



Application for a State Waste Discharge Permit to Discharge Industrial Wastewater to a Publicly-Owned Treatment Works (POTW)

This application is for a state waste discharge permit for a discharge of industrial wastewater to a publicly-owned treatment works (POTW) as required by Chapter 90.48 RCW and Chapter 173-216 WAC. It is designed to provide Ecology with information on pollutants in the waste stream, materials that may enter the waste stream, and the flow characteristics of the discharge.

Ecology may request additional information to clarify the conditions of this discharge. The applicant should reference information previously submitted to Ecology that applies to this application in the appropriate section.

SECTION A. GENERAL INFORMATION

1. Applicant Name: REC Solar Grade Silicon, Inc.
2. Facility Name: same as applicant name
(if different from Applicant)
3. Applicant Mail Address: 3322 Road "N" NE
Street
Moses Lake, WA 98837
City/State Zip
4. Facility Location Address: same as applicant address
(if different from 3 above) Street

City/State Zip
5. UBI No. 602-313-434
Sometimes called a registration, tax, "C," or resale number, the Unified Business Identifier (UBI) number is a nine-digit number used to identify persons engaging in business activities. The number is assigned when a person completes a [Master Business Application](#) to register with or obtain a license from state agencies. The Departments of Revenue, Licensing, Employment Security, Labor and Industries, and the Corporations Division of the Secretary of State are among the state agencies participating in the UBI program.
6. Latitude/longitude of the facility as decimal degrees (NAD83/WGS84):
47.135556 °N / 119.200000° W

FOR OFFICE USE ONLY		Check One: New/Renewal <input type="checkbox"/> Modification <input type="checkbox"/>	
Date Application Received _____	Date Fee Paid _____	Application/ Permit No. _____	Date Application Accepted _____

7. Person to contact who is familiar with the information contained in this application:

Shawn Bowen

Name

Production Engineering Manager

Title

(509) 766-8537

Telephone number

Fax number

8. Check One:



Permit Renewal (including renewal of temporary permits)

Does this application request a greater amount of wastewater discharge, a greater amount of pollutant discharge, or a discharge of different pollutants than specified in the last permit application for this facility? ☐ YES ☒ NO

For permit renewals, the current permit is an attachment, by reference, to this application.



Permit Modification



Existing Unpermitted Discharge



Proposed Discharge

Anticipated date of discharge: _____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and/or imprisonment for knowing violations.

Signature*

Date

Title

Jeffrey S. Johnson

Printed Name

12/11/2020

VICE PRESIDENT OPERATIONS

Plant Manager

MOSES LAKE

*Applications must be signed as follows: corporations, by a principal executive officer of at least the level of vice-president; partnership, by a general partner; sole proprietorship, by the proprietor. If these titles do not apply to your organization, the person who makes budget decisions for this facility must sign the application.

The application signatory may delegate signature authority for submittals required by the permit, such as monthly reports, to a suitable employee. You can delegate this authority to a qualified individual or to a position, which you expect to fill with a qualified individual. If you wish to delegate signature authority, please complete the following:

Signature of delegated employee

Date

Title or function at the facility

Printed name

SECTION B. PRODUCT INFORMATION

- Briefly describe all manufacturing processes and products, and/or commercial activities, at this facility. Provide the applicable Standard Industrial Category (SIC) and the North American Industry Classification System (NAICS) Code(s) for each activity (see *North American Industrial Classification System*, 2007 ed.). You can find the 1997 NAICS codes and the corresponding 1987 Standard Industry Category (SIC) codes at (<http://www.census.gov/epcd/naics/frames3.htm>).

Description: REC owns and operates a high purity polysilicon and silane plant in Moses Lake. REC sells polysilicon for use mainly in the photovoltaic industry while it uses silane gas as a raw material for polysilicon production. The facility discharges low chloride wastewater to the City of Moses Lake, Sand Dunes Treatment Plant; high chloride and high sodium, high silicate wastewaters to a series of lined evaporation ponds; and non-contact cooling water to a 60 million gallon lined storage pond for evaporation.

2012 NAICS Codes

Silane Gas: 325180 - Other Basic Inorganic Chemical Manufacturing

Solar Grade Polysilicon: 331410 - Nonferrous Metal (Except Aluminum) Smelting and Refining

1987 SIC Codes

Silane Gas: 2819

Solar Grade Polysilicon: 3339

- List raw materials and products used at his facility:

Type	RAW MATERIALS	Quantity
<i>Grapes (Example)</i>		<i>1,000 tons per year</i>
Material Imports (Attachment B.2)		Material imports are expected to be the same as the 2016 application once the plant is restarted in the next 1-2 years.
Type	PRODUCTS	Quantity
<i>Grape Juice(Example)</i>		<i>300,000 gallons per year</i>
Solar Grade Silicon		Quantities are business confidential
Silane Gas		Quantities are business confidential
Calcium Chloride		750,000 pounds per year

SECTION C. PLANT OPERATIONAL CHARACTERISTICS

1. For each process listed in B.1. that generates wastewater, list the process, assign the waste stream a name and an ID # and describe whether it is a batch or continuous flow.

Process	Waste Stream Name	Waste Stream ID#	Batch (B) or Continuous (C) Process
Various	Low Chloride System	001	B
Various	High Chloride System and High Sodium High Silicate System	004	B

2. On a separate sheet, produce a schematic drawing showing production processes, water flow through the facility, wastewater treatment devices and waste streams as named above. The drawing should indicate the source of intake water and show the operations contributing wastewater to the effluent. The treatment units should be labeled. Construct a water balance by showing average flows between intakes, operations, treatment units, and points of discharge to the POTW. *(See the example on page 16 of this application form.)*
3. What is the maximum daily wastewater discharge flow? 300,000 gallons/day
 Discharge quantity is expected to be the same as before plant shutdown once the plant is restarted in the next 1-2 years.
- What is the maximum average monthly wastewater discharge flow (daily flows averaged over a month)? 210,000 gallons/day
 Discharge quantity is expected to be the same as before plant shutdown once the plant is restarted in the next 1-2 years.
4. Describe any planned wastewater treatment improvements or changes in wastewater disposal methods, and the schedule for these improvements. *(Use additional sheets, if necessary and label as attachment C4.)*
 Not applicable

5. If production processes are subject to seasonal variations, provide the following information. The combined value for each month should equal the estimated total monthly flow. Please indicate the proper flow unit by checking one of the following boxes:

☐ gallons per day

☐ gallons per month

☐ million gallons per month

Waste Stream ID#	MONTHS											
	J	F	M	A	M	J	J	A	S	O	N	D
Estimated Total Monthly Flow (GPD)												

6. How many hours a day does this facility typically operate? 24

How many days a week does this facility typically operate? 7

How many weeks per year does this facility typically operate? 52

7. List all incidental materials, such as oil, paint, grease, solvents, and cleaners, that are used or stored on site (*list only those with quantities greater than 10 gallons for liquids and 50 pounds for solids*). For solvents and solvent-based cleaners, include a copy of the material safety data sheet and estimate the quantity used. (*Use additional sheets, if necessary, and label as attachment C.7.*)

Materials/Quantity Stored: There will not be any new oils, paints, greases, solvents, or cleaners introduced to the facility beyond what is currently stored onsite. Quantities for some of the chemicals may be increased in accordance with all applicable federal, state, and local laws and regulations. See Section B subpart 8 for further information. Material safety data sheets for all chemicals stored onsite were provided during the 2007 permit modification.

- | 8. | Some types of facilities are required to have spill or waste control plans. Does this facility have: | Yes | No |
|----|---|-------------------------------------|-------------------------------------|
| a. | A spill prevention, control, and countermeasure plan (40 CFR 112)? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| b. | An Oil Spill Contingency Plan (chapter 173-182 WAC)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. | An emergency response plan (per WAC 173-303-350)? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d. | A runoff, spillage, or leak control plan (per WAC 173-216-110(f))? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| e. | Any spill or pollution prevention plan required by local, state or federal authorities? If yes specify: <u>SPCC Plan per 40CFR112</u> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| f. | A solid waste control plan? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| g. | A Slug Discharge Control Plan (40 CFR 403.8(f)(2)(v))? | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

SECTION D. WATER CONSUMPTION AND WATER LOSS

1. Potable water source(s):

☒ Public System (Specify) City of Moses Lake
☐ Private Well ☐ Surface Water

a. Water Right Permit Number: City of Moses Lake

b. Legal Description of Water Source

_____ 1/4S, _____ 1/4E, _____, Section, _____ TWN, _____ R

2. Potable water use

a. Indicate total water use _____

Gallons per day (average) 400,000

Gallons per day (maximum) 1,300,000

b. Is water metered?

☒ YES ☐ NO

SECTION E. WASTEWATER INFORMATION

1. How are the water intake and effluent flows measured?

Intake: Metered

Effluent Flow Meter

2. Describe the collection method for the samples analyzed below. (*i.e.*, grab, 24-hour composite). Applicants must collect grab samples (not composites) for analysis of pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, fecal coliform (including *E. coli*), and Enterococci (previously known as fecal streptococcus at § 122.26 (d)(2)(iii)(A)(3)), or volatile organics.

See Attachment E.2 for a summary of collection methods by parameter. The results shown in E.4 are from the January through October 2020 discharge monitoring reports.

3. Has the effluent been analyzed for any other parameters than those identified in question E.4.? ☒ YES ☐ NO
If yes, attach results and label as attachment E.3. This data must clearly show the date, method and location of sampling. (*Note: Ecology may require additional testing.*)

4. Provide measurements or range of measurements for treated wastewater prior to discharge to the POTW for the parameters with an “X” in the left column. If you obtain the application from the internet, contact Ecology’s regional office to see if testing for a subset of these parameters is permissible. All analyses (except pH) must be conducted by a laboratory registered or accredited by Ecology (WAC 173-216-125). If this is an application for permit renewal, provide data for the last year for those parameters that are routinely measured. For parameters measured only for this application, place the values under “Maximum.” Report the values with units as specified in the parameter name or in the detection level.

The Permittee must use the specified analytical methods, detection limits (DLs) and quantitation levels (QLs) in the following table unless Ecology approves an alternate method or the method used produces measurable results in the sample and EPA has listed it as an EPA approved method in 40 CFR Part 136. If the Permittee uses an alternative method as allowed above, it must report the test method, DL, and QL on the discharge monitoring report or in the required report.

X	Parameter	Measurement Values			Number of Analyses	Analytical Method Std. Methods 19 th , 20 th edition or EPA	Detection Limit/Quantitation Level
		Minimum	Maximum	Average			
X	BOD (5 day)	2	188	29.3	10	SM 5210 B	/2 mg/l
	COD					SM 5220 D	/10 mg/l
X	Total suspended solids	0.1	205.2	7.6	218	SM 2540 D	/5 mg/l
	Fixed Dissolved Solids					SM 2540 E	
X	Total dissolved solids	244	4,602	849.8	219	SM 2540 C	
X	Conductivity (micromhos/cm)	123	5,860	596.1	604	SM 2510 B	
X	Ammonia-N as N	0.07	28.3	3.6	10	SM 4500-NH ₃ C	/0.3 mg/L
X	pH	6.1	9.4	8.0	604	SM 4500-H	0.1 standard units
	Fecal coliform (organisms/100 mL)					SM 9221 E or 9222 D	
	Total coliform (organisms/100 mL)					SM 9221 B or 9222 B	
	Dissolved oxygen					SM 4500-O C/G	
X	Nitrate + nitrite-N as N	4	520	76.7	43	SM 4500-NO ₃ E	100 µg/L
	Total kjeldahl N as N					SM 4500-N _{org} C/E/FG	300 µg/l
	Ortho-phosphate-P as P					SM 4500-P E/F	10 µg/l
X	Total-phosphorous-P as P	0.07	3.4	0.5	10	SM 4500-P E/P/F	10 µg/l
X	Total Oil & grease	1.4	4.8	1.5	43	EPA 1664A	1.4/5 mg/l
	NWTPH - Dx					Ecology NWTPH Dx	250/250 µg/l
	NWTPH - Gx					Ecology NWTPH Gx	250/250 µg/l
X	Calcium	10.4	256	72.6	10	EPA 200.7	10 µg/l
X	Chloride	1.2	39.6	16.5	219	SM 4500-Cl C	0.15 µg/l
X	Fluoride	2.3	23.4	4.9	219	SM 4500-F E	.025/0.1 mg/l

X	Parameter	Measurement Values			Number of Analyses	Analytical Method Std. Methods 19 th , 20 th edition or EPA	Detection Limit/Quantitation Level
		Minimum	Maximum	Average			
X	Magnesium	1.9	3.32	2.5	10	EPA 200.7	10/50 µg/l
X	Potassium	6.3	7.8	7.3	10	EPA 200.7	700/ µg/l
X	Sodium	46.5	154	81.6	218	EPA 200.7	29/ µg/l
X	Sulfate	13.5	318.9	36	219	SM 4500-SO ₄ C/D	/200 µg/l
X	Arsenic(total)	0.718	0.718	0.718	1	EPA 200.8	0.1/0.5 µg/l
	Barium (total)					EPA 200.8	0.5/2 µg/l
X	Cadmium (total)	0.249	0.249	0.249	1	EPA 200.8	.05/.25 µg/l
X	Chromium (total)	1.87	1.87	1.87	1	EPA 200.8	0.2/1 µg/l
X	Copper (total)	5.47	5.47	5.47	1	EPA 200.8	0.4/2 µg/l
X	Lead (total)	0.184	0.184	0.184	1	EPA 200.8	0.1/.5 µg/l
X	Mercury (total) pg/L	3,700	3,700	3,700	1	EPA 1631E	0.2/0.5 pg/l
	Molybdenum(total)					EPA 200.8	0.1/0.5 µg/l
X	Nickel(total)	2.86	2.86	2.86	1	EPA 200.8	0.1/0.5 µg/l
X	Selenium (total)	0.5	0.5	0.5	1	EPA 200.8	1/1 µg/l
X	Silver (total)	ND	ND	ND	1	EPA 200.8	.04/.2 µg/l
X	Zinc (total)	4	4	4	1	EPA 200.8	0.5/2.5 µg/l

6. Does this facility use any of the following chemicals as raw materials or produce them as part of the manufacturing process, or are they present in the wastewater? ☒

YES ☐ NO

(The number in the column next to the chemical name is the Chemical Abstract Service (CAS) reference number to aid in identifying the compound.)

If yes, specify how the chemical is used and the quantity used or produced: A catalyst containing copper is used at an annual rate of approximately 100,000 pounds per year in a proprietary operation.

METALS, CYANIDE & TOTAL PHENOLS				
Antimony, Total	7440-36-0	Nickel, Total	7440-02-0	
Arsenic, Total	7440-38-2	Selenium, Total	7782-49-2	
Beryllium, Total	7440-41-7	Silver, Total	7440-22-4	
Cadmium, Total	7440-43-9	Thallium, Total	7440-28-0	
Chromium (hex) dissolved	18540-29-9	Zinc, Total	7440-66-6	
Chromium, Total	7440-47-3			
Copper, Total	7440-50-8	Cyanide, Total	57-12-5	
Lead, Total	7439-92-1	Cyanide, Weak Acid Dissociable		
Mercury, Total	7439-97-6	Phenols, Total		

PESTICIDES				
Aldrin	309-00-2	Endrin	72-20-8	
alpha-BHC	319-84-6	Endrin Aldehyde	7421-93-4	
beta-BHC	319-85-7	Heptachlor	76-44-8	
gamma-BHC	58-89-9	Heptachlor Epoxide	1024-57-3	
delta-BHC	319-86-8	PCB-1242	53469-21-9	
Chlordane	57-74-9	PCB-1254	11097-69-1	
4,4'-DDT	50-29-3	PCB-1221	11104-28-2	
4,4'-DDE	72-55-9	PCB-1232	11141-16-5	
4,4' DDD	72-54-8	PCB-1248	12672-29-6	
Dieldrin	60-57-1	PCB-1260	11096-82-5	
alpha-Endosulfan	959-98-8	PCB-1016	12674-11-2	
beta-Endosulfan	33213-65-9	Toxaphene	8001-35-2	
Endosulfan Sulfate	1031-07-8			

VOLATILE COMPOUNDS				
Acrolein	107-02-8			
Acrylonitrile	107-13-1	1,1-Dichloroethylene	75-35-4	
Benzene	71-43-2	1,2-Dichloropropane	78-87-5	
Bromoform	75-25-2	1,3-dichloropropene (mixed isomers) (1,2-dichloropropylene)	542-75-6	
Carbon tetrachloride	56-23-5	Ethylbenzene	100-41-4	
Chlorobenzene	108-90-7	Methyl bromide (Bromomethane)	74-83-9	
Chloroethane	75-00-3	Methyl chloride (Chloromethane)	74-87-3	
2-Chloroethylvinyl Ether	110-75-8	Methylene chloride	75-09-2	
Chloroform	67-66-3	1,1,2,2-Tetrachloroethane	79-34-5	
Dibromochloromethane	124-48-1	Tetrachloroethylene	127-18-4	
1,2-Dichlorobenzene	95-50-1	Toluene (108-88-3)		
1,3-Dichlorobenzene (541-73-1)		1,2-Trans-Dichloroethylene (Ethylene dichloride)	156-60-5	
1,4-Dichlorobenzene	106-46-7	1,1,1-Trichloroethane	71-55-6	
Dichlorobromomethane	75-27-4	1,1,2-Trichloroethane	79-00-5	
1,1-Dichloroethane	75-34-3	Trichloroethylene	79-01-6	
1,2-Dichloroethane	107-06-2	Vinyl chloride	75-01-4	

ACID COMPOUNDS			
2-Chlorophenol	95-57-8	4-nitrophenol	100-02-7
2,4-Dichlorophenol	120-83-2	Parachlorometa cresol (4-chloro-3-methylphenol)	59-50-7
2,4-Dimethylphenol	105-67-9	Pentachlorophenol	87-86-5
4,6-dinitro-o-cresol (2-methyl-4,6,-dinitrophenol)	534-52-1	Phenol	108-95-2
2,4 dinitrophenol	51-28-5	2,4,6-Trichlorophenol	88-06-2
2-Nitrophenol	88-75-5		

BASE/NEUTRAL COMPOUNDS (compounds in bold are Ecology PBTs)			
Acenaphthene	83-32-9	3,3-Dichlorobenzidine	91-94-1
Acenaphthylene	208-96-8	Diethyl phthalate	84-66-2
Anthracene	120-12-7	Dimethyl phthalate	131-11-3
Benzidine	92-87-5	Di-n-butyl phthalate)	84-74-2
Benzyl butyl phthalate	85-68-7	2,4-dinitrotoluene	121-14-2
Benzo(a)anthracene	56-55-3	2,6-dinitrotoluene	606-20-2
Benzo(b)fluoranthene (3,4-benzofluoranthene)	205-99-2	Di-n-octyl phthalate	117-84-0
Benzo(j)fluoranthene	205-82-3	1,2-Diphenylhydrazine (aS Azobenzene)	122-66-7
Benzo(k)fluoranthene (11,12-benzofluoranthene)	207-08-9	Fluoranthene	206-44-0
Benzo(r,s,t)pentaphene	189-55-9	Fluorene	86-73-7
Benzo(a)pyrene	50-32-8	Hexachlorobenzene	118-74-1
Benzo(ghi)Perylene	191-24-2	Hexachlorobutadiene	87-68-3
Bis(2-chloroethoxy)methane	111-91-1	Hexachlorocyclopentadiene	77-47-4
Bis(2-chloroethyl)ether	111-44-4	Hexachloroethane	67-72-1
Bis(2-chloroisopropyl)ether	39638-32-9	Indeno(1,2,3- cd)Pyrene	193-39-5
Bis(2-ethylhexyl)phthalate	117-81-7	Isophorone	78-59-1
4-Bromophenyl phenyl ether	101-55-3	3-Methyl cholanthrene	56-49-5
2-Chloronaphthalene	91-58-7	Naphthalene	91-20-3
4-Chlorophenyl phenyl ether	7005-72-3	Nitrobenzene	98-95-3
Chrysene	218-01-9	N-Nitrosodimethylamine	62-75-9
Dibenzo (a,j)acridine	224-42-0	N-Nitrosodi-n-propylamine	621-64-7
Dibenzo (a,h)acridine	226-36-8	N-Nitrosodiphenylamine	86-30-6
Dibenzo(a- h)anthracene (1,2,5,6-dibenzanthracene)	53-70-3	Perylene	198-55-0
Dibenzo(a,e)pyrene	192-65-4	Phenanthrene	85-01-8
Dibenzo(a,h)pyrene	189-64-0	Pyrene	129-00-0
		1,2,4-Trichlorobenzene	120-82-1

7. Are any other pesticides, herbicides or fungicides used at this facility? ☒ YES ☐ NO

If yes, specify the material and quantity used:

Outside contractor provides pest control onsite using minimal quantites of zinc phosphide for rodent control and herbicide applications of Roundup, Banvel, 2,4-D Amine, and Surflan AS. Sodium hypochlorite is added to cooling towers to prevent microbial growth.

