-200
- 4) Standard Method for Test for Determining Water Soluble Chloride Ion AS PER AASHTO T-291
- 5) Standard Test Method for Measuring Soil Resistivity using two-Electrode AS PER ASTM G187-18

Sample No.	Sample ID	Sulfate ( mg/Kg )	рН	ORP (mV)	Chloride ( mg/Kg )	Resistivity (Ohm-cm)
S-1	TP-2, Bulk, 1'-2'	0	6.27	236	15	11,000
S-2	TP-5, Bulk, 1'-2'	15	6.44	215	25	9,000
S-4	TP-16, Bulk, 0.5'-2'	16	6.47	187	45	6,000
S-5	TP-17, Bulk, 2'-4'	27	5.1	186	40	8,500
S-6	TP-19, Bulk, 0.5'-2.5'	22	6.74	221	35	9,000
S-7	TP-22, Bulk, 1'-2'	20	6.52	203	55	10,000
S-8	B-23, Bulk, 1'-3'	11	6.72	211	30	9,000



### CONSULTANTS, INC. 4405 South Clinton Avenue South Plainfield, NJ 07080

Tel: (800) 545-ATUL (908) 754-8383

Fax: (908) 754-8633

# NJ EDA Approved Testing Laboratory • MBE/DBE Certified • NJ DEP Certified www.ANSConsultants.net

Soil, Concrete, Masonry, Rebar, Asphalt, Structural Steel, Precast, Piles, Caissons, Fire-proofing, Roofing, Soil Boring, Concrete/Rock Coring, UST Removal, Environmental Testing & Reports

### **CERTIFICATE OF TEST - CORROSION ANALYSIS**

CLIENT: ANS Geo, Inc.

4405 South Clinton Avenue, Suite#A

South Plainfield, NJ 07080

**DATE:** 12/22/2020

FILE NO: AOB-5632

**PROJECT**: Cypress Creek- Ostrea Solar

Moxee, WA

REPORT NO: S-9, S-10, S-12 to S-16

**TEST PERFORMED:** 1) Standard Test Method for Water Soluble Sulfate in Soil AS PER ASTM C-1580

- Standard Test Method for measuring pH of Soil for use in Corrosion Testing AS PER ASTM G51-18
- 3) Standard Test Method for Measurement of Oxidation-Reduction Potential (ORP) of Soil AS PER ASTM G-200
- 4) Standard Method for Test for Determining Water Soluble Chloride Ion AS PER AASHTO T-291
- 5) Standard Test Method for Measuring Soil Resistivity using two-Electrode AS PER ASTM G187-18

Sample No.	Sample ID	Sulfate ( mg/Kg )	рН	ORP (mV)	Chloride ( mg/Kg )	Resistivity (Ohm-cm)
S-9	TP-25, Bulk, 1'-2'	15	5.91	197	35	10,500
S-10	TP-28, Bulk, 2'-4'	18	5.72	195	60	13,000
S-12	B-1, Bulk, 1'-3'	14	6.38	193	30	9,000
S-13	B-7, Bulk, 1'-3'	17	6.59	190	90	8,000
S-14	B-10, Bulk, 1'-3'	9	6.76	183	50	6,000
S-15	B-13, Bulk, 1'-3'	6	6.88	177	25	7,000
S-16	B-18, Bulk, 1'-3'	14	6.76	172	35	7,000

### **Attachment F**

**Environmental Sampling Results** 



# TP-04 & TP-11

# **ENVIRONMENTAL RESULTS**



(509) 662-1888 Fax: (509) 662-8183 3019 G. S. Center Road Wenatchee, WA 98801

(509) 452-7707 Fax: (509) 452-7773 1008 W. Ahtanum Rd. Sampler:

Batch: 017005 Client: ANS Geo Inc

Account: 21800

PO Number:

#### Report Analytical Services

Report Date: 12/23/20

ANS Geo Inc

4475 S Clinton Ave #225 South Plainfield, NJ 07080

Laboratory Number: 20-C025782 Ostrea Solar TP-11 Sample Identification:

Date Received: 12/ 7/20 Date Sampled: 12/ 3/20

Sample Comment: 1'-2'

Date Analyzed Flags Results Units Method Test Requested 12/22/20 Analyzed by TAL/ Other Analysis

Approved By Name:

Andy Schut Lab Manager/Yakima

Signature:

Function:

Eurofins-Cascade Analytical uses procedures established by EPA, ADAC, APHA, ASTM, and AHMA. Eurofins-Cascade Analytical makes no warranty of any kind. The client assumes all risk and liability from the use of these results. Results relate only to the items tested and the sample(s) as received by the laboratory. Eurofins-Cascade Analytical liability to the client as a result of use of the test results shall be limited to a sum equal to the fees paid by the client to Eurofins-Cascade Analytical for analysis. PLEASE REVIEW YOUR DATA IN A TIMELY MANNER. DATA GAPS OR ERRORS AFTER ONE MONTH WILL NOT BE OUR RESPONSIBILITY. THOUGH WE DO KEEP ALL ANALYTICAL DATA FOR SEVERAL YEARS, SAMPLES ARE DISPOSED OF AFTER SIX WEEKS.

> Page: 1 of



(509) 662-1888 Fax: (509) 662-8183 3019 G. S. Center Road Wenatchee, WA 98801

Batch: 017005 (509) 452-7707 Client: ANS Geo Inc Fax: (509) 452-7773

Account: 21800 1008 W. Áhtanum Rd. Union Gap, WA 98903 Sampler:

PO Number:

#### Report Services Analytical

Report Date: 12/23/20

ANS Geo Inc

4475 S Clinton Ave #225 South Plainfield, NJ 07080

Laboratory Number: 20-C025783 Ostrea Solar TP-4 Sample Identification:

Date Received: 12/ 7/20 Date Sampled: 12/ 3/20

Sample Comment: 1'-2'

Flags Date Analyzed Method Results Units Test Requested 12/22/20 Analyzed by TAL/S Other Analysis

Approved By Name:

Function:

Andy Schut Lab Manager/Yakima

Signature:

Eurofins-Cascade Analytical uses procedures established by EPA, ADAC, APHA, ASTM, and AWWA. Eurofins-Cascade Analytical makes no warranty of any kind. The client assumes all risk and liability from the use of these results. Results relate only to the items tested and the sample(s) as received by the laboratory. Eurofins-Cascade Analytical liability to the client as a result of use of the test results shall be limited to a sum equal to the fees paid by the client to Eurofins-Cascade Analytical for analysis. PLEASE REVIEW YOUR DATA IN A TIMELY MANNER. DATA GAPS OR ERRORS AFTER ONE MONTH WILL NOT BE OUR RESPONSIBILITY. THOUGH WE DO KEEP ALL ANALYTICAL DATA FOR SEVERAL YEARS, SAMPLES ARE DISPOSED OF AFTER SIX WEEKS.

Page:

1 of



# **Environment Testing America**

# ANALYTICAL REPORT

Eurofins TestAmerica, Seattle 5755 8th Street East Tacoma, WA 98424 Tel: (253)922-2310

Laboratory Job ID: 580-99593-1 Client Project/Site: ANS Geo

For:

Cascade Analytical Inc 1008 W. Ahtanum Rd. Union Gap, Washington 98903

Attn: Andy Schut

Authorized for release by: 12/22/2020 5:13:08 PM

Pauline Matlock, Project Manager (253)922-2310 pauline.matlock@eurofinset.com

.... LINKS

Review your project results through

**Total Access** 

Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Cascade Analytical Inc Project/Site: ANS Geo

# **Table of Contents**

Cover Page	1
Table of Contents	
Case Narrative	3
Definitions	5
Client Sample Results	7
QC Sample Results	
Chronicle	43
Certification Summary	46
Sample Summary	47
Chain of Custody	
Receipt Checklists	

### **Case Narrative**

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

Laboratory: Eurofins TestAmerica, Seattle

**Narrative** 

Job Narrative 580-99593-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 12/8/2020 2:44 PM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was -0.2° C.

#### GC/MS VOA

Method 8260D: The method blank for preparation batch 345397 and analytical batch 345537 contained Naphthalene above the Method Detection Limit (MDL), but below the Reporting Limit (RL). Data has been qualified and reported.

Method 8260D: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-345397 and analytical batch 580-345537 recovered outside control limits for the following analytes: Dichlorodifluoromethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260D: The continuing calibration verification (CCV) associated with batch 580-345537 recovered above the upper control limit for Bromomethane, Chloroethane, Dichlorodifluoromethane, 1,1-Dichloroethene, Chloromethane and Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCVIS 580-345537/3).

Method 8260D: The associated CCVIS meets control criteria; 20.1% rounds to 20%. Data is reported. (CCVIS 580-346000/3)

Method 8260D: The laboratory control sample (LCS) for preparation batch 580-346011 and analytical batch 580-346000 recovered outside acceptance limits for m-Xylene & p-Xylene (LCS 78, LCSD 77, limit 80-132). There was insufficient sample to perform a re-extraction or re-analysis; therefore, the data have been reported. Sample is ND.

Method 8260D: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-346011 and analytical batch 580-346000 recovered outside control limits for the following analytes: Methylene Chloride.

Method 8260D: The continuing calibration verification (CCV) associated with batch 580-346000 recovered outside acceptance criteria, low biased, for m-Xylene & p-Xylene. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

Method 8260D: Surrogate recovery for the following samples were outside control limits: 20-C025780 (580-99593-1), 20-C025781 (580-99593-2) and 20-C025782 (580-99593-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC/MS Semi VOA

Method 8270E: The method blank for preparation batch 580-345599 and analytical batch 580-345700 contained 2-Methylnaphthalene, Phenanthrene, Anthracene and 1-Methylnaphthalene above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

Method 8270E: The method blank for preparation batch 580-345599 contained Naphthalene above the reporting limit (RL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed.

Method 8270E: The laboratory control sample and/or the laboratory control sample duplicate (LCS/LCSD) for preparation batch 580-345599 and analytical batch 580-345700 recovered outside control limits for the following analyte(s): 2,4-Dinitrophenol and 4-Chloroaniline. These have been identified as a poor performing analytes when analyzed using this method; therefore, re-extraction/re-analysis was not performed. Batch precision also exceeded control limits for 2,4-Dinitrophenol. These results have been

Job ID: 580-99593-1

#### **Case Narrative**

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

#### Job ID: 580-99593-1 (Continued)

Laboratory: Eurofins TestAmerica, Seattle (Continued)

qualified and reported.

Method 8270E: The following analytes have been identified, in the reference method and/or via historical data, to be poor and/or erratic performers: 2,4-Dinitrophenol. This analyte may have a %D >50%.

Method 8270E: The following analyte(s) recovered outside control limits for the LCS associated with preparation batch 580-345599 and analytical batch 580-345700: Benzo[g,h,i]perylene and 2,2'-oxybis[1-chloropropane]. This is not indicative of a systematic control problem because these were random marginal exceedances. Qualified results have been reported.

Method 8270E: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-345700 was outside criteria for the following analyte(s): N-Nitrosodi-n-propylamine. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analyte(s) is considered estimated.

Method 8270E: Surrogate recovery for the following sample was outside control limits: 20-C025780 (580-99593-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8270E: The continuing calibration verification (CCV) associated with batch 580-345574 recovered above the upper control limit for Benzo[a]anthracene, Bis(2-ethylhexyl)phthalate, Butyl benzyl phthalate and Benzoic acid. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: 20-C025781 (580-99593-2), 20-C025782 (580-99593-3) and (CCVIS 580-345574/3).

Method 8270E: The following continuing calibration verification (CCV) standard associated with batch 580-345574 recovered outside acceptance criteria for %D for surrogate 2,4,6-Tribromophenol. Since all the other surrogates was within %D criteria; therefore, the data have been reported. (CCVIS 580-345574/3)

Method 8270E: The continuing calibration verification (CCV) associated with batch 580-345574 recovered outside acceptance criteria, low biased, for 2,2'-oxybis[1-chloropropane]. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect for this analyte, the data have been reported.

Method 8270E: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-345574 was outside criteria for the following analyte(s): N-Nitrosodi-n-propylamine. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analyte(s) is considered estimated.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **GC VOA**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### **General Chemistry**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### **Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### **VOA Pren**

Method 5035: The following samples were provided to the laboratory with a significantly different initial weight than that required by the reference method: 20-C025780 (580-99593-1), 20-C025781 (580-99593-2), 20-C025782 (580-99593-3) and 20-C025783 (580-99593-4). Deviations in the weight by more than 20% may affect reporting limits and potentially method performance. The method specifies 10g. The amount provided was below this range.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# **Definitions/Glossary**

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

#### Qualifiers

GC/MS VOA	
Qualifier	Qualifier Description
*_	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
В	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
S1 <b>+</b>	Surrogate recovery exceeds control limits, high biased.
GC/MS Semi	I VOA
Qualifier	Qualifier Description
*_	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
GC Semi VO	A
Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
Metals	
Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
Glossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
n	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit

CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)
LOD Limit of Detection (DoD/DOE)
LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive

Eurofins TestAmerica, Seattle

# **Definitions/Glossary**

Client: Cascade Analytical Inc Project/Site: ANS Geo

Job ID: 580-99593-1

### **Glossary (Continued)**

Abbreviation	These commonly used abbreviations may or may not be present in this report.
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: Cascade Analytical Inc Project/Site: ANS Geo

Client Sample ID: 20-C025782

Date Collected: 12/07/20 10:10 Date Received: 12/08/20 14:44 Lab Sample ID: 580-99593-3

Matrix: Solid Percent Solids: 94.8

Job ID: 580-99593-1

Method: 8260D - Volatile Oi Analyte	Result Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
Dichlorodifluoromethane	ND *+	2.2	0.54	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	
Chloromethane	ND	5.5		ug/Kg	≎	12/08/20 15:00		
Vinyl chloride	ND	2.2		ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	
Bromomethane	ND	1.1	0.23	ug/Kg	⇔	12/08/20 15:00		•
Chloroethane	ND	11	0.83	ug/Kg	⇔	12/08/20 15:00		
Trichlorofluoromethane	ND	2.2	0.33	ug/Kg	₩	12/08/20 15:00	12/11/20 22:54	
1,1-Dichloroethene	ND	5.5	1.2	ug/Kg	₩	12/08/20 15:00	12/11/20 22:54	
Methylene Chloride	ND	44	11	ug/Kg	⇔	12/08/20 15:00	12/11/20 22:54	
trans-1,2-Dichloroethene	ND	2.2	0.44	ug/Kg	₩	12/08/20 15:00		
1,1-Dichloroethane	ND	1.1	0.21	ug/Kg	₽	12/08/20 15:00	12/11/20 22:54	
2,2-Dichloropropane	ND	5.5	0.36	ug/Kg	⇔	12/08/20 15:00	12/11/20 22:54	
cis-1,2-Dichloroethene	ND	3.3	0.66	ug/Kg	⇔	12/08/20 15:00	12/11/20 22:54	
Bromochloromethane	ND	2.2	0.28	ug/Kg	⇔	12/08/20 15:00	12/11/20 22:54	1221 665
Chloroform	ND	2.2	0.33	ug/Kg	₩	12/08/20 15:00	12/11/20 22:54	
1,1,1-Trichloroethane	ND	2.2	0.33	ug/Kg	⇔	12/08/20 15:00	12/11/20 22:54	
Carbon tetrachlonde	ND	2.2	0.33	ug/Kg	⇔	12/08/20 15:00	12/11/20 22:54	
1,1-Dichloropropene	ND	2.2		ug/Kg	⇔	12/08/20 15:00	12/11/20 22:54	
Benzene	ND	2.2		ug/Kg	ø	12/08/20 15:00	12/11/20 22:54	
1,2-Dichloroethane	ND	1,1	0.22	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1118533
Trichloroethene	ND	2.2		ug/Kg	₩	12/08/20 15:00	12/11/20 22:54	
1,2-Dichloropropane	ND	2.2		ug/Kg	₩	12/08/20 15:00	12/11/20 22:54	
Dibromomethane	ND	1.1		ug/Kg	₽	12/08/20 15:00	12/11/20 22:54	
Bromodichloromethane	ND	1.1		ug/Kg	**	12/08/20 15:00		
cis-1,3-Dichloropropene	ND	1.1		ug/Kg	₩.	12/08/20 15:00		
and the contract of the forest contract of the	ND ND	11		ug/Kg	₩.	12/08/20 15:00		
Toluene	ND	11		ug/Kg	₩.	12/08/20 15:00	12/11/20 22:54	
trans-1,3-Dichloropropene	ND	2.2		ug/Kg	~	12/08/20 15:00	12/11/20 22:54	
1,1,2-Trichloroethane	ND ND	2.2		ug/Kg		12/08/20 15:00		
Tetrachloroethene	ND	2.2		ug/Kg	~ \$	12/08/20 15:00	12/11/20 22:54	
1,3-Dichloropropane	ND	1.7	0.20	ug/Kg ug/Kg	₩	12/08/20 15:00	12/11/20 22:54	
Dibromochloromethane				ug/Kg ug/Kg	~. ☆	12/08/20 15:00	12/11/20 22:54	
1,2-Dibromoethane	ND	1.1		ug/Kg ug/Kg	*	12/08/20 15:00	12/11/20 22:54	
Chlorobenzene	ND	2.2				12/08/20 15:00	12/11/20 22:54	
Ethylbenzene	ND	2.2		ug/Kg	*	12/08/20 15:00	12/11/20 22:54	
1,1,1,2-Tetrachloroethane	ND	3.3		ug/Kg	*	12/08/20 15:00		
1,1,2,2-Tetrachloroethane	ND	4.4		ug/Kg	3.F 	12/08/20 15:00		
m-Xylene & p-Xylene	ND	11		ug/Kg	· · · · · · · · · · · · · · · · · · ·			
o-Xylene	ND	5.5		ug/Kg	φ	12/08/20 15:00	12/11/20 22:54 12/11/20 22:54	
Styrene	ND	3.3		ug/Kg	**	12/08/20 15:00		
Bromoform	ND	5.5		ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	
Isopropylbenzene	ND	2.2		ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	
Bromobenzene	ND	11		ug/Kg	☆	12/08/20 15:00	12/11/20 22:54	
N-Propylbenzene	ND	5.5		ug/Kg	-⇔	12/08/20 15:00	12/11/20 22:54	
1,2,3-Trichloropropane	ND	5.5		ug/Kg	≎	12/08/20 15:00	12/11/20 22:54	
2-Chlorotoluene	ND	5.5		ug/Kg	₩	12/08/20 15:00	12/11/20 22:54	
1,3,5-Trimethylbenzene	ND	5.5	The second second	ug/Kg		12/08/20 15:00	12/11/20 22:54	
4-Chlorotoluene	ND	5.5		ug/Kg	≎	12/08/20 15:00	12/11/20 22:54	
t-Butylbenzene	ND	3.3	0.73	ug/Kg	草	12/08/20 15:00	12/11/20 22:54	
1,2,4-Trimethylbenzene	ND	5.5	1.3	ug/Kg	⇔	12/08/20 15:00	12/11/20 22:54	

Eurofins TestAmerica, Seattle

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Benzoic acid

Naphthalene

4-Chloroaniline

Bis(2-chloroethoxy)methane 2,4-Dichlorophenol

1,2,4-Trichlorobenzene

Hexachlorobutadiene

2-Methylnaphthalene

2,4,6-Trichlorophenol

2,4,5-Trichlorophenol

2-Chloronaphthalene

Dimethyl phthalate

2-Nitroaniline

4-Chloro-3-methylphenol

Hexachlorocyclopentadiene

Job ID: 580-99593-1

ample ID: 580-99593-3

Client Sample ID: 20-C025782	Lab Sa
Date Collected: 12/07/20 10:10	
Data Danaissad, 40/00/20 44:44	

ND

Date Received: 12/08/20 14:4	10  4							Matrix Percent Solid	
Method: 8260D - Volatile Or	ganic Compo	unds bv G	C/MS (Contir	nued)					
Analyte		Qualifier	RL	•	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichlorobenzene	ND		5.5	1.2	ug/Kg	— □	12/08/20 15:00	12/11/20 22:54	1
4-Isopropyltoluene	ND		2.2	0.44	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
1,4-Dichlorobenzene	ND	11 ( ( ( ( ( ( ( ( ( ( ( ( (	5.5	1.1	ug/Kg	₩	12/08/20 15:00	12/11/20 22:54	1
n-Butylbenzene	ND		3.3	0.70	ug/Kg	₩	12/08/20 15:00	12/11/20 22:54	1
1,2-Dichlorobenzene	ND		11	1.4	ug/Kg	☆	12/08/20 15:00	12/11/20 22:54	1
1,2-Dibromo-3-Chloropropane	ND		11	1.8	ug/Kg	⇔	12/08/20 15:00	12/11/20 22:54	1
1,2,4-Trichlorobenzene	ND		2.2	0.46	ug/Kg	₩	12/08/20 15:00	12/11/20 22:54	1
1,2,3-Trichlorobenzene	ND		3.3	0.66	ug/Kg	☆	12/08/20 15:00	12/11/20 22:54	1
Hexachlorobutadiene	ND		3.3	0.66	ug/Kg	⇔	12/08/20 15:00	12/11/20 22:54	1
Naphthalene	6.7	JB	11	2.0	ug/Kg	☼	12/08/20 15:00	12/11/20 22:54	1
Methyl tert-butyl ether	ND		2.2	0.33	ug/Kg	≎	12/08/20 15:00	12/11/20 22:54	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	117		80 - 120				12/08/20 15:00	12/11/20 22:54	1
4-Bromofluorobenzene (Surr)	68	S1-	80 - 120				12/08/20 15:00	12/11/20 22:54	1
Dibromofluoromethane (Surr)	70	S1-	80 - 120				12/08/20 15:00	12/11/20 22:54	1
1,2-Dichloroethane-d4 (Surr)		- 1 - 1							
: Louis Control Court	53	S1-	80 - 121				12/08/20 15:00	12/11/20 22:54	1
							12/08/20 15:00	12/11/20 22:54	1
Method: 8270E - Semivolati Analyte	le Organic Co			MDL	Unit	D	12/08/20 15:00 Prepared	12/11/20 22:54 Analyzed	1 Dil Fac
୍ର Method: 8270E - Semivolati	le Organic Co	mpounds	(GC/MS)			<b>D</b>	Prepared		
Method: 8270E - Semivolati Analyte	le Organic Co Result	mpounds	(GC/MS)				Prepared 12/11/20 15:17	Analyzed	Dil Fac
Method: 8270E - Semivolati Analyte Phenol	le Organic Co Result	mpounds	(GC/MS) RL 150	23	ug/Kg	— <del>=</del>	Prepared 12/11/20 15:17 12/11/20 15:17	Analyzed 12/15/20 19:25	Dil Fac
Method: 8270E - Semivolati Analyte Phenol Bis(2-chloroethyl)ether	le Organic Co Result ND ND	mpounds	(GC/MS) RL 150 99	23 7.6 4.0	ug/Kg ug/Kg	— <del>~</del>	Prepared 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17	Analyzed 12/15/20 19:25 12/15/20 19:25	Dil Fac
Method: 8270E - Semivolati Analyte Phenol Bis(2-chloroethyl)ether 2-Chlorophenol	le Organic Co Result ND ND ND	mpounds	(GC/MS) RL 150 99 200	23 7.6 4.0 4.8	ug/Kg ug/Kg ug/Kg ug/Kg	— <del>-</del>	Prepared 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17	Analyzed 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25	Dil Fac 1 1
Method: 8270E - Semivolati Analyte Phenol Bis(2-chloroethyl)ether 2-Chlorophenol 1,3-Dichlorobenzene	le Organic Co Result ND ND ND	mpounds	(GC/MS) RL 150 99 200 50	23 7.6 4.0 4.8	ug/Kg ug/Kg ug/Kg ug/Kg		Prepared 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17	Analyzed 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25	Dil Fac 1 1 1 1
Method: 8270E - Semivolati Analyte Phenol Bis(2-chloroethyl)ether 2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene	le Organic Co Result ND ND ND ND ND	mpounds	(GC/MS) RL 150 99 200 50 50	23 7.6 4.0 4.8 8.2 50	ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg	* * *	Prepared 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17	Analyzed 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25	Dil Fac 1 1 1 1 1 1
Method: 8270E - Semivolati Analyte Phenol Bis(2-chloroethyl)ether 2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzyl alcohol	le Organic Co Result ND ND ND ND ND	mpounds	(GC/MS) RL 150 99 200 50 50 990	23 7.6 4.0 4.8 8.2 50	ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg	***	Prepared 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17	Analyzed 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25	Dil Fac 1 1 1 1 1 1 1 1
Method: 8270E - Semivolati Analyte Phenol Bis(2-chloroethyl)ether 2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzyl alcohol 1,2-Dichlorobenzene	le Organic Co Result ND ND ND ND ND ND	mpounds	(GC/MS) RL 150 99 200 50 50 990 50	23 7.6 4.0 4.8 8.2 50 5.0 9.7	ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg	****	Prepared 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17	Analyzed 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25	Dil Fac 1 1 1 1 1 1 1 1 1 1
Method: 8270E - Semivolati Analyte Phenol Bis(2-chloroethyl)ether 2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzyl alcohol 1,2-Dichlorobenzene 2-Methylphenol	le Organic Co Result ND ND ND ND ND ND	mpounds	(GC/MS) RL 150 99 200 50 50 990 50 150	23 7.6 4.0 4.8 8.2 50 5.0 9.7	ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg	***	Prepared 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17	Analyzed 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25	Dil Fac 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Method: 8270E - Semivolati Analyte Phenol Bis(2-chloroethyl)ether 2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzyl alcohol 1,2-Dichlorobenzene 2-Methylphenol 3 & 4 Methylphenol	le Organic Co Result ND ND ND ND ND ND ND	mpounds	(GC/MS) RL 150 99 200 50 50 990 50 150 200	23 7.6 4.0 4.8 8.2 50 5.0 9.7 15	ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg	***************************************	Prepared 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17	Analyzed 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25	Dil Fac 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Method: 8270E - Semivolati Analyte Phenol Bis(2-chloroethyl)ether 2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzyl alcohol 1,2-Dichlorobenzene 2-Methylphenol 3 & 4 Methylphenol N-Nitrosodi-n-propylamine	le Organic Co Result ND ND ND ND ND ND ND	mpounds	(GC/MS) RL 150 99 200 50 50 990 50 150 200	23 7.6 4.0 4.8 8.2 50 5.0 9.7 15 22 4.3	ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg		Prepared 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17	Analyzed 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25	Dil Fac  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Method: 8270E - Semivolati Analyte Phenol Bis(2-chloroethyl)ether 2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzyl alcohol 1,2-Dichlorobenzene 2-Methylphenol 3 & 4 Methylphenol N-Nitrosodi-n-propylamine Hexachloroethane	le Organic Co Result ND	mpounds	(GC/MS) RL 150 99 200 50 50 990 50 150 200 200 150	23 7.6 4.0 4.8 8.2 50 5.0 9.7 15 22 4.3 20	ug/Kg		Prepared 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17	Analyzed  12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25	Dil Fac  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Method: 8270E - Semivolati Analyte Phenol Bis(2-chloroethyl)ether 2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzyl alcohol 1,2-Dichlorobenzene 2-Methylphenol 3 & 4 Methylphenol N-Nitrosodi-n-propylamine Hexachloroethane Nitrobenzene	le Organic Co Result ND	mpounds	(GC/MS) RL 150 99 200 50 50 990 50 150 200 150 200	23 7.6 4.0 4.8 8.2 50 5.0 9.7 15 22 4.3 20 8.3	ug/Kg		Prepared 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17 12/11/20 15:17	Analyzed  12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25 12/15/20 19:25	Dil Fac 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