8. Are there other pollutants that you know of or believe to be present? ☐ YES ☒ NO

If yes, specify the pollutants and their concentration if known
(attach laboratory analyses if available as Attachment E.8):

9. Is the wastewater being discharged, or proposed for discharge, to the POTW designated as a dangerous waste according to the procedures in Chapter 173-303 WAC?

☐ YES ☒ NO ☐ DON'T KNOW

10. If the answer to question 9 above is yes, how did the waste designate as a dangerous waste (check appropriate box)?

For Listed and TCLP Characteristic Wastes only, also provide the Dangerous Waste Number(s).

Listed Waste ☐ Dangerous Waste Number(s) _____

Characteristic Wastes Dangerous Waste Number(s) _____

Ignitable ☐

Reactive ☐

Corrosive ☐

TCLP ☐

State Only Dangerous Wastes Dangerous Waste Number(s) _____

Toxicity ☐

Persistent ☐

For questions about waste designation under the *Dangerous Waste Regulations*, Chapter 173-303 WAC, contact Ecology's Hazardous Waste and Toxics Program at:

Northwest Regional Office - Bellevue	(425) 649-7000
Southwest Regional Office - Lacey	(360) 407-6300
Central Regional Office - Yakima	(509) 575-2490
Eastern Regional Office - Spokane	(509) 329-3400

SECTION F. SEWER INFORMATION

1. Is an inspection and sampling manhole or similar structure available on-site? ☒ YES ☐ NO
*If yes, attach a map or hand drawing of the facility that shows the location of these structures
(Label as attachment F.1 or this may be combined with map in H.5, if H.5 is applicable to your
facility.)*

SECTION G. OTHER PERMITS

1. List all environmental control permits or approvals needed for this facility; for example, air emission permits.

Air Operating Permit Number 13AQ-E488

State Waste Discharge Permit Number ST0008121

City of Moses Lake Industrial Waste Discharge Permit Number 4

SECTION H. STORMWATER

1. Do you have coverage under the Washington State Industrial Stormwater NPDES General Permit?

☐ YES ☒ NO

If yes, please list the permit number here. _____

If no, have you applied for a Washington State Stormwater Industrial Stormwater General Permit?

☐ YES ☒ NO

If you answered no to both questions above, complete the following questions 2 through 5.

2. Does your facility discharge stormwater: *(Check all that apply)*

- ☐ To storm sewer system (provide name of storm sewer system operator):
☐ Directly to any surface waters of Washington State (e.g., river, lake, creek, estuary, ocean).
Specify waterbody name(s) _____
☐ Indirectly to surface waters of Washington State (i.e., flows over adjacent properties first).
☐ To a Sanitary Sewer
☒ Directly to ground waters of Washington State via:
☐ Dry well
☐ Drainfield
☒ Other

3. Areas with industrial activities at facility: *(check all that apply)*

- ☒ Manufacturing Building
☒ Material Handling
☐ Material Storage
☐ Hazardous Waste Treatment, Storage, or Disposal *(Refers to RCRA, Subtitle C Facilities Only)*
☒ Waste Treatment, Storage, or Disposal
☒ Application or Disposal of Wastewaters
☒ Storage and Maintenance of Material Handling Equipment
☐ Vehicle Maintenance
☒ Areas Where Significant Materials Remain
☒ Access Roads and Rail Lines for Shipping and Receiving
☐ Other (please specify): _____

4. Material handling/management practices

a. Types of materials handled and/or stored outdoors: *(check all that apply)*

- | | |
|---|---|
| <input checked="" type="checkbox"/> Solvents | <input checked="" type="checkbox"/> Hazardous Wastes |
| <input checked="" type="checkbox"/> Scrap Metal | <input checked="" type="checkbox"/> Acids or Alkalies |
| <input checked="" type="checkbox"/> Petroleum or Petrochemical Products | <input type="checkbox"/> Paints/Coatings |
| <input type="checkbox"/> Plating Products | <input type="checkbox"/> Woodtreating Products |
| <input type="checkbox"/> Pesticides | <input type="checkbox"/> Other <i>(please list)</i> : _____ |

b. Identify existing management practices employed to reduce pollutants in industrial stormwater discharges: *(check all that apply)*

- | | |
|---|---|
| <input checked="" type="checkbox"/> Oil/Water Separator | <input checked="" type="checkbox"/> Detention Facilities |
| <input checked="" type="checkbox"/> Containment | <input checked="" type="checkbox"/> Infiltration Basins |
| <input checked="" type="checkbox"/> Spill Prevention | <input checked="" type="checkbox"/> Operational BMPs |
| <input type="checkbox"/> Surface Leachate Collection | <input checked="" type="checkbox"/> Vegetation Management |
| <input checked="" type="checkbox"/> Overhead Coverage | <input type="checkbox"/> Other <i>(please list)</i> : _____ |

5. Attach a facility site map showing stormwater drainage/collection areas, disposal areas and discharge points. This may be a hand-drawn map if no other site map is available *(See example on page 16 of this application)*. Label this as attachment H.5.

SECTION I. OTHER INFORMATION

1. Describe liquid wastes or sludges being generated by your facility that are not disposed of in the waste stream(s) and how they are being disposed of. For each type of waste, provide type of waste and the name, address, and phone number of the hauler.

Calcium carbonate, calcium hydroxide, silicon powder, and grit are the major components from four wastewater treatment systems. All 4 wastewater treatment systems utilize neutralization, precipitation, and solids dewatering prior to disposal. Additionally, neutralized dryer solids (primarily consisting of silicon and sodium sesquicarbonate) are transferred for disposal. All solids are transported to the Grant County Landfill via Consolidated Disposal Service 2370 Basin St SW, Ephrata, WA 98823.

2. Describe storage areas for raw materials, products, and wastes.

Materials stored outside are typically in curbed, concrete containment areas consisting of at least 110% of the largest vessel volume. Containment areas are inspected monthly for integrity and precipitation capacity. Sampling and analysis of contents is conducted prior to removal of containment area liquids to determine correct treatment/disposal option. This facility has an up-to-date SPCC Plan on site that details storage locations and quantities of material regulated by 40CFR112.

3. Have you designated the wastes described above according to the applicable procedures of Dangerous Waste Regulations, Chapter 173-303 WAC? ☒ YES ☐ NO

SECTION J. CERTIFICATIONS

1. Approval by Publicly-Owned Treatment Works [required by WAC 173-216-070(4)(b)]

I approve of the discharge as described in this application. The applicant is:

(Please check the appropriate box below.)

☒ A Significant Industrial User (see Definitions at the end of this Section)

☐ A Categorical Industrial User

☐ Neither of the above

Name and location of sewer system to which this project will be tributary:

City of Moses Lake Wastewater Treatment Plant

Treatment Works Owner: City of Moses Lake

Street: Municipal Services Department, PO Box 1579

City/State: Moses Lake, WA Zip: 98837


Signature of Treatment Works Authority

12/8/2020
Date

Public Works Division Dir.
Title

Michael G. Moro
Printed Name

2. Application review by Intermediate Sewer Owner at point of discharge (if applicable)

I hereby acknowledge that I have reviewed the application for discharge to this sewer system.

Name and location of sewer system to which this project will be tributary:

Sewer System Owner: _____

Street: _____

City/State: _____

Zip: _____

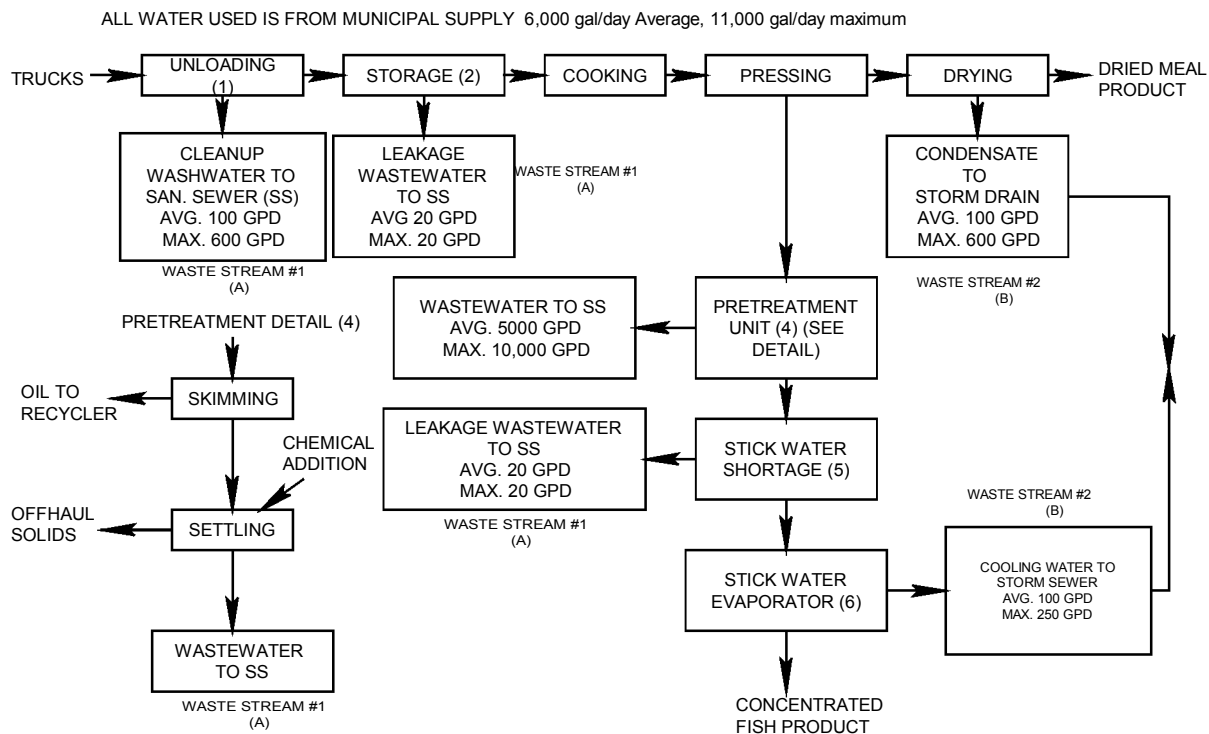
Signature of Sewer System Authority

Date

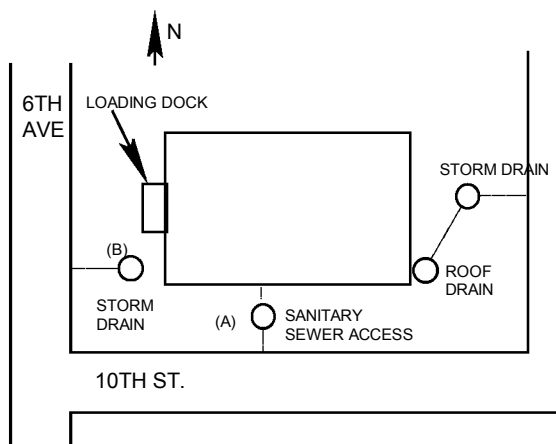
Title

Printed Name

Example 1 for application section C.2. (SCHEMATIC DIAGRAM)



Example 2 for application section F1 or H8 (FACILITY SITE MAP)



DEFINITIONS

Significant Industrial User (SIU)--

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; and
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

Control Authority - means the Washington State Department of Ecology in the case of non-delegated POTWs or means the POTW in the case of delegated POTWs.

Categoric Industrial User (CIU): An industrial user subject to national categorical pretreatment standards promulgated by EPA (40 CFR 403.6 and 40 CFR parts 405-471).

Summary of Attachments That May be Required for This Application:

(Please check those attachments that are included)

- ☒ B.2. Material Imports
- ☒ C.2. Production Schematic Flow Diagram and Water Balance
- ☐ C.4. Wastewater Treatment Improvements
- ☐ C.7. Additional Incidental Materials
- ☒ E.2. Low Chloride Process Wastewater Monitoring
- ☒ E.3. Additional Results of Effluent Testing
- ☒ F.1. Facility Site Map
- ☒ H.5. Stormwater Drainage Map

If you need this document in a format for the visually impaired, call the Water Quality Program at 360-407-6600. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

B.2.

Material Imports

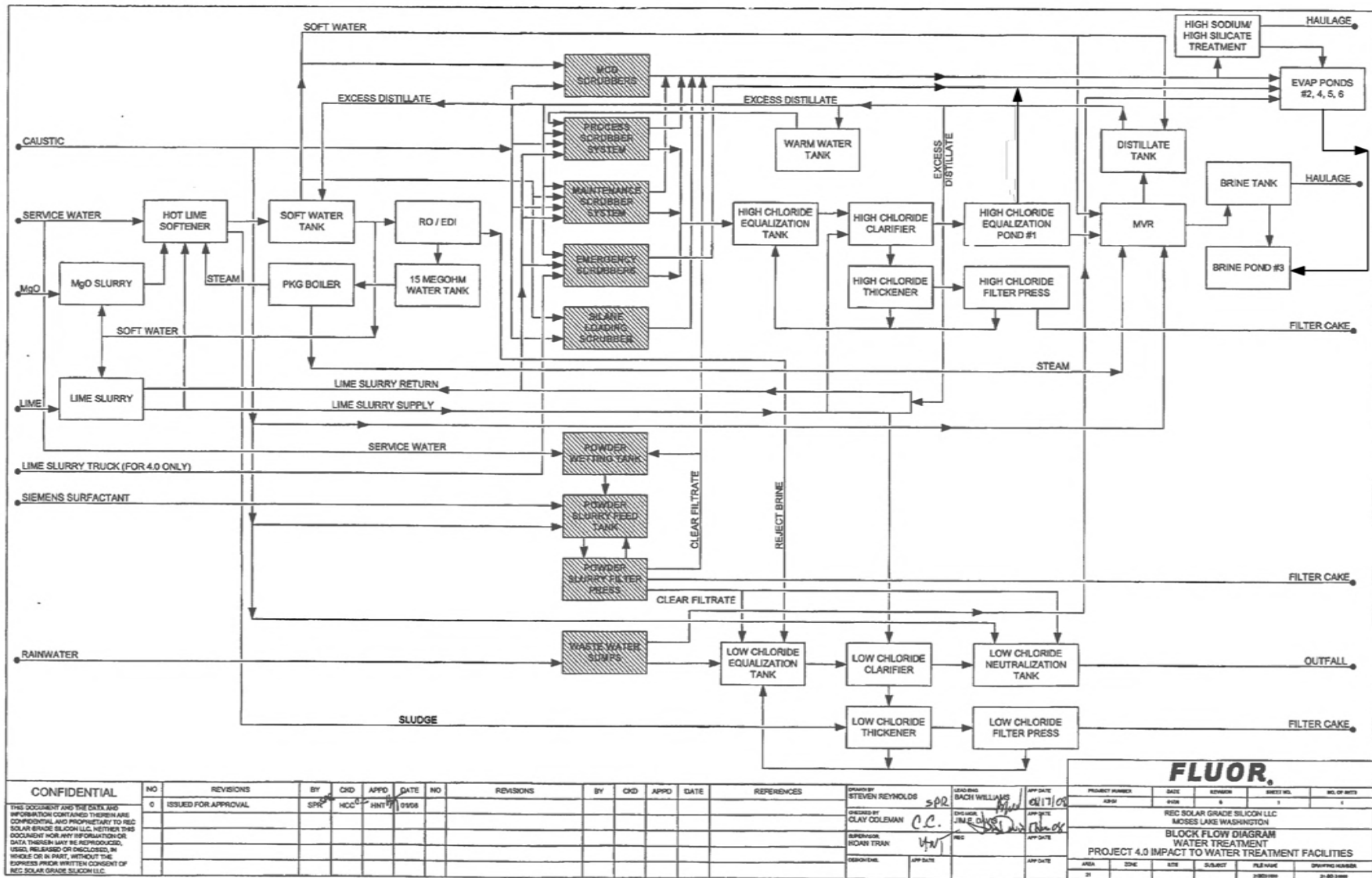
Attachment B.2. Material Imports

Material	Annual Consumption	Units
Lime	5,017,553	pounds
Trona	2,628,000	pounds
Magnesium Oxide	66,300	pounds
Sodium Hydroxide (25%)	1,326,965	gallons
Sulfuric Acid (98%)	5,466	gallons
Flocculant	1,367	gallons
Coagulant	28,242	gallons
Hydrochloric Acid (38%)	34,164	gallons
Antiscalants	1,367	gallons
Boiler Chemicals	683	gallons
Oxygen Scavenger (Boiler)	683	gallons
Surfactant	142,122	gallons
Antifoam	570,539	gallons
Silicon Tetrachloride	3,440,800	pounds
Metallurgical Grade Silicon	44,300,021	pounds
Cuprous Chloride	approximately 100,000	pounds
Carbon Dioxide	215,671	pounds

C.2.

**Production Schematic Flow
Diagram and Water Balance**

Attachment C.2 Process Flow Diagram



E.2.

**Low Chloride Process
Wastewater Monitoring**

Attachment E.2. Low Chloride Process Wastewater Monitoring

Parameter	Units	Sampling Frequency	Sample Type
Flow	gpd	continuous	meter
pH	standard units	continuous	meter
Conductivity	µmhos/cm	continuous	meter
Temperature	°F	continuous	meter
Total Suspended Solids	mg/L	5/week	24-hour composite
Total Dissolved Solids	mg/L, lb/d	5/week	24-hour composite
Chloride	mg/L, lb/d	5/week	24-hour composite
Fluoride	mg/L, lb/d	5/week	24-hour composite
Sulfate	mg/L, lb/d	5/week	24-hour composite
Five-Day Biochemical Oxygen Demand	mg/L	1/week	24-hour composite
Oil and Grease	mg/L	1/week	grab
Nitrate-Nitrogen	mg/L	1/week	24-hour composite
Magnesium	mg/L	1/month	24-hour composite
Potassium	mg/L	1/month	24-hour composite
Manganese	mg/L	1/month	24-hour composite
Calcium	mg/L	1/month	24-hour composite
Total Alkalinity	mg/L	1/month	24-hour composite
Ammonia-Nitrogen	mg/L	1/month	24-hour composite
Total Phosphorus	mg/L	1/month	24-hour composite
Color	color units	1/month	24-hour composite
Sodium	mg/L, lb/d	1/month	24-hour composite
Metals ¹	µg/L	1/year	24-hour composite
Special Condition S3.A.8.d Parameters ²	µg/L	1/Permit cycle ³	24-hour composite/grab

NOTES:

Monitoring summarized from State Waste Discharge Permit ST0008121 (State of Washington Department of Ecology, 2019)(Permit), Special Condition S2.

Abbreviations: °F = Fahrenheit, gpd = gallons per day, lb/d = pounds per day, mg/L = milligrams per liter, µmhos/cm = micromhos per centimeter, µg/L = micrograms per liter.

1 Total Metals: arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc.

2 As listed in Permit Special Condition S2 (page 9).

3 Sampling was required in June 2020 and analytical results be submitted by December 31, 2020 as specified in Permit Special Condition S3.A.8.d.

E.3.

**Additional Results of
Effluent Testing**



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

Batch: 009884
(509) 452-7707 Client: Rec-Silicon-Plant 3
Fax: (509) 452-7773 Account: 10038
1008 W. Ahtanum Rd. Sampler: Sarah Oman
Union Gap, WA 98903 PO Number:

--- Analytical Services Report ---

Report Date: 7/20/20

Rec-Silicon-Plant 3
Sarah Oman
3322 Road "N" NE
Moses Lake, WA 98837

Laboratory Number: 20-C012573

Date Received: 6/23/20

Sample Identification: 518076

Date Sampled: 6/23/20

Sample Comment: Metals, Cyanide, Phenols

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Other Analysis	Analyzed by ARI				7/10/20	

Approved By Name:

Andy Schut
Lab Manager/Yakima

Signature:

Function:

Eurofins-Cascade Analytical uses procedures established by EPA, AOAC, 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.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

10 July 2020

Andy Schut
Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee, WA 98801

RE: REC Silicon

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
20F0421

Associated SDG ID(s)
N/A

Shelly Fishel

Digitally signed by Shelly Fishel
DN: c=US, st=Washington, l=Tukwila,
o=Analytical Resources, Inc., cn=Shelly
Fishel, email=shelly.fishel@arilabs.com
Date: 2020.07.10 15:36:19 -07'00'

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



ARI Assigned Number: 20F0421	Turn-around Requested: Standard
---------------------------------	------------------------------------

Client Contact: andrewschut@eurofinsus.com

Client Project Name: REC Silicon

Client Project #: 009884-2	Samplers: Sarah Oman
----------------------------	----------------------

Date: 6.24.20

Page: of

No. of Coolers: 1 Cooler Temps: 4.3



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

[illegible]

Sample Retention Policy: Unless specified by workorder or contract, all water/soil samples submitted to ARI will be discarded or returned, no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer. Sediment samples submitted under PSDDA/PSEP/SMS protocol will be stored frozen for up to one year and then discarded.



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
20-C012573	20F0421-01	Water	23-Jun-2020 07:00	25-Jun-2020 09:50



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

Work Order Case Narrative

Client: Cascade Analytical, Inc. - Eurofins
Project: REC Silicon
Work Order: 20F0421

Sample receipt

One sample as listed on the preceding page was received 25-Jun-2020 09:50 under ARI work order 20F0421. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Total Metals - EPA Method 200.8

The sample(s) were digested and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

Wet Chemistry

The sample(s) were prepared and analyzed within the recommended holding times except Hexavalent Chromium. The holding time was exceeded upon sample receipt.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

Sample specific QC was performed in association with sample 20F0421-01RE1 in Phenolics batch BIG0226. The duplicate RPD was within control limits. The matrix spike percent recovery was out of control high and is flagged.



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

20-C012573
20F0421-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8

Sampled: 06/23/2020 07:00

Instrument: ICPMS1 Analyst: MCB

Analyzed: 07/01/2020 21:41

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO₃ matrix
Preparation Batch: BIF0879
Prepared: 06/30/2020

Sample Size: 25 mL

Final Volume: 25 mL

Extract ID: 20F0421-01 A 01

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Antimony	7440-36-0	1	0.0180	0.200	0.276	ug/L	
Beryllium	7440-41-7	1	0.0290	0.200	ND	ug/L	U
Chromium	7440-47-3	1	0.130	0.500	1.87	ug/L	
Lead	7439-92-1	1	0.0680	0.100	0.184	ug/L	
Silver	7440-22-4	1	0.0170	0.200	ND	ug/L	U
Thallium	7440-28-0	1	0.00800	0.200	ND	ug/L	U



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

20-C012573
20F0421-01 (Water)

Metals and Metallic Compounds

Method: EPA 200.8 UCT-KED

Sampled: 06/23/2020 07:00

Instrument: ICPMS1 Analyst: MCB

Analyzed: 07/01/2020 21:41

Sample Preparation:

Preparation Method: REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Extract ID: 20F0421-01 A 01

Preparation Batch: BIF0879

Sample Size: 25 mL

Prepared: 06/30/2020

Final Volume: 25 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Arsenic	7440-38-2	1	0.0220	0.200	0.718	ug/L	
Cadmium	7440-43-9	1	0.0300	0.100	0.249	ug/L	
Copper	7440-50-8	1	0.340	0.500	5.47	ug/L	
Nickel	7440-02-0	1	0.0500	0.500	2.86	ug/L	
Selenium	7782-49-2	1	0.440	0.500	ND	ug/L	U
Zinc	7440-66-6	1	0.820	4.00	11.6	ug/L	



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

20-C012573
20F0421-01 (Water)

Wet Chemistry

Method: SM 3500-Cr B-09

Sampled: 06/23/2020 07:00

Instrument: UV1800-2 Analyst: WCW

Analyzed: 06/25/2020 14:23

Sample Preparation:

Preparation Method: No Prep Wet Chem

Extract ID: 20F0421-01 C

Preparation Batch: BIF0763

Sample Size: 40 mL

Prepared: 06/25/2020

Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Hexavalent Chromium	1854-02-99	1.25	0.013	0.013	0.035	mg/L	H, D



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

20-C012573
20F0421-01 (Water)

Wet Chemistry

Method: SM 4500-CN⁻ E-99

Sampled: 06/23/2020 07:00

Instrument: UV1800-2 Analyst: WCW

Analyzed: 07/07/2020 11:50

Sample Preparation:

Preparation Method: SM 4500-CN⁻ G-99

Extract ID: 20F0421-01 B

Preparation Batch: BIG0098

Sample Size: 100 mL

Prepared: 07/06/2020

Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cyanide, Total	57-12-5	1	0.0050	0.0050	ND	mg/L	U



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

20-C012573
20F0421-01 (Water)

Wet Chemistry

Method: SM 4500-CN⁻ G-99

Sampled: 06/23/2020 07:00

Instrument: [CALC] Analyst: WCW

Analyzed: 07/07/2020 12:17

Sample Preparation:

Preparation Method: [CALC]

Extract ID: 20F0421-01

Preparation Batch: [CALC]

Prepared: 07/06/2020

Final Volume: 1

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Cyanide, Amenable	57-12-5	1	0.0100	ND	mg/L	U

Instrument: UV1800-2 Analyst: WCW

Analyzed: 07/07/2020 12:17

Sample Preparation:

Preparation Method: SM 4500-CN⁻ G-99

Extract ID: 20F0421-01 B

Preparation Batch: BIG0098

Prepared: 07/06/2020

Sample Size: 100 mL

Final Volume: 100 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cyanide, Chlorinated	57-12-5	1	0.0050	0.0050	ND	mg/L	U



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

20-C012573
20F0421-01 (Water)

Wet Chemistry

Method: SM 4500-CN⁻ I-97

Sampled: 06/23/2020 07:00

Instrument: UV1800-2 Analyst: WCW

Analyzed: 07/07/2020 12:48

Sample Preparation:

Preparation Method: SM 4500-CN⁻ I-99

Extract ID: 20F0421-01 B

Preparation Batch: BIG0120

Sample Size: 50 mL

Prepared: 07/06/2020

Final Volume: 50 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Cyanide, Weak Acid Dissociable	57-12-5	I	0.005	0.005	ND	mg/L	U



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

20-C012573
20F0421-01RE1 (Water)

Wet Chemistry

Method: EPA 420.1

Sampled: 06/23/2020 07:00

Instrument: UV1800-2 Analyst: JM

Analyzed: 07/10/2020 12:48

Sample Preparation:

Preparation Method: No Prep Wet Chem
Preparation Batch: BIG0226
Prepared: 07/09/2020

Sample Size: 20 mL

Final Volume: 21 mL

Extract ID: 20F0421-01RE1 D

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Total Phenolics		1	0.04	0.04	ND	mg/L	U



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

Metals and Metallic Compounds - Quality Control

Batch BIF0879 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIF0879-BLK1) Prepared: 30-Jun-2020 Analyzed: 30-Jun-2020 18:32												
Antimony	121	0.0200	0.0180	0.200	ug/L							J
Antimony	123	ND	0.0280	0.200	ug/L							U
Chromium	52	0.148	0.130	0.500	ug/L							J
Chromium	53	0.111	0.0700	0.500	ug/L							J
Lead	208	ND	0.0680	0.100	ug/L							U
Silver	107	ND	0.0170	0.200	ug/L							U
Arsenic	75a	ND	0.0220	0.200	ug/L							U
Cadmium	111	ND	0.0300	0.100	ug/L							U
Cadmium	114	ND	0.0400	0.100	ug/L							U
Copper	63	0.407	0.340	0.500	ug/L							J
Copper	65	0.398	0.350	0.500	ug/L							J
Nickel	60	ND	0.0500	0.500	ug/L							U
Nickel	62	ND	0.220	0.500	ug/L							U
Selenium	78	ND	0.440	0.500	ug/L							U
Zinc	66	ND	0.820	4.00	ug/L							U
Zinc	67	ND	0.940	4.00	ug/L							U
Blank (BIF0879-BLK2) Prepared: 30-Jun-2020 Analyzed: 02-Jul-2020 18:05												
Beryllium	9	ND	0.0290	0.200	ug/L							U
Thallium	205	ND	0.00800	0.200	ug/L							U
LCS (BIF0879-BS1) Prepared: 30-Jun-2020 Analyzed: 30-Jun-2020 18:37												
Antimony	121	24.8	0.0180	0.200	ug/L	25.0		99.2	80-120			
Antimony	123	24.8	0.0280	0.200	ug/L	25.0		99.2	80-120			
Chromium	52	25.0	0.130	0.500	ug/L	25.0		100	80-120			
Chromium	53	26.1	0.0700	0.500	ug/L	25.0		104	80-120			
Lead	208	24.5	0.0680	0.100	ug/L	25.0		98.2	80-120			
Silver	107	23.9	0.0170	0.200	ug/L	25.0		95.5	80-120			
Arsenic	75a	24.5	0.0220	0.200	ug/L	25.0		97.9	80-120			
Cadmium	111	24.9	0.0300	0.100	ug/L	25.0		99.7	80-120			
Cadmium	114	24.7	0.0400	0.100	ug/L	25.0		98.8	80-120			
Copper	63	24.3	0.340	0.500	ug/L	25.0		97.3	80-120			
Copper	65	24.8	0.350	0.500	ug/L	25.0		99.3	80-120			
Nickel	60	24.6	0.0500	0.500	ug/L	25.0		98.5	80-120			
Nickel	62	24.9	0.220	0.500	ug/L	25.0		99.5	80-120			



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

Metals and Metallic Compounds - Quality Control

Batch BIF0879 - REN EPA 600/4-79-020 4.1.4 HNO3 matrix

Instrument: ICPMS1 Analyst: MCB

QC Sample/Analyte	Isotope	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BIF0879-BS1)						Prepared: 30-Jun-2020 Analyzed: 30-Jun-2020 18:37						
Selenium	78	81.1	0.440	0.500	ug/L	80.0		101	80-120			
Zinc	66	81.0	0.820	4.00	ug/L	80.0		101	80-120			
Zinc	67	78.6	0.940	4.00	ug/L	80.0		98.3	80-120			
LCS (BIF0879-BS2)						Prepared: 30-Jun-2020 Analyzed: 02-Jul-2020 18:08						
Beryllium	9	24.5	0.0290	0.200	ug/L	25.0		98.0	80-120			
Thallium	205	23.9	0.00800	0.200	ug/L	25.0		95.6	80-120			



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

Wet Chemistry - Quality Control

Batch BIF0763 - No Prep Wet Chem

Instrument: UV1800-2 Analyst: WCW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BIF0763-BLK1)										
Prepared: 25-Jun-2020						Analyzed: 25-Jun-2020 14:21				
Hexavalent Chromium	ND	0.013	0.013	mg/L						U
LCS (BIF0763-BS1)										
Prepared: 25-Jun-2020						Analyzed: 25-Jun-2020 14:21				
Hexavalent Chromium	0.633	0.013	0.013	mg/L	0.625	101	85-115			D



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

Wet Chemistry - Quality Control

Batch BIG0098 - SM 4500-CN⁻ G-99

Instrument: UV1800-2 Analyst: WCW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIG0098-BLK1)						Prepared: 06-Jul-2020 Analyzed: 07-Jul-2020 12:13					
Cyanide, Chlorinated	ND	0.0050	0.0050	mg/L							U
Cyanide, Total	ND	0.0050	0.0050	mg/L							U
LCS (BIG0098-BS1)						Prepared: 06-Jul-2020 Analyzed: 07-Jul-2020 12:14					
Cyanide, Chlorinated	0.192	0.0050	0.0050	mg/L	0.200		96.1	75-125			
Cyanide, Total	0.384	0.0100	0.0100	mg/L	0.399		96.2	75-125			D



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

Wet Chemistry - Quality Control

Batch BIG0120 - SM 4500-CN⁻ I-99

Instrument: UV1800-2 Analyst: WCW

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIG0120-BLK1) Prepared: 06-Jul-2020 Analyzed: 07-Jul-2020 12:44											
Cyanide, Weak Acid Dissociable	ND	0.005	0.005	mg/L							U
LCS (BIG0120-BS1) Prepared: 06-Jul-2020 Analyzed: 07-Jul-2020 12:45											
Cyanide, Weak Acid Dissociable	0.142	0.005	0.005	mg/L	0.150		94.8	75-125			



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

Wet Chemistry - Quality Control

Batch BIG0169 - No Prep Wet Chem

Instrument: UV1800-2 Analyst: JM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIG0169-BLK1)											
						Prepared: 08-Jul-2020 Analyzed: 09-Jul-2020 12:20					
Total Phenolics	ND	0.04	0.04	mg/L							U
LCS (BIG0169-BS1)											
						Prepared: 08-Jul-2020 Analyzed: 09-Jul-2020 12:21					
Total Phenolics	0.53	0.04	0.04	mg/L	0.500		105	90-110			



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

Wet Chemistry - Quality Control

Batch BIG0226 - No Prep Wet Chem

Instrument: UV1800-2 Analyst: JM

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BIG0226-BLK1) Prepared: 09-Jul-2020 Analyzed: 10-Jul-2020 12:47											
Total Phenolics	ND	0.04	0.04	mg/L							U
LCS (BIG0226-BS1) Prepared: 09-Jul-2020 Analyzed: 10-Jul-2020 12:47											
Total Phenolics	0.51	0.04	0.04	mg/L	0.500		101	90-110			
Duplicate (BIG0226-DUP1) Source: 20F0421-01RE1 Prepared: 09-Jul-2020 Analyzed: 10-Jul-2020 12:48											
Total Phenolics	ND	0.04	0.04	mg/L		ND					U
Matrix Spike (BIG0226-MS1) Source: 20F0421-01RE1 Prepared: 09-Jul-2020 Analyzed: 10-Jul-2020 12:49											
Total Phenolics	0.56	0.08	0.08	mg/L	0.400	ND	141	75-125			*, D

Recovery limits for target analytes in MS/MSD QC samples are advisory only.



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

Certified Analyses included in this Report

Analyte	Certifications
EPA 200.8 in Water	
Silver-107	WADOE,WA-DW,DoD-ELAP,NELAP
Silver-107	WADOE,WA-DW,DoD-ELAP
Beryllium-9	NELAP,WADOE,WA-DW,DoD-ELAP
Beryllium-9	WADOE,WA-DW,DoD-ELAP
Chromium-52	WADOE,WA-DW,DoD-ELAP
Chromium-52	NELAP,WADOE,WA-DW,DoD-ELAP
Chromium-53	NELAP,WADOE,WA-DW,DoD-ELAP
Chromium-53	WADOE,WA-DW,DoD-ELAP
Lead-208	NELAP,WADOE,WA-DW,DoD-ELAP
Lead-208	WADOE,WA-DW,DoD-ELAP
Antimony-121	WADOE,WA-DW,DoD-ELAP
Antimony-121	NELAP,WADOE,WA-DW,DoD-ELAP
Thallium-205	NELAP,WADOE,WA-DW,DoD-ELAP
Thallium-205	WADOE,WA-DW,DoD-ELAP
EPA 200.8 UCT-KED in Water	
Arsenic-75a	WADOE,WA-DW,DoD-ELAP
Arsenic-75a	NELAP,WADOE,WA-DW,DoD-ELAP
Cadmium-111	WADOE,WA-DW,DoD-ELAP
Cadmium-111	NELAP,WADOE,WA-DW,DoD-ELAP
Cadmium-114	NELAP,WADOE,WA-DW,DoD-ELAP
Cadmium-114	WADOE,WA-DW,DoD-ELAP
Copper-63	WADOE,WA-DW,DoD-ELAP
Copper-63	NELAP,WADOE,WA-DW,DoD-ELAP
Copper-65	NELAP,WADOE,WA-DW,DoD-ELAP
Copper-65	WADOE,WA-DW,DoD-ELAP
Nickel-60	NELAP,WADOE,WA-DW,DoD-ELAP
Nickel-60	WADOE,WA-DW,DoD-ELAP
Nickel-62	NELAP,WADOE,WA-DW,DoD-ELAP
Nickel-62	WADOE,WA-DW,DoD-ELAP
Selenium-78	WADOE,WA-DW,DoD-ELAP
Selenium-78	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-66	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-66	WADOE,WA-DW,DoD-ELAP
Zinc-67	NELAP,WADOE,WA-DW,DoD-ELAP
Zinc-67	WADOE,WA-DW,DoD-ELAP



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

EPA 420.1 in Water

Total Phenolics WADOE, DoD-ELAP
Total Phenolics WADOE, NELAP, DoD-ELAP

SM 3500-Cr B-09 in Water

Hexavalent Chromium WADOE, NELAP
Hexavalent Chromium WADOE

SM 4500-CN⁻ E-99 in Water

Cyanide, Total WADOE, WA-DW, DoD-ELAP
Cyanide, Total WADOE, WA-DW, NELAP, DoD-ELAP

SM 4500-CN⁻ I-97 in Water

Cyanide, Weak Acid Dissociable WADOE
Cyanide, Weak Acid Dissociable NELAP, WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
WADOE	WA Dept of Ecology	C558	06/30/2020
WA-DW	Ecology - Drinking Water	C558	06/30/2020



Cascade Analytical, Inc. - Eurofins
3019 GS Center Rd
Wenatchee WA, 98801

Project: REC Silicon
Project Number: 009884-2
Project Manager: Andy Schut

Reported:
10-Jul-2020 15:33

Notes and Definitions

- * Flagged value is not within established control limits.
- D The reported value is from a dilution
- H Hold time violation - Hold time was exceeded.
- J Estimated concentration value detected below the reporting limit.
- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.



AGRICULTURAL &
ENVIRONMENTAL ANALYSIS

3019 G.S. Center Rd.
Wenatchee, WA 98801

(509) 662-1888
Fax: (509) 662-8183
1-800-545-4206

SPECIAL SERVICE ORDER FORM

SEND RESULTS TO		SAMPLE #					
1) Client	2) Billing	3) Both	Both	1	2	3	4
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLE REPRESENTS							
1) Food	2) Water	3) Soil	4) Plant Tissue	5) Other	Other		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
SAMPLE BY							
1) Client	2) Field Rep.	3) Quality Control	4) Cascade	5) Other			
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
SAMPLER'S NAME		SARAH OMAN					

CLIENT NAME/ADDRESS
REC Silicon
3322 Rd "R" NE
MOSES Lake, WA 98837
PHONE NO. 509-766-9314

BILLING NAME/ADDRESS
SAME
PHONE NO.

EMAIL	Sarah.Oman@recsilicon.com
-------	---------------------------

EMAIL	MLacut@recsilicon.com
-------	-----------------------

FORM MUST BE COMPLETED BEFORE ANALYSIS WILL BE PERFORMED.

RELINQUISHED BY: (Signature) [1]	DATE	RELINQUISHED BY: (Signature) [2]	DATE	RELINQUISHED BY: (Signature) [3]	DATE
	6-23-20				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
	09:00				
RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE
	6-24-20				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
Kaylee Trost	10:27 AM				

SAMPLE I.D.	Sample Date	Sample Time
518076 20-C012573	6-23-20	07:00
ANALYSIS REQUESTED	EPA 200.8 Priority Pollutant Metals (No Hg), SM3500 Cr6	
COMMENT	Total (335.4), WAD(SM4500-CN I) & Amenable (SM4500-CN G) Cyanide, 420.1 Phenols	
SAMPLE I.D.	Sample Date	Sample Time
ANALYSIS REQUESTED		
COMMENT		
SAMPLE I.D.	Sample Date	Sample Time
ANALYSIS REQUESTED		
COMMENT		
SAMPLE I.D.	Sample Date	Sample Time
ANALYSIS REQUESTED		
COMMENT		

Sample container received by client was sealed
Sample container received by laboratory was sealed

Yes ☐ No ☐
Yes ☐ No ☐

Disclaimer:

Cascade Analytical, Inc., makes no warranty of any kind, expressed or implied, and customer assumes all risk and liability from use of Cascade Analytical test results. Cascade neither assumes nor authorizes any person to assume for Cascade any other liability in connection with the testing done by Cascade Analytical, Inc., and there are not other oral agreements or warranties collateral to or affecting this agreement. Cascade Analytical, Inc.'s liability to customer as a result of customer's use of Cascade's tests results shall be limited to a sum equal to the fees paid by customer to Cascade Analytical, Inc. for the testing work.

Customer Signature Date 6-23-20

PACKAGING/SHIPPING INSTRUCTIONS:

Contact Laboratory to establish:

- a) performance of analysis
- b) sampling protocol, if unknown
- c) storage and shipping requirements

Complete order form. Attach chain of custody form if required.

Use container supplied by or approved by the laboratory. Other containers may contaminate sample. Pack in protective material to prevent sample vessel breakage. Ship sample refrigerated if required.