12/11/20 15:17 12/15/20 19:25 12/11/20 15:17 12/15/20 19:25 12/11/20 15:17 12/15/20 19:25 12/11/20 15:17 12/15/20 19:25 12/11/20 15:17 12/15/20 19:25

# 12/11/20 15:17 12/15/20 19:25

12/11/20 15:17 12/15/20 19:25

12/11/20 15:17 12/15/20 19:25 12/11/20 15:17 12/15/20 19:25

12/11/20 15:17 12/15/20 19:25

12/11/20 15:17 12/15/20 19:25 12/11/20 15:17 12/15/20 19:25

12/11/20 15:17 12/15/20 19:25

12/11/20 15:17 12/15/20 19:25

12/11/20 15:17 12/15/20 19:25

Eurofins TestAmerica, Seattle

4000

200

200

50

25

50

150

50

99

150

200

25

99

150

1500

1200 ug/Kg

18 ug/Kg

60 ug/Kg

6.0 ug/Kg

5.0 ug/Kg

130 ug/Kg

15 ug/Kg

7.6 ug/Kg

13 ug/Kg

8.0 ug/Kg

5.0 ug/Kg

15 ug/Kg

5.0 ug/Kg

33 ug/Kg

8.7 ug/Kg

Client: Cascade Analytical Inc Project/Site: ANS Geo

Lab Sample ID: 580-99593-3

Matrix: Solid
Percent Solids: 94.8

Job ID: 580-99593-1

Client Sample ID: 20-C025782

Date Collected: 12/07/20 10:10

Date Received: 12/08/20 14:44

Analyte	tile Organic Co Result	Qualifier	ŘL	MDL		D	Prepared	Analyzed	Dil Fac
Acenaphthylene	ND		25	5.0	ug/Kg	<u></u>		12/15/20 19:25	1
2,6-Dinitrotoluene	ND		150	15	ug/Kg	≎		12/15/20 19:25	1
3-Nitroaniline	ND		300	99	ug/Kg	❖		12/15/20 19.25	1
Acenaphthene	ND		40	4.6	ug/Kg	≎		12/15/20 19:25	1
2,4-Dinitrophenol	ND	*_	2000	580	ug/Kg	≎	12/11/20 15:17	12/15/20 19:25	1
4-Nitrophenol	ND		2000	170	ug/Kg	≎	12/11/20 15:17	12/15/20 19:25	1
Dibenzofuran	ND		150	5.9	ug/Kg	≎	12/11/20 15:17	12/15/20 19:25	1
2.4-Dinitrotoluene	ND		200	43	ug/Kg	≎	12/11/20 15:17	12/15/20 19:25	1
Diethyl phthalate	ND		400	22	ug/Kg	≎	12/11/20 15:17	12/15/20 19:25	1
4-Chlorophenyl phenyl ether	ND	CEPE - HAMI	200		ug/Kg	≎	12/11/20 15:17	12/15/20 19:25	1
Fluorene	ND		25		ug/Kg	⇔	12/11/20 15:17	12/15/20 19:25	1
4-Nitroaniline	ND		150		ug/Kg	≎		12/15/20 19:25	1
4,6-Dinitro-2-methylphenol	ND	-, -, -, -, -, -, -, -, -, -, -, -, -, -	990	T-22-1-1-1-1	ug/Kg	❖		12/15/20 19:25	1
N-Nitrosodiphenylamine	ND		60	7.9	ug/Kg	₩		12/15/20 19:25	1
4-Bromophenyl phenyl ether	ND		200		ug/Kg	☆		12/15/20 19:25	1
4-Bromophenyi phenyi ether Hexachlorobenzene	ND		50		ug/Kg			12/15/20 19:25	1
	ND		400		ug/Kg	₩		12/15/20 19:25	1
Pentachlorophenol Phenanthrene	ND		60		ug/Kg	₩		12/15/20 19:25	1
	ND		60		ug/Kg			12/15/20 19:25	1
Anthracene	ND ND		500		ug/Kg			12/15/20 19:25	1
Di-n-butyl phthalate	ND		40		ug/Kg	~ ☆		12/15/20 19:25	1
Fluoranthene	000000000000000000000000000000000000000		60		ug/Kg			12/15/20 19:25	
Pyrene	ND		200		ug/Kg ug/Kg	*		12/15/20 19:25	1
Butyl benzyl phthalate	ND				ug/Kg ug/Kg	~		12/15/20 19:25	1
3,3'-Dichlorobenzidine	ND		400			*		12/15/20 19:25	1
Benzo[a]anthracene	ND		40		ug/Kg			12/15/20 19:25	1
Chrysene	ND		60		ug/Kg	*		12/15/20 19:25	
Bis(2-ethylhexyl) phthalate	ND.		600		ug/Kg	====\.T.		12/15/20 19:25	
Di-n-octyl phthalate	ND		150		ug/Kg	₩.			1
Benzo[a]pyrene	ND		60		ug/Kg	**		12/15/20 19:25	1
Indeno[1,2,3-cd]pyrene	ND		40		ug/Kg	☆		12/15/20 19:25	1
Dibenz(a,h)anthracene	ND		50		ug/Kg	☆-		12/15/20 19:25	1
Benzo[g,h,i]perylene	ND		60		ug/Kg	**		12/15/20 19:25	١
Carbazole	ND		150		ug/Kg	₩		12/15/20 19:25	1
1-Methylnaphthalene	ND		30		ug/Kg	❖		12/15/20 19:25	1
Benzo[b]fluoranthene	ND		40		ug/Kg	₩		12/15/20 19:25	10
Benzo[k]fluoranthene	ND		60	14	ug/Kg	≎	12/11/20 15:17		1
bis(chloroisopropyl) ether	ND	*_	200	6.1	ug/Kg	❖	12/11/20 15:17	12/15/20 19:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	92		47 - 119					12/15/20 19:25	1
Phenol-d5 (Surr)	74		59 - 120					12/15/20 19:25	1
Nitrobenzene-d5 (Surr)	96	an toronto.	54 - 120					12/15/20 19:25	555
2-Fluorobiphenyl	85		57 <sub>-</sub> 120					12/15/20 19:25	1
2,4,6-Tribromopheno/ (Surr)	103		52 <sub>-</sub> 115					12/15/20 19:25	1
Terphenyl-d14 (Surr)	115		73 - 125				12/11/20 15:17	12/15/20 19:25	1
Method: NWTPH-Gx - Nort						_		A	DU Far
Analyte	Result	Qualifier	ŔL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

Eurofins TestAmerica, Seattle

11

ND

Gasoline

5.2 mg/Kg

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Lab Sample ID: 580-99593-3

Matrix: Solid

Percent Solids: 94.8

Job ID: 580-99593-1

Client Sample ID: 20-C025782

Date Collected: 12/07/20 10:10

Date Received: 12/08/20 14:44

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
A Dramafuarahanzana (Curr)	01	E0 1E0	12/10/20 00:15	12/10/20 12:10	1

durrogate	70110000019	gadinici	Lilling				, repared	Allaly 20a	D., , a.
4-Bromofluorobenzene (Surr)	91		50 - 150				12/10/20 09:15	12/10/20 13:19	1
· Method: NWTPH-Dx - Nortl	hwest - Semi-V	olatile Pet	roleum Prod	ucts (G0	<b>C</b> )				
Analyte	Result	Qualifier	RL	MDL	Únit	D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND	×	50	12	mg/Kg	<del>-</del>	12/21/20 08:35	12/21/20 23:15	1
Motor Oil (>C24-C36)	31	J	50	17	mg/Kg	≎	12/21/20 08:35	12/21/20 23:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	96		50 - 150				12/21/20 08:35	12/21/20 23:15	1
BE-thI COOOD BE-tole (IC	D/MC)								
Method: 6020B - Metals (IC Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	6.4	adamiei	0.41		mg/Kg	<b>₩</b>	12/17/20 12:22	12/18/20 15:58	10
Cadmium	0.091	J	0.65		mg/Kg	₩	12/17/20 12:22	12/18/20 15:58	10
Arsenic	3.3		0.41	0.081	mg/Kg	☼	12/17/20 12:22	12/18/20 15:58	10
Chromium	15	•	0.81	0.051	mg/Kg	₩	12/17/20 12:22	12/18/20 15:58	10
_ Method: 7471A - Mercury (	CVAA)								
Analysis	,	Qualifier	DI	MDI	Unit	D.	Dropared	Analyzed	Dil Eac

Method: 7471A - Mercury (CVAA)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.020	J	0.026	0.0079	mg/Kg	*	12/14/20 13:46	12/15/20 12:11	1

General Chemistry Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	94.8		0.1	0.1	%			12/09/20 15:39	1
Percent Moisture	5.2		0.1	0.1	%			12/09/20 15:39	1

Client: Cascade Analytical Inc Project/Site: ANS Geo

Client Sample ID: 20-C025783

Date Collected: 12/07/20 13:10 Date Received: 12/08/20 14:44 Lab Sample ID: 580-99593-4 Matrix: Solid

Percent Solids: 95.2

Job ID: 580-99593-1

Analyte	Result Qualifier	RL	MDL	Unit	<u>D</u>	Prepared	Analyzed	Dil F
Dichlorodifluoromethane	ND	2.3	0.56	ug/Kg	₩		12/19/20 17:39	
Chloromethane	ND	5.7	1.1	ug/Kg	<b>X</b>		12/19/20 17:39	
Vinyl chloride	ND	2.3	0.34	ug/Kg	**		12/19/20 17:39	
Bromomethane	ND	1.1	0.24	ug/Kg	₩	12/08/20 15:30	12/19/20 17:39	
Chloroethane	ND	11	0.86	ug/Kg	₩		12/19/20 17:39	
Trichlorofluoromethane	ND	2.3	0.34	ug/Kg	₩	12/08/20 15:30	12/19/20 17:39	
1.1-Dichloroethene	ND	5.7	1.3	ug/Kg	· ##	12/08/20 15:30	12/19/20 17:39	
Viethylene Chloride	ND *1	46	11	ug/Kg	₩	12/08/20 15:30	12/19/20 17:39	
rans-1,2-Dichloroethene	ND	2.3		ug/Kg	₩	12/08/20 15:30	12/19/20 17:39	
1.1-Dichloroethane	ND	1.1	0.22	ug/Kg	₩.	12/08/20 15:30	12/19/20 17:39	
2,2-Dichloropropane	ND	5.7		ug/Kg	₽	12/08/20 15:30	12/19/20 17:39	
cis-1,2-Dichloroethene	ND	3.4		ug/Kg	₽	12/08/20 15:30	12/19/20 17:39	
Bromochloromethane	ND	2.3		ug/Kg	₩	12/08/20 15:30	12/19/20 17:39	
Chloroform	ND	2.3		ug/Kg	*		12/19/20 17:39	
1.1.1-Trichloroethane	ND	2.3		ug/Kg	₩		12/19/20 17:39	
Carbon tetrachlonde	ND	2.3		ug/Kg			12/19/20 17:39	
1,1-Dichloropropene	ND	2.3		ug/Kg			12/19/20 17:39	
	ND	2.3		ug/Kg		12/08/20 15:30		
Benzene	ND	1,1	I a I I a a a a I	ug/Kg		12/08/20 15:30	12/19/20 17:39	
1,2-Dichloroethane	ND	2.3		ug/Kg ug/Kg	₩	12/08/20 15:30		
Trichloroethene	ND	2.3		ug/Kg	₩.		12/19/20 17:39	
1,2-Dichloropropane				ug/Kg	::		12/19/20 17:39	
Dibromomethane	ND	1.1					12/19/20 17:39	
Bromodichloromethane	ND	1.1		ug/Kg	₩		12/19/20 17:39	
cis-1,3-Dichloropropene	ND	1.1		ug/Kg	☆		12/19/20 17:39	
Toluene	ND	11		ug/Kg	₩.			
trans-1,3-Dichloropropene	ND	11		ug/Kg	₩.		12/19/20 17:39	
1,1,2-Trichloroethane	ND	2.3	and the second second	ug/Kg	*		12/19/20 17:39	
Tetrachloroethene	ND	2.3		ug/Kg	☼	12/08/20 15:30		
1,3-Dichloropropane	ND	2.3		ug/Kg	₩	12/08/20 15:30	12/19/20 17:39	
Dibromochloromethane	ND	1.7		~ ~ ~	₩	12/08/20 15:30	12/19/20 17:39	
1,2-Dibromoethane	ND	1.1		ug/Kg	₩		12/19/20 17:39	
Chlorobenzene	ND	2.3	0.29	ug/Kg	₩		12/19/20 17:39	
Ethylbenzene	ND	2.3	0.47	ug/Kg	₩		12/19/20 17:39	
1,1,1,2-Tetrachloroethane	ND	3.4		ug/Kg	₩		12/19/20 17:39	
1,1,2,2-Tetrachloroethane	ND	4.6	1.0	ug/Kg	≎		12/19/20 17:39	
m-Xylene & p-Xylene	ND *-	11	0.64	ug/Kg	₩		12/19/20 17:39	
o-Xylene	ND	5.7	1.1	ug/Kg	☆	12/08/20 15:30	12/19/20 17:39	
Styrene	ND	3.4	0.85	ug/Kg	≎	12/08/20 15:30	12/19/20 17:39	
Bromoform	ND	5.7	0.96	ug/Kg	✡	12/08/20 15:30	12/19/20 17:39	
Isopropylbenzene	ND	2.3	0.53	ug/Kg	₩	12/08/20 15:30	12/19/20 17:39	
Bromobenzene	ND	11	1.1	ug/Kg	₩	12/08/20 15:30	12/19/20 17:39	
N-Propylbenzene	ND	5.7		ug/Kg	₩	12/08/20 15:30	12/19/20 17:39	
1,2,3-Trichloropropane	ND	5.7		ug/Kg	₩.		12/19/20 17:39	
2-Chlorotoluene	ND	5.7		ug/Kg	₩.		12/19/20 17:39	
1,3,5-Trimethylbenzene	ND	5.7		ug/Kg	₩.		12/19/20 17:39	
4-Chlorotoluene	ND	5.7		ug/Kg	₩		12/19/20 17:39	A PA
	ND	3.4		ug/Kg	~		12/19/20 17:39	
t-Butylbenzene	ND	5.7		ug/Kg	₩		12/19/20 17:39	
1,2,4-Trimethylbenzene sec-Butylbenzene	ND	3.4		ug/Kg			12/19/20 17:39	

Eurofins TestAmerica, Seattle

Client: Cascade Analytical Inc

Client Sample ID: 20-C025783

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Result Qualifier

ND

ND

ND

ND

ND

Project/Site: ANS Geo

1,3-Dichlorobenzene

1,4-Dichlorobenzene

1,2-Dichlorobenzene

4-Isopropyltoluene

n-Butylbenzene

Analyte

Lab Sample ID: 580-99593-4

Analyzed

Prepared

12/08/20 15:30 12/19/20 17:39

12/08/20 15:30 12/19/20 17:39

12/08/20 15:30 12/19/20 17:39

12/08/20 15:30 12/19/20 17:39

**#** 12/08/20 15:30 12/19/20 17:39

Matrix: Solid

Dil Fac

1

Job ID: 580-99593-1

Date Collected: 12/07/20 13:10 Date Received: 12/08/20 14:44 Percent Solids: 95.2

RL

5.7

2.3

5.7

3.4

11

MDL Unit

1.3 ug/Kg

0.46 ug/Kg

1.1 ug/Kg

0.72 ug/Kg

1.5 ug/Kg

1,2-Dibromo-3-Chloropropane	ND		11	1.8	ug/Kg	☼	12/08/20 15:30	12/19/20 17:39	1
1,2,4-Trichlorobenzene	ND		2.3	0.48	ug/Kg	≎	12/08/20 15:30	12/19/20 17:39	1
1,2,3-Trichlorobenzene	ND		3.4	0.69	ug/Kg	≎	12/08/20 15:30	12/19/20 17:39	1
Hexachlorobutadiene	ND		3.4	0.69	ug/Kg	₩	12/08/20 15:30	12/19/20 17:39	1
Naphthalene	ND		11	2.1	ug/Kg	≎	12/08/20 15:30	12/19/20 17:39	1
Methyl tert-butyl ether	ND		2.3		ug/Kg	₩	12/08/20 15:30	12/19/20 17:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	90		80 - 120				12/08/20 15:30	12/19/20 17:39	1
4-Bromofluorobenzene (Surr)	97		80 - 120				12/08/20 15:30	12/19/20 17:39	1
Dibromofluoromethane (Surr)	105		80 - 120				12/08/20 15:30	12/19/20 17:39	1
1,2-Dichloroethane-d4 (Surr)	111		80 - 121				12/08/20 15:30	12/19/20 17:39	1
Method: 8270E - Semivolat	ile Organic Co	mpounds	(GC/MS)						
Analyte	Result	Qualifier	RL	MDL	Unit	<u>D</u>	Prepared	Analyzed	Dil Fac
Phenol	ND		160	24	ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
Bis(2-chloroethyl)ether	ND		100	8.0	ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
2-Chlorophenol	ND		210		ug/Kg	⇔	12/15/20 11:55	12/16/20 16:40	1
1,3-Dichlorobenzene	ND		52	5.0	ug/Kg	≎	12/15/20 11:55	12/16/20 16:40	1
1,4-Dichlorobenzene	ND		52	8.6	ug/Kg	⋫	12/15/20 11:55	12/16/20 16:40	1
Benzyl alcohol	ND		1000	52	ug/Kg	:¤	12/15/20 11:55	12/16/20 16:40	1
1,2-Dichlorobenzene	ND		52	5.2	ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
2-Methylphenol	ND		160	10	ug/Kg	⇔	12/15/20 11:55	12/16/20 16:40	1
3 & 4 Methylphenol	ND		210	16	ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
N-Nitrosodi-n-propylamine	ND		210	23	ug/Kg	××	12/15/20 11:55	12/16/20 16:40	1
Hexachloroethane	ND		160	4.5	ug/Kg	⋫	12/15/20 11:55	12/16/20 16:40	1
Nitrobenzene	ND		210	21	ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
Isophorone	ND		160	8.7	ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
2-Nitrophenol	ND		210	6.5	ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
2,4-Dimethylphenol	ND	F2 F1	210	62	ug/Kg	⇔	12/15/20 11:55	12/16/20 16:40	·1.
Benzoic acid	ND	F1	4200	1300	ug/Kg	₩.	12/15/20 11:55	12/16/20 16:40	1
Bis(2-chloroethoxy)methane	ND		210	19	ug/Kg	⇔	12/15/20 11:55	12/16/20 16:40	1
2,4-Dichlorophenol	ND	F2	210	62	ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
1,2,4-Trichlorobenzene	ND		52	6.2	ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
Naphthalene	ND		26	5.2	ug/Kg	⇔	12/15/20 11:55	12/16/20 16:40	1
4-Chloroaniline	ND	F1 *-	1600	140	ug/Kg	≎	12/15/20 11:55	12/16/20 16:40	1
Hexachlorobutadiene	ND		52	16	ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
4-Chloro-3-methylphenol	ND	F2	160	34	ug/Kg	⇔	12/15/20 11:55	12/16/20 16:40	1
2-Methylnaphthalene	ND		52	9.2	ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
Hexachlorocyclopentadiene	ND	F1	100	8.0	ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
2,4,6-Trichlorophenol	ND	F2	160		ug/Kg	⇔	12/15/20 11:55	12/16/20 16:40	1
2,4,5-Trichlorophenol	ND	F2	210		ug/Kg	⇔	12/15/20 11:55	12/16/20 16:40	1
2-Chloronaphthalene	ND		26		ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
2-Nitroaniline	ND	F2	100		ug/Kg	₽	12/15/20 11:55	12/16/20 16:40	1
Dimethyl phthalate		F2	160		ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	1
					- <b>-</b>				
							Eurofine	Toet A morica	Spattle

Eurofins TestAmerica, Seattle

Client: Cascade Analytical Inc Project/Site: ANS Geo

Date Received: 12/08/20 14:44

Lab Sample ID: 580-99593-4

Matrix: Solid Percent Solids: 95.2

Job ID: 580-99593-1

Client Sample ID: 20-C025783 Date Collected: 12/07/20 13:10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthylene	ND	F2	26	5.2	ug/Kg	<del>\</del>	12/15/20 11:55	12/16/20 16:40	
2,6-Dinitrotoluene	ND	F2	160	16	ug/Kg	₽	12/15/20 11:55	12/16/20 16:40	•
3-Nitroaniline	ND	F2	310	100	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	1
Acenaphthene	ND	F2	42	4.8	ug/Kg	⇔	12/15/20 11:55	12/16/20 16:40	1
2,4-Dinitrophenol	ND	F1 *-	2100	610	ug/Kg	₽	12/15/20 11:55	12/16/20 16:40	1
4-Nitrophenol	ND		2100	180	ug/Kg	₽	12/15/20 11:55	12/16/20 16:40	1
Dibenzofuran	ND	F2	160	6.1	ug/Kg	⇔	12/15/20 11:55	12/16/20 16:40	1
2.4-Dinitrotoluene	ND	. –	210	45	ug/Kg	☆	12/15/20 11:55	12/16/20 16:40	1
Diethyl phthalate	ND		420	23	ug/Kg	⇔		12/16/20 16:40	
4-Chlorophenyl phenyl ether	ND	F2	210	are are a second	ug/Kg			12/16/20 16:40	225 15
	ND	F2	26	5.2	ug/Kg			12/16/20 16:40	1
Fluorene	ND		160		ug/Kg	₽		12/16/20 16:40	
4-Nitroaniline	ND		1000	100	ug/Kg			12/16/20 16:40	
4,6-Dinitro-2-methylphenol			62		ug/Kg	~ ☆		12/16/20 16:40	
N-Nitrosodiphenylamine		F2 F1	210		ug/Kg ug/Kg	<b>☆</b>		12/16/20 16:40	
4-Bromophenyl phenyl ether	ND		52		ug/Kg ug/Kg	☆		12/16/20 16:40	
Hexachlorobenzene	ND		52 420	66	ug/Kg ug/Kg	ψ.		12/16/20 16:40	
Pentachlorophenol	ND							12/16/20 16:40	
Phenanthrene	ND		62	6.0	ug/Kg	*		12/16/20 16:40	
Anthracene	ND		62	17	ug/Kg	*		12/16/20 16:40	
Di-n-butyl phthalate	ND		520	28	ug/Kg	*			
Fluoranthene	ND	F2	42		ug/Kg	*		12/16/20 16:40	\$\$\$5000
Pyrene	ND		62	14	ug/Kg	≎		12/16/20 16:40	
Butyl benzyl phthalate	ND		210	53	ug/Kg	❖		12/16/20 16:40	
3,3'-Dichlorobenzidine	ND	F1	420	87	ug/Kg	☆		12/16/20 16:40	
Benzo[a]anthracene	ND		42	11	ug/Kg	≎		12/16/20 16:40	•
Chrysene	ND		62	14	ug/Kg	≎		12/16/20 16:40	•
Bis(2-ethylhexyl) phthalate	ND		620		ug/Kg	₽		12/16/20 16:40	Commen
Di-n-octyl phthalate	ND		160	12	ug/Kg	₩		12/16/20 16:40	
Benzo[a]pyrene	ND		62	14	ug/Kg	☆		12/16/20 16:40	
Indeno[1,2,3-cd]pyrene	ND		42	12	ug/Kg	≎	12/15/20 11:55	12/16/20 16:40	
Dibenz(a,h)anthracene	ND		52	12	ug/Kg	☼	12/15/20 11:55	12/16/20 16:40	
Benzo[g,h,i]perylene	ND	F1 *-	62	19	ug/Kg	☆	12/15/20 11:55	12/16/20 16:40	•
Carbazole	ND		160	7.6	ug/Kg	₩	12/15/20 11:55	12/16/20 16:40	
1-Methylnaphthalene	ND		31	5.2	ug/Kg	≎	12/15/20 11:55	12/16/20 16:40	
Benzo[b]fluoranthene	ND		42	10	ug/Kg	<b>Q</b>	12/15/20 11:55	12/16/20 16:40	•
Benzo[k]fluoranthene	ND		62	15	ug/Kg	₽	12/15/20 11:55	12/16/20 16:40	
bis(chloroisopropyl) ether	ND	F1 *+	210	6.4	ug/Kg	≎	12/15/20 11:55	12/16/20 16:40	
Surrogate	%Recovery	Qualifier	Limits				<b>Prepared</b>	Analyzed	Dil Fa
2-Fluorophenol (Surr)	84		47 - 119				12/15/20 11:55	12/16/20 16:40	_
Phenol-d5 (Surr)	83		59 - 120				12/15/20 11:55	12/16/20 16:40	•
Nitrobenzene-d5 (Surr)	94		54 - 120				12/15/20 11:55	12/16/20 16:40	
2-Fluorobiphenyl	97		57 - 120		Ye - 2233   * *		12/15/20 11:55	12/16/20 16:40	
2,4,6-Tribromophenol (Surr)	70		52 <sub>-</sub> 115					12/16/20 16:40	•
Terphenyl-d14 (Surr)	94		73 - 125					12/16/20 16:40	•
		_							
Method: NWTPH-Gx - North		Petroleur Qualifier	n Products (0 RL		Unit	D	Prepared	Analyzed	Dil Fa
Analyte									

Eurofins TestAmerica, Seattle

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

Client Sample ID: 20-C025783 Lab Sample ID: 580-99593-4

Date Collected: 12/07/20 13:10 Date Received: 12/08/20 14:44 Matrix: Solid

Percent Solids: 95.2

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene (Surr)	94		50 - 150				12/10/20 09:15	12/10/20 13:43	
Madhadi NIMTDU Dv. Nasti	owest Comily	aladila Dad	malayum Duad	lucto (C(	•1				
Method: NWTPH-Dx - North Analyte		Qualifier	roleum Proc RL	iucts (GC MDL	,	D	Prepared	Analyzed	Dil Fa
#2 Diesel (C10-C24)	ND	Qualifier	50	12	mg/Kg	— <del>"</del>	12/21/20 08:35	12/21/20 23:35	DII F
,		•							
Motor Oil (>C24-C36)	33	J	50	17	mg/Kg	₩	12/21/20 08:35	12/21/20 23:35	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil F
o-Terphenyl	93		50 - 150				12/21/20 08:35	12/21/20 23:35	
Cadmium	0.083	J	0.68	0.065	mg/Kg	≎	12/17/20 12:22	12/18/20 15:54	
Analyte <mark>Lead</mark>	8.5		0.42	0.041	mg/Kg	☆	Prepared 12/17/20 12:22	Analyzed 12/18/20 15:54	
Arsenic	5.2		0.42	0.085	mg/Kg	❖	12/17/20 12:22	12/18/20 15:54	
Chromium	16		0.85	0.053	mg/Kg	≎	12/17/20 12:22	12/18/20 15:54	
Method: 7471A - Mercury (	CVAA)								
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
Mercury	0.018	J	0.021	0.0064	mg/Kg	₩	12/14/20 13:46	12/15/20 12:13	
0 - 101 - 14									
General Chemistry			ъ.	MBI		_		A I	011
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil F
Percent Solids	95.2		0.1	0.1	%			12/09/20 15:39	
Percent Moisture	4.8		0.1	0.1	%			12/09/20 15:39	

### **QC Sample Results**

Client: Cascade Analytical Inc Project/Site: ANS Geo Job ID: 580-99593-1

# Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-345397/1-A

Matrix: Solid

N-Propylbenzene

2-Chlorotoluene

4-Chlorotoluene

t-Butylbenzene

1,2,3-Trichloropropane

1,3,5-Trimethylbenzene

1,2,4-Trimethylbenzene

Analysis Batch: 345537

Client Sample ID: Method Blank Prep Type: Total/NA Prep Batch: 345397

Analysis Batch: 345557	МВ	MB							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		2.0	0.49	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Chloromethane	ND		5.0	0.93	ug/Kg		12/11/20 16:40		1
Vinyl chloride	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromomethane	ND	E223 E * * 5555556 *	1.0	0.21	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Chloroethane	ND		10	0.75	ug/Kg			12/11/20 20:46	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1-Dichloroethene	ND		5.0	1.1	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Methylene Chloride	ND		40	9.9	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
trans-1,2-Dichloroethene	ND		2.0	0.40	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1-Dichloroethane	ND		1.0	0.19	ug/Kg	:7	12/11/20 16:40	12/11/20 20:46	1
2,2-Dichloropropane	ND		5.0	0.33	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
cis-1,2-Dichloroethene	ND		3.0	0.60	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromochloromethane	ND		2.0	0.25	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Chloroform	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Carbon tetrachlonde	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1-Dichloropropene	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Benzene	ND		2.0	0.39	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2-Dichloroethane	ND		1.0	0.20	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Trichloroethene	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2-Dichloropropane	ND		2.0	0.40	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Dibromomethane	ND		1.0	0.17	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromodichloromethane	ND		1.0	0.18	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Toluene	ND		10	1.3	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
trans-1,3-Dichloropropene	ND		10	0.60	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1.1.2-Trichloroethane	ND		2.0	0.25	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Tetrachloroethene	ND		2.0	0.40	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,3-Dichloropropane	ND		2.0	0.23	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Dibromochloromethane	ND		1.5	0.27	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2-Dibromoethane	ND		1.0		ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Chlorobenzene	ND		2.0	0.25	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Ethylbenzene	ND		2.0	0.41	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1,1,2-Tetrachloroethane	ND		3.0	0.59	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,1,2,2-Tetrachloroethane	ND		4.0		ug/Kg		12/11/20 16:40	12/11/20 20:46	1
m-Xylene & p-Xylene	ND		10	0.56	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
o-Xylene	ND	EFECTIAL STORY	5.0	THE PERSON NAMED IN	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Styrene	ND		3.0	0.74	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromoform	ND		5.0		ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Isopropylbenzene	ND		2.0		ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Bromobenzene	ND		10		ug/Kg		12/11/20 16:40	12/11/20 20:46	1
DIGITIONSTIZONG				0.70	3 0			40/44/00 00:46	4

Eurofins TestAmerica, Seattle

12/11/20 16:40 12/11/20 20:46

12/11/20 16:40 12/11/20 20:46

12/11/20 16:40 12/11/20 20:46

12/11/20 16:40 12/11/20 20:46

12/11/20 16:40 12/11/20 20:46

12/11/20 16:40 12/11/20 20:46

12/11/20 16:40 12/11/20 20:46

1

5.0

5.0

5.0

5.0

5.0

3.0

5.0

0.76 ug/Kg

1.0 ug/Kg

0.93 ug/Kg

0.81 ug/Kg

0.66 ug/Kg

1.2 ug/Kg

1.0 ug/Kg

ND

ND

ND

ND

ND

ND

ND

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

#### Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Client Sample ID: Method Blank Lab Sample ID: MB 580-345397/1-A Prep Type: Total/NA Matrix: Solid Prep Batch: 345397 Analysis Batch: 345537 MD MD

	MB	MR							
Analyte	Result (	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	ND		3.0	0.67	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,3-Dichlorobenzene	ND		5.0	1.1	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
4-Isopropyltoluene	ND		2.0	0.40	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,4-Dichlorobenzene	ND		5.0	0.98	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
n-Butylbenzene	ND		3.0	0.63	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2-Dichlorobenzene	ND		10	1.3	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2-Dibromo-3-Chloropropane	ND		10	1.6	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2,4-Trichlorobenzene	ND		2.0	0.42	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
1,2,3-Trichlorobenzene	ND		3.0	0.60	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Hexachlorobutadiene	ND		3.0	0.60	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Naphthalene	1.85	J	10	1.8	ug/Kg		12/11/20 16:40	12/11/20 20:46	1
Methyl tert-butyl ether	ND		2.0	0.30	ug/Kg		12/11/20 16:40	12/11/20 20:46	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Faç
Toluene-d8 (Surr)	88		80 - 120	12/11/20 16:40	12/11/20 20:46	1
4-Bromofluorobenzene (Surr)	96		80 - 120	12/11/20 16:40	12/11/20 20:46	1
Dibromofluoromethane (Surr)	103		80 - 120	12/11/20 16:40	12/11/20 20:46	1
1,2-Dichloroethane-d4 (Surr)	111		80 - 121	 12/11/20 16:40	12/11/20 20:46	1

Lab Sample ID: LCS 580-345397/2-A

Analysis Batch: 345537

Matrix: Solid

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Prep Batch: 345397

LCS LCS %Rec. Spike Analyte Added Result Qualifier Unit %Rec Limits Dichlorodifluoromethane 20.0 35.0 ug/Kg 175 24 - 150 20.0 27.8 ug/Kg 139 52 - 150 Chloromethane 20.0 24.3 ug/Kg 122 54 - 150 Vinyl chloride 133 42 - 150 20.0 26,6 ug/Kg Bromomethane Chloroethane 20.0 24.0 ug/Kg 120 50 - 150 20.0 22.8 ug/Kg 114 71 - 150 Trichlorofluoromethane 127 73 - 143 1,1-Dichloroethene 20.0 25.4 ug/Kg 66 - 140 Methylene Chloride 20.0 22.9 J ug/Kg 114 trans-1,2-Dichloroethene 20.0 21.6 ug/Kg 108 77 - 1341.1-Dichloroethane 20.0 21.9 ug/Kg 110 78 - 135 20.0 22.0 110 62 - 150 ug/Kg 2,2-Dichloropropane cis-1,2-Dichloroethene 20.0 22.2 ug/Kg 111 68 - 13220.0 23.0 115 76 - 131 Bromochloromethane ug/Kg 103 74 - 133 Chloroform 20.0 20.7 ug/Kg 78 - 144 20,0 21.3 ug/Kg 106 1,1,1-Trichloroethane 22.4 112 66 - 150 Carbon tetrachloride 20.0 ug/Kg 1,1-Dichloropropene 20.0 20.9 ug/Kg 104 76-140 109 79 - 135 Benzene 20.0 21.8 ug/Kg 20.0 22.4 ug/Kg 112 76 - 132 1,2-Dichloroethane 109 80 - 134 20.0 21,7 ug/Kg Trichloroethene 1,2-Dichloropropane 20.0 22.0 ug/Kg 110 65 - 136 20.0 23.5 ug/Kg 118 72 - 130 Dibromomethane 102 73 - 125 Bromodichloromethane 20,0 20.3 ug/Kg 93 80 - 122 cis-1,3-Dichloropropene 20.0 18.5 ug/Kg

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

# Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-345397/2-A

Matrix: Solid

Analysis Batch: 345537

Client Sample ID: Lab Control Sample Prep Type: Total/NA

**Prep Batch: 345397** 

Allalysis Datch. 343331	Spike	LCS	LCS				%Rec.
Analyte	Added		Qualifier	Unit	D	%Rec	Limits
Toluene	20.0	18.2		ug/Kg		91	75 - 137
trans-1,3-Dichloropropene	20.0	18.3		ug/Kg		91	80 - 121
1.1.2-Trichloroethane	20.0	20.1		ug/Kg		101	80 - 123
Tetrachloroethene	20.0	17.3		ug/Kg		87	58 - 150
1,3-Dichloropropane	20.0	19.3		ug/Kg		96	75 - 120
Dibromochloromethane	20.0	18.8		ug/Kg		94	75 - 132
1,2-Dibromoethane	20.0	20.6		ug/Kg		103	77 - 123
Chlorobenzene	20.0	18.3		ug/Kg		91	80 - 131
Ethylbenzene	20.0	19.6		ug/Kg		98	80 - 135
1.1.1,2-Tetrachloroethane	20.0	18.4		ug/Kg		92	79 - 128
1,1,2,2-Tetrachloroethane	20.0	19.3		ug/Kg		97	77 - 127
m-Xylene & p-Xylene	20.0	17.1		ug/Kg		86	80 - 132
o-Xylene	20.0	19.1	·	ug/Kg		95	80 - 132
Styrene	20.0	18.4		ug/Kg		92	79 <sub>-</sub> 129
Bromoform	20.0	19.0		ug/Kg		95	71 - 146
Isopropylbenzene	20.0	18.9	100 0 000	ug/Kg	11.07.	94	81 - 140
Bromobenzene	20.0	19.2		ug/Kg		96	78 <sub>-</sub> 126
N-Propylbenzene	20.0	17.8		ug/Kg		89	68 - 149
1,2,3-Trichloropropane	20.0	19.7		ug/Kg		98	77 - 127
2-Chlorotoluene	20.0	16.6		ug/Kg		83	77 - 134
1,3,5-Trimethylbenzene	20.0	17.8		ug/Kg		89	72 - 142
4-Chlorotoluene	20.0	16.8	**********	ug/Kg		84	71 - 137
t-Butylbenzene	20.0	17.4		ug/Kg		87	72 - 144
1,2,4-Trimethylbenzene	20.0	17.8		ug/Kg		89	73 - 138
sec-Butylbenzene	20.0	18.0		ug/Kg		90	71 - 143
1,3-Dichlorobenzene	20.0	18.3		ug/Kg		91	78 - 132
4-Isopropyltoluene	20.0	17.8		ug/Kg		89	71 - 142
1,4-Dichlorobenzene	20.0	18.4		ug/Kg		92	77 - 123
n-Butylbenzene	20.0	16.8		ug/Kg		84	69 - 143
1,2-Dichlorobenzene	20.0	18.5		ug/Kg		93	78 - 126
1,2-Dibromo-3-Chloropropane	20.0	20.1		ug/Kg	1 =	100	75 - 129
1,2,4-Trichlorobenzene	20.0	20.0		ug/Kg		100	74 - 131
1,2,3-Trichlorobenzene	20.0	19.5		ug/Kg		97	68 - 136
Hexachlorobutadiene	20.0	18.6		ug/Kg		93	65 - 150
Naphthalene	20.0	21.5		ug/Kg		107	64 - 136
Methyl tert-butyl ether	20.0	24.0		ug/Kg		120	77 - 132

ı cs	LCS

Surrogate	%Recovery	Qualifier	Limits
Toluene-d8 (Surr)	93		80 - 120
4-Bromofluorobenzene (Surr)	104		80 - 120
Dibromofluoromethane (Surr)	104		80 - 120
1.2-Dichloroethane-d4 (Surr)	106		80 - 121

Client: Cascade Analytical Inc Job ID: 580-99593-1

Project/Site: ANS Geo

# Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte Dichlorodifluoromethane Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethene Methylene Chloride	20.0 20.0 20.0 20.0 20.0 20.0 20.0 20.0	Result 42.0 28.9 27.8 27.0 25.4	Qualifier *+	Unit ug/Kg ug/Kg	<u>D</u>	%Rec	%Rec. Limits	RPD	RPD Limit
Dichlorodifluoromethane Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethene	20.0 20.0 20.0 20.0 20.0 20.0	42.0 28.9 27.8 27.0 25.4		ug/Kg			Litilita	IXI D	. imil
Chloromethane Vinyl chloride Bromomethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethene	20.0 20.0 20.0 20.0 20.0	28.9 27.8 27.0 25.4				210	24 - 150	18	40
Vinyl chloride Bromomethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethene	20.0 20.0 20.0 20.0	27.8 27.0 25.4		ug/itu		144	52 - 150	4	26
Bromomethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethene	20.0 20.0 20.0	27.0 25.4		ug/Kg		139	54 - 150	13	40
Chloroethane Trichlorofluoromethane 1,1-Dichloroethene	20.0 20.0	25.4		ug/Kg		135	42 - 150	2	40
Trichlorofluoromethane 1,1-Dichloroethene	20.0			ug/Kg		127	50 <sub>-</sub> 150	6	31
1,1-Dichloroethene		23.4		ug/Kg		117	71 - 150	3	36
•	20.0	25.4		ug/Kg		129	73 - 143	2	34
Metrylene ornorde	20.0	24.7	.1	ug/Kg		124	66 - 140	8	30
trans-1,2-Dichloroethene	20.0	21.2	•	ug/Kg		106	77 - 134	2	33
1,1-Dichloroethane	20.0	22.3		ug/Kg		112	78 - 135	2	31
2,2-Dichloropropane	20.0	22.7		ug/Kg		113	62 - 150	3	40
cis-1,2-Dichloroethene	20.0	22.2		ug/Kg		111	68 - 132	0	32
Bromochloromethane	20.0	23.6		ug/Kg		118	76 - 131	3	28
Chloroform	20.0	21.0		ug/Kg ug/Kg		105	74 - 133	1	36
1,1,1-Trichloroethane	20.0	21.9		ug/Kg		109	78 <sub>-</sub> 144	3	38
Carbon tetrachloride	20.0	22.7		ug/Kg		114	66 - 150	1	39
1,1-Dichloropropene	20.0	21.3		ug/Kg		106	76 - 140	2	38
Benzene	20.0	22.8		ug/Kg		114	79 - 135	4	31
1,2-Dichloroethane	20.0	23.2		ug/Kg		116	76 - 132	4	29
Trichloroethene	20.0	21.7		ug/Kg		108	80 - 134	0	40
1,2-Dichloropropane	20.0	23.4		ug/Kg		117	65 - 136	6	37
Dibromomethane	20.0	23.8	(350) (00 00	ug/Kg		119	72 - 130	<u></u>	34
Bromodichloromethane	20.0	20.8		ug/Kg ug/Kg		104	73 - 125	2	40
cis-1,3-Dichloropropene	20.0	19.1		ug/Kg		96	80 - 122	3	40
Toluene	20.0	19.0		ug/Kg		95	75 - 137	4	34
trans-1,3-Dichloropropene	20.0	19.0		ug/Kg ug/Kg		95	80 - 121	4	40
1,1,2-Trichloroethane	20.0	20.2		ug/Kg ug/Kg		101	80 - 123	1	39
Tetrachloroethene	20.0	17.5		ug/Kg		87	58 - 150	1	40
1,3-Dichloropropane	20.0	20.1		ug/Kg		101	75 - 120	4	37
Dibromochloromethane	20.0	19.1		ug/Kg		96	75 - 132	2	40
1,2-Dibromoethane	20.0	21.5		ug/Kg		107	77 - 123	4	37
Chlorobenzene	20.0	19.0		ug/Kg ug/Kg		95	80 - 131	4	40
Ethylbenzene	20.0	20.5		ug/Kg		103	80 - 135	5	37
1,1,1,2-Tetrachloroethane	20.0	18.9		ug/Kg ug/Kg		95	79 - 128	3	40
1,1,2,2-Tetrachloroethane	20.0	19.5		ug/Kg ug/Kg		97	77 - 127	1	40
m-Xylene & p-Xylene	20.0	17.6		ug/Kg ug/Kg		88	80 - 132	3	38
o-Xylene	20.0	20.0		ug/Kg		100	80 - 132	5	39
Styrene	20.0	19.0		ug/Kg ug/Kg		95	79 - 129	3	40
Bromoform	20.0	18.4		ug/Kg ug/Kg		92	71 - 146	3	40
Isopropylbenzene	20.0	19.2		ug/Kg ug/Kg		96	81 - 140	2	40
							78 - 126	2	40
Bromobenzene N. Bronylbonzene	20.0 20.0	19.6 18.6		ug/Kg		98 93	68 - 149	4	40
N-Propylbenzene	20.0	19.0		ug/Kg		93	68 - 149 77 - 127	3	40
1,2,3-Trichloropropane				ug/Kg		95 89	77 - 127 77 - 134	3 7	40
2-Chlorotoluene	20.0	17.8		ug/Kg			77 - 134 72 - 142	3	40
1,3,5-Trimethylbenzene	20.0	18.4		ug/Kg		.= . 92		<u>3</u> 3	40
4-Chlorotoluene	20.0	17.3		ug/Kg		87 go	71 - 137		
t-Butylbenzene 1,2,4-Trimethylbenzene	20.0 20.0	18.0 18.7		ug/Kg ug/Kg		90 94	72 <sub>-</sub> 144 73 <sub>-</sub> 138	3 5	40 40

Client: Cascade Analytical Inc Project/Site: ANS Geo Job ID: 580-99593-1

# Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-345397/3-A

Matrix: Solid

Analysis Batch: 345537

Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA

Prep Batch: 345397

	Spike LCSD LCS						%Rec.		KPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
sec-Butylbenzene	20.0	18.5		ug/Kg		93	71 - 143	3	40
1.3-Dichlorobenzene	20.0	19.2		ug/Kg		96	78 - 132	5	40
4-Isopropyltoluene	20.0	18.6		ug/Kg		93	71 - 142	5	40
1.4-Dichlorobenzene	20.0	19.3		ug/Kg		96	77 - 123	4	40
n-Butylbenzene	20.0	17.7		ug/Kg		88	69 - 143	6	40
1.2-Dichlorobenzene	20.0	19.4		ug/Kg		97	78 - 126	4	40
1.2-Dibromo-3-Chloropropane	20.0	19.0		ug/Kg		95	75 - 129	5	40
1.2.4-Trichlorobenzene	20.0	20.4		ug/Kg		102	74 - 131	2	40
1.2.3-Trichlorobenzene	20.0	19.3		ug/Kg		97	68 - 136	1	40
Hexachlorobutadiene	20.0	18.6		ug/Kg		93	65 - 150	0	36
Naphthalene	20.0	20.8		ug/Kg		104	64 - 136	3	40
Methyl tert-butyl ether	20.0	25.0		ug/Kg		125	77 - 132	4	25

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
Toluene-d8 (Surr)	91		80 - 120
4-Bromofluorobenzene (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	104		80 - 120
1,2-Dichloroethane-d4 (Surr)	109		80 - 121

Lab Sample ID: MB 580-346011/1-A

Matrix: Solid

Analysis Batch: 346000

Client Sample ID: Method Blank

Prep Type: Total/NA Prep Batch: 346011

Allaly 313 Daton: 0-1000	мв	мв						•	
Analyte	Result (		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		2.0	0.49	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Chloromethane	ND		5.0	0.93	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Vinyl chloride	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Bromomethane	ND		1.0	0.21	ug/Kg	G 15 - 13	12/19/20 15:29	12/19/20 16:47	1
Chloroethane	ND		10	0.75	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Trichlorofluoromethane	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,1-Dichloroethene	ND	-	5.0	1.1	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Methylene Chloride	ND		40	9 <b>.9</b>	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
trans-1,2-Dichloroethene	ND		2.0	0.40	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,1-Dichloroethane	ND		1.0	0.19	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
2,2-Dichloropropane	ND		5.0	0.33	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
cis-1,2-Dichloroethene	ND		3.0	0.60	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Bromochloromethane	ND		2.0	0.25	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Chloroform	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,1,1-Trichloroethane	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Carbon tetrachloride	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,1-Dichloropropene	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Benzene	ND		2.0	0.39	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1.2-Dichloroethane	ND		1.0	0.20	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Trichloroethene	ND		2.0	0.30	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
1,2-Dichloropropane	ND		2.0	0.40	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
Dibromomethane	ND		1.0	0.17	ug/Kg	52	12/19/20 15:29	12/19/20 16:47	1
Bromodichloromethane	ND		1.0	0.18	ug/Kg		12/19/20 15:29	12/19/20 16:47	1
cis-1,3-Dichloropropene	ND		1.0		ug/Kg		12/19/20 15:29	12/19/20 16:47	1

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

#### Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-346011/1-A Client Sample ID: Method Blank Prep Type: Total/NA Matrix: Solid **Prep Batch: 346011** Analysis Batch: 346000 MB MB Dil Fac Prepared **Analyzed Analyte** Result Qualifier RL MDL Unit Toluene ND 10 1.3 ug/Kg 12/19/20 15:29 12/19/20 16:47 ND 10 12/19/20 15:29 12/19/20 16:47 0.60 ug/Kg trans-1,3-Dichloropropene ND 2.0 0.25 ug/Kg 12/19/20 15:29 12/19/20 16:47 1,1,2-Trichloroethane 2.0 12/19/20 15:29 12/19/20 16:47 Tetrachloroethene ND 0.40 ug/Kg 12/19/20 15:29 ND 2.0 0.23 ug/Kg 12/19/20 16:47 1,3-Dichloropropane ND 1.5 0.27 ug/Kg 12/19/20 15:29 12/19/20 16:47 Dibromochloromethane 12/19/20 15:29 12/19/20 16:47 ND 0.20 1.2-Dibromoethane 1.0 ug/Kg 0.25 12/19/20 15:29 12/19/20 16:47 Chlorobenzene ND 2.0 ug/Kg 12/19/20 15:29 12/19/20 16:47 1 ND 2.0 0.41 ug/Kg Ethylbenzene 1,1,1,2-Tetrachloroethane ND 3.0 0.59 ug/Kg 12/19/20 15:29 12/19/20 16:47 ND 40 0.90 ug/Kg 12/19/20 15:29 12/19/20 16:47 1,1,2,2-Tetrachloroethane 12/19/20 16:47 12/19/20 15:29 m-Xylene & p-Xylene ND 10 0.56 ug/Kg 12/19/20 15:29 12/19/20 16:47 o-Xylene ND 5.0 0.92 ug/Kg ND 3.0 0.74 12/19/20 15:29 12/19/20 16:47 Styrene ug/Kg 5.0 12/19/20 15:29 12/19/20 16:47 ND 0.84 ug/Kg Bromoform 2.0 12/19/20 15:29 12/19/20 16:47 ND 0.46 ug/Kg Isopropylbenzene ND 10 1.0 ug/Kg 12/19/20 15:29 12/19/20 16:47 Bromobenzene 0.76 ND 5.0 ug/Kg 12/19/20 15:29 12/19/20 16:47 N-Propylbenzene 12/19/20 16:47 1,2,3-Trichloropropane ND 5.0 1.0 ug/Kg 12/19/20 15:29 ND 5.0 0,93 ug/Kg 12/19/20 15:29 12/19/20 16:47 2-Chlorotoluene 12/19/20 15:29 12/19/20 16:47 1,3,5-Trimethylbenzene ND 5.0 0.81 ug/Kg 4-Chlorotoluene ND 5.0 1.0 ug/Kg 12/19/20 15:29 12/19/20 16:47 ND 12/19/20 15:29 12/19/20 16:47 3.0 0.66 ug/Kg t-Butylbenzene 12/19/20 16:47 ND 5.0 1.2 12/19/20 15:29 1,2,4-Trimethylbenzene ug/Kg 12/19/20 16:47 ND 3.0 12/19/20 15:29 0.67 ug/Kg sec-Butylbenzene 12/19/20 15:29 12/19/20 16:47 ND 5.0 1.1 ug/Kg 1,3-Dichlorobenzene 12/19/20 15:29 12/19/20 16:47 ND 2.0 0.40 ug/Kg 4-Isopropyltoluene 0.98 12/19/20 15:29 12/19/20 16:47 1,4-Dichlorobenzene ND 5.0 ug/Kg n-Butylbenzene ND 3.0 0.63 ug/Kg 12/19/20 15:29 12/19/20 16:47 12/19/20 15:29 12/19/20 16:47 ND 10 ug/Kg 1,2-Dichlorobenzene 1.3 ND 10 1.6 ug/Kg 12/19/20 15:29 12/19/20 16:47 1,2-Dibromo-3-Chloropropane 2.0 12/19/20 15:29 12/19/20 16:47 ND ug/Kg 1,2,4-Trichlorobenzene 0.42 12/19/20 16:47 ND 3.0 0.60 ug/Kg 12/19/20 15:29 1.2.3-Trichlorobenzene 12/19/20 15:29 12/19/20 16:47 ND 3.0 0.60 ug/Kg Hexachlorobutadiene 12/19/20 15:29 12/19/20 16:47 ND Naphthalene 10 1.8 ug/Kg 12/19/20 15:29 12/19/20 16:47 Methyl tert-butyl ether ND 2.0 0.30 ug/Kg MB MB Qualifier Prepared Analyzed Dil Fac %Recovery Limits Surrogate 12/19/20 15:29 12/19/20 16:47 80 - 120 Toluene-d8 (Surr) 92 96 80 - 120 12/19/20 15:29 12/19/20 16:47 1 4-Bromofluorobenzene (Surr) 101 12/19/20 15:29 12/19/20 16:47 1 Dibromofluoromethane (Surr) 80 - 120 103 80 - 121 12/19/20 15:29 12/19/20 16:47 1.2-Dichloroethane-d4 (Surr)