Sample Receipt Form

Date Received: 6-24-20 Time Received: 10:27 AM Initials: KT

Client Name: PEC Silicon Project Name: _____

Temperature of cooler upon receipt: 33 °C Thermometer ID: OR-4

Custody seals: ☒ Intact ☐ Broken ☐ None ☐ N/A

Chain of Custody Completed:

Client name, address, and phone number;

Date and time of sampling;

Test requests clear;

Completed in ink;

Signed by client;

<input checked="" type="radio"/> Yes	<input type="radio"/> No
<input checked="" type="radio"/> Yes	<input type="radio"/> No
<input checked="" type="radio"/> Yes	<input type="radio"/> No
<input checked="" type="radio"/> Yes	<input type="radio"/> No
<input checked="" type="radio"/> Yes	<input type="radio"/> No

All samples received:

<input checked="" type="radio"/> Yes	<input type="radio"/> No
--------------------------------------	--------------------------

All samples intact:

<input checked="" type="radio"/> Yes	<input type="radio"/> No
--------------------------------------	--------------------------

Sample ID's match COC form:

<input checked="" type="radio"/> Yes	<input type="radio"/> No
--------------------------------------	--------------------------

Appropriate containers used:

<input checked="" type="radio"/> Yes	<input type="radio"/> No
--------------------------------------	--------------------------

Sufficient amount of sample for analysis:

<input checked="" type="radio"/> Yes	<input type="radio"/> No
--------------------------------------	--------------------------

Correct preservative verified:

<u>N/A</u>	<input checked="" type="radio"/> Yes	<input type="radio"/> No
------------	--------------------------------------	--------------------------

Air bubbles in VOC, TTHM, or HAA5 samples:

<u>N/A</u>	<input checked="" type="radio"/> Yes	<input type="radio"/> No
------------	--------------------------------------	--------------------------

Sample(s) exceed hold time:

<input checked="" type="radio"/> Yes	<input type="radio"/> No
--------------------------------------	--------------------------

Type of coolant: ☒ Ice ☐ Blue Ice ☐ None ☐ Other Comment: _____

Shipping Method: ☒ FedEx ☐ UPS ☐ USPS ☐ Brett & Sons ☐ Hand Delivered ☐ CAI Sampled

Shipping Container: ☐ E-CA Cooler ☒ E-CA Cooler Box ☐ Client's Cooler ☐ None ☐ Other _____

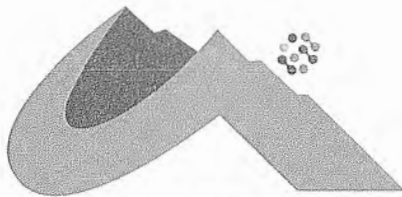
Samples accepted for analysis:

<input checked="" type="radio"/> Yes	<input type="radio"/> No
--------------------------------------	--------------------------

Reason for Rejection: _____

Name of Person Contacted: _____ Date Contacted: _____

Comments: _____



CASCADE ANALYTICAL

A EUROFINS COMPANY

1-800-545-4206

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

Batch: 009885
Client: Rec-Silicon-Plant 3
(509) 452-7707 Account: 10038
Fax: (509) 452-7773 Sampler: Sarah Oman
1008 W. Ahtanum Rd.
Union Gap, WA 98903
PO Number:

--- Analytical Services Report ---

Report Date: 7/20/20

Rec-Silicon-Plant 3
Sarah Oman
3322 Road "N" NE
Moses Lake, WA 98837

Laboratory Number: 20-C012575
Sample Identification: 518076
Sample Comment: LL Hg

Date Received: 6/23/20
Date Sampled: 6/23/20

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Other Analysis	Analyzed by TAL				7/ 1/20	

Approved By Name: Andy Schut
Lab Manager/Yakima

Signature:

Function:

Eurofins-Cascade Analytical uses procedures established by EPA, AOAC, 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.



Environment Testing
America

ANALYTICAL REPORT

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

Laboratory Job ID: 580-95614-1
Client Project/Site: REC Silicon

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

Attn: Andy Schut

Authorized for release by:
7/1/2020 4:42:03 PM

Ashley Worthy, Project Manager I
(253)248-4965
ashley.worthy@testamericainc.com

LINKS

Review your project
results through

TotalAccess

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.

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Case Narrative

Client: Cascade Analytical Inc
Project/Site: REC Silicon

Job ID: 580-95614-1

Job ID: 580-95614-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-95614-1

Comments

No additional comments.

Receipt

The sample was received on 6/25/2020 9:50 AM; the sample arrived in good condition. The temperature of the cooler at receipt was 20.4° C.

Receipt Exceptions

The following sample was received at the laboratory outside the required temperature criteria: 20-C012575 (580-95614-1). There was no cooling media present in the cooler. Cooling not necessary for Mercury.

Metals

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

Definitions/Glossary

Client: Cascade Analytical Inc
Project/Site: REC Silicon

Job ID: 580-95614-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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
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 Sample Results

Client: Cascade Analytical Inc
Project/Site: REC Silicon

Job ID: 580-95614-1

Client Sample ID: 20-C012575

Lab Sample ID: 580-95614-1

Date Collected: 06/23/20 07:00

Matrix: Water

Date Received: 06/25/20 09:50

Method: 1631E - Mercury, Low Level (CVAFS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	3.7		0.50	0.14	ng/L		06/29/20 11:30	06/30/20 10:28	1

QC Sample Results

Client: Cascade Analytical Inc
Project/Site: REC Silicon

Job ID: 580-95614-1

Method: 1631E - Mercury, Low Level (CVAFS)

Lab Sample ID: MB 240-440503/1-A
Matrix: Water
Analysis Batch: 440727

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 440503

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.50	0.14	ng/L		06/29/20 11:30	06/30/20 08:40	1

Lab Sample ID: LCS 240-440503/2-A
Matrix: Water
Analysis Batch: 440727

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 440503
%Rec.

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	5.00	5.17		ng/L		103	77 - 123

Lab Sample ID: 600-207136-Z-1-A MS
Matrix: Water
Analysis Batch: 440727

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 440503
%Rec.

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	1.4		5.00	5.73		ng/L		87	71 - 125

Lab Sample ID: 600-207136-Z-1-B MSD
Matrix: Water
Analysis Batch: 440727

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 440503
%Rec. RPD

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	1.4		5.00	5.73		ng/L		87	71 - 125	0	24

Lab Chronicle

Client: Cascade Analytical Inc
Project/Site: REC Silicon

Job ID: 580-95614-1

Client Sample ID: 20-C012575

Lab Sample ID: 580-95614-1

Date Collected: 06/23/20 07:00

Matrix: Water

Date Received: 06/25/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1631E			440503	06/29/20 11:30	AJC	TAL CAN
Total/NA	Analysis	1631E		1	440727	06/30/20 10:28	AJC	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: Cascade Analytical Inc
Project/Site: REC Silicon

Job ID: 580-95614-1

Laboratory: Eurofins TestAmerica, Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C553	02-18-21

Laboratory: Eurofins TestAmerica, Canton

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C971	01-12-21

Eurofins TestAmerica, Seattle

Sample Summary

Client: Cascade Analytical Inc
Project/Site: REC Silicon

Job ID: 580-95614-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-95614-1	20-C012575	Water	06/23/20 07:00	06/25/20 09:50	

5755 8th Street East

phone 253.922.2310 fax 253.922.5047

THE LEADER IN ENVIRONMENTAL TESTING

[illegible]

Form No. CA-C-WI-002, dated 04/07/2011

5755 8th Street East
Tacoma, WA 98424
Phone: 253-922-2310 Fax: 253-922-5047

214/223

Chain of Custody Record



Environment Testing
America

[illegible]

Ver: 01:16-2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative				Login # : _____	
Canton Facility					
Client <u>EVA</u>		Site Name _____		Cooler unpacked by: <u>Ryan C</u>	
Cooler Received on <u>6-27-20</u>		Opened on <u>6-27-20 9:40</u>			
FedEx: 1 st Grd <u>Exp</u> UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____					
Receipt After-hours: Drop-off Date/Time				Storage Location	
TestAmerica Cooler # _____		Foam Box <u>Client Cooler</u> Box Other _____			
Packing material used: <u>Bubble Wrap</u> Foam Plastic Bag None Other _____					
COOLANT: Wet Ice Blue Ice Dry Ice Water <u>None</u>					
1. Cooler temperature upon receipt				<input type="checkbox"/> See Multiple Cooler Form	
IR GUN# IR-10 (CF +0.7 °C)		Observed Cooler Temp. _____ °C		Corrected Cooler Temp. _____ °C	
IR GUN #IR-11 (CF +0.9 °C)		Observed Cooler Temp. <u>21.4</u> °C		Corrected Cooler Temp. <u>22.5</u> °C	
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity <u>1</u>				Yes No	
-Were the seals on the outside of the cooler(s) signed & dated?				Yes No NA	
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?				Yes No NA	
-Were tamper/custody seals intact and uncompromised?				Yes No NA	
3. Shippers' packing slip attached to the cooler(s)?				Yes No	
4. Did custody papers accompany the sample(s)?				Yes No	
5. Were the custody papers relinquished & signed in the appropriate place?				Yes No	
6. Was/were the person(s) who collected the samples clearly identified on the COC?				Yes No	
7. Did all bottles arrive in good condition (Unbroken)?				Yes No	
8. Could all bottle labels be reconciled with the COC?				Yes No	
9. Were correct bottle(s) used for the test(s) indicated?				Yes No	
10. Sufficient quantity received to perform indicated analyses?				Yes No	
11. Are these work share samples?				Yes No	
If yes, Questions 12-16 have been checked at the originating laboratory.					
12. Were all preserved sample(s) at the correct pH upon receipt?				Yes No NA	
13. Were VOAs on the COC?				Yes No NA	
14. Were air bubbles >6 mm in any VOA vials? Larger than this.				Yes No NA	
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____				Yes No	
16. Was a LL Hg or Me Hg trip blank present?				Yes No	
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____					
Concerning _____					

Tests that are not
checked for pH by
Receiving:

VOAs
Oil and Grease
TOC

pH Strip Lot# HC911298

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES		Samples processed by: _____	
18. SAMPLE CONDITION			
Sample(s) _____		were received after the recommended holding time had expired.	
Sample(s) _____		were received in a broken container.	
Sample(s) _____		were received with bubble >6 mm in diameter. (Notify PM)	
19. SAMPLE PRESERVATION			
Sample(s) _____		were further preserved in the laboratory.	
Time preserved: _____		Preservative(s) added/Lot number(s): _____	
VOA Sample Preservation - Date/Time VOAs Frozen: _____			

WI-NC-099

Login Sample Receipt Checklist

Client: Cascade Analytical Inc

Job Number: 580-95614-1

Login Number: 95614

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Valledlunga, Diana L

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	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.	False	Refer to Job Narrative for details.
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 $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



AGRICULTURAL &
ENVIRONMENTAL ANALYSIS

3019 G.S. Center Rd.
Wenatchee, WA 98801

(509) 662-1888
Fax: (509) 662-8183
1-800-545-4206

SPECIAL SERVICE ORDER FORM

SEND RESULTS TO		SAMPLE #					
1) Client	2) Billing	3) Both	Client	1	2	3	4
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Client	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLE REPRESENTS							
1) Food 2) Water 3) Soil 4) Plant Tissue 5) Other				Water			
<input type="checkbox"/>				<input checked="" type="checkbox"/>			
SAMPLE BY							
1) Client 2) Field Rep. 3) Quality Control 4) Cascade 5) Other				<input checked="" type="checkbox"/>			
SAMPLER'S NAME				SARAH Oman			

98875

AS 6/25

CLIENT NAME/ADDRESS
REC Silicon
3322 Rd "N" NE
MOSES LAKE WA 98837
PHONE NO. 509-766-9314

BILLING NAME/ADDRESS
JAME
PHONE NO.

EMAIL	Sarah.Oman@recsilicon.com
-------	---------------------------

EMAIL	MLaet@recsilicon.com
-------	----------------------

FORM MUST BE COMPLETED BEFORE ANALYSIS WILL BE PERFORMED.

RELINQUISHED BY: (Signature) [1]	DATE	RELINQUISHED BY: (Signature) [2]	DATE	RELINQUISHED BY: (Signature) [3]	DATE
	6-23-20				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
Sarah Oman	09:00				
RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE
	6-24-20				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
Kaylee Troth	10:27				

	SAMPLE I.D.	20-0012575	Sample Date	Sample Time
1	ANALYSIS REQUESTED	EPA 1631 Low Level Hg	6-23-20	07:00
	COMMENT			
2	SAMPLE I.D.		Sample Date	Sample Time
	ANALYSIS REQUESTED			
	COMMENT			
3	SAMPLE I.D.		Sample Date	Sample Time
	ANALYSIS REQUESTED			
	COMMENT			
4	SAMPLE I.D.		Sample Date	Sample Time
	ANALYSIS REQUESTED			
	COMMENT			

Sample container received by client was sealed
Sample container received by laboratory was sealed

Yes ☐ No ☐
Yes ☐ No ☐

Disclaimer:

Cascade Analytical, Inc., makes no warranty of any kind, expressed or implied, and customer assumes all risk and liability from use of Cascade Analytical test results. Cascade neither assumes nor authorizes any person to assume for Cascade any other liability in connection with the testing done by Cascade Analytical, Inc., and there are not other oral agreements or warranties collateral to or affecting this agreement.

Cascade Analytical, Inc.'s liability to customer as a result of customer's use of Cascade's tests results shall be limited to a sum equal to the fees paid by customer to Cascade Analytical, Inc. for the testing work.

Customer Signature

Date

6-23-20

PACKAGING/SHIPPING INSTRUCTIONS:

Contact Laboratory to establish:

- a) performance of analysis
- b) sampling protocol, if unknown
- c) storage and shipping requirements

Complete order form. Attach chain of custody form if required.

Use container supplied by or approved by the laboratory. Other containers may contaminate sample. Pack in protective material to prevent sample vessel breakage. Ship sample refrigerated if required.



Sample Receipt Form

Date Received: 6-24-20 Time Received: 10:27 AM Initials: PT

Client Name: REC Silicon Project Name: _____

Temperature of cooler upon receipt: 3.3 °C Thermometer ID: OR-4

Custody seals: ☒ Intact ☐ Broken ☐ None ☐ N/A

Chain of Custody Completed:

Client name, address, and phone number;

☒ Yes ☐ No

Date and time of sampling;

☒ Yes ☐ No

Test requests clear;

☒ Yes ☐ No

Completed in ink;

☒ Yes ☐ No

Signed by client;

☒ Yes ☐ No

All samples received:

☒ Yes ☐ No

All samples intact:

☒ Yes ☐ No

Sample ID's match COC form:

☒ Yes ☐ No

Appropriate containers used:

☒ Yes ☐ No

Sufficient amount of sample for analysis:

☒ Yes ☐ No

Correct preservative verified:

☒ N/A ☐ Yes ☐ No

Air bubbles in VOC, TTHM, or HAA5 samples:

☒ N/A ☐ Yes ☒ No

Sample(s) exceed hold time:

☐ Yes ☒ No

Type of coolant: ☒ Ice ☐ Blue Ice ☐ None ☐ Other Comment: _____

Shipping Method: ☒ FedEx ☐ UPS ☐ USPS ☐ Brett & Sons ☐ Hand Delivered ☐ CAI Sampled

Shipping Container: ☐ E-CA Cooler ☒ E-CA Cooler Box ☐ Client's Cooler ☐ None ☐ Other _____

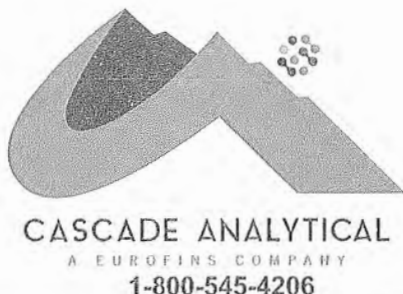
Samples accepted for analysis:

☒ Yes ☐ No

Reason for Rejection: _____

Name of Person Contacted: _____ Date Contacted: _____

Comments: _____



(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.
Union Gap, WA 98903

Batch: 010453
Client: Rec-Silicon-Plant 3
Account: 10038
Sampler:
PO Number:

--- Analytical Services Report ---

Report Date: 8/26/20

Rec-Silicon-Plant 3
3322 Road "N" NE
Moses Lake, WA 98837

Laboratory Number: 20-C013589

Sample Identification: 519038

Date Received: 7/ 7/20

Date Sampled: 7/ 7/20

~~Sample Comment: Organics~~

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Other Analysis	Analyzed by Edge				8/21/20	

Approved By Name:

Andy Schut
Lab Manager/Yakima

Signature:

Function:

Eurofins-Cascade Analytical uses procedures established by EPA, AOAC, 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.



Burlington, WA Corporate Laboratory (a)
1520 S. Walnut St. - Burlington, WA 98233 - 800.755.9295 - 360.757.1400
Bellingham, WA Microbiology (b)
825 Orchard Dr Ste 4 - Bellingham, WA 98225 - 360.715.1212

Portland, OR Microbiology/Chemistry (c)
9150 SW Pioneer Ct Ste W - Wilsonville, OR 97070 - 503.682.7502
Corvallis, OR Microbiology/Chemistry (d)
1100 NE Circle Blvd. Ste. 130 - Corvallis, OR 97330 - 541.753.4366
Bend, OR Microbiology (e)
29232 Empire Blvd Ste 4 - Bend, OR 97701 - 541.639.6425

August 20, 2020

Page 1 of 1

Andy Schut
Eurofins Cascade Analytical, Inc.
1008 W Ahtanum Ste 2
Union Gap, WA 98903
RE: 20-22793 - 010453-5

Dear Andy Schut,

Your project: 010453-5, was received on Thursday July 09, 2020.

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

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

Respectfully

A handwritten signature in black ink, appearing to read "Lawrence J Henderson", with a long, sweeping flourish extending to the right.

Lawrence J Henderson, PhD
Director of Laboratories, Vice President

Enclosures: Data Report
QC Reports
Chain of Custody



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3150 SW Pioneer Ct Ste W - Wilsonville, OR 97079 • 503.682.7852

Corvallis, OR Microbiology/Chemistry (d)
1160 NE Circle Blvd, Ste 130 - Corvallis, OR 97339 • 541.753.4946

Bend, OR Microbiology (e)
20322 Empire Blvd Ste 4 - Bend, OR 97701 • 541.639.6425

WSDOE Lab C567

DATA REPORT

Page 1 of 2

Client Name: Eurofins Cascade Analytical, Inc.
1008 W Ahtanum Ste 2
Union Gap, WA 98903

Reference Number: **20-22793**

Project: 010453-5

Lab Number: 43378
Field ID: 20-C013589
Sample Description: 519038
Matrix: Wastewater
Sample Date: 7/7/20
Extraction Date: 7/14/20
Extraction Method: 3510C

Report Date: 8/20/20
Date Analyzed: 7/29/20
Analyst: NML
Analytical Method: 625
Batch: 625_200714
Approved By: hy

Authorized by:

Lawrence J Henderson, PhD
Director of Laboratories, Vice President

CAS	Compound	RESULT	Flag	UNITS	Lab QL	Permit QL	MDL	D.F.	Lab	COMMENT
Acid Extractables										
88-06-2	2,4,6-TRICHLOROPHENOL	ND		ug/L	1	4	0.1	1.00	a	
120-83-2	2,4-DICHLOROPHENOL	ND		ug/L	1	1	0.2	1.00	a	
105-67-9	2,4-DIMETHYLPHENOL	ND		ug/L	1	1	0.4	1.00	a	
51-28-5	2,4-DINITROPHENOL	ND		ug/L	2	2	0.5	1.00	a	
95-57-8	2-CHLOROPHENOL	ND		ug/L	1	2	0.1	1.00	a	
88-75-5	2-NITROPHENOL	ND		ug/L	1	1	0.2	1.00	a	
534-52-1	4,6-DINITRO-2-METHYLPHENOL	ND		ug/L	1	2	0.3	1.00	a	
59-50-7	4-CHLORO-3-METHYLPHENOL	ND		ug/L	1	2	0.2	1.00	a	
100-02-7	4-NITROPHENOL	ND		ug/L	1	1	0.3	1.00	a	
87-86-5	PENTACHLOROPHENOL	ND		ug/L	1	1	0.2	1.00	a	
108-95-2	PHENOL	ND		ug/L	1	4	0.1	1.00	a	
Base/Neutral Extractables										
120-82-1	1,2,4-TRICHLOROBENZENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
122-66-7	1,2-DIPHENYLHYDRAZINE	ND		ug/L	0.4	20	0.06	1.00	a	as Azobenzene
121-14-2	2,4-DINITROTOLUENE	ND		ug/L	0.4	0.4	0.07	1.00	a	
606-20-2	2,6-DINITROTOLUENE	ND		ug/L	0.4	0.4	0.09	1.00	a	
91-58-7	2-CHLORONAPHTHALENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
91-94-1	3,3-DICHLOROBENZIDINE	ND		ug/L	0.2	1	0.2	1.00	a	
101-55-3	4-BROMOPHENYL PHENYL ETHER	ND		ug/L	0.4	0.4	0.04	1.00	a	
7005-72-3	4-CHLOROPHENYL PHENYL ETHER	ND		ug/L	0.4	0.5	0.04	1.00	a	
83-32-9	ACENAPHTHENE	ND		ug/L	0.4	0.4	0.04	1.00	a	
208-96-8	ACENAPHTHYLENE	ND		ug/L	0.4	0.6	0.07	1.00	a	
120-12-7	ANTHRACENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
56-55-3	BENZ[A]ANTHRACENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
92-87-5	BENZIDINE	ND		ug/L	10	24	9.	1.00	a	screening method
50-32-8	BENZO[A]PYRENE	ND		ug/L	0.4	1	0.05	1.00	a	

Notes:

Flags are data qualifiers. If there are data qualifiers on your report definitions can be found on an accompanying sheet.

ND - indicates the compound was not detected above the PQL or MDL.

Lab QL = Laboratory Quantitation Limit is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Permit QL = Quantitation Limit required by permit (listed in Appendix A) or other regulatory requirement.

D.F. = Dilution Factor.