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

# Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-346011/2-A

Matrix: Solid

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Matrix: Solid Analysis Batch: 346000	Spike		LCS			Prep Type: Total/NA Prep Batch: 346011 %Rec.
Analyte	Added		Qualifier	Unit	D %Rec	Limits
Dichlorodifluoromethane	20.0	25.3		ug/Kg	127	24 - 150
Chloromethane	20.0	23.6		ug/Kg	118	52 - 150
Vinyl chloride	20.0	21.0		ug/Kg	105	54 - 150
Bromomethane	20.0	20.1		ug/Kg	101	42-150
Chloroethane	20.0	24.0		ug/Kg	120	50 - 150
Trichlorofluoromethane	20.0	21.4		ug/Kg	107	71 - 150
1,1-Dichloroethene	20.0	23.0		ug/Kg	115	73 - 143
Methylene Chloride	20.0	14.9	J	ug/Kg	75	66 - 140
trans-1,2-Dichloroethene	20.0	19.1		ug/Kg	95	77 - 134
1,1-Dichloroethane	20.0	20.5		ug/Kg	103	78 <sub>-</sub> 135
2,2-Dichloropropane	20.0	20.1		ug/Kg	101	62 - 150
cis-1,2-Dichloroethene	20.0	20.0		ug/Kg	100	68 - 132
Bromochloromethane	20.0	20.8		ug/Kg	104	76 - 131
Chloroform	20.0	18.5		ug/Kg	93	74 - 133
1,1,1-Trichloroethane	20.0	20.0		ug/Kg	100	78 - 144
Carbon tetrachloride	20.0	21.3		ug/Kg	106	66 - 150
1,1-Dichloropropene	20.0	20.3		ug/Kg	102	76 - 140
Benzene	20.0	20.1		ug/Kg	100	79 <sub>-</sub> 135
1,2-Dichloroethane	20.0	19.4		ug/Kg	97	76 - 132
Trichloroethene	20.0	19.9		ug/Kg	99	80 - 134
1,2-Dichloropropane	20.0	19.9		ug/Kg	100	65 - 136
Dibromomethane	20.0	20.5	1.07 E. 12	ug/Kg	103	72 - 130
Bromodichloromethane	20.0	18.3		ug/Kg	91	73 - 125
cis-1,3-Dichloropropene	20.0	16,3		ug/Kg	82	80 - 122
Toluene	20.0	17.3		ug/Kg	87	75 - 137
trans-1,3-Dichloropropene	20.0	16.5		ug/Kg	82	80 - 121
1,1,2-Trichloroethane	20.0	16.9		ug/Kg	84	80 - 123
Tetrachloroethene	20.0	16.8		ug/Kg	84	58 - 150
1,3-Dichloropropane	20.0	17.1		ug/Kg	86	75 - 120
Dibromochloromethane	20.0	16.4		ug/Kg	82	75 - 132
	20.0	18.1		ug/Kg	91	77 - 123
1,2-Dibromoethane	20.0	16.7		ug/Kg	84	80 - 131
Chlorobenzene	20.0	17.7		ug/Kg	88	80 - 135
Ethylbenzene	20.0	16.4		ug/Kg ug/Kg	82	79 - 128
1,1,1,2-Tetrachloroethane					81	77 - 127
1,1,2,2-Tetrachloroethane	20.0	16.3		ug/Kg	78	80 - 132
m-Xylene & p-Xylene	20.0	15.6		ug/Kg		80 - 132
o-Xylene	20.0	17.4		ug/Kg	87	
Styrene	20.0	16.6		ug/Kg	83	79-129
Bromoform	20.0	15.5		ug/Kg	78	71 - 146
Isopropylbenzene	20.0	16.9		ug/Kg	85	81 - 140
Bromobenzene	20.0	16.3		ug/Kg	81	78 - 126
N-Propylbenzene	20.0	16.0		ug/Kg	80	68 - 149
1,2,3-Trichloropropane	20.0	16.1		ug/Kg	80	77 - 127
2-Chlorotoluene	20.0	15.3		ug/Kg	77	77 - 134
1,3,5-Trimethylbenzene	20.0	15.7	. Apparation	ug/Kg	78	72 - 142
4-Chlorotoluene	20.0	15.3		ug/Kg	77	71 - 137
t-Butylbenzene	20.0	15.4		ug/Kg	77	72 - 144
1,2,4-Trimethylbenzene	20.0	16.0		ug/Kg	80	73 - 138

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

#### Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-346011/2-A

Matrix: Solid

Analysis Batch: 346000

Client Sample ID: Lab Control Sample Prep Type: Total/NA Prep Batch: 346011

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
sec-Butylbenzene	20.0	15.6		ug/Kg		78	71 - 143	
1,3-Dichlorobenzene	20.0	16.1		ug/Kg		81	78 - 132	
4-Isopropyltoluene	20.0	15.4		ug/Kg		77	71 - 142	
1,4-Dichlorobenzene	20.0	15.8		ug/Kg		79	77 - 123	
n-Butylbenzene	20.0	14.4		ug/Kg		72	69 - 143	
1,2-Dichlorobenzene	20.0	16.2		ug/Kg		81	78 - 126	
1,2-Dibromo-3-Chloropropane	20.0	15.8		ug/Kg		79	75 - 129	
1,2,4-Trichlorobenzene	20.0	16.9		ug/Kg		85	74 - 131	
1,2,3-Trichlorobenzene	20.0	16.6		ug/Kg		83	68 - 136	
Hexachlorobutadiene	20.0	14.5		ug/Kg		73	65 - 150	
Naphthalene	20.0	18.1		ug/Kg		90	64 - 136	
Methyl tert-butyl ether	20.0	21.0		ug/Kg		105	77 - 132	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
Toluene-d8 (Surr)	88		80 - 120
4-Bromofluorobenzene (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	101		80 - 120
1,2-Dichloroethane-d4 (Surr)	104		80 - 121

Lab Sample ID: LCSD 580-346011/3-A

Matrix: Solid

Analysis Batch: 346000

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA Prep Batch: 346011

%Rec. **RPD** Spike LCSD LCSD Analyte Added Result Qualifier Unit %Rec Limits **RPD** Limit Dichlorodifluoromethane 20.0 24.5 ug/Kg 122 24 - 150 40 123 52 - 150 5 26 Chloromethane 20.0 24.7 ug/Kg 121 54 - 150 40 20.0 24.3 ug/Kg 15 Vinyl chloride 9 40 42 - 150 20.0 22.0 110 Bromomethane ug/Kg 107 50 - 150 11 31 Chloroethane 20.0 21.5 ug/Kg 97 71 - 150 10 36 20,0 Trichlorofluoromethane 19.5 ug/Kg 1.1-Dichloroethene 20.0 22.2 ug/Kg 111 73 - 143 4 34 21.3 J\*1 20.0 ug/Kg 106 66 - 140 35 30 Methylene Chloride trans-1,2-Dichloroethene 20.0 19.5 ug/Kg 98 77 - 134 2 33 20.0 21.2 ug/Kg 106 78 - 135 3 31 1,1-Dichloroethane 104 62 - 150 3 40 20.7 2,2-Dichloropropane 20.0 ug/Kg 20.8 104 68 - 132 32 cis-1,2-Dichloroethene 20.0 ug/Kg 2 76 - 131 28 20.0 21.2 106 ug/Kg Bromochloromethane 20.0 97 74 - 133 5 36 Chloroform 19.4 ug/Kg 38 20.1 101 78 - 144 1 1,1,1-Trichloroethane 20.0 ug/Kg 20.0 21.7 ug/Kg 109 66 - 1502 39 Carbon tetrachloride 20.0 20.1 101 76 - 140 38 1,1-Dichloropropene ug/Kg 2 20.0 20.5 ug/Kg 102 79 - 135 31 Benzene ug/Kg 101 76 - 132 29 20.0 20.3 1.2-Dichloroethane 40 97 2 80 - 134 **Trichloroethene** 20.0 19.5 ug/Kg 20.8 104 65 - 136 37 20.0 ug/Kg 1,2-Dichloropropane 3 72 - 130 34 106 Dibromomethane 20.0 21.1 ug/Kg Bromodichloromethane 20.0 18.6 ug/Kg 93 73 - 125 2 40 20.0 16.2 ug/Kg 81 80 - 122 40 cis-1,3-Dichloropropene

Client: Cascade Analytical Inc Project/Site: ANS Geo

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Job ID: 580-99593-1

Lab Sample ID: LCSD 580-346011/3-A Matrix: Solid			Client Sample ID: Lab Contro Prep 7 Prep										
Analysis Batch: 346000							Prep Ba	atch: 34	46011 RPD				
	Spike	LCSD	<b>Qualifier</b>	Unit	D	%Rec	%Rec. Limits	RPD	Limit				
Analyte	Added 20.0	16.7	Qualifier	ug/Kg		83	75 - 137	4	34				
Toluene		16.7	1 ==		1112	82	80 - 121	1000	40				
trans-1,3-Dichloropropene	20.0			ug/Kg		86	80 - 123	2	39				
1,1,2-Trichloroethane	20.0	17.3		ug/Kg		77	58 - 150	8	40				
Tetrachloroethene	20.0	15.4		ug/Kg		89	75 - 120	3	37				
1,3-Dichloropropane	20.0	17.7		ug/Kg				4	40				
Dibromochloromethane	20.0	16.9		ug/Kg		85	75 - 132	-	37				
1,2-Dibromoethane	20.0	18.0		ug/Kg		90	77 - 123	1					
Chlorobenzene	20.0	16.7		ug/Kg		84	80 - 131	0	40				
Ethylbenzene	20.0	18.0		ug/Kg		90	80 - 135	2	37				
1,1,1,2-Tetrachloroethane	20.0	16.2		ug/Kg		81	79 - 128	1	40				
1,1,2,2-Tetrachloroethane	20.0	17.1		ug/Kg		86	77 - 127	5	40				
m-Xylene & p-Xylene	20.0	15.5	*_	ug/Kg		77	80 - 132	1	38				
о-Хујепе	20.0	17.0		ug/Kg		85	80 - 132	2	39				
Styrene	20.0	16.6		ug/Kg		83	79 - 129	0	40				
Bromoform	20.0	15.9		ug/Kg		79	71 - 146	2	40				
Isopropylbenzene	20.0	17.1		ug/Kg		86	81 - 140	1	40				
Bromobenzene	20.0	16.8		ug/Kg		84	78 - 126	3	40				
N-Propylbenzene	20.0	16.6		ug/Kg		83	68 - 149	3	40				
1,2,3-Trichloropropane	20.0	17.5		ug/Kg		88	77 - 127	9	40				
2-Chlorotoluene	20.0	16.5		ug/Kg		82	77 - 134	7	40				
1,3,5-Trimethylbenzene	20.0	16.4		ug/Kg		82	72 - 142	5	40				
4-Chlorotoluene	20.0	16.0		ug/Kg		80	71 - 137	4	40				
t-Butylbenzene	20.0	15.9		ug/Kg		80	72 - 144	3	40				
1,2,4-Trimethylbenzene	20.0	16.6		ug/Kg		83	73 - 138	4	40				
sec-Butylbenzene	20.0	16.7		ug/Kg		84	71 - 143	7	40				
1.3-Dichlorobenzene	20.0	16.4		ug/Kg		82	78 - 132	2	40				
4-Isopropyltoluene	20.0	16.5		ug/Kg		82	71 - 142	7	40				
1,4-Dichlorobenzene	20.0	16.4		ug/Kg		82	77 - 123	4	40				
n-Butylbenzene	20.0	15.4		ug/Kg		77	69 - 143	7	40				
1.2-Dichlorobenzene	20.0	16.4		ug/Kg		82	78 <sub>-</sub> 126	1	40				
1,2-Dibromo-3-Chloropropane	20.0	17.4	. 1611 . 232	ug/Kg		87	75 - 129	10	40				
1,2,4-Trichlorobenzene	20.0	17.6		ug/Kg		88	74 - 131	4	40				
1,2,3-Trichlorobenzene	20.0	16.5		ug/Kg		82	68 - 136	0	40				
Hexachlorobutadiene	20.0	15.3		ug/Kg		76	65 - 150	5	36				
Naphthalene	20.0	17.6		ug/Kg		88	64 - 136	3	40				
	20.0	21.4		ug/Kg		107	77 - 132	2	25				
Methyl tert-butyl ether	20,0	21,4		ug/r\g		107	11-134	2					

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
Toluene-d8 (Surr)	90		80 - 120
4-Bromofluorobenzene (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	100		80 - 120
1,2-Dichloroethane-d4 (Surr)	105		80 - 121

Client: Cascade Analytical Inc Job ID: 580-99593-1

Project/Site: ANS Geo

#### Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-345599/1-A

Matrix: Solid

Analysis Batch: 345700

Client Sample ID: Method Blank Prep Type: Total/NA

**Prep Batch: 345599** 

	MB	MB							
Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Phenol	ND		150	23	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Bis(2-chloroethyl)ether	ND		100	7.7	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Chlorophenol	ND		200	4.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
1,3-Dichlorobenzene	ND		50	4.8	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
1,4-Dichlorobenzene	ND		50	8.3	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Benzyl alcohol	ND		1000	50	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
1,2-Dichlorobenzene	ND		50	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Methylphenol	ND		150	9.8	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
3 & 4 Methylphenol	ND		200	15	ug/Kg		12/15/20 11:55	12/16/20 14:46	
N-Nitrosodi-n-propylamine	ND		200	22	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Hexachloroethane	ND		150	4.3	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Nitrobenzene	ND		200	20	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Isophorone	ND		150	8.4	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Nitrophenol	ND		200	6.2	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4-Dimethylphenol	ND		200	60	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Benzoic acid	ND		4000	1200	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Bis(2-chloroethoxy)methane	ND		200	18	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4-Dichlorophenol	ND		200	60	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
1,2,4-Trichlorobenzene	ND		50	6.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Naphthalene	34.8		25	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Chloroaniline	ND		1500	130	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Hexachlorobutadiene	ND		50	15	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Chloro-3-methylphenol	ND		150	33	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Methylnaphthalene	13.9	J	50	8.8	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Hexachlorocyclopentadiene	ND		100	7.7	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4,6-Trichlorophenol	ND		150	13	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4,5-Trichlorophenol	ND		200	8.1	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Chloronaphthalene	ND		25	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2-Nitroaniline	ND		100	15	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Dimethyl phthalate	ND		150	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Acenaphthylene	ND		25	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,6-Dinitrotoluene	ND		150	15	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
3-Nitroaniline	ND		300	100	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Acenaphthene	9.31	j	40	4.6	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4-Dinitrophenol	ND		2000	590	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Nitrophenol	ND		2000	170	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Dibenzofuran	ND		150	5.9	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
2,4-Dinitrotoluene	ND		200	43	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Diethyl phthalate	ND		400	22	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Chlorophenyl phenyl ether	ND		200	6.3	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Fluorene	ND		25	5.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Nitroaniline	ND		150	50	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4,6-Dinitro-2-methylphenol	ND		1000	100	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
N-Nitrosodiphenylamine	ND		60	8.0	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
4-Bromophenyl phenyl ether	ND		200	9.1	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Hexachlorobenzene	ND		50	15	ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Pentachlorophenol	ND		400		ug/Kg		12/15/20 11:55	12/16/20 14:46	1
Phenanthrene	11.3	J	60		ug/Kg			12/16/20 14:46	1

Client: Cascade Analytical Inc Project/Site: ANS Geo

Lab Sample ID: MB 580-345599/1-A

Job ID: 580-99593-1

Client Sample ID: Method Blank

# Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Prep Type: Total/NA Matrix: Solid Prep Batch: 345599 Analysis Batch: 345700 MB MB **MDL** Unit Dil Fac Prepared **Analyzed** RL Result Qualifier **Analyte** 12/15/20 11:55 12/16/20 14:46 ND 60 16 ug/Kg Anthracene 12/15/20 11:55 12/16/20 14:46 ND 500 27 ug/Kg Di-n-butyl phthalate 12/16/20 14:46 ND 40 12 ug/Kg 12/15/20 11:55 Fluoranthene 12/16/20 14:46 ND 60 13 ug/Kg 12/15/20 11:55 Pyrene 12/15/20 11:55 12/16/20 14:46 200 51 ug/Kg ND Butyl benzyl phthalate 12/15/20 11:55 12/16/20 14:46 ND 400 ug/Kg 3.3'-Dichlorobenzidine 12/16/20 14:46 1 12/15/20 11:55 ug/Kg 40 11 Benzo[a]anthracene ND 12/15/20 11:55 12/16/20 14:46 60 13 ug/Kg ND Chrysene 12/15/20 11:55 12/16/20 14:46 600 71 ug/Kg ND Bis(2-ethylhexyl) phthalate 12/15/20 11:55 12/16/20 14:46 ND 150 12 ug/Kg Di-n-octyl phthalate 12/16/20 14:46 1 ND 60 13 ug/Kg 12/15/20 11:55 Benzo[a]pyrene 1 40 12 ug/Kg 12/15/20 11:55 12/16/20 14:46 ND Indeno[1,2,3-cd]pyrene 12/16/20 14:46 12/15/20 11:55 ND 50 12 ug/Kg Dibenz(a,h)anthracene 12/15/20 11:55 12/16/20 14:46 1 60 18 ug/Kg Benzo[g,h,i]perylene ND 12/15/20 11:55 12/16/20 14:46 150 7.3 ug/Kg ND Carbazole 12/15/20 11:55 12/16/20 14:46 30 5.0 ug/Kg 1-Methylnaphthalene 7.21 12/15/20 11:55 12/16/20 14:46 ND 40 10 ug/Kg Benzo[b]fluoranthene 12/15/20 11:55 12/16/20 14:46 ND 60 14 ua/Ka Benzo[k]fluoranthene 12/15/20 11:55 12/16/20 14:46 200 ug/Kg bis(chloroisopropyl) ether ND 6.1

MB MB Dil Fac Analyzed %Recovery Qualifier Limits Prepared Surrogate 12/15/20 11:55 12/16/20 14:46 88 47 - 119 2-Fluorophenol (Surr) 1 12/15/20 11:55 12/16/20 14:46 84 59 - 120 Phenol-d5 (Surr) 12/16/20 14:46 12/15/20 11:55 97 54 - 120 Nitrobenzene-d5 (Surr) 12/15/20 11:55 12/16/20 14:46 106 57 - 120 2-Fluorobiphenyl 12/15/20 11:55 12/16/20 14:46 52 - 115 53 2,4,6-Tribromophenol (Surr) 12/15/20 11:55 12/16/20 14:46 73 - 125 Terphenyl-d14 (Surr) 115

Lab Sample ID: LCS 580-345599/2-A

**Matrix: Solid** 

Analysis Batch: 345700

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Prep Batch: 345599 %Rec. LCS LCS Spike Qualifier Unit %Rec Limits Added Result **Analyte** 86 59 - 120 1000 858 ug/Kg Phenol 102 61 - 1201000 1020 ug/Kg Bis(2-chloroethyl)ether 89 66 - 120 1000 889 ug/Kg 2-Chlorophenol 88 57 - 120 1000 881 ug/Kg 1,3-Dichlorobenzene 85 57 - 120 1000 852 ug/Kg 1,4-Dichlorobenzene 97 10 - 134968 ug/Kg 1000 Benzyl alcohol 62 - 120 86 1000 856 ug/Kg 1,2-Dichlorobenzene 78 53 - 120 780 ug/Kg 1000 2-Methylphenol ug/Kg 81 54 - 1201000 807 3 & 4 Methylphenol 100 56 - 138 1000 995 ug/Kg N-Nitrosodi-n-propylamine 57 - 132 88 881 ug/Kg 1000 Hexachloroethane 1020 ug/Kg 102 57 - 128 1000 Nitrobenzene 101 61 - 128 1000 1010 ug/Kg Isophorone 99 49 - 123 993 ug/Kg 1000 2-Nitrophenol 75 31 - 129747 ug/Kg 2,4-Dimethylphenol 1000

Client: Cascade Analytical Inc

Project/Site: ANS Geo

1-Methylnaphthalene

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Job ID: 580-99593-1

Lab Sample ID: LCS 580-345599/2-A

Client Sample ID: Lab Control Sample

Matrix: Solid

Prep Type: Total/NA

Matrix: Solid Analysis Batch: 345700	Spike	LCS	LCS		-	Prep Type: Total/NA Prep Batch: 345599 %Rec.
Analyte	Added	Result	Qualifier	Unit	D %Rec	Limits
Benzoic acid	2000	ND		ug/Kg		10 - 120
Bis(2-chloroethoxy)methane	1000	975		ug/Kg	97	60 - 120
2,4-Dichlorophenol	1000	933		ug/Kg	93	63 - 120
1,2,4-Trichlorobenzene	1000	977		ug/Kg	98	66 - 120
Naphthalene	1000	954		ug/Kg	95	68 - 120
4-Chloroaniline	1000	ND	*_	ug/Kg	7	10 - 120
Hexachlorobutadiene	1000	924		ug/Kg	g2	64 - 130
4-Chloro-3-methylphenol	1000	1170		ug/Kg	117	55 - 120
2-Methylnaphthalene	1000	945		ug/Kg	95	70 - 120
Hexachlorocyclopentadiene	1000	618		ug/Kg	62	53 <sub>-</sub> 131
2,4,6-Trichlorophenol	1000	989		ug/Kg	99	37 - 120
2,4,5-Trichlorophenol	1000	781		ug/Kg	78	41 - 120
2-Chloronaphthalene	1000	1100	Silini here	ug/Kg	110	65 - 120
2-Nitroaniline	1000	1080		ug/Kg	108	54 - 126
Dimethyl phthalate	1000	1070		ug/Kg	107	71 - 120
Acenaphthylene	1000	1080	000000	ug/Kg	108	63 - 120
2,6-Dinitrotoluene	1000	1060		ug/Kg	106	70 - 126
3-Nitroaniline	1000	465		ug/Kg	47	34 - 120
	1000	1110		ug/Kg	111	64 - 120
Acenaphthene	2000	ND	*_	ug/Kg	7	10 - 139
2,4-Dinitrophenol	2000	1780		ug/Kg ug/Kg	89	10 - 140
4-Nitrophenol	1000	1110	11 2001		111	68 - 120
Dibenzofuran				ug/Kg	104	63 - 120
2,4-Dinitrotoluene	1000	1040		ug/Kg ug/Kg		66 - 135
Diethyl phthalate	1000	1060			106	
4-Chlorophenyl phenyl ether	1000	1100		ug/Kg	110	70 - 120
Fluorene	1000	1060		ug/Kg	106	68 - 121
4-Nitroaniline	1000	1030		ug/Kg	103	36-141
4,6-Dinitro-2-methylphenol	2000	835	J	ug/Kg	42	13 - 141
N-Nitrosodiphenylamine	1000	961		ug/Kg	96	67 - 128
4-Bromophenyl phenyl ether	1000	1010		ug/Kg	101	65 - 127
Hexachlorobenzene	1000	905		ug/Kg	91	65 - 126
Pentachlorophenol	2000	854		ug/Kg	43	10 - 120
Phenanthrene	1000	922		ug/Kg	92	68 - 126
Anthracene	1000	944		ug/Kg	94	67 - 131
Di-n-butyl phthalate	1000	980		ug/Kg	98	66 - 150
Fluoranthene	1000	976		ug/Kg	98	69 - 133
Pyrene	1000	968		ug/Kg	97	68 - 141
Butyl benzyl phthalate	1000	997		ug/Kg	100	58 - 150
3,3'-Dichlorobenzidine	2000	1460		ug/Kg	73	49 - 148
Benzo[a]anthracene	1000	977		ug/Kg	98	60 - 135
Chrysene	1000	1010		ug/Kg	101	69 - 127
Bis(2-ethylhexyl) phthalate	1000	997		ug/Kg	100	45 - 150
Di-n-octyl phthalate	1000	1160		ug/Kg	116	53 - 150
Benzo[a]pyrene	1000	952		ug/Kg	95	62 - 129
Indeno[1,2,3-cd]pyrene	1000	525		ug/Kg	52	52 - 146
Dibenz(a,h)anthracene	1000	629		ug/Kg	63	59 - 139
Benzo[g,h,i]perylene	1000	488	*_	ug/Kg	49	64 - 146
Carbazole	1000	1130		ug/Kg	113	43 - 150
The second secon	1000	000		ug/Kg	00	ed 120

Eurofins TestAmerica, Seattle

69-120

98

982

ug/Kg

1000

109 109

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

# Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-345599/2-A

Matrix: Solid

Analysis Batch: 345700

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Prep Batch: 345599 %Rec.

Spike	LUU	LUU				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Added	Result	Qualifier	Unit	D	%Rec	Limits
1000	1070		ug/Kg		107	58 - 136
1000	1090		ug/Kg		109	68 - 123
1000			ug/Kg		124	55 - 120
	1000 1000	Added Result 1000 1070 1000 1090	Added         Result         Qualifier           1000         1070           1000         1090	Added         Result 1000         Qualifier 1070         Unit ug/Kg           1000         1090         ug/Kg	Added         Result         Qualifier         Unit         D           1000         1070         ug/Kg	Added         Result         Qualifier         Unit         D         %Rec           1000         1070         ug/Kg         107           1000         1090         ug/Kg         109

Snika

LCS LCS %Recovery Qualifier Limits Surrogate 91 47 - 119 2-Fluorophenol (Surr) Phenol-d5 (Surr) 89 59 - 120 105 54 - 120 Nitrobenzene-d5 (Surr) 57 - 120 104 2-Fluorobiphenyl 82 52 - 115 2,4,6-Tribromophenol (Surr) 92 73-125 Terphenyl-d14 (Surr)

Lab Sample ID: 580-99593-4 MS

Matrix: Solid

Analysis Batch: 345700

Client Sample ID: 20-C025783 Prep Type: Total/NA

Prep Batch: 345599

Analysis Batch: 345700	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Phenol	ND		1050	917		ug/Kg	₩	88	59 - 120
Bis(2-chloroethyl)ether	ND		1050	1090		ug/Kg	≎	104	61 - 120
2-Chlorophenol	ND		1050	1010		ug/Kg	₩	96	66 - 120
1,3-Dichlorobenzene	ND		1050	946		ug/Kg	≎	90	57 - 120
1,4-Dichlorobenzene	ND		1050	952		ug/Kg	☼	91	57 - 120
Benzyl alcohol	ND		1050	1080		ug/Kg	₩	104	10 - 134
1,2-Dichlorobenzene	ND		1050	964		ug/Kg	₩	92	62 - 120
2-Methylphenol	ND		1050	882		ug/Kg	₽	84	53 - 120
3 & 4 Methylphenol	ND		1050	863		ug/Kg	₽	83	54 - 120
N-Nitrosodi-n-propylamine	ND		1050	1190		ug/Kg	₽	114	56 - 138
Hexachloroethane	ND		1050	938		ug/Kg	₽	90	57 - 132
Nitrobenzene	ND		1050	1130		ug/Kg	₽	108	57 - 128
Isophorone	ND		1050	1110		ug/Kg	₩	106	61 - 128
2-Nitrophenol	ND		1050	1020		ug/Kg	₩	98	49 - 123
2,4-Dimethylphenol	ND	F2 F1	1050	889		ug/Kg	₩	85	31 - 129
Benzoic acid	ND	F1	2090	ND	F1	ug/Kg	₩	0	10 - 120
Bis(2-chloroethoxy)methane	ND		1050	1060		ug/Kg	₩	101	60 - 120
2.4-Dichlorophenol	ND	F2	1050	1040		ug/Kg	₩	99	63 - 120
1,2,4-Trichlorobenzene	ND		1050	1040		ug/Kg	₩	99	66 - 120
Naphthalene	ND		1050	985		ug/Kg	₩	94	68 - 120
4-Chloroaniline	ND	F1 *-	1050	ND	F1	ug/Kg	₩	0	10-120
Hexachlorobutadiene	ND	STEEL ST. MARK	1050	994	r	ug/Kg	⋫	95	64 - 130
4-Chloro-3-methylphenol	ND	F2	1050	1230		ug/Kg	₩	118	55-120
2-Methylnaphthalene	ND		1050	1050		ug/Kg	≎	100	70 - 120
Hexachlorocyclopentadiene	ND	F1	1050	437	F1	ug/Kg	₽	42	53 - 131
2,4,6-Trichlorophenol	ND	F2	1050	1080		ug/Kg	⋫	104	37 - 120
2,4,5-Trichlorophenol	ND	F2	1050	870		ug/Kg	≎	83	41 - 120
2-Chloronaphthalene	ND		1050	1120		ug/Kg	≎	107	65 - 120
2-Nitroaniline	ND	F2	1050	1110		ug/Kg	≎	106	54 <b>-</b> 126
Dimethyl phthalate	ND	F2	1050	1060		ug/Kg	₩	101	71 - 120
Acenaphthylene	ND	F2	1050	1090	HINIEL	ug/Kg	₩	104	63 - 120

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

# Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-99593- Matrix: Solid Analysis Batch: 345700	4 MS						C	lient Sa	ample ID: 20-C025783 Prep Type: Total/NA Prep Batch: 345599
•	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
2,6-Dinitrotoluene	ND	F2	1050	1100		ug/Kg	<u></u>	105	70 - 126
3-Nitroaniline	ND	F2	1050	600		ug/Kg	₩	57	34 - 120
Acenaphthene	ND	F2	1050	1110		ug/Kg	₩	106	64 - 120
2,4-Dinitrophenol	ND	F1 *-	2090	ND	F1	ug/Kg	₩	0	10 - 139
4-Nitrophenol	ND		2090	1870	J	ug/Kg	₩	90	10 - 140
Dibenzofuran	ND	F2	1050	1110		ug/Kg	₩	106	68 - 120
2,4-Dinitrotoluene	ND		1050	1040		ug/Kg	⋫	100	63 - 120
Diethyl phthalate	ND		1050	1080		ug/Kg	₩	103	66 - 135
4-Chlorophenyl phenyl ether	ND	F2	1050	1120		ug/Kg	₩	107	70 - 120
Fluorene	ND	F2	1050	1070		ug/Kg	₩	103	68 - 121
4-Nitroaniline	ND	F2	1050	978		ug/Kg	ቝ	94	36 - 141
4,6-Dinitro-2-methylphenol	ND	F2	2090	292	J	ug/Kg	₩	14	13 - 141
N-Nitrosodiphenylamine	ND	F2 F1	1050	1070		ug/Kg	₩	102	67 - 128
4-Bromophenyl phenyl ether	ND		1050	1130		ug/Kg	₩	108	65 - 127
Hexachlorobenzene	ND	H1. 10 . 4222   2	1050	1060	127 122 131	ug/Kg	₽	101	65 - 126
Pentachlorophenol	ND		2090	1410		ug/Kg	₩	67	10 - 120
Phenanthrene	ND		1050	1060		ug/Kg	₩	101	68 - 126
Anthracene	ND		1050	1070	(1) = (1)	ug/Kg	\$	102	67 - 131
Di-n-butyl phthalate	ND		1050	1160		ug/Kg	₩	111	66 - 150
Fluoranthene	ND	F2	1050	1140		ug/Kg	☆	109	69 - 133
Pyrene	ND		1050	1130		ug/Kg	₩.	108	68 - 141
Butyl benzyl phthalate	ND		1050	1010		ug/Kg	₩	97	58 - 150
3,3'-Dichlorobenzidine	ND	F1	2090	1510		ug/Kg	ቝ	72	49 - 148
Benzo[a]anthracene	ND		1050	988		ug/Kg	₩	94	60 - 135
Chrysene	ND		1050	982		ug/Kg	₩	94	69 - 127
Bis(2-ethylhexyl) phthalate	ND		1050	1030		ug/Kg	₩	98	45 - 150
Di-n-octyl phthalate	ND		1050	1370		ug/Kg	₩	131	53 - 150
Benzo[a]pyrene	ND		1050	1090		ug/Kg	₩	104	62 - 129
Indeno[1,2,3-cd]pyrene	ND		1050	673		ug/Kg	₩	64	52 - 146
Dibenz(a,h)anthracene	ND		1050	706		ug/Kg	₩	67	59 - 139
Benzo[g,h,i]perylene	ND	F1 *-	1050	559	F1	ug/Kg	₩	53	64 - 146
Carbazole	ND		1050	1260		ug/Kg	₩	120	43 - 150
1-Methylnaphthalene	ND		1050	1070		ug/Kg	₩	102	69 - 120
Benzo[b]fluoranthene	ND		1050	1270		ug/Kg	₩	121	58 - 136 ·
Benzo[k]fluoranthene	ND		1050	1160		ug/Kg	₩	110	68 - 123
bis(chloroisopropyl) ether	ND	F1 *+	1050	1600	F1	ug/Kg	₩	153	55 - 120

MS	MS

Surrogate	%Recovery	Qualifier	Limits
2-Fluorophenol (Surr)	99		47 - 119
Phenol-d5 (Surr)	99		59 - 120
Nitrobenzene-d5 (Surr)	118		54 - 120
2-Fluorobiphenyl	110		57 - 120
2,4,6-Tribromophenol (Surr)	103		52 <sub>-</sub> 115
Terphenyl-d14 (Surr)	113		73 - 125

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-99593-4 MSD

Matrix: Solid

Prep Type: Total/NA

Prep Retable 245599

Prep Batch: 345599 Analysis Batch: 345700 %Rec. **RPD** MSD MSD Sample Sample Spike %Rec Limits RPD Limit Qualifier Unit n Qualifier Added Result Analyte Result 59-120 12 30 78 817 ug/Kg Ö ND 1050 Phenol 30 1080 61 - 120 1 ug/Kg ₩ 103 ND 1050 Bis(2-chloroethyl)ether 11 32 86 66 - 120 ND 1050 904 ug/Kg ⋫ 2-Chlorophenol 29 87 57 - 120 4 1050 906 ug/Kg ₩ ND 1.3-Dichlorobenzene 6 35 57 - 120 86 ND 1050 897 ug/Kg 77 1,4-Dichlorobenzene 40 93 10-134 10 ND 1050 977 J ug/Kg ₩ Benzyl alcohol 30 85 62-120 9 885 ug/Kg ለት 1050 1,2-Dichlorobenzene ND 37 40 ₩ 58 53 - 1201050 608 ug/Kg ND 2-Methylphenol 63 54 \_ 120 27 36 659 ug/Kg ₽ 1050 3 & 4 Methylphenol ND 6 35 107 56 - 138 1120 ug/Kg ø ND 1050 N-Nitrosodi-n-propylamine 34 91 57 - 132 1 947 ₩ 1050 ug/Kg ND Hexachloroethane 106 57 - 128 2 33 1050 1110 ug/Kg Ö ND Nitrobenzene 6 31 1050 1050 ua/Ka ŭ 100 61 - 128Isophorone ND 15 30 84 49 - 123 ug/Kg ťΥ ND 1050 882 2-Nitrophenol 40 193 JF2F1 129 ₩ 18 31 - 129ND F2 F1 1050 ug/Kg 2,4-Dimethylphenol NC 40 ND F1 ug/Kg ₩ 0 10 - 120ND F1 2090 Benzoic acid 6 33 95 60 \_ 120 996 ug/Kg ₽ ND 1050 Bis(2-chloroethoxy)methane ug/Kg 78 63 - 12024 19 ŭ 1050 817 F2 ND F2 2,4-Dichlorophenol 12 18 88 66 - 120 ND 1050 918 ug/Kg 74 1,2,4-Trichlorobenzene 9 15 86 68 - 120 1050 900 ug/Kg ά ND Naphthalene 40 0 10 - 120NC ۲۲. F1 \*-1050 ND ug/Kg ND 4-Chloroaniline 19 ₽ 81 64 - 130 16 1050 850 ug/Kg ND Hexachlorobutadiene 86 55 - 12031 25 Ö ND F2 1050 898 F2 ug/Kg 4-Chloro-3-methylphenol 70 - 120 15 21 86 ND 1050 899 ug/Kg ⋫ 2-Methylnaphthalene 6 21 466 F1 ug/Kg ₩ 45 53 - 1311050 Hexachlorocyclopentadiene ND F1 20 81 37 - 12024 849 F2 ug/Kg Ö ND F2 1050 2,4,6-Trichlorophenol 23 59 41 - 120 34 1050 F2 ₩ F2 617 ug/Kg ND 2.4.5-Trichlorophenol 20 65 - 120 21 87 1050 911 ug/Kg Ö ND 2-Chloronaphthalene 27 16 1050 848 F2 ug/Kg ₩ 81 54 - 126 F2 ND 2-Nitroaniline 23 21 ⋫ 80 71 - 120839 F2 F2 1050 ug/Kg Dimethyl phthalate ND 26 18 ₩ 81 63 - 1201050 844 F2 ug/Kg ND F2 Acenaphthylene 21 18 85 70 - 126F2 ₽ ND F2 1050 891 ug/Kg 2.6-Dinitrotoluene 25 44 382 F2 ug/Kg ₩ 37 34 - 120ND F2 1050 3-Nitroaniline F2 ø 87 64 - 12020 19 905 ug/Kg ND F2 1050 Acenaphthene 10 - 139 NC 40 F1 n ND F1 \*-2090 ND ug/Kg Ö 2,4-Dinitrophenol 31 73 10 - 140 20 2090 1530 .1 ug/Kg Ü 4-Nitrophenol ND 68 - 120 20 18 ά 87 1050 905 F2 ug/Kg ND F2 Dibenzofuran 23 79 63 - 12023 1050 826 ug/Kg Ċ ND 2.4-Dinitrotoluene 83 66 - 135 22 22 865 ug/Kg ₽ 1050 Diethyl phthalate ND 25 21 ₩ 83 70 - 120ND F2 1050 871 F2 ug/Kg 4-Chlorophenyl phenyl ether 23 17 82 68 - 121854 F2 ug/Kg ₿ Fluorene ND F2 1050 23 45 616 F2 ₽ 59 36 - 141ND F2 1050 ug/Kg 4-Nitroaniline 40 ₩ 23 13 - 141 48 2090 477 JF2 ug/Kg ND F2 4,6-Dinitro-2-methylphenol 132 30 21 67 - 128 218 F2 F1 ug/Kg ₽ ND F2 F1 1050 N-Nitrosodiphenylamine 32 888 ug/Kg ₩ 85 65 - 127 24 1050 ND 4-Bromophenyl phenyl ether 32 82 65 - 12621 24 1050 853 ug/Kg ND Hexachlorobenzene 40 52 10 - 120 26 2090 1080 ug/Kg ₩ ND Pentachlorophenol 27 83 68 - 126 20 866 ₩ Phenanthrene ND 1050 ug/Kg

Client: Cascade Analytical Inc

Project/Site: ANS Geo

2,4,6-Tribromophenol (Surr)

Terphenyl-d14 (Surr)

Job ID: 580-99593-1

## Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-9959 Matrix: Solid Analysis Batch: 345700	3-4 MSD						C	lient S	ample ID: Prep Ty Prep Ba	pe: Tot	al/NA
Allalysis Balcii. 373100	Sample	Sample	Spike	MSD	MSD				%Rec.	atom. o-	RPD
Analyte	•	Qualifier	Added		Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Anthracene	ND		1050	863		ug/Kg	— <del>~</del>	83	67 - 131	21	28
Di-n-butyl phthalate	ND		1050	935		ug/Kg	ø	89	66 - 150	21	26
Fluoranthene	ND	F2	1050	896	F2	ug/Kg	⇔	86	69 - 133	24	21
Pyrene	ND	v	1050	913		ug/Kg	₽	87	68 - 141	21	24
Butyl benzyl phthalate	ND		1050	996		ug/Kg	≎	95	58 - 150	1	27
3,3'-Dichlorobenzidine	ND	F1	2090	ND	F1	ug/Kg	₩	0	49 - 148	NC	40
Benzo[a]anthracene	ND		1050	953		ug/Kg	≎	91	60 - 135	4	21
Chrysene	ND		1050	969		ug/Kg	≎	93	69 - 127	1	27
Bis(2-ethylhexyl) phthalate	ND		1050	1000		ug/Kg	≎	96	45 - 150	3	25
Di-n-octyl phthalate	ND		1050	1340		ug/Kg	₿	128	53 - 150	3	18
Benzo[a]pyrene	ND		1050	939		ug/Kg	¢	90	62 - 129	14	27
Indeno[1,2,3-cd]pyrene	ND		1050	588		ug/Kg	₩	56	52 - 146	13	30
Dibenz(a,h)anthracene	ND	***********	1050	662		ug/Kg	≎	63	59 - 139	6	29
Benzo[g,h,i]perylene	ND	F1 *-	1050	493	F1	ug/Kg	₩	47	64 - 146	13	26
Carbazole	ND		1050	1010		ug/Kg	≎	97	43 - 150	22	24
1-Methylnaphthalene	ND		1050	938		ug/Kg	⇔	90	69 - 120	13	24
Benzo[b]fluoranthene	ND		1050	1160		ug/Kg	≎	111	58 - 136	9	25
Benzo[k]fluoranthene	ND		1050	1190		ug/Kg	≎	113	68 - 123	3	18
bis(chloroisopropyl) ether	ND	F1 *+	1050	1450	F1	ug/Kg	₩	138	55 - 120	10	33
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
2-Fluorophenol (Surr)	85		47 - 119								
Phenol-d5 (Surr)	84		59 - 120								
Nitrobenzene-d5 (Surr)	97		54 - 120								

#### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC)

67

Lab Sample ID: MB 580-345	5217/1-A						Client Samp	le ID: Method	Blank
Matrix: Solid								Prep Type: To	tal/NA
Analysis Batch: 345300								Prep Batch:	345217
-	МВ	МВ							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	<b>Analyzed</b>	Dil Fac
Gasoline	ND		5.0	2.3	mg/Kg		12/10/20 09:15	12/10/20 10:03	1
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		50 - 150				12/10/20 09:15	12/10/20 10:03	1

52 - 115

73 - 125

	Lab Sample ID: LCS 580-345217/2-A				Clier	nt Sai	mple ID	: Lab Control Sample
1	Matrix: Solid							Prep Type: Total/NA
	Analysis Batch: 345300							Prep Batch: 345217
1	-	Spike	LCS	LCS				%Rec.
	Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
	Gasoline	40.0	37.3		mg/Kg		93	80 - 120

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

#### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: LCS 580-345217/2-A

Lab Sample ID: LCSD 580-345217/3-A

Matrix: Solid

Matrix: Solid

Analysis Batch: 345300

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 345217

LCS LCS

Surrogate 4-Bromofluorobenzene (Surr) %Recovery Qualifier 96

Limits 50 - 150

Client Sample ID: Lab Control Sample Dup

91

Prep Type: Total/NA

80 - 120

Prep Batch: 345217

3

Analysis Batch: 345300

Spike Added

40.0

LCSD LCSD Result Qualifier

36.4

Unit D %Rec

mg/Kg

%Rec. Limits RPD

RPD Limit

10

Analyte Gasoline

Surrogate

LCSD LCSD %Recovery Qualifier 98

Limits

4-Bromofluorobenzene (Surr)

50 - 150

#### Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-346049/1-A

Matrix: Solid

Analysis Batch: 346129

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 346049

мв мв

**Analyte** #2 Diesel (C10-C24) Motor Oil (>C24-C36)

Result Qualifier ND

RL MDL Unit 50 12 mg/Kg 50 18 mg/Kg

LCS LCS

LCSD LCSD

486

479

Result Qualifier

Analyzed Prepared 12/21/20 08:35 12/21/20 19:54 12/21/20 08:35 12/21/20 19:54

Dil Fac 1

Dil Fac

MR MR

ND

Surrogate

Analyte

**Analyte** 

Surrogate

o-Terphenyl

o-Terphenyl

Qualifier Limits %Recovery 50 - 150 101

12/21/20 08:35 12/21/20 19:54

Prepared

Lab Sample ID: LCS 580-346049/2-A

Matrix: Solid

Analysis Batch: 346129

Client Sample ID: Lab Control Sample

D %Rec

D %Rec

97

96

D

Prep Type: Total/NA Prep Batch: 346049

Analyzed

%Rec.

Limits

#2 Diesel (C10-C24) Motor Oil (>C24-C36)

Result Qualifier Unit 70 - 125 458 mg/Kg 92 89 70 - 129 445 mg/Kg

LCS LCS

Surrogate o-Terphenyl 83

%Recovery Qualifier

Limits 50 - 150

Spike

Added

500

500

Lab Sample ID: LCSD 580-346049/3-A

**Matrix: Solid** 

#2 Diesel (C10-C24)

Analysis Batch: 346129

Client Sample ID: Lab Control Sample Dup

Unit

mg/Kg

mg/Kg

Prep Type: Total/NA

Prep Batch: 346049

%Rec. **RPD** 

Limits **RPD** Limit 70 - 125 6 16

16

Motor Oil (>C24-C36)

LCSD LCSD

%Recovery Qualifier 93

Limits 50 - 150

Spike

Added

500

500

Eurofins TestAmerica, Seattle

70 - 129

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

#### Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC) (Continued)

Spike

Added

1420

1420

5920

Lab Sample ID: 580-99765-A-1-E MS

Matrix: Solid

#2 Diesel (C10-C24)

Motor Oil (>C24-C36)

Analyte

Analysis Batch: 346129

Client Sample ID: Matrix Spike

70 - 129

Prep Type: Total/NA Prep Batch: 346049

MS	MS				%Rec.	
Result	Qualifier	Unit	D	%Rec	Limits	
3180	F1	mg/Kg	☼	50	70 - 125	

25

84

mg/Kg

MS MS

Sample Sample

2500 F1

4700 F1

Result Qualifier

%Recovery Qualifier Surrogate I imits o-Terphenyl 78 50 - 150

Lab Sample ID: 580-99765-A-1-F MSD

Matrix: Solid

Analysis Batch: 346129

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

**Prep Batch: 346049** 

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
#2 Diesel (C10-C24)	2500	F1	1430	3400	F1	mg/Kg	— <del>~</del>	65	70 - 125	7	16
Motor Oil (>C24-C36)	4700	F1	1430	6650	F1	mg/Kg	₩	135	70 - 129	12	16

MSD MSD

ND

%Recovery Qualifier Surrogate Limits 50 - 150 o-Terphenyl 85

Lab Sample ID: 580-99593-1 DU

Matrix: Solid

A 1. 1 D / 1 040400

Client Sample ID: 20-C025780

Prep Type: Total/NA

Analysis Batch: 346129								Prep Bat	icn: 34	16049
	Sample	Sample		DU	DU					RPD
Analyte	Result	Qualifier		Result	Qualifier	Unit	D		RPD	Limit
#2 Diesel (C10-C24)	ND			ND		mg/Kg	<b>☆</b>		NC	35
Motor Oil (>C24-C36)	29	J		36.3	J	mg/Kg	₽		21	35
	DU	DU								
Surrogate	%Recovery	Qualifier	Limits							
o-Terphenyl	89		50 - 150							

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 580-345820/21-A

Matrix: Solid

Analysis Batch: 345924

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 345820

MB MB Analyte Result Qualifier RL **MDL** Unit **Prepared Analyzed Dil Fac** Lead ND 0.50 0.048 mg/Kg 12/17/20 12:22 12/18/20 12:04 10 Cadmium ND 0.80 0.077 mg/Kg 12/17/20 12:22 12/18/20 12:04 10 ND 10 Arsenic 0.50 0.10 mg/Kg 12/17/20 12:22 12/18/20 12:04

1.0

0.063 mg/Kg

Lab Sample ID: LCS 580-345820/22-A

Matrix: Solid

Chromium

Analysis Batch: 345924

Client Sample ID: Lab Control Sample

12/17/20 12:22 12/18/20 12:04

Prep Type: Total/NA

10

Prep Batch: 345820

Spike LCS LCS %Rec. Analyte Added Result Qualifier Limits Unit %Rec Lead 50.0 51.9 mg/Kg 104 80 - 120 Cadmium 50.0 50.8 mg/Kg 102 80 - 120 Arsenic 50.0 51.4 mg/Kg 103 80 - 120

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

Method: 6020B - Metals (ICP/MS) (Continued)	
Lab Sample ID: LCS 580-345820/22-A	Client Sample ID: Lab Control Sample
Matrix: Solid	Prep Type: Total/NA
Analysis Batch: 345924	Prep Batch: 345820

 Analyte
 Added Chromium
 Result Qualifier So.0
 Unit mg/Kg
 D MRec Limits No.120

Lab Sample ID: LCSD 580-345820/23-A Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA Matrix: Solid Prep Batch: 345820 Analysis Batch: 345924 **RPD** %Rec. Spike LCSD LCSD Limit Limits **RPD** Added Unit %Rec Result Qualifier Analyte 20 105 80 - 120 52.4 mg/Kg 50,0 Lead 20 mg/Kg 103 80 - 120 50.0 51.3 Cadmium 104 80 - 120 20 50.0 52.1 mg/Kg Arsenic 80 - 120 20 52.9 mg/Kg 106 50.0 Chromium

Lab Sample ID: 580-99593-1 MS

Matrix: Solid

Analysis Batch: 345924

Sample Sample Spike MS MS

Client Sample ID: 20-C025780
Prep Type: Total/NA
Prep Batch: 345820
%Rec.

Limits %Rec Result Qualifier Unit D Result Qualifier Added **Analyte** 80 - 120 120 39.4 56.2 mg/Kg ŭ 9.0 Lead 80 - 120 47.4 mg/Kg ₩ 120 39.4 Cadmium 0.11 109 80 - 120 6.2 39.4 49.2 mg/Kg ₽ Arsenic 107 80 - 12039 4 68.1 mg/Kg ₩ Chromium 26

Lab Sample ID: 580-99593-1 MSD

Matrix: Solid

Analysis Batch: 345924

Prep Batch: 345820

**RPD** MSD MSD %Rec. Sample Sample Spike Limit Limits RPD Result Qualifier Added Qualifier Unit D %Rec Result Analyte 20 mg/Kg ₩ 80 - 120 14 100 9.0 39.8 49.0 Lead 17 20 100 80 - 120 0.11 J 39.8 40.1 mg/Kg ď Cadmium 20 39.8 43.8 mg/Kg ☆ 95 80 - 120 12 6.2 Arsenic 20 91 80 - 120 62.2 mg/Kg Chromium 26 39.8

Lab Sample ID: 580-99593-1 DU

Matrix: Solid

Analysis Batch: 345924

Client Sample ID: 20-C025780

Prep Type: Total/NA

Prep Batch: 345820

RPD DU DU Sample Sample **RPD** Limit Unit D Result Qualifier Result Qualifier Analyte 20 77 8.90 mg/Kg Lead 9.0 20 5 0.111 J mg/Kg ф 0.11 J Cadmium 5 20 5.86 mg/Kg Arsenic 6.2 ₽ 20 24,3 mg/Kg ₽ 26 Chromium

Method: 7471A - Mercury (CVAA)

Mercury

Lab Sample ID: MB 580-345513/22-A

Client Sample ID: Method Blank

ND

Matrix: Solid
Analysis Batch: 345714

MB MB

Analyte

Result Qualifier

RL MDL Unit

D Prepared

Analyzed

Dil Fac

0.030

0.0090 mg/Kg

Eurofins TestAmerica, Seattle

12/15/20 11:53

12/14/20 13:46

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

Lab Sample ID: LCS 580-3	45513/23-A					Clien	ıt Saı	nple ID	: Lab Con		
Matrix: Solid									Prep Ty		
Analysis Batch: 345714			0-11-		1.00				Prep Ba	itcn: 34	45513
			Spike		LCS		_		%Rec.		
Analyte			Added		Qualifier	Unit	<u>D</u>	%Rec	Limits		
Mercury			0.167	0.170		mg/Kg		102	80 - 120		
Lab Sample ID: LCSD 580-	-345513/24-	Α			C	lient Sa	mple	ID: Lab	Control	Sample	e Dup
Matrix: Solid									Prep Ty	pe: Tot	al/NA
Analysis Batch: 345714									Prep Ba	itch: 3	45513
-			Spike	LCSD	LCSD				%Rec.		RPD
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	-		0.167	0.168		mg/Kg		101	80 - 120	1	20
Lab Sample ID: 580-99593	-1 MS						С	lient Sa	ample ID:	20-C0	25780
Matrix: Solid									Prep Ty		
Analysis Batch: 345714									Prep Ba		
, manyone Datem o 107 11	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	-	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Mercury	0.022		0.120	0.157		mg/Kg	<u></u>	113	80 - 120		
: Lab Sample ID: 580-99593	-1 MSD						C	lient S	ample ID:	20-C0	25780
Matrix: Solid	-1 11100								Prep Ty		
Analysis Batch: 345714									Prep Ba		
Allalysis Batch. 5457 14	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	-	Qualifier	Added		Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	0.022	- Country	0.122	0.167		mg/Kg		119	80 - 120	6	20
   ab Cample   D. 500 00502	1 DU						_	liont S	ample ID:	20-00	25780
Lab Sample ID: 580-99593	-ו טט							iletit O	Prep Ty		
Matrix: Solid									Prep Ba	-	
Analysis Batch: 345714	Sample	Sample		DU	DU				Lieb De	illoii. J	RPD
A b . 4 -	-	Qualifier			Qualifier	Unit	n			RPD	Limit
Analyte Mercury	0.022	Qualifier		0.0241	Qualifier	mg/Kg	_ D _			8	20
				0.0241		9/119					
/lethod: 2540G - SM 25	40G										
Lab Sample ID: 580-99605	-A-5 DU							Client	Sample II	D: Dup	licate
Matrix: Solid									Prep Ty	pe: Tot	tal/NA
Analysis Batch: 345181											
	Sample	Sample		DU	DU						RPD
		-									
Analyte	Result	Qualifier		Result	Qualifier	Unit	D			RPD	Limit
Analyte Percent Solids	Result 77.3	Qualifier		Result 77.4		Unit %	<u>D</u>			<b>RPD</b> 0.09	Limit 20

#### Lab Chronicle

Client: Cascade Analytical Inc

Date Received: 12/08/20 14:44

Job ID: 580-99593-1 Project/Site: ANS Geo

Client Sample ID: 20-C025782

Lab Sample ID: 580-99593-3 Date Collected: 12/07/20 10:10

Matrix: Solid

Batch Batch Dilution Batch Prepared Method Ргер Туре Type Run **Factor** Number or Analyzed Analyst Lab TAL SEA Total/NA Analysis 2540G 345181 12/09/20 15:39 S1S

Client Sample ID: 20-C025782

Lab Sample ID: 580-99593-3 Date Collected: 12/07/20 10:10

Matrix: Solid

Date Received: 12/08/20 14:44 Percent Solids: 94.8

5	Batch	Batch		Dilution	Batch	Prepared		
Ргер Туре	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			345397	12/08/20 15:00	ASJ	TAL SEA
Total/NA	Analysis	8260D		1	345537	12/11/20 22:54	CJB	TAL SEA
Total/NA	Prep	3546			345374	12/11/20 15:17	S1S	TAL SEA
Total/NA	Analysis	8270E		1	345574	12/15/20 19:25	W1T	TAL SEA
Total/NA	Prep	5035			345217	12/10/20 09:15	JSM	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	345300	12/10/20 13:19	CJ	TAL SEA
Total/NA	Prep	3546			346049	12/21/20 08:35	CCH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	346129	12/21/20 23:15	ADB	TAL SEA
Total/NA	Prep	3050B			345820	12/17/20 12:22	JCP	TAL SEA
Total/NA	Analysis	6020B		10	346045	12/18/20 15:58	FCW	TAL SEA
Total/NA	Prep	7471A			345513	12/14/20 13:46	JCP	TAL SEA
Total/NA	Analysis	7471A		1	345714	12/15/20 12:11	FCW	TAL SEA

Client Sample ID: 20-C025783

Lab Sample ID: 580-99593-4 Date Collected: 12/07/20 13:10

Matrix: Solid

Date Received: 12/08/20 14:44

	Batch	Batch		Dilution	Batch	Prepared			
Ргер Туре	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	2540G		1	345181	12/09/20 15:39	S1S	TAL SEA	

Client Sample ID: 20-C025783

Lab Sample ID: 580-99593-4 Date Collected: 12/07/20 13:10

Matrix: Solid

Date Received: 12/08/20 14:44 Percent Solids: 95.2

Ргер Туре	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			346011	12/08/20 15:30	CJB	TAL SEA
Total/NA	Analysis	8260D		1	346000	12/19/20 17:39	CJB	TAL SEA
Total/NA	Prep	3546			345599	12/15/20 11:55	S1\$	TAL SEA
Total/NA	Analysis	8270E		1	345700	12/16/20 16:40	W1T	TAL SEA
Total/NA	Prep	5035			345217	12/10/20 09:15	JSM	TAL SEA
Total/NA	Analysis	NWTPH-Gx		1	345300	12/10/20 13:43	CJ	TAL SEA
Total/NA	Prep	3546			346049	12/21/20 08:35	CCH	TAL SEA
Total/NA	Analysis	NWTPH-Dx		1	346129	12/21/20 23:35	ADB	TAL SEA
Total/NA	Prep	3050B			345820	12/17/20 12:22	JCP	TAL SEA
Total/NA	Analysis	6020B		10	346045	12/18/20 15:54	FCW	TAL SEA
Total/NA	Prep	7471A			345513	12/14/20 13:46	JCP	TAL SEA
Total/NA	Analysis	7471A		1	345714	12/15/20 12:13	FCW	TAL SEA

# **Lab Chronicle**

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Eurofins TestAmerica, Seattle

Job ID: 580-99593-1

# **Accreditation/Certification Summary**

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99593-1

## Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

uthority		ogram	Identification Number	Expiration Date			
Washington	Sta	ate	C553	02-18-21			
The following analytes	are included in this rend	ort but the laboratory is r	not certified by the governing authority.	This list may include analytes for which			
the agency does not o		in, but the laboratory to t	to continue by the governing dutienty.				
		Matrix	Analyte				
the agency does not o	offer certification.						