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

Form: c608.rpt

CAS	Compound	RESULT	Flag	UNITS	Lab QL	Permit QL	MDL	D.F.	Lab	COMMENT
205-99-2	BENZO[B]FLUORANTHENE	ND		ug/L	0.4	1.6	0.08	1.00	a	unresolved w/ Benzo(J)Fluoranthene
191-24-2	BENZO[G,H,I]PERYLENE	ND		ug/L	0.4	1	0.05	1.00	a	
207-08-9	BENZO[K]FLUORANTHENE	ND		ug/L	0.4	1.6	0.08	1.00	a	
85-68-7	BENZYL BUTYL PHTHALATE	ND		ug/L	0.4	0.6	0.03	1.00	a	
108-60-1	BIS(2-CHLORO-1-METHYLETHYL)ETHER	ND		ug/L	0.4	0.6	0.06	1.00	a	
111-91-1	Bis(2-CHLOROETHOXY)METHANE	ND		ug/L	0.4	1	0.06	1.00	a	
111-44-4	BIS(2-CHLOROETHYL)ETHER	ND		ug/L	0.4	1	0.06	1.00	a	
218-01-9	CHRYSENE	ND		ug/L	0.4	0.6	0.06	1.00	a	
117-81-7	DI(2-ETHYLHEXYL)PHTHALATE	ND		ug/L	0.4	0.5	0.1	1.00	a	
53-70-3	DIBENZO[A,H]ANTHRACENE	ND		ug/L	0.4	1.6	0.05	1.00	a	
84-66-2	DIETHYL PHTHALATE	ND		ug/L	0.4	1	0.06	1.00	a	
131-11-3	DIMETHYL PHTHALATE	ND		ug/L	0.4	1	0.05	1.00	a	
84-74-2	DI-N-BUTYL PHTHALATE	ND		ug/L	0.4	1	0.07	1.00	a	
117-84-0	DI-N-OCTYL PHTHALATE	ND		ug/L	0.4	0.6	0.02	1.00	a	
206-44-0	FLUORANTHENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
86-73-7	FLUORENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
118-74-1	HEXACHLOROBENZENE	ND		ug/L	0.4	0.6	0.06	1.00	a	
87-68-3	HEXACHLOROBUTADIENE	ND		ug/L	0.4	1	0.09	1.00	a	
77-47-4	HEXACHLOROCYCLOPENTADIENE	ND		ug/L	0.4	1	0.2	1.00	a	
67-72-1	HEXACHLOROETHANE	ND		ug/L	0.4	1	0.09	1.00	a	
193-39-5	INDENO[1,2,3,C,D]PYRENE	ND		ug/L	0.4	1	0.09	1.00	a	
78-59-1	ISOPHORONE	ND		ug/L	0.4	1	0.07	1.00	a	
91-20-3	NAPHTHALENE	ND		ug/L	0.4	0.6	0.06	1.00	a	
98-95-3	NITROBENZENE	ND		ug/L	0.4	1	0.05	1.00	a	
62-75-9	N-NITROSODIMETHYLAMINE	ND		ug/L	0.4	4	0.3	1.00	a	
621-64-7	N-NITROSODI-N-PROPYLAMINE	ND		ug/L	0.4	1	0.1	1.00	a	
86-30-6	N-NITROSODIPHENYLAMINE	ND		ug/L	0.4	1	0.05	1.00	a	as Diphenylamine
85-01-8	PHENANTHRENE	ND		ug/L	0.4	0.6	0.06	1.00	a	
129-00-0	PYRENE	ND		ug/L	0.4	0.6	0.05	1.00	a	
Ecology Priority Toxic Chemicals										
56-49-5	3-METHYL CHOLANTHRENE	ND		ug/L	1	8	0.4	1.00	a	
205-82-3	BENZO(J)FLUORANTHENE	ND		ug/L	1	1	0.4	1.00	a	unresolved w/ Benzo(B)Fluoranthene
189-55-9	BENZO(R,S,T)PENTAPHENE	ND		ug/L	1	1	0.3	1.00	a	
192-65-4	DIBENZO(A,E)PYRENE	ND		ug/L	1	10	0.5	1.00	a	
226-36-8	DIBENZO(A,H)ACRIDINE	ND		ug/L	1	10	0.4	1.00	a	
189-64-0	DIBENZO(A,H)PYRENE	ND		ug/L	1	10	0.3	1.00	a	
224-42-0	DIBENZO(A,J)ACRIDINE	ND		ug/L	1	10	0.4	1.00	a	
198-55-0	PERYLENE	ND		ug/L	1	7.6	0.6	1.00	a	

Notes:

Flags are data qualifiers. If there are data qualifiers on your report definitions can be found on an accompanying sheet.

ND - indicates the compound was not detected above the PQL or MDL.

Lab QL = Laboratory Quantitation Limit is the lowest level that can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Permit QL = Quantitation Limit required by permit (listed in Appendix A) or other regulatory requirement.

D.F. = Dilution Factor.



SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: **20-22793**

Report Date: 08/20/20

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
625_200714	0 2 - FLUOROBIPHENYL (Surr)	85		%	625		71-119		LFB	
	0 2 - FLUOROPHENOL (Surr)	53		%	625		32-86		LFB	
	0 2,4,6 - TRIBROMOPHENOL (Surr)	88		%	625		64-126		LFB	
	0 d5-NITROBENZENE (Surr)	82		%	625		67-126		LFB	
	0 p-TERPHENYL-d14 (Surr)	90		%	625		69-116		LFB	
	0 2,4,6-TRICHLOROPHENOL	8.7	10	ug/L	625	87	52-129		LFB	
	0 2,4-DICHLOROPHENOL	8.4	10	ug/L	625	84	53-122		LFB	
	0 2,4-DIMETHYLPHENOL	7.9	10	ug/L	625	79	42-120		LFB	
	0 2,4-DINITROPHENOL	9.0	10	ug/L	625	90	1-173		LFB	
	0 2-CHLOROPHENOL	8.1	10	ug/L	625	81	36-120		LFB	
	0 2-NITROPHENOL	8.3	10	ug/L	625	83	45-167		LFB	
	0 4,6-DINITRO-2-METHYLPHENOL	10.7	10	ug/L	625	107	53-130		LFB	
	0 4-CHLORO-3-METHYLPHENOL	8.9	10	ug/L	625	89	41-128		LFB	
	0 4-NITROPHENOL	3.2	10	ug/L	625	32	13-129		LFB	
	0 PENTACHLOROPHENOL	9.6	10	ug/L	625	96	38-152		LFB	
	0 PHENOL	3.9	10	ug/L	625	39	17-120		LFB	
	0 1,2,4-TRICHLOROBENZENE	8.1	10	ug/L	625	81	57-130		LFB	
	0 1,2-DIPHENYLHYDRAZINE	9.3	10	ug/L	625	93	71-125		LFB	
	0 2,4-DINITROTOLUENE	9.4	10	ug/L	625	94	48-127		LFB	
	0 2,6-DINITROTOLUENE	9.2	10	ug/L	625	92	68-137		LFB	
	0 2-CHLORONAPHTHALENE	8.7	10	ug/L	625	87	65-120		LFB	
	0 3,3-DICHLOROBENZIDINE	0.9	1	ug/L	625	90	8-213		LFB	
	0 4-BROMOPHENYL PHENYL ETHER	9.5	10	ug/L	625	95	65-120		LFB	
	0 4-CHLOROPHENYL PHENYL ETHER	9.3	10	ug/L	625	93	38-145		LFB	
	0 ACENAPHTHENE	9.1	10	ug/L	625	91	60-132		LFB	
	0 ACENAPHTHYLENE	9.0	10	ug/L	625	90	54-126		LFB	
	0 ANTHRACENE	9.4	10	ug/L	625	94	43-120		LFB	
	0 BENZ[A]ANTHRACENE	9.6	10	ug/L	625	96	42-133		LFB	
	0 BENZIDINE	5.4	25	ug/L	625	22	1-125		LFB	
	0 BENZO[A]PYRENE	11.7	10	ug/L	625	117	32-148		LFB	
	0 BENZO[B]FLUORANTHENE	24.9	20	ug/L	625	125	42-140		LFB	
	0 BENZO[G,H,I]PERYLENE	11.7	10	ug/L	625	117	1-195		LFB	

*Notation:

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

NA = Indicates % Recovery could not be calculated.

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



SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: **20-22793**

Report Date: 08/20/20

Batch	Analyte	Result	True Value	Units	Method	% Recovery	QC Limits*	QC Qualifier Type	Comment
625_200714	0 BENZO(K)FLUORANTHENE	9.3	10	ug/L	625	93	25-146	LFB	
	0 BENZYL BUTYL PHTHALATE	8.6	10	ug/L	625	86	1-140	LFB	
	0 BIS(2-CHLORO-1-METHYLETHYL)ETHER	8.6	10	ug/L	625	86	63-139	LFB	
	0 Bis(2-CHLOROETHOXY)METHANE	8.9	10	ug/L	625	89	49-165	LFB	
	0 BIS(2-CHLOROETHYL)ETHER	8.8	10	ug/L	625	88	43-126	LFB	
	0 CHRYSENE	9.6	10	ug/L	625	96	44-140	LFB	
	0 DI(2-ETHYLHEXYL)PHTHALATE	9.7	10	ug/L	625	97	29-137	LFB	
	0 DIBENZO(A,H)ANTHRACENE	11.4	10	ug/L	625	114	1-200	LFB	
	0 DIETHYL PHTHALATE	9.3	10	ug/L	625	93	1-120	LFB	
	0 DIMETHYL PHTHALATE	7.9	10	ug/L	625	79	1-120	LFB	
	0 DI-N-BUTYL PHTHALATE	9.5	10	ug/L	625	95	8-120	LFB	
	0 DI-N-OCTYL PHTHALATE	11.9	10	ug/L	625	119	19-132	LFB	
	0 FLUORANTHENE	9.7	10	ug/L	625	97	43-121	LFB	
	0 FLUORENE	9.3	10	ug/L	625	93	70-120	LFB	
	0 HEXACHLOROBENZENE	9.3	10	ug/L	625	93	8-142	LFB	
	0 HEXACHLOROBUTADIENE	7.5	10	ug/L	625	75	38-120	LFB	
	0 HEXACHLOROCYCLOPENTADIENE	7.3	10	ug/L	625	73	14-170	LFB	
	0 HEXACHLOROETHANE	7.3	10	ug/L	625	73	55-120	LFB	
	0 INDENO(1,2,3,C,D)PYRENE	11.4	10	ug/L	625	114	1-151	LFB	
	0 ISOPHORONE	9.1	10	ug/L	625	91	47-180	LFB	
	0 NAPHTHALENE	8.8	10	ug/L	625	88	36-120	LFB	
	0 NITROBENZENE	8.6	10	ug/L	625	86	54-158	LFB	
	0 N-NITROSODIMETHYLAMINE	5.5	10	ug/L	625	55	20-116	LFB	
	0 N-NITROSODI-N-PROPYLAMINE	9.0	10	ug/L	625	90	14-198	LFB	
	0 N-NITROSODIPHENYLAMINE	9.9	10	ug/L	625	99	65-137	LFB	
	0 PHENANTHRENE	9.6	10	ug/L	625	96	65-120	LFB	
	0 PYRENE	9.8	10	ug/L	625	98	70-120	LFB	
	0 3-METHYL CHOLANTHRENE	10.6	10	ug/L	625	106	57-119	LFB	
	0 BENZO(J)FLUORANTHENE	24.9	20	ug/L	625	125	42-140	LFB	
	0 BENZO(R,S,T)PENTAPHENE	10.3	10	ug/L	625	103	1-172	LFB	
	0 DIBENZO(A,E)PYRENE	11.1	10	ug/L	625	111	1-199	LFB	
	0 DIBENZO(A,H)ACRIDINE	11.8	10	ug/L	625	118	60-131	LFB	

*Notation:

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

NA = Indicates % Recovery could not be calculated.

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



SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Laboratory Fortified Blank

Reference Number: **20-22793**

Report Date: 08/20/20

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
625_200714	DIBENZO(A,H)PYRENE	8.4	10	ug/L	625	84	4-160	LFB		
	DIBENZO(A,J)ACRIDINE	11.9	10	ug/L	625	119	55-136	LFB		
	PERYLENE	11.3	10	ug/L	625	113	57-125	LFB		

*Notation:

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

NA = Indicates % Recovery could not be calculated.

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



SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: **20-22793**

Report Date: 08/20/20

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
625_200714	0 2 - FLUOROBIPHENYL (Surr)	86		%	625		71-119		MB	
	0 2 - FLUOROPHENOL (Surr)	55		%	625		32-86		MB	
	0 2,4,6 - TRIBROMOPHENOL (Surr)	84		%	625		64-126		MB	
	0 d5-NITROBENZENE (Surr)	84		%	625		67-126		MB	
	0 p-TERPHENYL-d14 (Surr)	91		%	625		69-116		MB	
	0 2,4,6-TRICHLOROPHENOL	ND		ug/L	625		0-0		MB	
	0 2,4-DICHLOROPHENOL	ND		ug/L	625		0-0		MB	
	0 2,4-DIMETHYLPHENOL	ND		ug/L	625		0-0		MB	
	0 2,4-DINITROPHENOL	ND		ug/L	625		0-0		MB	
	0 2-CHLOROPHENOL	ND		ug/L	625		0-0		MB	
	0 2-NITROPHENOL	ND		ug/L	625		0-0		MB	
	0 4,6-DINITRO-2-METHYLPHENOL	ND		ug/L	625		0-0		MB	
	0 4-CHLORO-3-METHYLPHENOL	ND		ug/L	625		0-0		MB	
	0 4-NITROPHENOL	ND		ug/L	625		0-0		MB	
	0 PENTACHLOROPHENOL	ND		ug/L	625		0-0		MB	
	0 PHENOL	ND		ug/L	625		0-0		MB	
	0 1,2,4-TRICHLOROBENZENE	ND		ug/L	625		0-0		MB	
	0 1,2-DIPHENYLHYDRAZINE	ND		ug/L	625		0-0		MB	
	0 2,4-DINITROTOLUENE	ND		ug/L	625		0-0		MB	
	0 2,6-DINITROTOLUENE	ND		ug/L	625		0-0		MB	
	0 2-CHLORONAPHTHALENE	ND		ug/L	625		0-0		MB	
	0 3,3-DICHLOROBENZIDINE	ND		ug/L	625		0-0		MB	
	0 4-BROMOPHENYL PHENYL ETHER	ND		ug/L	625		0-0		MB	
	0 4-CHLOROPHENYL PHENYL ETHER	ND		ug/L	625		0-0		MB	
	0 ACENAPHTHENE	ND		ug/L	625		0-0		MB	
	0 ACENAPHTHYLENE	ND		ug/L	625		0-0		MB	
	0 ANTHRACENE	ND		ug/L	625		0-0		MB	
	0 BENZ[A]ANTHRACENE	ND		ug/L	625		0-0		MB	
	0 BENZIDINE	ND		ug/L	625		0-0		MB	
	0 BENZO[A]PYRENE	ND		ug/L	625		0-0		MB	
	0 BENZO[B]FLUORANTHENE	ND		ug/L	625		0-0		MB	
	0 BENZO[G,H,I]PERYLENE	ND		ug/L	625		0-0		MB	

*Notation:

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

NA = Indicates % Recovery could not be calculated.

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



SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: **20-22793**

Report Date: 08/20/20

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
625_200714	0 BENZO[K]FLUORANTHENE	ND		ug/L	625		0-0		MB	
	0 BENZYL BUTYL PHTHALATE	ND		ug/L	625		0-0		MB	
	0 BIS(2-CHLORO-1-METHYLETHYL)ETHER	ND		ug/L	625		0-0		MB	
	0 Bis(2-CHLOROETHOXY)METHANE	ND		ug/L	625		0-0		MB	
	0 BIS(2-CHLOROETHYL)ETHER	ND		ug/L	625		0-0		MB	
	0 CHRYSENE	ND		ug/L	625		0-0		MB	
	0 DI(2-ETHYLHEXYL)PHTHALATE	ND		ug/L	625		0-0		MB	
	0 DIBENZO[A,H]ANTHRACENE	ND		ug/L	625		0-0		MB	
	0 DIETHYL PHTHALATE	ND		ug/L	625		0-0		MB	
	0 DIMETHYL PHTHALATE	ND		ug/L	625		0-0		MB	
	0 DI-N-BUTYL PHTHALATE	ND		ug/L	625		0-0		MB	
	0 DI-N-OCTYL PHTHALATE	ND		ug/L	625		0-0		MB	
	0 FLUORANTHENE	ND		ug/L	625		0-0		MB	
	0 FLUORENE	ND		ug/L	625		0-0		MB	
	0 HEXACHLOROBENZENE	ND		ug/L	625		0-0		MB	
	0 HEXACHLOROBUTADIENE	ND		ug/L	625		0-0		MB	
	0 HEXACHLOROCYCLOPENTADIENE	ND		ug/L	625		0-0		MB	
	0 HEXACHLOROETHANE	ND		ug/L	625		0-0		MB	
	0 INDENO[1,2,3,C,D]PYRENE	ND		ug/L	625		0-0		MB	
	0 ISOPHORONE	ND		ug/L	625		0-0		MB	
	0 NAPHTHALENE	ND		ug/L	625		0-0		MB	
	0 NITROBENZENE	ND		ug/L	625		0-0		MB	
	0 N-NITROSODIMETHYLAMINE	ND		ug/L	625		0-0		MB	
	0 N-NITROSODI-N-PROPYLAMINE	ND		ug/L	625		0-0		MB	
	0 N-NITROSODIPHENYLAMINE	ND		ug/L	625		0-0		MB	
	0 PHENANTHRENE	ND		ug/L	625		0-0		MB	
	0 PYRENE	ND		ug/L	625		0-0		MB	
	0 3-METHYL CHOLANTHRENE	ND		ug/L	625		0-0		MB	
	0 BENZO(J)FLUORANTHENE	ND		ug/L	625		0-0		MB	
	0 BENZO(R,S,T)PENTAPHENE	ND		ug/L	625		0-0		MB	
	0 DIBENZO(A,E)PYRENE	ND		ug/L	625		0-0		MB	
	0 DIBENZO(A,H)ACRIDINE	ND		ug/L	625		0-0		MB	

*Notation:

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

NA = Indicates % Recovery could not be calculated.

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



SAMPLE INDEPENDENT QUALITY CONTROL REPORT

Method Blank

Reference Number: **20-22793**

Report Date: 08/20/20

Batch	Analyte	Result	True Value	Units	Method	% Recovery	Limits*	QC Qualifier	QC Type	Comment
625_200714	DIBENZO(A,H)PYRENE	ND		ug/L	625		0-0		MB	
	DIBENZO(A,J)ACRIDINE	ND		ug/L	625		0-0		MB	
	PERYLENE	ND		ug/L	625		0-0		MB	

*Notation:

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

NA = Indicates % Recovery could not be calculated.