# **Sample Summary**

Client: Cascade Analytical Inc Project/Site: ANS Geo

Job ID: 580-99593-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
•	÷07	(			
0-99593-3	20-C025782	Solid	12/07/20 10:10	12/08/20 14:44	
80-99593-4	20-C025783	Solid	12/07/20 13:10	12/08/20 14:44	

#### Eurofins TestAmerica, Seattle

5755 8th Street East

# Chain of Custody Record Sample Origin: State of WA

🕸 eurofins 🗉

Environment Testing TestAmerica

Tacoma, WA 98424-1317 phone 253.922.2310 fax 253.922.5047	Regu	latory Pr	ogram:	∏ nw	□ NPDE	s (	RCR	Α.	<b>2</b> 0	than.					ToetA	morio	a 1 ak	ornio	ries, inc.	dibio E		Tassa	
		Aanager: A				1	NGN		CH C	BICI.					1000-	uniqui.	a Lai	JUI ALU	-	Project #:		I ESLAIR	siica
Client Contact	HOM THE RESERVE	drewschu			m	Site	Con	tact	: Sar	me	-	-	- In	ate: 1	2/7/20				COC			0.00	
Eurofins Cascade Analytical, Union Gap	Tel: 509-			Amme -	<del></del>	-	Con	_	_	-	-		-		: UPS		~		-	of		COCs	
1008 W Ahtanum Rd Ste 2	_	Analysis 1	Turnaroun	d Time		T	T		T	T	_	TT	Ť	1170		L	oc: (	202	1 Came	-			
Union Gap		DAR DAYS		ORKING DA	YS	11	1						-1			_	00.	280	l' Samp		00000 <b>1</b> 0000000		
(509) 452-7707 Phone	_	T if different f				2	Ē						- 1		1	9	<b>9</b> 5	93	Kerer	to note	below.		
(xxx) xxx-xxxx FAX	1 🗹		2 weeks		-	<b> </b> ≥ ;		1		- 1			- 1							n Client:	у.		
Project Name: ANS Geo	1 -		1 week			> ;	7					Н		1 1						mpling;	ł		
Site:	1 0		2 days			9 2				Ι,	φ			1 1					-	DG No.:		-	-
P O # 017005	7 0		1 day			Sample (Y/N)								11	3 -	70 ···			30073	DG NO			-
Sample Identification	Sample Date	Sample Time	Type (C=Comp, G=Grab)		# of Cont.	Filtered Sa	8260 D SIM	8270 C SIM	NWTPH-Dx	NWTPH-Gx	M CA-5									Sample S	Specific	Notes:	
											1		-				L					11100	
20-C025782	12/7/20	10:10	G	s	4		П		+	+	+		+	Н	+		$\vdash$	-	-		1000		_
	40/7/00	10.10		_	-	$\vdash$	×	x	××	×	+	$\vdash$	-	$\vdash$	-	$\vdash$	+						
20-C025783	12/7/20	13:10	G	8	4	Ш	х	x x	x x	×							1200						
					i i					Т				П						- College		910000	
***************************************	1			+		+	+	$\dashv$	+	+	+-	-	+	+		-	+	-	-				
				1	1														1				- 1
58	0-995 <b>9</b> 3 CI	hain of Cu	stody		-											Coo Pac Cus	ter D king: t. Se:	osc: al: Ves	Cor Styret	I	FedEx:_ UPS: Lab Co	G. N.J.	_
		i	í	1 1	3 7		П		Т							- Bin	e Ice	wer.	Dry, Non	is (	Other:_		-
<sup>1</sup> I attest to the validity and authenticity of this (these) sample(s). I am aware that Signature:	Date		illy mislabelin	ng the samp	ole(s) loca	tion, da	ate or I	ime o	f colle	ection	may b	e cons	idered	fraud a	nd subje	ct to leg	al actic	n (NAC	445.0636}				٦
Preservation Used: 1= ice; 2= HCl; 3= H2SO4; 4=HNO3; 5=	NaOH; 6=	Other	MINISTER ST										-63			77		M ER			SW/ATE		e v
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please I Comments Section if the lab is to dispose of the sample.	List any EP/	A Waste Co	odes for th	e sample	a in the	Sa	ample	Dis	pos	al ( /	A fee	may	be as	sess	ed if sa	amples	are	retain	ed longe	r than 1	month)		٦
☑ Non-Hazard ☐ Flammable ☐ Skin Imitant	Poison E	3	☐ Unkno	OWO		ユ	Re	turn t	o Clier	nt		<b>3</b>	Disposa	l by La	6		Archive	e for		Months			
Special Instructions/QC Requirements & Comments: Drinkin	ig water sa	mples for	complian	ce with	Oregon	Heal	th Au	thor	ity.	Plea	ase r	port	to Or	egon	state.							_	
Custody Seals Intact:	Custody Se	eal No.:	-		-	-	-	To	oole	r Te	mp. (	°C): C	)bs'd:			Corr'd:		_	Therm	ID No :			$\dashv$
Relinquished by: James King	Company:		e -U(1	Date/Ti	me:	Re	eceive	ed by		36	as	10		To	ompar	Y <sub>A</sub> -S	) Ja		Date/Tim		D .	1444	$\dashv$
Relinquished by	Company:			Date/Ti			ceive	_	-				)-	c	ompan	ıy:			Date/Tim			1171	$\dashv$
Relinquished by:	Company:			Date/Ti	me:	Re	celve	ed in	Labo	orato	ory by	:		C	ompan	ıy:			Date/Tim	10:		lline ()	

# **Login Sample Receipt Checklist**

Client: Cascade Analytical Inc

Job Number: 580-99593-1

List Source: Eurofins TestAmerica, Seattle

Login Number: 99593 List Number: 1

Creator: Hobbs, Kenneth F

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey</td <td>N/A</td> <td></td>	N/A	
neter.		
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
s the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <a href="fath-6">&lt;6mm (1/4").</a>	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

#### **Eurofins TestAmerica, Seattle**

5755 8th Street East

# Chain of Custody Record Sample Origin: State of WA

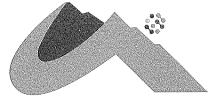
eurofins		*
Ç, Curotina	Environment Testing TestAmerica	•

Tacoma WA 98424-1317

phone 253.922.2310 fax 253.922.5047	Regul	atory Pro	gram: 🗆	DW [	NPDES		RCR	4	☑ Ot	her:				Te	estAn	neric	a Lab	orato	ories, l	Inc. d/b/a Eurofins TestAr	merica
	Project Ma	anager: Ar	ndy Schut														ΤA	LS Project #:			
Client Contact	Email: and	drewschut	@eurofins	us.com		Site	Con	tact:	: Sar	ne			Date	Date: 12/7/20 COC No:				OC No:			
Eurofins Cascade Analytical, Union Gap	Tel: 509-4	52-7707				Lab Contact: Car					Carrier: UPS of				of COCs						
1008 W Ahtanum Rd Ste 2	-	nalysis Tu	urnaround	Time		П	Т			T			ÎΤ	T	П	T			<sup>1</sup> S	ampler:	
Union Gap	☐ CALEND	AR DAYS	☑ WORI	KING DAY:	S	_	1			-1					1 1		1		1 R	lefer to note below.	
(509) 452-7707 Phone	TAT	if different fr	om Below			Z	1						1 1		1.1			1 1		r Lab Use Only:	
(xxx) xxx-xxxx FAX	✓	2	weeks	<u> </u>		2 >									1.1			1 1	Wa	alk-in Client:	
Project Name: ANS Geo		1	week			ءاحا							1 1		1 1			1 1	Lai	b Sampling:	
Site:		2	days			S S					2		1 1		1 1		1	1 1	Jol	b / SDG No.:	
P O # 017005		1	day					5	×	ا ج					11			11			
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered S.	8260 D SIM	8270 C SII	NWTPH-Dx	NWTPH-G	MICA-5 Metals									Sample Specific Notes:	5:
-					9 - 4						-										
20-C025782	12/7/20	10:10	G	s	4	П	x	×	x	x x					$\dagger \dagger$	+	+	H	+		$\neg$
	12/7/20	13:10	G	s	4	$\sqcap$			$\Box$			$\neg$	$\top$	$\neg$	$\dagger \lnot \dagger$		$\top$	$\vdash$	$\neg$		
20-C025783	121120	.0		Ů		$\parallel$	X	X	X :	x x											
						Ц															
						Ц												Ш			
						Ш															
						Ш															
$^{1}$ I attest to the validity end euthenticity of this (these) sample(s). I am aware that Signature:	tampering wit	h or intention	ally mislabeling	g the sam	ple(s) loca	ation, o	date o	r time	of co	llectio	n may b	e consi	dered fr	aud an	d subje	ct to le	gal ac	tion (NA	AC445.	0636)	
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=	NaOH; 6=	Other		LVIII.	U H							E R					et be				
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please Comments Section if the lab is to dispose of the sample.	List any EP	A Waste C	odes for th	e sampl	e in the	S	Samp	le D	lspc	sal	( A fee	may	be as	sesse	d if s	ampl	es ar	e reta	ained	longer than 1 month)	
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant	zard 🗆 Flammable 🗆 Skin Irritant 🗆 Polson B 🔲 Unknown 🗀 Ret									V	Disposa	by Lat	)	[	☐ Arct	live for		Months			
Special Instructions/QC Requirements & Comments: Drinkin			complian	ce with	Oregoi	n Hea	alth /	Auth	ority	ı. Pl	ease r	eport	to Ore	egon	state.						
Custody Seals Intact:   Yes   No	Custody S	eal No.:							Coc	oler 1	emp.	(°C): C	)bs'd:			Corr'	d:		T	hem ID No.:	
Relinquished by:	Company			Date/T	ime:	F	Recei	ved	by:					С	ompa	ny:			Da	ate/Time:	
Relinquished by:	Company			Date/T	ime:	F	Rece	ved	by:					С	Company:				Da	ate/Time:	
Relinquished by:	Company	:		Date/T	ime:	F	Rece	ved	in La	abora	atory b	у:		С	ompa	ny:			Da	ate/Time:	

# **TP-19**

# **ENVIRONMENTAL RESULTS**



CASCADE ANALYTICAL A EUROFINS COMPANY

1-800-545-4206

(509) 662-1888 Fax: (509) 662-8183 3019 G. S. Center Road Wenatchee, WA 98801

(509) 452-7707

Batch: 017069

Client: ANS Geo Inc

Method

Fax: (509) 452-7773 Account: 21800

Fax: (509) 452-77. 1008 W. Ahtanum Rd. Sampler: Union Gap, WA 98903 Number:

Services Report Analytical

Report Date: 12/31/20

ANS Geo Inc 4475 S Clinton Ave #225 South Plainfield, NJ

Laboratory Number: 20-C025910

Sample Identification: Ostrea Solar TP-19

Results

Date Received: 12/ 7/20 Date Sampled: 12/ 5/20

Date Analyzed

Test Requested Other Analysis

Analyzed by TAL/5

Units

15/31/50

Approved By Name:

Andy Schut Lab Manager/Yakima

Signature:

Function:

Eurofins-Cascade Analytical uses procedures established by EPA, ADAC, APHA, ASTM, and AWWA. Eurofins-Cascade Analytical makes no warranty of any kind. The client assumes all risk and liability from the use of these results. Results relate only to the items tested and the sample(s) as received by the laboratory. Eurofins-Cascade Analytical liability to the client as a result of use of the test results shall be limited to a sum equal to the fees paid by the client to Eurofins-Cascade Analytical for analysis. PLEASE REVIEW YOUR DATA IN A TIMELY MANNER. DATA GAPS OR ERRORS AFTER ONE MONTH WILL NOT BE OUR RESPONSIBILITY. THOUGH WE DO KEEP ALL ANALYTICAL DATA FOR SEVERAL YEARS, SAMPLES ARE DISPOSED OF AFTER SIX WEEKS.

Page:

1 of



# Environment Testing America

# ANALYTICAL REPORT

Eurofins TestAmerica, Seattle 5755 8th Street East Tacoma, WA 98424 Tel: (253)922-2310

Laboratory Job ID: 580-99649-1 Client Project/Site: ANS Geo

For:

Cascade Analytical Inc 1008 W. Ahtanum Rd. Union Gap, Washington 98903

Attn: Andy Schut

Authorized for release by: 12/31/2020 10:00:35 AM

Pauline Matlock, Project Manager (253)922-2310 pauline.matlock@eurofinset.com

..... Links ......

Review your project results through

Total Access

Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

#### **Case Narrative**

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99649-1

Job ID: 580-99649-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-99649-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 12/10/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.0° C.

#### GC/MS VOA

Method 8260D: Naphthalene was detected in the method blank greater than the method detection limit but less than the reporting limit. The data have been qualified and reported.

Method 8260D: The continuing calibration verification (CCV) associated with batch 580-345537 recovered above the upper control limit for Bromomethane, Chloroethane, Dichlorodifluoromethane, 1,1-Dichloroethene, Chloromethane and Vinyl chloride. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCVIS 580-345537/3).

Method 8260D: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-345397 and analytical batch 580-345537 recovered outside control limits for the following analytes: Dichlorodifluoromethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260D: Surrogate recovery for the following samples were outside control limits: 20-C025910 (580-99649-1), 20-C025911 (580-99649-2) and 20-C025912 (580-99649-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC/MS Semi VOA

Method 8270E: The method blank for preparation batch 580-345599 contained Naphthalene above the reporting limit (RL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed.

Method 8270E: The method blank for preparation batch 580-345599 and analytical batch 580-345700 contained 2-Methylnaphthalene, Phenanthrene, Anthracene and 1-Methylnaphthalene above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

Method 8270E: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-345700 was outside criteria for the following analyte(s): N-Nitrosodi-n-propylamine. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analyte(s) is considered estimated.

Method 8270E: The following analytes have been identified, in the reference method and/or via historical data, to be poor and/or erratic performers: 2,4-Dinitrophenol. This analyte may have a %D >50%. (CCVIS 580-3457001/3)

Method 8270E: The laboratory control sample and/or the laboratory control sample duplicate (LCS/LCSD) for preparation batch 580-345599 and analytical batch 580-346684 recovered outside control limits for the following analyte(s): 3,3'-Dichlorobenzidine has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed.

Method 8270E: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-345599 and analytical batch 580-346684 recovered outside control limits for the following analytes: Bis(chloroisopropyl)ether. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8270E: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-346684

### **Definitions/Glossary**

Client: Cascade Analytical Inc

Project/Site: ANS Geo

DL, RA, RE, IN

DLC

EDL LOD

LOQ

MCL MDA

MDC

MDL

MPN MQL

ML

NC

Job ID: 580-99649-1

#### Qualifiers GC/MS VOA Qualifier Qualifier Description \*+ LCS and/or LCSD is outside acceptance limits, high biased. В Compound was found in the blank and sample. Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. J Surrogate recovery exceeds control limits, low biased. S1-S1+ Surrogate recovery exceeds control limits, high biased. GC/MS Semi VOA Qualifier **Qualifier Description** LCS and/or LCSD is outside acceptance limits, low biased. LCS and/or LCSD is outside acceptance limits, high biased. MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not 4 applicable. F1 MS and/or MSD recovery exceeds control limits. MS/MSD RPD exceeds control limits F2 Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. J Surrogate recovery exceeds control limits, low biased. S1-S1+ Surrogate recovery exceeds control limits, high biased. GC VOA Qualifier **Qualifier Description** Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. GC Semi VOA Qualifier **Qualifier Description** F1 MS and/or MSD recovery exceeds control limits. Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. J Metals Qualifier **Qualifier Description** F1 MS and/or MSD recovery exceeds control limits. Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. Glossary These commonly used abbreviations may or may not be present in this report. **Abbreviation** Listed under the "D" column to designate that the result is reported on a dry weight basis Percent Recovery %R **CFL** Contains Free Liquid CFU Colony Forming Unit **CNF** Contains No Free Liquid Duplicate Error Ratio (normalized absolute difference) DER Dilution Factor Dil Fac DL Detection Limit (DoD/DOE)

Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

Decision Level Concentration (Radiochemistry)

EPA recommended "Maximum Contaminant Level"

Minimum Detectable Concentration (Radiochemistry)

Minimum Detectable Activity (Radiochemistry)

Estimated Detection Limit (Dioxin)

Limit of Detection (DoD/DOE)
Limit of Quantitation (DoD/DOE)

Method Detection Limit

Minimum Level (Dioxin)

Most Probable Number

Not Calculated

Method Quantitation Limit

Eurofins TestAmerica, Seattle

### Client Sample Results

Client: Cascade Analytical Inc

Date Collected: 12/09/20 15:00

Date Received: 12/10/20 10:00

Client Sample ID: 20-C025910

Project/Site: ANS Geo

Lab Sample ID: 580-99649-1

Matrix: Solid

Job ID: 580-99649-1

Percent Solids: 95.7

#### Method: 8260D - Volatile Organic Compounds by GC/MS Dil Fac RL MDL Unit D Prepared Analyzed Result Qualifier Ţ.F 2.2 12/10/20 11:00 12/11/20 23:47 ND 0.54 ug/Kg Dichlorodifluoromethane ND 5.5 1.0 ug/Kg 12/10/20 11:00 12/11/20 23:47 Chloromethane 12/11/20 23:47 12/10/20 11:00 Vinyl chloride ND 2.2 0.33 ug/Kg 12/10/20 11:00 12/11/20 23:47 ND 1.1 0.23 ug/Kg Bromomethane 12/10/20 11:00 12/11/20 23:47 Chloroethane ND 11 0.82 ug/Kg 12/10/20 11:00 12/11/20 23:47 1 ND 2.2 0.33 ug/Kg Trichlorofluoromethane 12/11/20 23:47 5.5 12/10/20 11:00 ND 1.2 ug/Kg 1.1-Dichloroethene 12/10/20 11:00 12/11/20 23:47 ND 44 11 ug/Kg Methylene Chloride ug/Kg 12/10/20 11:00 12/11/20 23:47 2.2 trans-1,2-Dichloroethene ND 0.440.21 ug/Kg 12/10/20 11:00 12/11/20 23:47 ND 1.1 1,1-Dichloroethane 12/10/20 11:00 12/11/20 23:47 1 ND 5.5 0.36 ug/Kg 2,2-Dichloropropane 3.3 0.66 ug/Kg 12/10/20 11:00 12/11/20 23:47 ND cis-1,2-Dichloroethene 2.2 12/10/20 11:00 12/11/20 23:47 ND 0.27 ug/Kg Bromochloromethane 2.2 0.33 ug/Kg 12/10/20 11:00 12/11/20 23:47 ND Chloroform 2.2 0.33 ug/Kg 12/10/20 11:00 12/11/20 23:47 ND 1.1.1-Trichloroethane 12/11/20 23:47 12/10/20 11:00 ND 2.2 0.33 ug/Kg Carbon tetrachloride 12/11/20 23:47 2.2 0.33 ug/Kg 12/10/20 11:00 NΠ 1,1-Dichloropropene 12/11/20 23:47 ND 2.2 0.43 ug/Kg 12/10/20 11:00 Benzene 12/10/20 11:00 12/11/20 23:47 ND 1.1 0.22 ug/Kg 1,2-Dichloroethane 12/10/20 11:00 12/11/20 23:47 ND 2.2 0.33 ug/Kg Trichloroethene ND 2.2 0.44 ug/Kg 12/10/20 11:00 12/11/20 23:47 1,2-Dichloropropane 1.1 12/10/20 11:00 12/11/20 23:47 0.19 ug/Kg ND Dibromomethane 12/10/20 11:00 12/11/20 23:47 ND 1.1 0.20 ug/Kg Bromodichloromethane ug/Kg 12/10/20 11:00 12/11/20 23:47 ND 1 1 0.22cis-1,3-Dichloropropene 12/10/20 11:00 12/11/20 23:47 ND 11 1.4 ug/Kg Toluene 12/10/20 11:00 12/11/20 23:47 11 ug/Kg trans-1,3-Dichloropropene ND 0.66 ND 2.2 0.27 ug/Kg 12/10/20 11:00 12/11/20 23:47 1,1,2-Trichloroethane ND 2.2 0.44 ug/Kg 12/10/20 11:00 12/11/20 23:47 Tetrachloroethene 12/10/20 11:00 12/11/20 23:47 2.2 0.25 ug/Kg ND 1,3-Dichloropropane ND 1.6 0.30 ug/Kg 12/10/20 11:00 12/11/20 23:47 Dibromochloromethane 12/11/20 23:47 12/10/20 11:00 1.2-Dibromoethane ND 1.1 0.22 ug/Kg 12/11/20 23:47 ND 2.2 0.27 ug/Kg 12/10/20 11:00 Chlorobenzene 12/10/20 11:00 12/11/20 23:47 2.2 0.45 Ethylbenzene ND ug/Kg 12/10/20 11:00 12/11/20 23:47 ND 3.3 0.65 ug/Kg 1,1,1,2-Tetrachloroethane 4.4 0.99 ug/Kg 12/10/20 11:00 12/11/20 23:47 ND 1,1,2,2-Tetrachloroethane ug/Kg 12/10/20 11:00 12/11/20 23:47 ND 11 0.61 m-Xylene & p-Xylene 12/10/20 11:00 12/11/20 23:47 5.5 ug/Kg ø ND 1.0 o-Xylene 3.3 0.81 ug/Kg 12/10/20 11:00 12/11/20 23:47 ND Styrene 5.5 ug/Kg 12/10/20 11:00 12/11/20 23:47 ND 0.92Bromoform ND 2.2 0.50 ug/Kg 12/10/20 11:00 12/11/20 23:47 Isopropylbenzene 11 12/10/20 11:00 12/11/20 23:47 ND 1.1 ug/Kg Bromobenzene ND 5.5 0.83 ug/Kg 12/10/20 11:00 12/11/20 23:47 N-Propylbenzene ND 5.5 ug/Kg 12/10/20 11:00 12/11/20 23:47 1.1 1,2,3-Trichloropropane 12/10/20 11:00 12/11/20 23:47 ND 5.5 1.0 ug/Kg 2-Chlorotoluene 12/10/20 11:00 12/11/20 23:47 ND 5.5 0.89 ug/Kg 1,3,5-Trimethylbenzene 12/10/20 11:00 12/11/20 23:47 ND 5.5 1.1 ug/Kg 4-Chlorotoluene 12/10/20 11:00 12/11/20 23:47 ND 3.3 0.72 ug/Kg t-Butylbenzene 12/11/20 23:47 5.5 12/10/20 11:00 1,2,4-Trimethylbenzene ND 1.3 ug/Kg sec-Butylbenzene ND 3.3 0.73 ug/Kg 12/10/20 11:00 12/11/20 23:47