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



Reference Number: 20-22793
Report Date: 8/20/2020

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SAMPLE DEPENDENT QUALITY CONTROL REPORT

Duplicate, Matrix Spike/Matrix Spike Duplicate and Confirmation Result Report

Batch/CAS	Sample	Analyte	Result	Duplicate		Spike Conc	Units	Percent Recovery		Limits*	%RPD	Limits*	QC			
				Spike Result	Spike Result			MS	MSD				Qualifier	Type	Comments	
Laboratory Fortified Matrix (MS)																
625_200714																
321-60-8	43211	2 - FLUOROBIPHENYL (Surr)	73	78	66		%		NA	71-119	NA	0-20		LFM		
367-12-4	43211	2 - FLUOROPHENOL (Surr)	31	32	27		%		NA	32-86	NA	0-20		LFM		
118-79-6	43211	2,4,6 - TRIBROMOPHENOL (Surr)	57	61	50		%		NA	64-126	NA	0-20		LFM		
98-95-3	43211	d5-NITROBENZENE (Surr)	71	74	64		%		NA	67-126	NA	0-20		LFM		
1718-51-0	43211	p-TERPHENYL-d14 (Surr)	72	78	67		%		NA	69-116	NA	0-20		LFM		
120-82-1	43211	1,2,4-TRICHLOROBENZENE	ND	7.1	6.0	10	ug/L	71	60	44-142	16.8	0-50		LFM		
122-66-7	43211	1,2-DIPHENYLHYDRAZINE	ND	9.3	7.9	10	ug/L	93	79	67-127	16.3	0-40		LFM		
88-06-2	43211	2,4,6-TRICHLOROPHENOL	ND	4.2	3.3	10	ug/L	42	33	37-144	24.0	0-40		LFM		
120-83-2	43211	2,4-DICHLOROPHENOL	ND	7.1	5.6	10	ug/L	71	56	39-135	23.6	0-40		LFM		
105-67-9	43211	2,4-DIMETHYLPHENOL	ND	5.5	7.3	10	ug/L	55	73	32-120	28.1	0-40		LFM		
51-28-5	43211	2,4-DINITROPHENOL	ND	2.7	2.6	10	ug/L	27	26	1-191	3.8	0-40		LFM		
121-14-2	43211	2,4-DINITROTOLUENE	ND	8.8	7.5	10	ug/L	88	75	39-139	16.0	0-42		LFM		
606-20-2	43211	2,6-DINITROTOLUENE	ND	9.3	7.7	10	ug/L	93	77	50-158	18.8	0-40		LFM		
91-58-7	43211	2-CHLORONAPHTHALENE	ND	8.6	7.1	10	ug/L	86	71	60-120	19.1	0-40		LFM		
95-57-8	43211	2-CHLOROPHENOL	ND	6.4	5.4	10	ug/L	64	54	23-134	16.9	0-40		LFM		
88-75-5	43211	2-NITROPHENOL	ND	6.7	5.4	10	ug/L	67	54	29-182	21.5	0-40		LFM		
91-94-1	43211	3,3-DICHLORO BENZIDINE	ND	1.0	0.9	1	ug/L	100	90	1-262	10.5	0-40		LFM		
56-49-5	43211	3-METHYL CHOLANTHRENE	ND	8.5	6.7	10	ug/L	85	67	5-125	23.7	0-40		LFM		
534-52-1	43211	4,6-DINITRO-2-METHYLPHENOL	ND	2.5	1.9	10	ug/L	25	19	1-181	27.3	0-40		LFM		
101-55-3	43211	4-BROMOPHENYL PHENYL ETHER	ND	9.2	7.8	10	ug/L	92	78	53-127	16.5	0-40		LFM		
59-50-7	43211	4-CHLORO-3-METHYLPHENOL	ND	9.0	7.6	10	ug/L	90	76	22-147	16.9	0-40		LFM		
7005-72-3	43211	4-CHLOROPHENYL PHENYL ETHER	ND	8.9	7.6	10	ug/L	89	76	25-158	15.8	0-40		LFM		
100-02-7	43211	4-NITROPHENOL	ND	1.4	1.2	10	ug/L	14	12	1-132	15.4	0-40		LFM		
83-32-9	43211	ACENAPHTHENE	ND	8.8	7.4	10	ug/L	88	74	47-145	17.3	0-40		LFM		

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

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

Only Duplicate sample with detections are listed in this report

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

FORM: QC Dependent.rpt

Batch/CAS	Sample	Analyte	Result	Duplicate			Units	Percent Recovery		Limits*	%RPD	Limits*	QC		
				Spike Result	Spike Result	Spike Conc		MS	MSD				Qualifier	Type	Comments
208-96-8	43211	ACENAPHTHYLENE	ND	8.7	7.1	10	ug/L	87	71	33-145	20.3	0-40		LFM	
120-12-7	43211	ANTHRACENE	ND	9.3	7.7	10	ug/L	93	77	27-133	18.8	0-40		LFM	
56-55-3	43211	BENZ[A]ANTHRACENE	ND	9.0	8.0	10	ug/L	90	80	33-143	11.8	0-40		LFM	
92-87-5	43211	BENZIDINE	ND	4.4	5.6	25	ug/L	18	22	1-59	24.0	0-40		LFM	
205-82-3	43211	BENZO(J)FLUORANTHENE	ND	19.8	16.1	20	ug/L	99	81	21-123	20.6	0-40		LFM	
189-55-9	43211	BENZO(R,S,T)PENTAPHENE	ND	4.7	3.3	10	ug/L	47	33	1-156	35.0	0-40		LFM	
50-32-8	43211	BENZO[A]PYRENE	ND	10.1	8.1	10	ug/L	101	81	17-163	22.0	0-40		LFM	
205-99-2	43211	BENZO[B]FLUORANTHENE	ND	19.8	16.1	20	ug/L	99	81	24-159	20.6	0-40		LFM	
191-24-2	43211	BENZO[G,H,I]PERYLENE	ND	7.5	5.7	10	ug/L	75	57	1-219	27.3	0-40		LFM	
207-08-9	43211	BENZO[K]FLUORANTHENE	ND	9.8	7.4	10	ug/L	98	74	11-162	27.9	0-40		LFM	
85-68-7	43211	BENZYL BUTYL PHTHALATE	ND	7.5	6.8	10	ug/L	75	68	1-152	9.8	0-40		LFM	
108-50-1	43211	BIS(2-CHLORO-1-METHYLETHYL)ETHANE	ND	7.7	6.6	10	ug/L	77	66	36-166	15.4	0-40		LFM	
111-91-1	43211	Bis(2-CHLOROETHOXY)METHANE	ND	8.5	7.2	10	ug/L	85	72	33-184	16.6	0-40		LFM	
111-44-4	43211	BIS(2-CHLOROETHYL)ETHER	ND	8.0	6.9	10	ug/L	80	69	12-158	14.8	0-40		LFM	
218-01-9	43211	CHRYSENE	ND	8.8	7.8	10	ug/L	88	78	17-168	12.0	0-40		LFM	
117-81-7	43211	DI(2-ETHYLHEXYL)PHTHALATE	6.7	9.4	8.1	10	ug/L	27	14	8-158	63.4	0-40		LFM	
192-65-4	43211	DIBENZO(A,E)PYRENE	ND	4.3	3.2	10	ug/L	43	32	1-154	29.3	0-40		LFM	
226-36-8	43211	DIBENZO(A,H)ACRIDINE	ND	11.0	8.9	10	ug/L	110	89	25-133	21.1	0-40		LFM	
189-64-0	43211	DIBENZO(A,H)PYRENE	ND	5.0	5.3	10	ug/L	50	53	4-160	5.8	0-40		LFM	
224-42-0	43211	DIBENZO(A,J)ACRIDINE	ND	11.5	9.1	10	ug/L	115	91	31-139	23.3	0-40		LFM	
53-70-3	43211	DIBENZO[A,H]ANTHRACENE	ND	7.2	5.5	10	ug/L	72	55	1-227	26.8	0-40		LFM	
84-66-2	43211	DIETHYL PHTHALATE	ND	8.4	7.1	10	ug/L	84	71	1-120	16.8	0-40		LFM	
131-11-3	43211	DIMETHYL PHTHALATE	ND	6.1	5.1	10	ug/L	61	51	1-120	17.9	0-40		LFM	
84-74-2	43211	DI-N-BUTYL PHTHALATE	ND	9.0	8.0	10	ug/L	90	80	1-120	11.8	0-40		LFM	
117-84-0	43211	DI-N-OCTYL PHTHALATE	ND	2.5	2.0	10	ug/L	25	20	4-146	22.2	0-40		LFM	
206-44-0	43211	FLUORANTHENE	ND	9.3	8.1	10	ug/L	93	81	26-137	13.8	0-40		LFM	
86-73-7	43211	FLUORENE	ND	9.1	7.6	10	ug/L	91	76	59-121	18.0	0-40		LFM	
118-74-1	43211	HEXACHLOROBENZENE	ND	9.0	7.4	10	ug/L	90	74	1-152	19.5	0-40		LFM	
87-68-3	43211	HEXACHLOROBUTADIENE	ND	5.9	4.9	10	ug/L	59	49	24-120	18.5	0-40		LFM	
77-47-4	43211	HEXACHLOROCYCLOPENTADIENE	ND	4.6	3.7	10	ug/L	46	37	1-142	21.7	0-40		LFM	
67-72-1	43211	HEXACHLOROETHANE	ND	5.8	4.9	10	ug/L	58	49	40-120	16.8	0-40		LFM	
183-38-5	43211	INDENO[1,2,3,C,D]PYRENE	ND	7.4	5.5	10	ug/L	74	55	1-171	29.5	0-40		LFM	
78-59-1	43211	ISOPHORONE	ND	8.8	7.4	10	ug/L	88	74	21-196	17.3	0-40		LFM	
91-20-3	43211	NAPHTHALENE	ND	7.9	6.7	10	ug/L	79	67	21-133	16.4	0-40		LFM	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

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

Only Duplicate sample with detections are listed in this report

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

FORM: QC Dependent.rpt



Batch/CAS	Sample	Analyte	Result	Duplicate		Spike Conc	Units	Percent Recovery		Limits*	%RPD	Limits*	QC		
				Spike Result	Spike Result			MS	MSD				Qualifier	Type	Comments
98-95-3	43211	NITROBENZENE	ND	8.0	6.9	10	ug/L	80	69	35-180	14.8	0-40		LFM	
62-75-9	43211	N-NITROSODIMETHYLAMINE	ND	5.3	4.5	10	ug/L	53	45	19-109	16.3	0-40		LFM	
621-64-7	43211	N-NITROSODI-N-PROPYLAMINE	ND	8.9	7.4	10	ug/L	89	74	1-230	18.4	0-40		LFM	
86-30-6	43211	N-NITROSODIPHENYLAMINE	ND	9.6	8.2	10	ug/L	96	82	61-139	15.7	0-40		LFM	
87-86-5	43211	PENTACHLOROPHENOL	ND	3.1	2.4	10	ug/L	31	24	14-176	25.5	0-40		LFM	
198-55-0	43211	PERYLENE	ND	9.7	7.7	10	ug/L	97	77	18-114	23.0	0-40		LFM	
85-01-8	43211	PHENANTHRENE	ND	9.2	8.0	10	ug/L	92	80	54-120	14.0	0-40		LFM	
108-95-2	43211	PHENOL	ND	3.8	3.1	10	ug/L	38	31	5-120	20.3	0-40		LFM	
129-00-0	43211	PYRENE	ND	9.5	8.3	10	ug/L	95	83	52-120	13.5	0-40		LFM	

%RPD = Relative Percent Difference

NA = Indicates %RPD could not be calculated

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

Only Duplicate sample with detections are listed in this report

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

FORM: QC Dependent.rpt



QUALITY CONTROL REPORT
SURROGATE REPORT

Reference Number: 20-22793

Report Date: 08/20/20

Lab No	Analyte	Result	Qualifier	Units	Method	Limit
625_200714						
43378	2,4,6 - TRIBROMOPHENOL (Surr)	25		%	625	
	2 - FLUOROBIPHENYL (Surr)	65		%		
	2 - FLUOROPHENOL (Surr)	12		%		
	d5-PHENOL (Surr)	19		%		
	p-TERPHENYL-d14 (Surr)	71		%		
	d5-NITROBENZENE (Surr)	60		%		

***Notation:**

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

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

CHAIN OF CUSTODY / ANALYSIS REQUEST

(PLEASE COMPLETE ALL APPLICABLE SHADED)

EDGE

PAGE ____ OF ____

Report To: <u>Eurofins - Cascade Analytical</u>	Billing Email:
Address: <u>1008 W Ahtanum Rd Ste 2</u>	Bill To: <u>Same</u>
City: <u>Union Gap</u> State: <u>WA</u> Zip: <u>98903</u>	Address
Attn: <u>Andy Schut</u>	City: State: Zip:
Phone: <u>509.452.7707</u> Fax:	Phone: P.O.#:
Report Email: <u>andrewschut@eurofinsus.com</u>	Card: VISA M/C Expires:
Project Name: <u>010453-5</u>	Card#:

20-22793
43378

CHECK REGULATORY PROGRAM

- ☐ Safe Drinking Water Act
☒ Clean Water Act
☐ RCRA / CERCLA
☐ Other

ANALYTICAL

Main Lab (800-755-9295)
 1620 South Walnut St. Burlington, WA 98233
Microbiology (888-725-4242)
 805 W. Orchard Dr. Suite 4 Bellingham, WA 98225
Portland Lab (503-682-7802)
 9150 SW Pioneer Ct. Suite W Wilsonville, OR 97070
Corvallis Lab (541-753-4946)
 1100 NE Circle Blvd. Suite 130 Corvallis, OR 97333
Bend Lab (541-639-8425)
 20332 Empire Ave. Suite F4 Bend, OR 97703

INSTRUCTIONS "PLEASE READ"

1. Use one line per sample location.
2. Be specific in test requests.
3. List each metal individually.
4. Check off analysis to be performed for each sample location.
5. Enter number of containers.

Turn Around Time Required

- ☒ Standard
☐ HALF-TIME (50% Surcharge)
☐ QUICKEST (100% Surcharge) Phone Call Req.
☐ EMERGENCY (Phone Call Required)

Analysis Requested

Sample ID	Location	Sample Matrix (See Below)	Grab or Composite	Date	Time	EPA 625-ACID Base neutrals	EPA 624 w/ WA PST List	EPA 624 w/ Oregon Analytical Lab only	7-B: 20	5-K: 20	Number Of Containers	Special Instruction/ Conditions on Receipt
1 <u>20-C013589</u>	<u>519038</u>	<u>WW</u>		<u>7.7.20</u>	<u>0500</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Sample for compliance w/ NPDES Permit.
2						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
3						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Please report all
4						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		compounds listed in
5						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Appendix A (Attached)
6						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		to the RL/DL required
7						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
8						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
9						<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

**Are there known hazardous or dangerous wastes in these samples? YES ☒ NO ☐ If YES, indicate type on reverse of this form; samples may be returned to you.

Sampled By: _____ Phone: _____ Fax: _____ Email: _____ 3 Total Containers

☐ Sample Receipt requested (Must include FAX or Email)

*Sample Matrix

W - Water SW - Surface Water WW - Wastewater SL - Salt Water Other:
 DW - Drinking Water ST - Storm Water S - Soil OL - Oil

Relinquished By	Date	Time	Received By	Date	Time
<u>James King</u>	<u>7/8/20</u>	<u>16:30</u>	<u>NWE</u>	<u>7.9.20</u>	<u>8:17</u>

UPS

	Yes	No	N/A
Custody Seals Intact	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample Temp <u>4.5</u> C Satisfactory	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evidence Of Cooling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples Received Intact	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chain Of Custody & Labels Agree	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REC Silicon 625 list

From: AndrewSchut@eurofinsUS.com <AndrewSchut@eurofinsUS.com>

Sent: Thu, Jul 9, 2020 at 9:00 am

To: receiving@edgeanalytical.com

image001.jpg (6.1 KB) Appendix_A_Sept_2017_v1.0.docx (95.5 KB) — Download all



Images not displayed.

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Hello,

Attached is appendix A from the clients permit, I had spoke with Larry before the holiday and he confirmed that all compounds and RL/DL could be met for the acid and base neutrals with WA state PBT's.

Best,

Andy Schut

 Cascade Analytical Eurofins Logo CMYK

Eurofins--Cascade Analytical
1008 W Ahtanum Rd Ste 2
Union Gap, WA 98930
Office 509-452-7707

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PRIORITY POLLUTANTS	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
METALS, CYANIDE & TOTAL PHENOLS					
Antimony, Total	114	7440-36-0	200.8	0.3	1.0
Arsenic, Total	115	7440-38-2	200.8	0.1	0.5
Beryllium, Total	117	7440-41-7	200.8	0.1	0.5
Cadmium, Total	118	7440-43-9	200.8	0.05	0.25
Chromium (hex) dissolved	119	18540-29-9	SM3500-Cr C	0.3	1.2
Chromium, Total	119	7440-47-3	200.8	0.2	1.0
Copper, Total	120	7440-50-8	200.8	0.4	2.0
Lead, Total	122	7439-92-1	200.8	0.1	0.5
Mercury, Total	123	7439-97-6	1631E	0.0002	0.0005
Nickel, Total	124	7440-02-0	200.8	0.1	0.5
Selenium, Total	125	7782-49-2	200.8	1.0	1.0
Silver, Total	126	7440-22-4	200.8	0.04	0.2
Thallium, Total	127	7440-28-0	200.8	0.09	0.36
Zinc, Total	128	7440-66-6	200.8	0.5	2.5
Cyanide, Total	121	57-12-5	335.4	5	10
Cyanide, Weak Acid Dissociable	121		SM4500-CN I	5	10
Cyanide, Free Amenable to Chlorination (Available Cyanide)	121		SM4500-CN G	5	10
Phenols, Total	65		EPA 420.1		50

PRIORITY POLLUTANTS	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
ACID COMPOUNDS					
2-Chlorophenol	24	95-57-8	625.1	3.3	9.9
2,4-Dichlorophenol	31	120-83-2	625.1	2.7	8.1
2,4-Dimethylphenol	34	105-67-9	625.1	2.7	8.1
4,6-dinitro-o-cresol (2-methyl-4,6,-dinitrophenol)	60	534-52-1	625.1/1625B	24	72
2,4 dinitrophenol	59	51-28-5	625.1	42	126
2-Nitrophenol	57	88-75-5	625.1	3.6	10.8

PRIORITY POLLUTANTS	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
ACID COMPOUNDS					
4-Nitrophenol	58	100-02-7	625.1	2.4	7.2
Parachlorometa cresol (4-chloro-3-methylphenol)	22	59-50-7	625.1	3.0	9.0
Pentachlorophenol	64	87-86-5	625.1	3.6	10.8
Phenol	65	108-95-2	625.1	1.5	4.5
2,4,6-Trichlorophenol	21	88-06-2	625.1	2.7	8.1

PRIORITY POLLUTANTS	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
VOLATILE COMPOUNDS					
Acrolein	2	107-02-8	624	5	10
Acrylonitrile	3	107-13-1	624	1.0	2.0
Benzene	4	71-43-2	624.1	4.4	13.2
Bromoform	47	75-25-2	624.1	4.7	14.1
Carbon tetrachloride	6	56-23-5	624.1/601 or SM6230B	2.8	8.4
Chlorobenzene	7	108-90-7	624.1	6.0	18.0
Chloroethane	16	75-00-3	624/601	1.0	2.0
2-Chloroethylvinyl Ether	19	110-75-8	624	1.0	2.0
Chloroform	23	67-66-3	624.1 or SM6210B	1.6	4.8
Dibromochloromethane (chlordibromomethane)	51	124-48-1	624.1	3.1	9.3
1,2-Dichlorobenzene	25	95-50-1	624	1.9	7.6
1,3-Dichlorobenzene	26	541-73-1	624	1.9	7.6
1,4-Dichlorobenzene	27	106-46-7	624	4.4	17.6
Dichlorobromomethane	48	75-27-4	624.1	2.2	6.6
1,1-Dichloroethane	13	75-34-3	624.1	4.7	14.1
1,2-Dichloroethane	10	107-06-2	624.1	2.8	8.4
1,1-Dichloroethylene	29	75-35-4	624.1	2.8	8.4
1,2-Dichloropropane	32	78-87-5	624.1	6.0	18.0
1,3-dichloropropene (mixed isomers) (1,2-dichloropropylene) ⁶	33	542-75-6	624.1	5.0	15.0
Ethylbenzene	38	100-41-4	624.1	7.2	21.6

PRIORITY POLLUTANTS	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
VOLATILE COMPOUNDS					
Methyl bromide (Bromomethane)	46	74-83-9	624/601	5.0	10.0
Methyl chloride (Chloromethane)	45	74-87-3	624	1.0	2.0
Methylene chloride	44	75-09-2	624.1	2.8	8.4
1,1,2,2-Tetrachloroethane	15	79-34-5	624.1	6.9	20.7
Tetrachloroethylene	85	127-18-4	624.1	4.1	12.3
Toluene	86	108-88-3	624.1	6.0	18.0
1,2-Trans-Dichloroethylene (Ethylene dichloride)	30	156-60-5	624.1	1.6	4.8
1,1,1-Trichloroethane	11	71-55-6	624.1	3.8	11.4
1,1,2-Trichloroethane	14	79-00-5	624.1	5.0	15.0
Trichloroethylene	87	79-01-6	624.1	1.9	5.7
Vinyl chloride	88	75-01-4	624/SM6200B	1.0	2.0

PRIORITY POLLUTANTS	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
BASE/NEUTRAL COMPOUNDS (compounds in bold are Ecology PBTs)					
Acenaphthene	1	83-32-9	625.1	1.9	5.7
Acenaphthylene	77	208-96-8	625.1	3.5	10.5
Anthracene	78	120-12-7	625.1	1.9	5.7
Benzidine	5	92-87-5	625.1	44	132
Benzyl butyl phthalate	67	85-68-7	625.1	2.5	7.5
Benzo(a)anthracene	72	56-55-3	625.1	7.8	23.4
Benzo(b)fluoranthene (3,4-benzofluoranthene) [†]	74	205-99-2	610/625.1	4.8	14.4
Benzo(j)fluoranthene [†]		205-82-3	625	0.5	1.0
Benzo(k)fluoranthene (11,12-benzofluoranthene) [†]	75	207-08-9	610/625.1	2.5	7.5
Benzo(r,s,t)pentaphene		189-55-9	625	1.3	5.0
Benzo(a)pyrene	73	50-32-8	610/625.1	2.5	7.5
Benzo(ghi)Perylene	79	191-24-2	610/625.1	4.1	12.3
Bis(2-chloroethoxy)methane	43	111-91-1	625.1	5.3	15.9
Bis(2-chloroethyl)ether	18	111-44-4	611/625.1	5.7	17.1
Bis(2-chloroisopropyl)ether	42	39638-32-9	625	0.5	1.0
Bis(2-ethylhexyl)phthalate	66	117-81-7	625.1	2.5	7.5

PRIORITY POLLUTANTS	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
BASE/NEUTRAL COMPOUNDS (compounds in bold are Ecology PBTs)					
4-Bromophenyl phenyl ether	41	101-55-3	625.1	1.9	5.7
2-Chloronaphthalene	20	91-58-7	625.1	1.9	5.7
4-Chlorophenyl phenyl ether	40	7005-72-3	625.1	4.2	12.6
Chrysene	76	218-01-9	610/625.1	2.5	7.5
Dibenzo (a,h)acridine		226-36-8	610M/625M	2.5	10.0
Dibenzo (a,j)acridine		224-42-0	610M/625M	2.5	10.0
Dibenzo(a-h)anthracene (1,2,5,6-dibenzanthracene)	82	53-70-3	625.1	2.5	7.5
Dibenzo(a,e)pyrene		192-65-4	610M/625M	2.5	10.0
Dibenzo(a,h)pyrene		189-64-0	625M	2.5	10.0
3,3-Dichlorobenzidine	28	91-94-1	605/625.1	16.5	49.5
Diethyl phthalate	70	84-66-2	625.1	1.9	5.7
Dimethyl phthalate	71	131-11-3	625.1	1.6	4.8
Di-n-butyl phthalate	68	84-74-2	625.1	2.5	7.5
2,4-dinitrotoluene	35	121-14-2	609/625.1	5.7	17.1
2,6-dinitrotoluene	36	606-20-2	609/625.1	1.9	5.7
Di-n-octyl phthalate	69	117-84-0	625.1	2.5	7.5
1,2-Diphenylhydrazine (as Azobenzene)	37	122-66-7	1625B	5.0	20
Fluoranthene	39	206-44-0	625.1	2.2	6.6
Fluorene	80	86-73-7	625.1	1.9	5.7
Hexachlorobenzene	9	118-74-1	612/625.1	1.9	5.7
Hexachlorobutadiene	52	87-68-3	625.1	0.9	2.7
Hexachlorocyclopentadiene	53	77-47-4	1625B/625	2.0	4.0
Hexachloroethane	12	67-72-1	625.1	1.6	4.8
Indeno(1,2,3-cd)Pyrene	83	193-39-5	610/625.1	3.7	11.1
Isophorone	54	78-59-1	625.1	2.2	6.6
3-Methyl cholanthrene		56-49-5	625	2.0	8.0
Naphthalene	55	91-20-3	625.1	1.6	4.8
Nitrobenzene	56	98-95-3	625.1	1.9	5.7
N-Nitrosodimethylamine	61	62-75-9	607/625	2.0	4.0
N-Nitrosodi-n-propylamine	63	621-64-7	607/625	0.5	1.0
N-Nitrosodiphenylamine	62	86-30-6	625	1.0	2.0
Perylene		198-55-0	625	1.9	7.6
Phenanthrene	81	85-01-8	625.1	5.4	16.2
Pyrene	84	129-00-0	625.1	1.9	5.7

PRIORITY POLLUTANTS	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
BASE/NEUTRAL COMPOUNDS (compounds in bold are Ecology PBTs)					
1,2,4-Trichlorobenzene	8	120-82-1	625.1	1.9	5.7

PRIORITY POLLUTANT	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
DIOXIN					
2,3,7,8-Tetra-Chlorodibenzo-P-Dioxin (2,3,7,8 TCDD)	129	1746-01-6	1613B	1.3 pg/L	5 pg/L

PRIORITY POLLUTANTS	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
PESTICIDES/PCBs					
Aldrin	89	309-00-2	608.3	4.0 ng/L	12 ng/L
alpha-BHC	102	319-84-6	608.3	3.0 ng/L	9.0 ng/L
beta-BHC	103	319-85-7	608.3	6.0 ng/L	18 ng/L
gamma-BHC (Lindane)	104	58-89-9	608.3	4.0 ng/L	12 ng/L
delta-BHC	105	319-86-8	608.3	9.0 ng/L	27 ng/L
Chlordane ⁸	91	57-74-9	608.3	14 ng/L	42 ng/L
4,4'-DDT	92	50-29-3	608.3	12 ng/L	36 ng/L
4,4'-DDE	93	72-55-9	608.3	4.0 ng/L	12 ng/L
4,4' DDD	94	72-54-8	608.3	11ng/L	33 ng/L
Dieldrin	90	60-57-1	608.3	2.0 ng/L	6.0 ng/L
alpha-Endosulfan	95	959-98-8	608.3	14 ng/L	42 ng/L
beta-Endosulfan	96	33213-65-9	608.3	4.0 ng/L	12 ng/L
Endosulfan Sulfate	97	1031-07-8	608.3	66 ng/L	198 ng/L
Endrin	98	72-20-8	608.3	6.0 ng/L	18 ng/L
Endrin Aldehyde	99	7421-93-4	608.3	23 ng/L	70 ng/L
Heptachlor	100	76-44-8	608.3	3.0 ng/L	9.0 ng/L
Heptachlor Epoxide	101	1024-57-3	608.3	83 ng/L	249 ng/L
PCB-1242 ⁹	106	53469-21-9	608.3	0.065	0.095

PRIORITY POLLUTANTS	PP #	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
PESTICIDES/PCBs					
PCB-1254	107	11097-69-1	608.3	0.065	0.095
PCB-1221	108	11104-28-2	608.3	0.065	0.095
PCB-1232	109	11141-16-5	608.3	0.065	0.095
PCB-1248	110	12672-29-6	608.3	0.065	0.095
PCB-1260	111	11096-82-5	608.3	0.065	0.095
PCB-1016 ⁹	112	12674-11-2	608.3	0.065	0.095
Toxaphene	113	8001-35-2	608.3	240 ng/L	720 ng/L

PULP & PAPER POLLUTANTS (40CFR Part 430)

Pollutant	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL)¹ µg/L unless specified	Quantitation Level (QL)² µg/L unless specified
Adsorbable Organic Halides (AOX)		EPA 1650		20
2,3,7,8- Tetrachlorodibenzo- <i>p</i> -dioxin (TCDD) (this is also priority pollutant and is listed above)	1746-01-6	EPA 1613	1.3 pg/L	5 pg/L
2,3,7,8- Tetrachlorodibenzofuran (TCDF)	51207-31-9	EPA 1613	1.3 pg/L	5 pg/L
Trichlorosyringol		EPA 1653		2.5
3,4,5-Trichlorocatechol		EPA 1653		5.0
3,4,6-Trichlorocatechol		EPA 1653		5.0
3,4,5-Trichloroguaiacol		EPA 1653		2.5
3,4,6-Trichloroguaiacol		EPA 1653		2.5
4,5,6-Trichloroguaiacol		EPA 1653		2.5
2,4,5-Trichlorophenol		EPA 1653		2.5
2,4,6-Trichlorophenol		EPA 1653		2.5
Tetrachlorocatechol		EPA 1653		5.0
Tetrachloroguaiacol		EPA 1653		5.0
2,3,4,6-Tetrachlorophenol		EPA 1653		2.5
Pentachlorophenol (this is also priority pollutant and is listed above)		EPA 1653		5.0

NONCONVENTIONALS – DIOXIN & FURAN CONGENERS

Pollutant	CAS Number (if available)	Recommended Analytical Protocol	Detection (DL) ¹ µg/L unless specified	Quantitation Level (QL) ² µg/L unless specified
2,3,7,8- Tetrachlorodibenzo- <i>p</i> -dioxin (TCDD) (this is a priority pollutant and is also listed above)	1746-01-6	EPA 1613	1.3 pg/L	5 pg/L
Total TCDD	41903-57-5			
2,3,7,8- Tetrachlorodibenzofuran (TCDF)	51207-31-9		1.3 pg/L	5 pg/L
Total-TCDF	55722-27-5			
1,2,3,7,8- Pentachlorodibenzo- <i>p</i> -dioxin (PeCDD)	40321-76-4			
Total-PeCDD	36088-22-9			
1,2,3,7,8- Pentachlorodibenzofuran (PeCDF)	57117-41-6			
2,3,4,7,8-PeCDF	57117-31-4			
Total-PeCDF	30402-15-4			
1,2,3,4,7,8- Hexachlorodibenzo- <i>p</i> -dioxin (HxCDD)	39227-28-6			
1,2,3,6,7,8-HxCDD	57653-85-7			
1,2,3,7,8,9-HxCDD	19408-74-3			
Total-HxCDD	34465-46-8			
1,2,3,4,7,8- Hexachlorodibenzofuran (HxCDF)	70648-26-9			
1,2,3,6,7,8-HxCDF	57117-44-9			
1,2,3,7,8,9-HxCDF	72918-21-9			
2,3,4,6,7,8-HxCDF	60851-34-5			
Total-HxCDF	55684-94-1			
1,2,3,4,6,7,8- Heptachlorodibenzo- <i>p</i> -dioxin (HpCDD)	35822-46-9			
Total-HpCDD	37871-00-4			
1,2,3,4,6,7,8- Heptachlorodibenzofuran (HpCDF)	67562-39-4			
1,2,3,4,7,8,9-HpCDF	55673-89-7			
Total-HpCDF	38998-75-3			
Octachlorodibenzo- <i>p</i> -dioxin (OCDD)	3268-87-9			
Octachlorodibenzofuran (OCDF)	39001-02-0			



AGRICULTURAL &
ENVIRONMENTAL ANALYSIS

3019 G.S. Center Rd.
Wenatchee, WA 98801

(509) 662-1888
Fax: (509) 662-8183
1-800-545-4206

SPECIAL SERVICE ORDER FORM

		SAMPLE #	1	2	3	4
SEND RESULTS TO 1) Client 2) Billing 3) Both Client			X			
SAMPLE REPRESENTS 1) Food 2) Water 3) Soil 4) Plant Tissue 5) Other Water				X		
SAMPLE BY 1) Client 2) Field Rep. 3) Quality Control 4) Cascade 5) Other			X			
SAMPLER'S NAME		SARAH OMAN				

CLIENT NAME/ADDRESS	
REC Silicon	
3322 Rd "N" NE	
MOSES LAKE WA 98837	
PHONE NO.	509-766-9314
EMAIL	Sarah.Oman@recsilicon.com

BILLING NAME/ADDRESS	
SAME	
PHONE NO.	
EMAIL	mlacct@recsilicon.com

FORM MUST BE COMPLETED BEFORE ANALYSIS WILL BE PERFORMED.

RELINQUISHED BY: (Signature) [1]	DATE	RELINQUISHED BY: (Signature) [2]	DATE	RELINQUISHED BY: (Signature) [3]	DATE
	7-7-20				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
	09:00				
Sarah Oman					
RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE
	7/7/20				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
	14:40				
DSmidt					

	SAMPLE I.D.	Sample Date	Sample Time
1	519038	7-7-20	05:00
	ANALYSIS REQUESTED 20-CO13589 -608 Pest/PCB- 625 w/ w/ P B IS		
	COMMENT		
2	SAMPLE I.D.	Sample Date	Sample Time
	ANALYSIS REQUESTED		
	COMMENT		
3	SAMPLE I.D.	Sample Date	Sample Time
	ANALYSIS REQUESTED		
	COMMENT		
4	SAMPLE I.D.	Sample Date	Sample Time
	ANALYSIS REQUESTED		
	COMMENT		

Sample container received by client was sealed
Sample container received by laboratory was sealed

Yes ☐ No ☐
Yes ☐ No ☐

Disclaimer:

Cascade Analytical, Inc., makes no warranty of any kind, expressed or implied, and customer assumes all risk and liability from use of Cascade Analytical test results. Cascade neither assumes nor authorizes any person to assume for Cascade any other liability in connection with the testing done by Cascade Analytical, Inc., and there are not other oral agreements or warranties collateral to or affecting this agreement.

Cascade Analytical, Inc.'s liability to customer as a result of customers use of Cascade's tests results shall be limited to a sum equal to the fees paid by customer to Cascade Analytical, Inc. for the testing work.

Customer Signature

Date

7-7-20

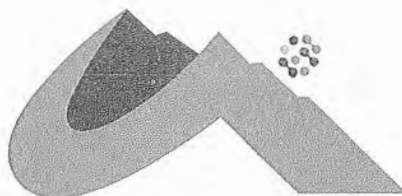
PACKAGING/SHIPPING INSTRUCTIONS:

Contact Laboratory to establish:

- a) performance of analysis
- b) sampling protocol, if unknown
- c) storage and shipping requirements

Complete order form. Attach chain of custody form if required.

Use container supplied by or approved by the laboratory. Other containers may contaminate sample. Pack in protective material to prevent sample vessel breakage. Ship sample refrigerated if required.



CASCADE ANALYTICAL
A EUROFINS COMPANY
1-800-545-4206

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

Batch: 010453
Client: Rec-Silicon-Plant 3
Account: 10038
Sampler:
PO Number:
(509) 452-7707
Fax: (509) 452-7773
1008 W. Ahtanum Rd.
Union Gap, WA 98903

--- Analytical Services Report ---

Report Date: 8/26/20

Rec-Silicon-Plant 3
3322 Road "N" NE
Moses Lake, WA 98837

Laboratory Number: 20-C013590
Sample Identification: 519038
Sample Comment: Dioxin

Date Received: 7/ 7/20
Date Sampled: 7/ 7/20

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Other Analysis	Analyzed by ALS				7/29/20	

Approved By Name:

Andy Schut

Signature:

Function:

Lab Manager/Yakima

Eurofins-Cascade Analytical uses procedures established by EPA, AOAC, 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.



ALS Environmental
ALS Group USA, Corp
1317 South 13th Avenue
Kelso, WA 98626
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www.alsglobal.com

July 29, 2020

Analytical Report for Service Request No: K2005762

Andy Schut
Cascade Analytical, Incorporated
1008 W. Ahtanum Rd. STE 2
Union Gap, WA 98903

RE: REC Silicon

Dear Andy,

Enclosed are the results of the sample(s) submitted to our laboratory July 09, 2020
For your reference, these analyses have been assigned our service request number **K2005762**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

for Kelley Lovejoy
Project Manager



ALS Environmental
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Kelso, WA 98626
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Table of Contents

Acronyms

Qualifiers

State Certifications, Accreditations, And Licenses

Chain of Custody

Subcontract Lab Results

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjllabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdwlabservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.



Chain of Custody

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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ALS Environmental
 8620 Holly Drive, Suite 100
 Everett, WA 98208
 Phone (425) 356-2600
 Fax (425) 356-2626
 http://www.alsglobal.com

Chain Of Custody/ Laboratory Analysis Request

ALS Job# (Laboratory Use Only)

K2005762

Date _____ Page _____ Of _____

PROJECT ID: REC Silicon					ANALYSIS REQUESTED															OTHER (Specify)						
REPORT TO COMPANY: Eurofins - Cascade Analytical					<input type="checkbox"/> NWTPH-HCID <input type="checkbox"/> NWTPH-DX <input type="checkbox"/> NWTPH-GX <input type="checkbox"/> BTEX by EPA 8260 <input type="checkbox"/> <input type="checkbox"/> MTBE by EPA 8260 <input type="checkbox"/> <input type="checkbox"/> Halogenated Volatiles by EPA 8260 <input type="checkbox"/> Volatile Organic Compounds by EPA 8260 <input type="checkbox"/> EDB / EDC by EPA 8260 SIM (water) <input type="checkbox"/> EDB / EDC by EPA 8260 (soil) <input type="checkbox"/> Semivolatile Organic Compounds by EPA 8270 <input type="checkbox"/> Polycyclic Aromatic Hydrocarbons (PAH) by EPA 8270 SIM <input type="checkbox"/> PCB by EPA 8082 <input type="checkbox"/> Pesticides by EPA 8081 <input type="checkbox"/> <input type="checkbox"/> Metals-MTCA-6 <input type="checkbox"/> RCRA-8 <input type="checkbox"/> Pb <input type="checkbox"/> Cd <input type="checkbox"/> Cu <input type="checkbox"/> Zn <input type="checkbox"/> Ni <input type="checkbox"/> Cr <input type="checkbox"/> Mn <input type="checkbox"/> Fe <input type="checkbox"/> Al <input type="checkbox"/> Si <input type="checkbox"/> Ti <input type="checkbox"/> V <input type="checkbox"/> Co <input type="checkbox"/> Ni <input type="checkbox"/> Cu <input type="checkbox"/> Zn <input type="checkbox"/> Pb <input type="checkbox"/> Ag <input type="checkbox"/> Au <input type="checkbox"/> Pt <input type="checkbox"/> Pd <input type="checkbox"/> Rh <input type="checkbox"/> Ir <input type="checkbox"/> Ru <input type="checkbox"/> Os <input type="checkbox"/> Ni <input type="checkbox"/> Co <input type="checkbox"/> Fe <input type="checkbox"/> Mn <input type="checkbox"/> Cr <input type="checkbox"/> V <input type="checkbox"/> Ti <input type="checkbox"/> Al <input type="checkbox"/> Si <input type="checkbox"/> Zn <input type="checkbox"/> Pb <input type="checkbox"/> Ag <input type="checkbox"/> Au <input type="checkbox"/> Pt <input type="checkbox"/> Pd <input type="checkbox"/> Rh <input type="checkbox"/> Ir <input type="checkbox"/> Ru <input type="checkbox"/> Os <input type="checkbox"/> Metals Other (Specify) <input type="checkbox"/> TCLP-Metals <input type="checkbox"/> VOA <input type="checkbox"/> Semi-Vol <input type="checkbox"/> Pest <input type="checkbox"/> Herbs <input type="checkbox"/> 2,3,7,8-TCDD Dioxin 1613B															PROJECT MANAGER: Andy Schut						
ADDRESS: 1008 W Ahtanum Rd Ste 2																										
Union Gap WA 98903																										
PHONE: 509.452.7707 FAX:																										
P.O. #: 010453-4 E-MAIL:																										
INVOICE TO COMPANY: andrewschut@eurofinsus.com																										
ATTENTION: Same																										
ADDRESS:																										
SAMPLE I.D.	DATE	TIME	TYPE	LAB#																						
1. 20-C013590	7/7/20	05:00	WW																	X						2
2.																										
3.																										
4.																										
5.																										
6.																										
7.																										
8.																										
9.																										
10.																										

SPECIAL INSTRUCTIONS Sample is for NPDES reporting - Please report to RL/DL in Appendix A.

SIGNATURES (Name, Company, Date, Time):

1. Relinquished By: James King, Eurofins Cascade-UG, 7/8/20 16:30

Received By: [Signature] 7/9/20 1000

2. Relinquished By: _____

TURNAROUND REQUESTED in Business Days*

OTHER:

Organic, Metals & Inorganic Analysis

10 5 3 2 1 SAME DAY

Fuels & Hydrocarbon Analysis

5 3 1 SAME DAY

Specify: _____



CASCAD ANALYTICAL

Cooler Receipt and Preservation Form

PC 12

Client AA8 - Everett Service Request K20 05760
 Received: 719120 Opened: 719120 By: BR Unloaded: 719120 By: BR

1. Samples were received via? USPS Fed Ex UPS DHL PDX Courier Hand Delivered
 2. Samples were received in: (circle) Cooler Box Envelope Other NA
 3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
 If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Temp Blank	Sample 1	Sample 2	Sample 3	Sample 4	IR GUN	Cooler / COC ID	Tracking Number	Filed
<u>3.0</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>1002</u>	<u>418-247335</u>	<u>129400700195UP008</u>	<u>NA</u>

4. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves _____
 5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
 6. Were samples received in good condition (temperature, unbroken)? NA Y N
 If applicable, tissue samples were received: Frozen Partially Thawed Thawed
 7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
 8. Did all sample labels and tags agree with custody papers? NA Y N
 9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
 10. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? NA Y N
 11. Were VOA vials received without headspace? NA Y N
 12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____



Subcontract Lab Results

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com



ALS Environmental - Kelso
ATTN: Kelley Lovejoy
1317 South 13th Avenue
KELSO WA 98626

Date Received: 14-JUL-20
Report Date: 24-JUL-20 14:37 (MT)
Version: FINAL

Client Phone: 360-501-3330

Certificate of Analysis

Lab Work Order #: L2473772
Project P.O. #: 51K2005762
Job Reference: K2005762-001
C of C Numbers:
Legal Site Desc:

Claire Kocharakkal, B.Sc.
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 1435 Norjohn Court, Unit 1, Burlington, ON, L7L 0E6 Canada | Phone: +1 905 331 3111 | Fax: +1 905 331 4567
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

Environmental

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RIGHT SOLUTIONS RIGHT PARTNER

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2473772-1 20-C013590 Sampled By: Client on 07-JUL-20 @ 05:00 Matrix: Water							
Dioxins 2378 TCDD by 1613B 2,3,7,8-TCDD Surrogate: 13C12-2,3,7,8-TCDD	<0.38 87.0	U	0.38 20-175	pg/L %	17-JUL-20 17-JUL-20	23-JUL-20 23-JUL-20	R5162224 R5162224

Page 11 of 15

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
U	Not Detected.
[U]	The analyte was not detected above the EDL.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
DX-2378TCDD-HRMS-BU	Water	Dioxins 2378 TCDD by 1613B	EPA 1613B

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
BU	ALS ENVIRONMENTAL - BURLINGTON, ONTARIO, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg ww - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Environmental

Quality Control Report

Workorder: L2473772

Report Date: 24-JUL-20

Page 1 of 2

Client: ALS Environmental - Kelso
1317 South 13th Avenue
KELSO WA 98626

Contact: Kelley Lovejoy

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
DX-2378TCDD-HRMS-BU Water								
Batch R5162224								
WG3359951-2 LCS								
2,3,7,8-TCDD			90.0		%		67-158	22-JUL-20
WG3359951-1 MB								
2,3,7,8-TCDD			<0.72	[U]	pg/L		0.72	22-JUL-20
Surrogate: 13C12-2,3,7,8-TCDD			83.0		%		20-175	22-JUL-20

Quality Control Report

Workorder: L2473772

Report Date: 24-JUL-20

Page 2 of 2

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
[U]	The analyte was not detected above the EDL.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

ALS Environmental Chain of Custody
1317 South 13th Avenue • Kelso, WA 98626 • 1-360-577-7222 • FAX 1-360-636-1068

ALS Contact: Kelley Lovejoy

Project Number: K2005762
Project Manager: Kelley Lovejoy
QAP: LAB QAP

L2473772

Dioxins Furans
1613B

✓ Lab Code	Sample ID	# of Cont.	Matrix	Sample Date	Time	Lab ID	
K2005762-001	20-C013590	2	Water	7/7/20	0500	Burlington ALS	X

Test Comments

Dioxins Furans - 1613B

K2005762-001

2,3,7,8-TCDD only. 5 pg/L and 1.3 pg/L detection required per permit

Special Instructions/Comments Please provide the electronic (PDF and EDD) report to the following e-mail address: ALKLS.Data@alsglobal.com.	Turnaround Requirements <input type="checkbox"/> RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 <input checked="" type="checkbox"/> STANDARD	Report Requirements <input type="checkbox"/> I. Results Only <input checked="" type="checkbox"/> II. Results + QC Summaries <input type="checkbox"/> III. Results + QC and Calibration Summaries <input type="checkbox"/> IV. Data Validation Report with Raw Data	Invoice Information PO# 51K2005762
	Requested FAX Date: _____ Requested Report Date: <u>07/24/20</u>	PQL/MDL/J <u>Y</u> EDD <u>N</u>	Bill to

H - Test is On Hold P - Test is Authorized for Prep Only

Relinquished By: [Signature] 7/13/2020 1000

Received By: ARRON BURTON

Airbill Number: _____



AGRICULTURAL &
ENVIRONMENTAL ANALYSIS

3019 G.S. Center Rd.
Wenatchee, WA 98801

(509) 662-1888
Fax: (509) 662-8183
1-800-545-4206

SPECIAL SERVICE ORDER FORM

SEND RESULTS TO		SAMPLE #					
1) Client	2) Billing	3) Both	Both	1	2	3	4
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLE REPRESENTS							
1) Food	2) Water	3) Soil	4) Plant Tissue	5) Other	Other		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLE BY							
1) Client	2) Field Rep.	3) Quality Control	4) Cascade	5) Other			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SAMPLER'S NAME		SARAH OMAN					

CLIENT NAME/ADDRESS
REC Silicon
3322 R1 "N" NE
MOSES LAKE, WA 98837
PHONE NO. 509-766-9314

BILLING NAME/ADDRESS
SAME
PHONE NO.