Eurofins TestAmerica, Seattle

### Client Sample Results

Client: Cascade Analytical Inc

Date Received: 12/10/20 10:00

Project/Site: ANS Geo

Lab Sample ID: 580-99649-1

Matrix: Solid
Percent Solids: 95.7

Job ID: 580-99649-1

Client Sample ID: 20-C025910 Date Collected: 12/09/20 15:00

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued) Result Qualifier MDL Unit Prepared Analyzed Dil Fac Analyte 12/15/20 11:55 12/16/20 15:31 ND 26 5.2 ug/Kg Acenaphthylene ND 160 ug/Kg 12/15/20 11:55 12/16/20 15:31 2.6-Dinitrotoluene 16 ND 310 12/15/20 11:55 12/16/20 15:31 1 3-Nitroaniline 100 ug/Kg ND 42 ug/Kg 12/15/20 11:55 12/16/20 15:31 1 Acenaphthene ND 2100 12/15/20 11:55 12/16/20 15:31 1 610 ug/Kg 2,4-Dinitrophenol 12/16/20 15:31 ND 2100 180 ug/Kg 12/15/20 11:55 4-Nitrophenol ND 160 ug/Kg 12/15/20 11:55 12/16/20 15:31 Dibenzofuran 6.1 12/15/20 11:55 12/16/20 15:31 1 2,4-Dinitrotoluene ND 210 ug/Kg ND 420 23 ug/Kg 12/15/20 11:55 12/16/20 15:31 Diethyl phthalate 12/16/20 15:31 4-Chlorophenyl phenyl ether ND 210 6.5 ug/Kg 12/15/20 11:55 ND 26 5.2 ug/Kg 12/15/20 11:55 12/16/20 15:31 Fluorene 12/16/20 15:31 ND 160 52 ug/Kg 12/15/20 11:55 1 4-Nitroaniline 1000 12/15/20 11:55 12/16/20 15:31 4,6-Dinitro-2-methylphenol ND 100 ug/Kg 62 12/15/20 11:55 12/16/20 15:31 ND 8.3 ug/Kg 1 N-Nitrosodiphenylamine ND 210 ug/Kg 12/15/20 11:55 12/16/20 15:31 4-Bromophenyl phenyl ether 9.4 ND 52 16 ug/Kg 12/15/20 11:55 12/16/20 15:31 Hexachlorobenzene Pentachlorophenol ND 420 ug/Kg 12/15/20 11:55 12/16/20 15:31 ug/Kg ND 62 6.0 12/15/20 11:55 12/16/20 15:31 Phenanthrene 12/16/20 15:31 ND 62 17 ug/Kg 12/15/20 11:55 Anthracene ND 520 28 ug/Kg 12/15/20 11:55 12/16/20 15:31 Di-n-butyl phthalate 42 12/15/20 11:55 Fluoranthene ND 12 ug/Kg 12/16/20 15:31 ND 62 13 ug/Kg 12/15/20 11:55 12/16/20 15:31 Pyrene 210 12/15/20 11:55 12/16/20 15:31 Butyl benzyl phthalate ND 53 ug/Kg 420 12/16/20 15:31 3,3'-Dichlorobenzidine ND 87 ug/Kg 12/15/20 11:55 ND 42 11 12/15/20 11:55 12/16/20 15:31 Benzo[a]anthracene ug/Kg 62 12/15/20 11:55 12/16/20 15:31 ND 13 ug/Kg Chrysene ND 620 12/15/20 11:55 12/16/20 15:31 Bis(2-ethylhexyl) phthalate 74 ug/Kg ND 160 12/15/20 11:55 12/16/20 15:31 Di-n-octyl phthalate 12 ug/Kg 62 ND ug/Kg 12/15/20 11:55 12/16/20 15:31 Benzo[a]pyrene 13 ND 42 12 ug/Kg 12/15/20 11:55 12/16/20 15:31 Indeno[1,2,3-cd]pyrene ND 52 ug/Kg 12/15/20 11:55 12/16/20 15:31 Dibenz(a,h)anthracene 12 ND 62 19 ug/Kg 12/15/20 11:55 12/16/20 15:31 Benzo[g,h,i]perylene ND 160 ug/Kg 12/15/20 11:55 12/16/20 15:31 7.6 Carbazole 12/15/20 11:55 12/16/20 15:31 1-Methylnaphthalene ND 31 ug/Kg ND 42 ug/Kg 12/15/20 11:55 12/16/20 15:31 Benzo[b]fluoranthene 10 12/15/20 11:55 12/16/20 15:31 62 Benzo[k]fluoranthene ND 15 ug/Kg 苡 bis(chloroisopropyl) ether ND 210 6.3 ug/Kg 12/15/20 11:55 12/16/20 15:31

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	77		47 - 119	12/15/20 11:55	12/16/20 15:31	1
Phenol-d5 (Surr)	78		59 - 120	12/15/20 11:55	12/16/20 15:31	1
Nitrobenzene-d5 (Surr)	91		54 - 120	12/15/20 11:55	12/16/20 15:31	1
2-Fluorobiphenyl	86		57 - 120	12/15/20 11:55	12/16/20 15:31	1
2,4,6-Tribromophenol (Surr)	47	S1-	52 - 115	12/15/20 11:55	12/16/20 15:31	1
Terphenyl-d14 (Surr)	90		73 - 125	12/15/20 11:55	12/16/20 15:31	1

Method: NWTPH-Dx - Nort	hwest - Semi-Volatile Petro	leum Prodi	ucts (GC)				
Analyte	Result Qualifier	RL	MDL Uni	: D	Prepared	Analyzed	Dil Fac
#2 Diesel (C10-C24)	ND ND	51	13 mg/	Kg ⇔	12/21/20 08:35	12/21/20 23:55	1
Motor Oil (>C24-C36)	36 J	51	18 mg/	Kg ⇔	12/21/20 08:35	12/21/20 23:55	1

Eurofins TestAmerica, Seattle

Page 9 of 47

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99649-1

# Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-345397/1-A

Matrix: Solid

Analysis Ratch: 345537

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 345397

Analysis Batch: 345537	MD MD						Prep Batch:	345397
Analyte	MB MB Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND ND	2.0		ug/Kg		12/11/20 16:40	12/11/20 20:46	
Chloromethane	ND	5.0		ug/Kg		12/11/20 16:40	12/11/20 20:46	
Vinyl chloride	ND	2.0		ug/Kg		12/11/20 16:40	12/11/20 20:46	
Bromomethane	ND	1.0		ug/Kg		12/11/20 16:40	12/11/20 20:46	
Chloroethane	ND	10		ug/Kg		12/11/20 16:40	12/11/20 20:46	
Trichlorofluoromethane	ND	2.0		ug/Kg		12/11/20 16:40	12/11/20 20:46	
1,1-Dichloroethene	ND	5.0		ug/Kg		12/11/20 16:40	12/11/20 20:46	
Methylene Chloride	ND	40		ug/Kg		12/11/20 16:40	12/11/20 20:46	
trans-1,2-Dichloroethene	ND	2.0		ug/Kg		12/11/20 16:40	12/11/20 20:46	
1,1-Dichloroethane	ND	1.0		ug/Kg		12/11/20 16:40	12/11/20 20:46	
2,2-Dichloropropane	ND	5.0		ug/Kg		12/11/20 16:40		
cis-1,2-Dichloroethene	ND	3.0		ug/Kg			12/11/20 20:46	
Bromochloromethane	ND	2.0		ug/Kg		12/11/20 16:40	12/11/20 20:46	
Chloroform	ND	2.0		ug/Kg		12/11/20 16:40		
1,1,1-Trichloroethane	ND	2.0		ug/Kg			12/11/20 20:46	
Carbon tetrachloride	ND	2.0		ug/Kg			12/11/20 20:46	
1,1-Dichloropropene	ND	2.0		ug/Kg		12/11/20 16:40		
Benzene	ND	2.0		ug/Kg		12/11/20 16:40		
1,2-Dichloroethane	ND	1.0		ug/Kg		12/11/20 16:40		
Trichloroethene	ND	2.0		ug/Kg		12/11/20 16:40		
1,2-Dichloropropane	ND	2.0		ug/Kg		12/11/20 16:40		
Dibromomethane	ND	1.0		ug/Kg		12/11/20 16:40		
	ND ND	1.0		ug/Kg		12/11/20 16:40		
Bromodichloromethane	ND ND	1.0		ug/Kg		12/11/20 16:40		
cis-1,3-Dichloropropene	ND	10		ug/Kg ug/Kg		12/11/20 16:40		
Toluene	ND	10		ug/Kg ug/Kg		12/11/20 16:40		
trans-1,3-Dichloropropene	ND ND	2.0		ug/Kg ug/Kg		12/11/20 16:40		
1,1,2-Trichloroethane	ND ND	2.0		ug/Kg			12/11/20 20:46	
Tetrachloroethene	ND ND	2.0		ug/Kg ug/Kg		12/11/20 16:40		
1,3-Dichloropropane		1.5				12/11/20 16:40		
Dibromochloromethane	ND ND			ug/Kg		12/11/20 16:40		
1,2-Dibromoethane	ND	1.0		ug/Kg ug/Kg		12/11/20 16:40		
Chlorobenzene	ND	2.0				12/11/20 16:40		
Ethylbenzene	ND	2.0		ug/Kg		12/11/20 16:40		
1,1,1,2-Tetrachloroethane	ND	3.0 4.0		ug/Kg ug/Kg			12/11/20 20:46	
1,1,2,2-Tetrachloroethane	ND						12/11/20 20:46	
m-Xylene & p-Xylene	ND	10		ug/Kg				
o-Xylene	ND	5.0		ug/Kg			12/11/20 20:46	
Styrene	ND	3.0		ug/Kg		12/11/20 16:40		
Bromoform	ND	5.0		ug/Kg		12/11/20 16:40		
Isopropylbenzene	ND	2.0		ug/Kg			12/11/20 20:46	
Bromobenzene	ND	10		ug/Kg		12/11/20 16:40		
N-Propylbenzene	ND ND	5.0	and the second second	ug/Kg		12/11/20 16:40		
1,2,3-Trichloropropane	ND	5.0		ug/Kg		12/11/20 16:40		
2-Chlorotoluene	ND	5.0		ug/Kg		12/11/20 16:40		
1,3,5-Trimethylbenzene	ND	5.0		ug/Kg		12/11/20 16:40		
4-Chlorotoluene	ND	5.0		ug/Kg		12/11/20 16:40		
t-Butylbenzene	ND	3.0		ug/Kg		12/11/20 16:40		
1,2,4-Trimethylbenzene	ND	5.0	1.2	ug/Kg		12/11/20 16:40	12/11/20 20:46	

Eurofins TestAmerica, Seattle

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99649-1

# Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-345397/2-A

Matrix: Solid

Analysis Batch: 345537

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Prep Batch: 345397

Analysis Batom 5 10001	Spike	LCS	LCS			%Rec.	
Analyte	Added	Result	Qualifier	Unit	D %Rec	Limits	
Toluene	20.0	18.2	Management of the Control of the Con	ug/Kg	91	75 - 137	
trans-1,3-Dichloropropene	20.0	18.3		ug/Kg	91	80 - 121	
1,1,2-Trichloroethane	20.0	20.1		ug/Kg	101	80 - 123	
Tetrachloroethene	20.0	17.3		ug/Kg	87	58 - 150	
1,3-Dichloropropane	20.0	19.3		ug/Kg	96	75 - 120	
Dibromochloromethane	20.0	18.8		ug/Kg	94	75 - 132	
1,2-Dibromoethane	20.0	20.6		ug/Kg	103	77 - 123	
Chlorobenzene	20.0	18.3		ug/Kg	91	80 - 131	
Ethylbenzene	20.0	19.6		ug/Kg	98	80 - 135	
1,1,1,2-Tetrachloroethane	20.0	18.4		ug/Kg	92	79 - 128	
1,1,2,2-Tetrachloroethane	20.0	19.3		ug/Kg	97	77 - 127	
m-Xylene & p-Xylene	20.0	17.1		ug/Kg	86	80 - 132	
o-Xylene	20.0	19.1		ug/Kg	95	80 - 132	
Styrene	20.0	18.4		ug/Kg	92	79 - 129	
Bromoform	20.0	19.0		ug/Kg	95	71 - 146	
Isopropylbenzene	20.0	18.9		ug/Kg	94	81 - 140	
Bromobenzene	20.0	19.2		ug/Kg	96	78 - 126	
N-Propylbenzene	20.0	17.8		ug/Kg	89	68 - 149	
1,2,3-Trichloropropane	20.0	19.7		ug/Kg	98	77 - 127	
2-Chlorotoluene	20.0	16.6		ug/Kg	83	77 - 134	
1,3,5-Trimethylbenzene	20.0	17.8		ug/Kg	89	72 - 142	
4-Chlorotoluene	20.0	16.8		ug/Kg	84	71 - 137	
t-Butylbenzene	20.0	17.4		ug/Kg	87	72 - 144	
1,2,4-Trimethylbenzene	20.0	17.8		ug/Kg	89	73 - 138	
sec-Butylbenzene	20.0	18.0		ug/Kg	90	71 - 143	
1,3-Dichlorobenzene	20.0	18.3		ug/Kg	91	78 - 132	
4-Isopropyltoluene	20.0	17.8		ug/Kg	89	71 - 142	
1,4-Dichlorobenzene	20.0	18.4		ug/Kg	92	77 - 123	
n-Butylbenzene	20.0	16.8		ug/Kg	84	69 - 143	
1,2-Dichlorobenzene	20.0	18.5		ug/Kg	93	78 - 126	
1,2-Dibromo-3-Chloropropane	20.0	20.1		ug/Kg	100	75 - 129	
1,2,4-Trichlorobenzene	20.0	20.0		ug/Kg	100	74 - 131	
1,2,3-Trichlorobenzene	20.0	19.5		ug/Kg	97	68 - 136	
Hexachlorobutadiene	20.0	18.6		ug/Kg	93	65 - 150	
Naphthalene	20.0	21.5		ug/Kg	107	64 - 136	
Methyl tert-butyl ether	20.0	24.0		ug/Kg	120	77 - 132	

LUS LUS	LCS	LCS
---------	-----	-----

Surrogate	%Recovery	Qualifier	Limits
Toluene-d8 (Surr)	93		80 - 120
4-Bromofluorobenzene (Surr)	104		80 - 120
Dibromofluoromethane (Surr)	104		80 - 120
1,2-Dichloroethane-d4 (Surr)	106		80 - 121

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99649-1

#### Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-345397/3-A

Matrix: Solid

Analysis Batch: 345537

Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA

Prep Batch: 345397

<b>,</b> -	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
sec-Butylbenzene	20.0	18.5		ug/Kg		93	71 - 143	3	40
1,3-Dichlorobenzene	20.0	19.2		ug/Kg		96	78 - 132	5	40
4-Isopropyitoluene	20.0	18.6		ug/Kg		93	71 - 142	5	40
1,4-Dichlorobenzene	20.0	19.3		ug/Kg		96	77 - 123	4	40
n-Butylbenzene	20.0	17.7		ug/Kg		88	69 - 143	6	40
1,2-Dichlorobenzene	20.0	19.4		ug/Kg		97	78 - 126	4	40
1,2-Dibromo-3-Chloropropane	20.0	19.0		ug/Kg		95	75 - 129	5	40
1,2,4-Trichlorobenzene	20.0	20.4		ug/Kg		102	74 - 131	2	40
1,2,3-Trichlorobenzene	20.0	19.3		ug/Kg		97	68 - 136	1	40
Hexachlorobutadiene	20.0	18.6		ug/Kg		93	65 - 150	0	36
Naphthalene	20.0	20.8		ug/Kg		104	64 - 136	3	40
Methyl tert-butyl ether	20.0	25.0		ug/Kg		125	77 - 132	4	25
Naphthalene	20.0	20.8		ug/Kg		104	64 - 136	3	

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
Toluene-d8 (Surr)	91		80 - 120
4-Bromofluorobenzene (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	104		80-120
1,2-Dichloroethane-d4 (Surr)	109		80 - 121

#### Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-345599/1-A

Matrix: Solid

Analysis Batch: 345700

Client Sample ID: Method Blank

Prep Type: Total/NA Prep Batch: 345599

MB MB Result Qualifier RL MDL Unit Prepared Analyzed Dil Fac Analyte 12/15/20 11:55 12/16/20 14:46 150 23 Phenol ND ug/Kg 100 12/15/20 11:55 12/16/20 14:46 Bis(2-chloroethyl)ether ND 7.7 ug/Kg 200 12/15/20 11:55 12/16/20 14:46 2-Chlorophenol ND 4.0 ug/Kg 12/15/20 11:55 12/16/20 14:46 ND 50 4.8 ug/Kg 1,3-Dichlorobenzene 12/15/20 11:55 12/16/20 14:46 1,4-Dichlorobenzene ND 50 8.3 ug/Kg ND 1000 50 ug/Kg 12/15/20 11:55 12/16/20 14:46 Benzyl alcohol ND 5.0 ug/Kg 12/15/20 11:55 12/16/20 14:46 50 1,2-Dichlorobenzene ND 150 9.8 ug/Kg 12/15/20 11:55 12/16/20 14:46 2-Methylphenol ND 200 12/15/20 11:55 12/16/20 14:46 15 ug/Kg 3 & 4 Methylphenol N-Nitrosodi-n-propylamine ND 200 22 ug/Kg 12/15/20 11:55 12/16/20 14:46 ND 150 4.3 ug/Kg 12/15/20 11:55 12/16/20 14:46 Hexachloroethane 12/15/20 11:55 12/16/20 14:46 Nitrobenzene ND 200 20 ug/Kg 12/15/20 11:55 12/16/20 14:46 ND 150 8.4 ug/Kg Isophorone 12/15/20 11:55 12/16/20 14:46 ND 200 ug/Kg 2-Nitrophenol 12/15/20 11:55 12/16/20 14:46 ND 200 60 ug/Kg 2,4-Dimethylphenol 12/15/20 11:55 12/16/20 14:46 4000 ND Benzoic acid 1200 ug/Kg 12/15/20 11:55 12/16/20 14:46 Bis(2-chloroethoxy)methane ND 200 18 ug/Kg ND 200 60 ug/Kg 12/15/20 11:55 12/16/20 14:46 2,4-Dichlorophenol ND 50 6.0 ug/Kg 12/15/20 11:55 12/16/20 14:46 1,2,4-Trichlorobenzene 34.8 25 5.0 ug/Kg 12/15/20 11:55 12/16/20 14:46 Naphthalene ND 1500 ug/Kg 12/15/20 11:55 12/16/20 14:46 4-Chloroaniline ND 50 12/15/20 11:55 12/16/20 14:46 15 ug/Kg Hexachlorobutadiene 12/15/20 11:55 12/16/20 14:46 ND 150 33 ug/Kg 4-Chloro-3-methylphenol

Eurofins TestAmerica, Seattle

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99649-1

#### Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-345599/1-A

Lab Sample ID: LCS 580-345599/2-A

Matrix: Solid

Matrix: Solid

Analysis Batch: 345700

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 345599

		MB	MB					
;	Surrogate	%Recovery	Qualifier	Limits	Prepar	red	Analyzed	Dil Fac
Ī	Nitrobenzene-d5 (Surr)	97		54 - 120	12/15/20	11:55	12/16/20 14:46	1
1 2	2-Fluorobiphenyl	106		57 - 120	12/15/20	11:55	12/16/20 14:46	1
2	2,4,6-Tribromophenol (Surr)	53		52 - 115	12/15/20	11:55	12/16/20 14:46	1
7	Terphenyl-d14 (Surr)	115		73 - 125	12/15/20	11:55	12/16/20 14:46	1

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analysis Batch: 346684	Spike	LCS	LCS				Prep Batch: 345599  **Rec.
Analyte	Added		Qualifier	Unit	D	%Rec	Limits
Phenol	1000	935		ug/Kg		94	59 - 120
Bis(2-chloroethyl)ether	1000	1180		ug/Kg		118	61 - 120
2-Chlorophenol	1000	985		ug/Kg		99	66 - 120
1,3-Dichlorobenzene	1000	1010		ug/Kg		101	57 - 120
1,4-Dichlorobenzene	1000	1010		ug/Kg		101	57 - 120
Benzyl alcohol	1000	417	J	ug/Kg		42	10 - 134
1,2-Dichlorobenzene	1000	1000		ug/Kg		100	62 - 120
2-Methylphenol	1000	800		ug/Kg		80	53 - 120
3 & 4 Methylphenol	1000	838		ug/Kg		84	54 - 120
N-Nitrosodi-n-propylamine	1000	1180		ug/Kg		118	56 - 138
Hexachloroethane	1000	1110		ug/Kg		111	57 - 132
Nitrobenzene	1000	1260		ug/Kg		126	57 - 128
Isophorone	1000	1200		ug/Kg		120	61 - 128
2-Nitrophenol	1000	996		ug/Kg		100	49 - 123
2,4-Dimethylphenol	1000	450		ug/Kg		45	31 - 129
Benzoic acid	2000	ND		ug/Kg		18	10 - 120
Bis(2-chloroethoxy)methane	1000	1180		ug/Kg		118	60 - 120
2,4-Dichlorophenol	1000	922		ug/Kg		92	63 - 120
1,2,4-Trichlorobenzene	1000	1060		ug/Kg		106	66 - 120
Naphthalene	1000	1030		ug/Kg		103	68 - 120
4-Chloroaniline	1000	136	j	ug/Kg		14	10 - 120
Hexachlorobutadiene	1000	1090		ug/Kg		109	64 - 130
4-Chloro-3-methylphenol	1000	727		ug/Kg		73	55 - 120
2-Methylnaphthalene	1000	1050		ug/Kg		105	70 - 120
Hexachlorocyclopentadiene	1000	889		ug/Kg		89	53 - 131
2,4,6-Trichlorophenol	1000	911		ug/Kg		91	37 - 120
2,4,5-Trichlorophenol	1000	645		ug/Kg		64	41 - 120
2-Chloronaphthalene	1000	1010		ug/Kg		101	65 - 120
2-Nitroaniline	1000	999		ug/Kg		100	54 - 126
Dimethyl phthalate	1000	1050		ug/Kg		105	71 - 120
Acenaphthylene	1000	1010		ug/Kg		101	63 - 120
2,6-Dinitrotoluene	1000	1080		ug/Kg		108	70 - 126
3-Nitroaniline	1000	425		ug/Kg		43	34 - 120
Acenaphthene	1000	1080		ug/Kg		108	64 - 120
2,4-Dinitrophenol	2000	1280		ug/Kg		64	10 - 139
4-Nitrophenol	2000	716	J	ug/Kg		36	10 - 140
Dibenzofuran	1000	1080		ug/Kg		108	68 - 120
2,4-Dinitrotoluene	1000	1050		ug/Kg		105	63 - 120

Eurofins TestAmerica, Seattle

12/31/2020 Page 25 of 47

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99649-1

# Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-99593-, Matrix: Solid	A-4-C MS						Cl	lient Sa	Prep Ty	Matrix Spike pe: Total/NA atch: 345599
Analysis Batch: 345700	Sample	Sample	Spike	MS	MS				%Rec.	atcn: 545593
Analyte	•	Qualifier	Added		Qualifier	Unit	D	%Rec	Limits	
Benzyl alcohol	ND		1050	1080		ug/Kg	ф	104	10 - 134	
1,2-Dichlorobenzene	ND		1050	964		ug/Kg	 Ω	92	62 - 120	
2-Methylphenol	ND		1050	882		ug/Kg	¢	84	53 - 120	
3 & 4 Methylphenol	ND		1050	863		ug/Kg	ø	83	54 - 120	
N-Nitrosodi-n-propylamine	ND		1050	1190		ug/Kg	ij.	114	56 - 138	
Hexachloroethane	ND		1050	938		ug/Kg	<b>‡</b>	90	57 - 132	
Nitrobenzene	ND		1050	1130		ug/Kg	<b>\$</b>	108	57 - 128	
Isophorone	ND		1050	1110		ug/Kg		106	61 - 128	
2-Nitrophenol	ND		1050	1020		ug/Kg	₩	98	49 - 123	
2,4-Dimethylphenol		F2 F1	1050	889		ug/Kg	#	85	31 - 129	
Benzoic acid	ND		2090	ND	F1	ug/Kg	 .☆	0	10 - 120	
Bis(2-chloroethoxy)methane	ND		1050	1060		ug/Kg	Þ	101	60 - 120	
2,4-Dichlorophenol		F2	1050	1040		ug/Kg	¤	99	63 - 120	
1,2,4-Trichlorobenzene	ND		1050	1040		ug/Kg		99	66 - 120	
Naphthalene	ND		1050	985		ug/Kg		94	68 - 120	
4-Chloroaniline		F1 *-	1050	ND	F1	ug/Kg ug/Kg	~	0	10 - 120	
Hexachlorobutadiene	ND		1050	994		ug/Kg	. ~~. ;¢:	95	64 - 130	
	ND	E.3	1050	1230		ug/Kg ug/Kg	Ď.	118	55 - 120	
4-Chloro-3-methylphenol	ND ND	FZ	1050	1050		ug/Kg ug/Kg	 Φ	100	70 - 120	
2-Methylnaphthalene		F1	1050	437		ug/Kg ug/Kg		42	53 - 131	
Hexachlorocyclopentadiene		F2	1050	1080	r i	ug/Kg ug/Kg	₩	104	37 - 120	
2,4,6-Trichlorophenol	ND			870		_	₩.			
2,4,5-Trichlorophenol	ND	F2	1050			ug/Kg		83	41 - 120	
2-Chloronaphthalene	ND	=-0	1050	1120		ug/Kg	₽.	107	65 - 120	
2-Nitroaniline		F2	1050	1110		ug/Kg	₩	106	54 - 126	
Dimethyl phthalate	ND	F2	1050	1060		ug/Kg		101	71 - 120	
Acenaphthylene	ND	F2	1050	1090		ug/Kg	₿	104	63 - 120	
2,6-Dinitrotoluene			1050	1100		ug/Kg	₩	105	70 - 126	
3-Nitroaniline	ND		1050	600		ug/Kg	<del></del> .	57	34 - 120	
Acenaphthene	ND		1050	1110		ug/Kg	₩	106	64 - 120	
2,4-Dinitrophenol		F1 *-	2090	ND		ug/Kg	₩	0	10 - 139	
4-Nitrophenol	ND		2090	1870	J	ug/Kg		90	10 - 140	
Dibenzofuran	ND	F2	1050	1110		ug/Kg	☆	106	68 - 120	
2,4-Dinitrotoluene	ND		1050	1040		ug/Kg	Ċ	100	63 - 120	
Diethyl phthalate	ND		1050	1080		ug/Kg	¤	103	66 - 135	
4-Chlorophenyl phenyl ether	ND	F2	1050	1120		ug/Kg	*	107	70 - 120	
Fluorene	ND	F2	1050	1070		ug/Kg	₩	103	68 - 121	
4-Nitroaniline	ND	F2	1050	978		ug/Kg	₩	94	36 - 141	
4,6-Dinitro-2-methylphenol	ND	F2	2090	292	J	ug/Kg	₩	14	13 - 141	
N-Nitrosodiphenylamine	ND	F2 F1	1050	1070		ug/Kg	₿	102	67 - 128	
4-Bromophenyl phenyl ether	ND		1050	1130		ug/Kg	☆	108	65 - 127	
Hexachlorobenzene	ND		1050	1060		ug/Kg	₿	101	65 - 126	
Pentachlorophenol	ND		2090	1410		ug/Kg	₩	67	10 - 120	
Phenanthrene	ND		1050	1060		ug/Kg	₩	101	68 - 126	
Anthracene	ND		1050	1070		ug/Kg		102	67 - 131	
Di-n-butyl phthalate	ND		1050	1160		ug/Kg	₩	111	66 - 150	
Fluoranthene	ND	F2	1050	1140		ug/Kg	₩	109	69 - 133	
Pyrene	ND		1050	1130		ug/Kg	ф	108	68 - 141	
Butyl benzyl phthalate	ND		1050	1010		ug/Kg	₽	97	58 - 150	
3,3'-Dichlorobenzidine	ND	<b>⊑1</b>	2090	1510		ug/Kg		72	49 - 148	

Page 27 of 47

Eurofins TestAmerica, Seattle

12/31/2020

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99649-1

### Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-99593-A-4-D MSD

Matrix: Solid

Client Sample ID:	Matrix Spike Duplicate
	Prep Type: Total/NA
	D D ( ) 0 ( ) 1 0 ( )

Analysis Batch: 345700	Sample	Sample	Spike	MSD	MSD				Prep ly Prep Ba %Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Hexachlorobutadiene	ND	**************************************	1050	850		ug/Kg	Ø.	81	64 - 130	16	19
4-Chloro-3-methylphenol	ND	F2	1050	898	F2	ug/Kg	φ.	86	55 - 120	31	25
2-Methylnaphthalene	ND		1050	899		ug/Kg	305	86	70 - 120	15	21
Hexachlorocyclopentadiene	ND	F1	1050	466	F1	ug/Kg	₹‡	45	53 - 131	6	21
2,4,6-Trichlorophenol	ND	F2	1050	849	F2	ug/Kg	贷	81	37 - 120	24	20
2,4,5-Trichlorophenol	ND	F2	1050	617	F2	ug/Kg	₩	59	41 - 120	34	23
2-Chloronaphthalene	ND		1050	911		ug/Kg	Q	87	65 - 120	20	21
2-Nitroaniline	ND	F2	1050	848	F2	ug/Kg	₽	81	54 - 126	27	16
Dimethyl phthalate	ND	F2	1050	839	F2	ug/Kg	₩	80	71 - 120	23	21
Acenaphthylene	ND	F2	1050	844	F2	ug/Kg	Ď.	81	63 - 120	26	18
2,6-Dinitrotoluene	ND	F2	1050	891	F2	ug/Kg	₩	85	70 - 126	21	18
3-Nitroaniline	ND	F2	1050	382	F2	ug/Kg	贷	37	34 - 120	44	25
Acenaphthene	ND	F2	1050	905	F2	ug/Kg	☆	87	64 - 120	20	19
2,4-Dinitrophenol	ND	F1 *-	2090	ND	F1	ug/Kg	₩	0	10 - 139	NC	40
4-Nitrophenol	ND		2090	1530	J	ug/Kg	₩	73	10 - 140	20	31
Dibenzofuran	ND	F2	1050	905	F2	ug/Kg	₽	87	68 - 120	20	18
2,4-Dinitrotoluene	ND		1050	826		ug/Kg	¢	79	63 - 120	23	23
Diethyl phthalate	ND		1050	865		ug/Kg	¢	83	66 - 135	22	22
4-Chlorophenyl phenyl ether	ND	F2	1050	871	F2	ug/Kg	₽	83	70 - 120	25	21
Fluorene	ND	F2	1050	854	F2	ug/Kg	₩	82	68 - 121	23	17
4-Nitroaniline	ND	F2	1050	616	F2	ug/Kg	₩	59	36 - 141	45	23
4,6-Dinitro-2-methylphenol	ND	F2	2090	477	JF2	ug/Kg	₽	23	13 - 141	48	40
N-Nitrosodiphenylamine	ND	F2 F1	1050	218	F2 F1	ug/Kg	₩	21	67 - 128	132	30
4-Bromophenyl phenyl ether	ND		1050	888		ug/Kg	₩	85	65 - 127	24	32
Hexachlorobenzene	ND		1050	853		ug/Kg	₩	82	65 - 126	21	32
Pentachlorophenol	ND		2090	1080		ug/Kg	₩	52	10 - 120	26	40
Phenanthrene	ND		1050	866		ug/Kg	₩	83	68 - 126	20	27
Anthracene	ND		1050	863		ug/Kg	₽	83	67 - 131	21	28
Di-n-butyl phthalate	ND		1050	935		ug/Kg	₽	89	66 ~ 150	21	26
Fluoranthene	ND	F2	1050	896	F2	ug/Kg	Ф	86	69 - 133	24	21
Pyrene	ND		1050	913		ug/Kg		87	68 - 141	21	24
Butyl benzyl phthalate	ND		1050	996		ug/Kg	¢	95	58 - 150	1	27
3,3'-Dichlorobenzidine	ND	F1	2090	ND	F1	ug/Kg	¢	0	49 - 148	NC	40
Benzo[a]anthracene	ND		1050	953		ug/Kg	₩	91	60 - 135	4	21
Chrysene	ND		1050	969		ug/Kg	₩	93	69 - 127	1	27
Bis(2-ethylhexyl) phthalate	ND		1050	1000		ug/Kg	₩	96	45 - 150	3	25
Di-n-octyl phthalate	ND		1050	1340		ug/Kg	:: ::::::::::::::::::::::::::::::::::	128	53 - 150	3	18
Benzo[a]pyrene	ND		1050	939		ug/Kg	₩	90	62 - 129	14	27
Indeno[1,2,3-cd]pyrene	ND		1050	588		ug/Kg	₩	56	52 - 146	13	30
Dibenz(a,h)anthracene	ND		1050	662		ug/Kg		63	59 - 139	6	29
Benzo[g,h,i]perylene		F1 *-	1050	493	F1	ug/Kg	₩	47	64 - 146	13	26
Carbazole	ND		1050	1010		ug/Kg		97	43 - 150	22	24
1-Methylnaphthalene	ND		1050	938		ug/Kg		90	69 - 120	13	24
Benzo[b]fluoranthene	ND		1050	1160		ug/Kg	₽	111	58 - 136	9	25
				1190							18
Benzo[k]fluoranthene	ND		1050	1190		ug/Kg	☆	113	68 - 123	3	10

Client: Cascade Analytical Inc Project/Site: ANS Geo Job ID: 580-99649-1

#### Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-346259/1-A Matrix: Solid

Analysis Batch: 346294

MD N

Client Sample ID: Method Blank Prep Type: Total/NA

Prep Batch: 346259

Amaryolo Batom o 1020 i	МВ	MR							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenzofuran	ND		150	5.9	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
2,4-Dinitrotoluene	ND		200	43	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Diethyl phthalate	ND		400	22	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
4-Chlorophenyl phenyl ether	ND		200	6.3	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Fluorene	ND		25	5.0	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
4-Nitroaniline	ND		1 <i>5</i> 0	50	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
4,6-Dinitro-2-methylphenol	ND		1000	100	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
N-Nitrosodiphenylamine	ND		60	8.0	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
4-Bromophenyl phenyl ether	ND		200	9.1	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Hexachlorobenzene	ND		50	15	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Pentachlorophenol	ND		400	63	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Phenanthrene	ND		60	5.8	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Anthracene	ND		60	16	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Di-n-butyl phthalate	ND		500	27	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Fluoranthene	ND		40	12	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Pyrene	ND		60	13	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Butyl benzyl phthalate	ND		200	51	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
3,3'-Dichlorobenzidine	ND		400	84	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Benzo[a]anthracene	ND		40	11	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Chrysene	ND		60	13	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Bis(2-ethylhexyl) phthalate	ND		600	71	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Di-n-octyl phthalate	ND		1 <i>5</i> 0	12	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Benzo[a]pyrene	ND		60	13	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Indeno[1,2,3-cd]pyrene	ND		40	12	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Dibenz(a,h)anthracene	ND		<i>5</i> 0	12	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Benzo[g,h,i]perylene	ND		60	18	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Carbazole	ND		1 <i>5</i> 0	7.3	ug/Kg		12/22/20 18:5 <i>5</i>	12/23/20 16:07	1
1-Methylnaphthalene	ND		30	5.0	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
Benzo[b]fluoranthene	ND		40	10	ug/Kg		12/22/20 18:5 <i>5</i>	12/23/20 16:07	1
Benzo[k]fluoranthene	ND		60	14	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
bis(chloroisopropyl) ether	ND		200	6.1	ug/Kg		12/22/20 18:55	12/23/20 16:07	1
	MB	MB							

MB MB %Recovery Qualifier **Prepared** Analyzed Dil Fac Surrogate Limits 12/22/20 18:55 12/23/20 16:07 2-Fluorophenol (Surr) 90 47 - 119 Phenol-d5 (Surr) 83 59 - 120 12/22/20 18:55 12/23/20 16:07 12/22/20 18:55 12/23/20 16:07 96 54 - 120 Nitrobenzene-d5 (Surr) 123 S1+ 57 - 120 12/22/20 18:55 12/23/20 16:07 2-Fluorobiphenyl 12/22/20 18:55 12/23/20 16:07 52 - 115 2,4,6-Tribromophenol (Surr) 63 12/22/20 18:55 12/23/20 16:07 Terphenyl-d14 (Surr) 123 73 - 125

Lab Sample ID: LCS 580-346259/2-A

Matrix: Solid

Analysis Batch: 346294

Client Sample II	D: Lab Control Sample
	Prep Type: Total/NA

Prep Batch: 346259

, that you batom o loze .								
-	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Phenol	1000	869		ug/Kg		87	59 - 120	
Bis(2-chloroethyl)ether	1000	1080		ug/Kg		108	61 - 120	
2-Chlorophenol	1000	986		ug/Kg		99	66 - 120	

Page 31 of 47

Eurofins TestAmerica, Seattle

12/31/2020

Client: Cascade Analytical Inc Project/Site: ANS Geo Job ID: 580-99649-1

#### Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-346259/2-A

Matrix: Solid

Analysis Batch: 346294

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Prep Batch: 346259

•	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Butyl benzyl phthalate	1000	939		ug/Kg		94	58 - 150	
3,3'-Dichlorobenzidine	2000	1200		ug/Kg		60	49 - 148	
Benzo[a]anthracene	1000	983		ug/Kg		98	60 - 135	
Chrysene	1000	1060		ug/Kg		106	69 - 127	
Bis(2-ethylhexyl) phthalate	1000	925		ug/Kg		92	45 - 150	
Di-n-octyl phthalate	1000	1010		ug/Kg		101	53 - 150	
Benzo[a]pyrene	1000	1070		ug/Kg		107	62-129	
Indeno[1,2,3-cd]pyrene	1000	890		ug/Kg		89	52 - 146	
Dibenz(a,h)anthracene	1000	1010		ug/Kg		101	59 - 139	
Benzo[g,h,i]perylene	1000	998		ug/Kg		100	64 - 146	
Carbazole	1000	1240		ug/Kg		124	43 - 150	
1-Methylnaphthalene	1000	1020		ug/Kg		102	69 - 120	
Benzo[b]fluoranthene	1000	1160		ug/Kg		116	58 - 136	
Benzo[k]fluoranthene	1000	1040		ug/Kg		104	68 - 123	
bis(chloroisopropyl) ether	1000	750		ug/Kg		75	55 - 120	

LCS LCS

ND F2

ND

Surrogate	%Recovery	Qualifier	Limits
2-Fluorophenol (Surr)	99		47 - 119
Phenol-d5 (Surr)	95		59 - 120
Nitrobenzene-d5 (Surr)	99		54 - 120
2-Fluorobiphenyl	107		57 - 120
2,4,6-Tribromophenol (Surr)	92		52 - 115
Terphenyl-d14 (Surr)	112		73 <sub>-</sub> 125

Lab Sample ID: 580-99649-2 MS

Matrix: Solid

2,4-Dichlorophenol

1,2,4-Trichlorobenzene

Analysis Batch: 346294

Client Sample ID: 20-C025911

Prep Type: Total/NA Prep Batch: 346259

%Rec. Sample Sample Spike MS MS Qualifier Added Result Qualifier Unit %Rec Limits Analyte Result ND 1140 954 中 84 59 - 120 ug/Kg Phenol Bis(2-chloroethyl)ether ND 1140 1300 ug/Kg ₽ 114 61 - 1202-Chlorophenol ND 1140 1040 J ug/Kg 뀹 91 66 - 120 1,3-Dichlorobenzene ND 1140 1150 ug/Kg 101 57 - 120 ND 1140 1120 98 57 - 120 ug/Kg 1,4-Dichlorobenzene 0 Benzyl alcohol ND 1140 ND F1 ug/Kg ₩ 10 - 134 ND 1140 1120 ug/Kg φ 98 62 - 1201,2-Dichlorobenzene 87 53 - 120 2-Methylphenol ND 1140 988 ug/Kg Ċ 76 54 - 120 3 & 4 Methylphenol ND 1140 865 J ug/Kg N-Nitrosodi-n-propylamine ND 1140 1190 ug/Kg 105 56 - 138 Hexachloroethane ND 1140 1140 ug/Kg 100 57 - 132 ND 1140 1230 108 57 - 128 ug/Kg Ü Nitrobenzene ND 1140 1190 ¢ 104 61 - 128 Isophorone ug/Kg 107 49 - 123 ND 1140 1220 ug/Kg ď 2-Nitrophenol 2.4-Dimethylphenol ND 1140 788 J ug/Kg 69 31 - 129 ND 2280 ND NC 10 - 120 Benzoic acid ug/Kg ₩ Bis(2-chloroethoxy)methane ND 1140 1120 ug/Kg ₩ 99 60 - 120

Eurofins TestAmerica, Seattle

63 - 120

66 - 120

96

112

1090 J

1270

ug/Kg

ug/Kg

1140

1140

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99649-1

### Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 580-99649-2 MS

Matrix: Solid

Analysis Batch: 346294

Client Sample ID: 20-C025911 Prep Type: Total/NA

**Prep Batch: 346259** 

MS MS

Surrogate	%Recovery	Qualifier	Limits
2-Fluorophenol (Surr)	87		47 - 119
Phenol-d5 (Surr)	87		59 - 120
Nitrobenzene-d5 (Surr)	102		54 - 120
2-Fluorobiphenyl	98		57 - 120
2,4,6-Tribromophenol (Surr)	72		52 - 115
Terphenyl-d14 (Surr)	101		73 - 125

Lab Sample ID: 580-99649-2 MSD Client Sample ID: 20-C025911

Matrix: Solid

Analysis Batch: 346294

Prep Type: Total/NA

Prep Batch: 346259

Analysis Batch: 346294	Comple	Sample	Spike	Men	MSD				%Rec.	aten: 34	46239 RPD
Analyte	•	Qualifier	Added		Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Phenol	ND		1110	893	Qualifier	ug/Kg	— <del>=</del>	81	59 - 120	7	30
Bis(2-chloroethyl)ether	ND		1110	1160		ug/Kg	*	105	61 - 120	11	. 30
2-Chlorophenol	ND		1110	1000	.1	ug/Kg	₩	90	66 - 120	4	32
1,3-Dichlorobenzene	ND		1110	1030		ug/Kg		93	57 - 120	11	29
1,4-Dichlorobenzene	ND		1110	992		ug/Kg	₩	90	57 - 120	12	35
Benzyl alcohol		F1	1110	ND	F1	ug/Kg	₩	0	10 - 134	NC	40
1,2-Dichlorobenzene	ND		1110	1040		ug/Kg	₽	94	62 - 120	7	30
2-Methylphenol	ND		1110	881		ug/Kg	Þ	80	53 - 120	11	40
3 & 4 Methylphenol	ND		1110	854	J	ug/Kg	Ϋ́	77	54 - 120	1	36
N-Nitrosodi-n-propylamine	ND		1110	987		ug/Kg	Þ	89	56 - 138	19	35
Hexachloroethane	ND		1110	1030		ug/Kg	₩	93	57 - 132	10	34
Nitrobenzene	ND		1110	1110		ug/Kg	₩	100	57 - 128	10	33
Isophorone	ND		1110	1080		ug/Kg		98	61 - 128	9	31
2-Nitrophenol	ND		1110	1070	J	ug/Kg	☆	97	49 - 123	13	30
2,4-Dimethylphenol	ND		1110	733	J	ug/Kg	₩	66	31 - 129	7	40
Benzoic acid	ND		2210	ND		ug/Kg		NC	10 - 120	NC	40
Bis(2-chloroethoxy)methane	ND		1110	1010	J	ug/Kg	Ü	92	60 - 120	10	33
2,4-Dichlorophenol	ND	F2	1110		JF2	ug/Kg	₩	72	63 - 120	32	19
1,2,4-Trichlorobenzene	ND		1110	1130		ug/Kg	₩	102	66 - 120	12	18
Naphthalene	ND		1110	1070		ug/Kg	₩	96	68 - 120	11	15
4-Chloroaniline	ND	F1 *-	1110	ND	F1	ug/Kg	₩	0	10 - 120	NC	40
Hexachlorobutadiene	ND		1110	1200		ug/Kg	₩.	108	64 - 130	10	19
4-Chloro-3-methylphenol	ND	F1 F2	1110	1260	F2	ug/Kg	₩	114	55 - 120	35	25
2-Methylnaphthalene	ND		1110	1050		ug/Kg	☆	95	70 - 120	12	21
Hexachlorocyclopentadiene	ND	F1 F2	1110	368	J F1 F2	ug/Kg	₩	33	53 - 131	29	21
2,4,6-Trichlorophenol	ND		1110	993		ug/Kg	₩	90	37 - 120	1	20
2,4,5-Trichlorophenol	ND		1110	1070	J	ug/Kg	₩	97	41 - 120	1	23
2-Chloronaphthalene	ND		1110	984		ug/Kg	<b>#</b>	89	65 - 120	15	21
2-Nitroaniline	ND		1110	1060		ug/Kg	贷	96	54 - 126	6	16
Dimethyl phthalate	ND		1110	916		ug/Kg	Þ	83	71 - 120	16	21
Acenaphthylene	ND		1110	1120		ug/Kg	₩	101	63 - 120	9	18
2,6-Dinitrotoluene	ND		1110	1160		ug/Kg	₩	104	70 - 126	7	18
3-Nitroaniline	ND	F1 *-	1110	ND	F1	ug/Kg	₩	0	34 - 120	NC	25
Acenaphthene	ND		1110	1090		ug/Kg	₩	98	64 - 120	13	19
2,4-Dinitrophenol	ND		2210	ND		ug/Kg	₩	NC	10 - 139	NC	40
4-Nitrophenol	ND		2210	1060	J	ug/Kg	₽	48	10 - 140	2	31

Eurofins TestAmerica, Seattle

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99649-1

#### Method: NWTPH-Gx - Northwest - Volatile Petroleum Products (GC) (Continued)

Lab Sample ID: MB 580-345756/1-A

Matrix: Solid

Analysis Batch: 345856

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyzed

Prep Batch: 345756

MB MB

Surrogate %Recovery Qualifier Limits 4-Bromofluorobenzene (Surr) 89 50 - 150

12/16/20 15:22 12/16/20 16:10 Client Sample ID: Lab Control Sample

Dil Fac

Lab Sample ID: LCS 580-345756/2-A

Matrix: Solid

Gasoline

Surrogate

Analyte

Gasoline

Surrogate

Analysis Batch: 345856

Spike LCS LCS

Prep Type: Total/NA Prep Batch: 345756

%Rec.

Analyte

4-Bromofluorobenzene (Surr)

Added Result Qualifier

Unit

Unit

mg/Kg

%Rec

Prepared

LCS LCS

40.0

mg/Kg

Limits 80 - 120

%Recovery Qualifier 100

LCSD LCSD

37.6

Result Qualifier

37.9

Limits 50 - 150

> Spike Added

> > 40.0

Lab Sample ID: LCSD 580-345756/3-A

Matrix: Solid

Analysis Batch: 345856

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

80 - 120

Prep Batch: 345756

%Rec

**94** 

**RPD** 

%Rec. Limits

**RPD** Limit

10

LCSD LCSD

%Recovery Qualifier

Limits

50 - 150

RL

#### Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 580-346049/1-A

Matrix: Solid

Motor Oil (>C24-C36)

Analysis Batch: 346129

4-Bromofluorobenzene (Surr)

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 346049

MB MB

Analyte Result Qualifier #2 Diesel (C10-C24)  $\overline{\mathsf{ND}}$ 

MDL Unit 12 mg/Kg

mg/Kg

Prepared Analyzed

Analyzed

Dil Fac

50 12/21/20 08:35 12/21/20 19:54 ND 50 12/21/20 08:35 12/21/20 19:54 18 mg/Kg

MB MB

Qualifier %Recovery Surrogate o-Terphenyl 101

Limits 50 - 150

Prepared

Dil Fac

Lab Sample ID: LCS 580-346049/2-A

Matrix: Solid

#2 Diesel (C10-C24)

Analyte

Surrogate

o-Terphenyl

Analysis Batch: 346129

Client Sample ID: Lab Control Sample

12/21/20 08:35 12/21/20 19:54

Prep Type: Total/NA Prep Batch: 346049

%Rec.

Spike LCS LCS Added %Rec Result Qualifier l imits Unit D 500 458 mg/Kg **g**2

445

Motor Oil (>C24-C36)

Limits

70 - 125

70 - 129

89

LCS LCS

83

%Recovery Qualifier

50 - 150

Page 37 of 47

500

Eurofins TestAmerica, Seattle

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99649-1

Method: 60	020B - Me	etals (ICP	/MS) (C	ontinued)

Lab Sample ID: MB 580-345820/21-A

Matrix: Solid

Analysis Batch: 345924

MB MB

Client Sample ID: Method Blank Prep Type: Total/NA

Prep Batch: 345820

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.50	0.10	mg/Kg		12/17/20 12:22	12/18/20 12:04	10
Chromium	ND		1.0	0.063	mg/Kg		12/17/20 12:22	12/18/20 12:04	10

Lab Sample ID: LCS 580-345820/22-A

Matrix: Solid

Analysis Ratch: 3/502/

Client Sample ID: Lab Control Sample

Prep Type: Total/NA Prep Batch: 345820

Analysis Batch: 345924	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Lead	50.0	51.9		mg/Kg		104	80 - 120
Cadmium	50.0	50.8		mg/Kg		102	80 - 120
Ars <b>e</b> nic	50.0	51.4		mg/Kg		103	80 - 120
Chromium	50.0	52.4		mg/Kg		105	80 - 120

Lab Sample ID: LCSD 580-345820/23-A

Matrix: Solid

Analysis Batch: 345924

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 345820

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Lead	50.0	52.4		mg/Kg		105	80 - 120	1	20
Cadmium	50.0	51.3		mg/Kg		103	80 - 120	1	20
Ars <b>e</b> nic	50.0	52.1		mg/Kg		104	80 - 120	1	20
Chromium	50.0	52.9		mg/Kg		106	80 - 120	1	20

Lab Sample ID: 580-99593-A-1-H MS

Matrix: Solid

Analysis Batch: 345924

Client Sample ID: Matrix Spike Prep Type: Total/NA

Prep Batch: 345820

-	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Lead	9.0		39.4	56.2		mg/Kg	- ☆	120	80 - 120	
Cadmium	0.11	J	39.4	47.4		mg/Kg	₩	120	80 - 120	
Arsenic	6.2		39.4	49.2		mg/Kg	₩	109	80 - 120	
Chromium	26		39.4	68.1		mg/Kg	₩	107	80 - 120	

Lab Sample ID: 580-99593-A-1-I MSD

Matrix: Solid

Analysis Batch: 345924

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 345820

-	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Lead	9.0		39.8	49.0		mg/Kg	₩	100	80 - 120	14	20
Cadmium	0.11	J	39.8	40.1		mg/Kg	₩	100	80 - 120	17	20
Arsenic	6.2		39.8	43.8		mg/Kg	₩	95	80 - 120	12	20
Chromium	26		39.8	62.2		mg/Kg	₽	91	80 - 120	g	20

Lab Sample ID: 580-99593-A-1-G DU

Matrix: Solid

Analysis Batch: 345924

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 345820

**RPD** RPD Limit

DU DU Sample Sample Analyte Result Qualifier Result Qualifier Unit D 20 Lead 9.0 8.90 mg/Kg 5 20 0.11 J 0.111 J mg/Kg Cadmium

Eurofins TestAmerica, Seattle

Client: Cascade Analytical Inc

Project/Site: ANS Geo

Job ID: 580-99649-1

Method: 2540G - SM 2540G

Client Sample ID: Duplicate Lab Sample ID: 580-99717-A-5 DU Prep Type: Total/NA

Matrix: Solid

Analysis Batch: 345512

	-	Sample	Sample	Ua	DU					RPD	
	Analyte	Result	Qualifier	Result	Qualifier	Unit	D		RPD	Limit	
	Percent Solids	89.2		89.5	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	%			0.3	20	
l	Percent Moisture	10.8		10.5		%			3	20	

Eurofins TestAmerica, Seattle

Page 41 of 47

12/31/2020

# Sample Summary

Client: Cascade Analytical Inc Project/Site: ANS Geo

Job ID: 580-99649-1

		The state of the s				
Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID	
580-99649-1	20-C025910	Solid	12/09/20 15:00	12/10/20 10:00		

# Login Sample Receipt Checklist

Client: Cascade Analytical Inc

Job Number: 580-99649-1

Login Number: 99649

List Number: 1

Creator: Vallelunga, Diana L.

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

**Attachment G** 

**Seismic Support Data** 





Address:

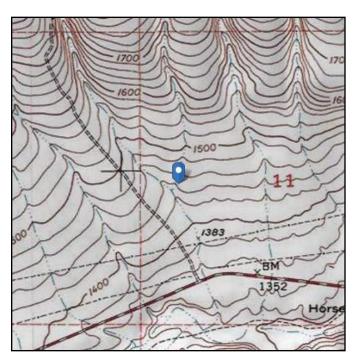
No Address at This Location

# ASCE 7 Hazards Report

Standard: ASCE/SEI 7-16 Elevation: 1446.91 ft (NAVD 88)

Risk Category: || Latitude: 46.540793 Soil Class: C - Very Dense Longitude: -119.91346

Soil and Soft Rock







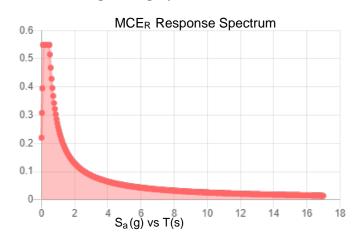
#### Seismic

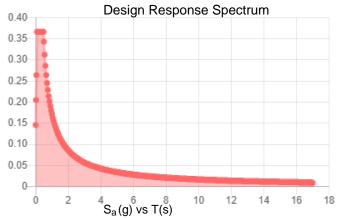
Site Soil Class: C - Very Dense Soil and Soft Rock

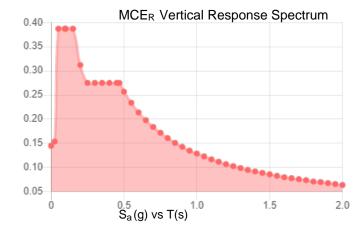
Results:

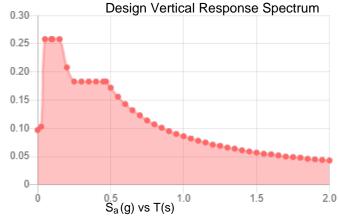
S <sub>s</sub> :	0.422	S <sub>D1</sub> :	0.172
$S_1$ :	0.172	T <sub>L</sub> :	16
F <sub>a</sub> :	1.3	PGA:	0.189
$F_{\nu}$ :	1.5	PGA <sub>M</sub> :	0.229
S <sub>MS</sub> :	0.549	F <sub>PGA</sub> :	1.211
S <sub>M1</sub> :	0.257	l <sub>e</sub> :	1
S <sub>DS</sub> :	0.366	C <sub>v</sub> :	0.882

#### Seismic Design Category C









Data Accessed: Wed Jan 13 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in

accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.



The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