EMAIL	Sarah.Oman@recsilicon.com
-------	---------------------------

EMAIL	MLacct@recsilicon.com
-------	-----------------------

FORM MUST BE COMPLETED BEFORE ANALYSIS WILL BE PERFORMED.

RELINQUISHED BY: (Signature) [1]	DATE	RELINQUISHED BY: (Signature) [2]	DATE	RELINQUISHED BY: (Signature) [3]	DATE
	7-7-20				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
	09:00				
RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE
	7/7/20				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
	14:40	016453-4			

SAMPLE I.D.	Sample Date	Sample Time
519038	7-7-20	09:00
1 ANALYSIS REQUESTED	20-C013590 Dioxin 2,3,7,8 TCDD	
COMMENT		
SAMPLE I.D.	Sample Date	Sample Time
2 ANALYSIS REQUESTED		
COMMENT		
SAMPLE I.D.	Sample Date	Sample Time
3 ANALYSIS REQUESTED		
COMMENT		
SAMPLE I.D.	Sample Date	Sample Time
4 ANALYSIS REQUESTED		
COMMENT		

Sample container received by client was sealed
Sample container received by laboratory was sealed

Yes ☐ No ☐
Yes ☐ No ☐

Disclaimer:

Cascade Analytical, Inc., makes no warranty of any kind, expressed or implied, and customer assumes all risk and liability from use of Cascade Analytical test results. Cascade neither assumes nor authorizes any person to assume for Cascade any other liability in connection with the testing done by Cascade Analytical, Inc., and there are not other oral agreements or warranties collateral to or affecting this agreement.

Cascade Analytical, Inc.'s liability to customer as a result of customer's use of Cascade's tests results shall be limited to a sum equal to the fees paid by customer to Cascade Analytical, Inc. for the testing work.

Customer Signature

Date

7-7-20

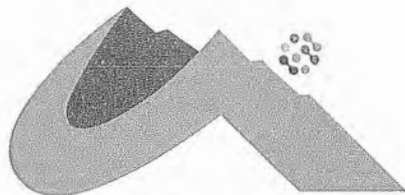
PACKAGING/SHIPPING INSTRUCTIONS:

Contact Laboratory to establish:

- a) performance of analysis
- b) sampling protocol, if unknown
- c) storage and shipping requirements

Complete order form. Attach chain of custody form if required.

Use container supplied by or approved by the laboratory. Other containers may contaminate sample. Pack in protective material to prevent sample vessel breakage. Ship sample refrigerated if required.



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
Fax: (509) 452-7773
1008 W. Ahtanum Rd.
Union Gap, WA 98903

Batch: 010453
Client: Rec-Silicon-Plant 3
Account: 10038
Sampler: Sarah Oman
PO Number:

--- Analytical Services Report ---

Report Date: 8/26/20

Rec-Silicon-Plant 3
3322 Road "N" NE
Moses Lake, WA 98837

Laboratory Number: 20-C013628
Sample Identification: 519038
Sample Comment: VOC, Pest, PCB

Date Received: 7/ 8/20
Date Sampled: 7/ 7/20

Test Requested	Results	Units	RL	Method	Date Analyzed	Flags
Other Analysis	Analyzed by BSK				7/23/20	

Approved By Name:

Andy Schut
Lab Manager/Yakima

Signature:

Function:

Eurofins-Cascade Analytical uses procedures established by EPA, AOAC, APHA, ASTM, and AMWA. 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.



BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

ADG0983

7/23/2020

Invoice: AD14379

Andy Schut
Eurofins Microbiology Lab DBA Cascade Analytical
1008 W. Ahtanum Rd., Suite 2
Union Gap, WA 98903

RE: Report for ADG0983 Priority Pollutant Subcontract

Dear Andy Schut,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 7/9/2020. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2009 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, PM Staff, at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Karen Tracy, Project Manager



Accredited in Accordance with NELAP
ORELAP #4021-009

Case Narrative**Project and Report Details**

Client: Eurofins Microbiology Lab DBA Cascade Analyt
Report To: Andy Schut
Project #: REC Silicon
Received: 7/09/2020 - 09:19
Report Due: 7/23/2020

Invoice Details

Invoice To: Eurofins Microbiology Lab DBA Cascac
Invoice Attn: Andy Schut
Project PO#: -

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 4.1

Containers Intact
COC/Labels Agree
Received On Blue Ice
Packing Material - Bubble Wrap
Packing Material - Foam
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Detailed Narrative**Data Qualifiers**

The following qualifiers have been applied to one or more analytical results:

B2.0 Analyte present in the method blank above the method detection limit (MDL). Laboratory does not determine batch acceptance on detections below the reporting limit (RL).
B2.2 Analyte detected in associated method blank below the reporting limit. Sample result may be attributable to ambient laboratory background.
CV0.0 CCV recovery was above method acceptance limits; no material impact on reported result as sample detection is below the reporting limit for this parameter.
J Estimated value

Report Distribution

Recipient(s)	Report Format	CC:
Andy Schut	FINAL.RPT	Deniseschmidt@eurofinsus.com

Certificate of Analysis

Sample ID: ADG0983-01
 Sampled By: Sarah Oman
 Sample Description: 20-C013628

Sample Date - Time: 07/07/2020 - 05:00
 Matrix: Waste Water
 Sample Type: Grab

BSK Associates Laboratory Fresno
Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Organochlorine Pesticides and PCBs by GC-ECD										
4,4'-DDD	EPA 608.3	ND	0.00086	0.050	ug/L	1	ADG0635	07/14/20	07/17/20	CV0.0
4,4'-DDE	EPA 608.3	ND	0.00077	0.050	ug/L	1	ADG0635	07/14/20	07/17/20	
4,4'-DDT	EPA 608.3	ND	0.00053	0.010	ug/L	1	ADG0635	07/14/20	07/17/20	
Aldrin	EPA 608.3	ND	0.00071	0.0050	ug/L	1	ADG0635	07/14/20	07/17/20	
alpha-BHC	EPA 608.3	ND	0.00066	0.010	ug/L	1	ADG0635	07/14/20	07/17/20	
alpha-Chlordane	EPA 608.3	ND	0.00032	0.10	ug/L	1	ADG0635	07/14/20	07/17/20	
Aroclor-1016	EPA 608.3	ND	0.050	0.50	ug/L	1	ADG0635	07/14/20	07/17/20	
Aroclor-1221	EPA 608.3	ND	0.063	0.50	ug/L	1	ADG0635	07/14/20	07/17/20	
Aroclor-1232	EPA 608.3	ND	0.050	0.50	ug/L	1	ADG0635	07/14/20	07/17/20	
Aroclor-1242	EPA 608.3	ND	0.050	0.50	ug/L	1	ADG0635	07/14/20	07/17/20	
Aroclor-1248	EPA 608.3	ND	0.020	0.50	ug/L	1	ADG0635	07/14/20	07/17/20	CV0.0, J
Aroclor-1254	EPA 608.3	ND	0.050	0.50	ug/L	1	ADG0635	07/14/20	07/17/20	
Aroclor-1260	EPA 608.3	ND	0.015	0.50	ug/L	1	ADG0635	07/14/20	07/17/20	
beta-BHC	EPA 608.3	ND	0.0017	0.0050	ug/L	1	ADG0635	07/14/20	07/17/20	
Chlordane (Technical)	EPA 608.3	ND	0.026	0.10	ug/L	1	ADG0635	07/14/20	07/17/20	
delta-BHC	EPA 608.3	ND	0.0016	0.0050	ug/L	1	ADG0635	07/14/20	07/17/20	
Dieldrin	EPA 608.3	ND	0.00028	0.010	ug/L	1	ADG0635	07/14/20	07/17/20	
Endosulfan I	EPA 608.3	ND	0.00034	0.020	ug/L	1	ADG0635	07/14/20	07/17/20	
Endosulfan II	EPA 608.3	ND	0.00034	0.010	ug/L	1	ADG0635	07/14/20	07/17/20	
Endosulfan Sulfate	EPA 608.3	ND	0.00056	0.050	ug/L	1	ADG0635	07/14/20	07/17/20	
Endrin	EPA 608.3	0.0019	0.00034	0.010	ug/L	1	ADG0635	07/14/20	07/17/20	
Endrin Aldehyde	EPA 608.3	ND	0.0011	0.010	ug/L	1	ADG0635	07/14/20	07/17/20	
gamma-Chlordane	EPA 608.3	ND	0.00042	0.10	ug/L	1	ADG0635	07/14/20	07/17/20	
Heptachlor	EPA 608.3	ND	0.00046	0.010	ug/L	1	ADG0635	07/14/20	07/17/20	
Heptachlor Epoxide	EPA 608.3	ND	0.00039	0.010	ug/L	1	ADG0635	07/14/20	07/17/20	
Lindane	EPA 608.3	ND	0.00042	0.020	ug/L	1	ADG0635	07/14/20	07/17/20	
Toxaphene	EPA 608.3	ND	0.035	0.50	ug/L	1	ADG0635	07/14/20	07/17/20	
Surrogate: TCMX	EPA 608.3	96 %	Acceptable range: 26-144 %							
2-CEVE by EPA 624.1										
2-Chloroethyl vinyl ether	EPA 624.1	ND	0.45	1.0	ug/L	1	ADG0498	07/09/20	07/09/20	
Surrogate: 1,2-Dichloroethane-d4	EPA 624.1	95 %	Acceptable range: 70-130 %							
Surrogate: Bromofluorobenzene	EPA 624.1	96 %	Acceptable range: 70-130 %							
Surrogate: Toluene-d8	EPA 624.1	113 %	Acceptable range: 70-130 %							
Acrolein and Acrylonitrile by EPA 624										
Acrolein	EPA 624.1	ND	1.9	2.0	ug/L	1	ADG0498	07/09/20	07/09/20	
Acrylonitrile	EPA 624.1	ND	0.40	2.0	ug/L	1	ADG0498	07/09/20	07/09/20	
Surrogate: 1,2-Dichloroethane-d4	EPA 624.1	95 %	Acceptable range: 70-130 %							
Surrogate: Bromofluorobenzene	EPA 624.1	96 %	Acceptable range: 70-130 %							
Surrogate: Toluene-d8	EPA 624.1	113 %	Acceptable range: 70-130 %							

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ADG0983 Final FINAL 07 23 2020 0753 07232020 0753

Certificate of Analysis

Sample ID: ADG0983-01
Sampled By: Sarah Oman
Sample Description: 20-C013628

Sample Date - Time: 07/07/2020 - 05:00

Matrix: Waste Water

Sample Type: Grab

Organics

Analyte	Method	Result	MDL	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
<u>Volatile Organics by GC-MS (Caltex)</u>										
1,1,1-Trichloroethane	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
1,1,2,2-Tetrachloroethane	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
1,1,2-Trichloroethane	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
1,1-Dichloroethane	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
1,1-Dichloroethene	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
1,2-Dichlorobenzene	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
1,2-Dichloroethane	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
1,2-Dichloropropane	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
1,3-Dichlorobenzene	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
1,4-Dichlorobenzene	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Benzene	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Bromodichloromethane	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Bromoform	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Bromomethane	EPA 624.1	ND		1.0	ug/L	1	ADG0498	07/09/20	07/09/20	
Carbon Tetrachloride	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Chlorobenzene	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Chloroethane	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Chloroform	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Chloromethane	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
cis-1,3-Dichloropropene	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Dibromochloromethane	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Dichloromethane	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Ethylbenzene	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	B2.2
Tetrachloroethene (PCE)	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Toluene	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
trans-1,2-Dichloroethene	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
trans-1,3-Dichloropropene	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Trichloroethene (TCE)	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Vinyl Chloride	EPA 624.1	ND		0.50	ug/L	1	ADG0498	07/09/20	07/09/20	
Surrogate: 1,2-Dichloroethane-d4	EPA 624.1	112 %		Acceptable range: 70-130 %						
Surrogate: Bromofluorobenzene	EPA 624.1	106 %		Acceptable range: 70-130 %						
Surrogate: Toluene-d8	EPA 624.1	103 %		Acceptable range: 70-130 %						

BSK Associates Laboratory Fresno
Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD Limit	Date Analyzed	Qual
---------	--------	-----	----	-------	-------------	---------------	------	-------------	-----------	---------------	------

EPA 608.3 - Quality Control

Batch: ADG0635

Prepared: 7/14/2020

Prep Method: EPA 3510C

Analyst: PNN

Blank (ADG0635-BLK1)

4,4'-DDD	ND	0.00086	0.0050	ug/L						07/16/20	
4,4'-DDE	ND	0.00077	0.0050	ug/L						07/16/20	
4,4'-DDT	ND	0.00053	0.0050	ug/L						07/16/20	
Aldrin	ND	0.00071	0.0050	ug/L						07/16/20	
alpha-BHC	ND	0.00066	0.0050	ug/L						07/16/20	
alpha-Chlordane	ND	0.00032	0.010	ug/L						07/16/20	
Aroclor-1016	ND	0.050	0.50	ug/L						07/16/20	
Aroclor-1221	ND	0.063	0.50	ug/L						07/16/20	
Aroclor-1232	ND	0.050	0.50	ug/L						07/16/20	
Aroclor-1242	ND	0.050	0.50	ug/L						07/16/20	
Aroclor-1248	ND	0.020	0.50	ug/L						07/16/20	
Aroclor-1254	ND	0.050	0.50	ug/L						07/16/20	
Aroclor-1260	ND	0.015	0.50	ug/L						07/16/20	
beta-BHC	ND	0.0017	0.0050	ug/L						07/16/20	
Chlordane (Technical)	ND	0.026	0.10	ug/L						07/16/20	
delta-BHC	ND	0.0016	0.0050	ug/L						07/16/20	
Dieldrin	ND	0.00028	0.0050	ug/L						07/16/20	
Endosulfan I	ND	0.00034	0.0050	ug/L						07/16/20	
Endosulfan II	ND	0.00034	0.0050	ug/L						07/16/20	
Endosulfan Sulfate	ND	0.00056	0.0050	ug/L						07/16/20	
Endrin	ND	0.00034	0.0050	ug/L						07/16/20	
Endrin Aldehyde	ND	0.0011	0.0050	ug/L						07/16/20	
gamma-Chlordane	ND	0.00042	0.010	ug/L						07/16/20	
Heptachlor	ND	0.00046	0.0050	ug/L						07/16/20	
Heptachlor Epoxide	ND	0.00039	0.0050	ug/L						07/16/20	
Lindane	ND	0.00042	0.0050	ug/L						07/16/20	
Toxaphene	ND	0.035	0.10	ug/L						07/16/20	
Surrogate: TCMX	0.30				0.30		101	26-144		07/16/20	

Blank Spike (ADG0635-BS1)

4,4'-DDD	0.042	0.00086	0.0050	ug/L	0.040	105	50-150			07/16/20	
4,4'-DDE	0.038	0.00077	0.0050	ug/L	0.040	96	50-150			07/16/20	
4,4'-DDT	0.041	0.00053	0.0050	ug/L	0.040	104	50-150			07/16/20	
Aldrin	0.040	0.00071	0.0050	ug/L	0.040	100	50-150			07/16/20	
alpha-BHC	0.040	0.00066	0.0050	ug/L	0.040	99	50-150			07/16/20	
alpha-Chlordane	0.039	0.00032	0.010	ug/L	0.040	99	50-150			07/16/20	
beta-BHC	0.040	0.0017	0.0050	ug/L	0.040	100	50-150			07/16/20	
delta-BHC	0.034	0.0016	0.0050	ug/L	0.040	85	50-150			07/16/20	
Dieldrin	0.041	0.00028	0.0050	ug/L	0.040	102	50-150			07/16/20	
Endosulfan I	0.041	0.00034	0.0050	ug/L	0.040	102	50-150			07/16/20	
Endosulfan II	0.039	0.00034	0.0050	ug/L	0.040	99	50-150			07/16/20	
Endosulfan Sulfate	0.039	0.00056	0.0050	ug/L	0.040	98	50-150			07/16/20	
Endrin	0.046	0.00034	0.0050	ug/L	0.040	114	50-150			07/16/20	

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ADG0983 Final FINAL 07 23 2020 0753 07232020 0753

BSK Associates Laboratory Fresno
Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Date Analyzed	Qual
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EPA 608.3 - Quality Control

Batch: ADG0635

Prepared: 7/14/2020

Prep Method: EPA 3510C

Analyst: PNN

Blank Spike (ADG0635-BS1)

Endrin Aldehyde	0.040	0.0011	0.0050	ug/L	0.040		100	50-150			07/16/20	
gamma-Chlordane	0.038	0.00042	0.010	ug/L	0.040		95	50-150			07/16/20	
Heptachlor	0.040	0.00046	0.0050	ug/L	0.040		100	50-150			07/16/20	
Heptachlor Epoxide	0.040	0.00039	0.0050	ug/L	0.040		100	50-150			07/16/20	
Lindane	0.038	0.00042	0.0050	ug/L	0.040		96	50-150			07/16/20	
Surrogate: TCMX	0.30				0.30		99	50-150			07/16/20	

Blank Spike (ADG0635-BS2)

Toxaphene	0.10	0.035	0.10	ug/L	0.080		124	50-150			07/16/20	J
Surrogate: TCMX	0.32				0.30		106	50-150			07/16/20	

Blank Spike (ADG0635-BS3)

Chlordane (Technical)	0.093	0.026	0.10	ug/L	0.080		117	50-150			07/16/20	J
Surrogate: TCMX	0.30				0.30		100	50-150			07/16/20	

Blank Spike (ADG0635-BS4)

Aroclor-1016	0.63	0.050	0.50	ug/L	0.80		79	50-150			07/16/20	
Aroclor-1260	0.69	0.015	0.50	ug/L	0.80		86	50-150			07/16/20	
Surrogate: TCMX	0.32				0.30		106	50-150			07/16/20	

Blank Spike Dup (ADG0635-BSD1)

4,4'-DDD	0.042	0.00086	0.0050	ug/L	0.040		105	50-150	0	20	07/16/20	
4,4'-DDE	0.039	0.00077	0.0050	ug/L	0.040		98	50-150	2	20	07/16/20	
4,4'-DDT	0.042	0.00053	0.0050	ug/L	0.040		105	50-150	1	20	07/16/20	
Aldrin	0.039	0.00071	0.0050	ug/L	0.040		97	50-150	3	20	07/16/20	
alpha-BHC	0.039	0.00066	0.0050	ug/L	0.040		97	50-150	2	20	07/16/20	
alpha-Chlordane	0.039	0.00032	0.010	ug/L	0.040		97	50-150	1	20	07/16/20	
beta-BHC	0.040	0.0017	0.0050	ug/L	0.040		99	50-150	1	20	07/16/20	
delta-BHC	0.035	0.0016	0.0050	ug/L	0.040		87	50-150	2	20	07/16/20	
Dieldrin	0.042	0.00028	0.0050	ug/L	0.040		104	50-150	3	20	07/16/20	
Endosulfan I	0.042	0.00034	0.0050	ug/L	0.040		104	50-150	2	20	07/16/20	
Endosulfan II	0.041	0.00034	0.0050	ug/L	0.040		102	50-150	4	20	07/16/20	
Endosulfan Sulfate	0.041	0.00056	0.0050	ug/L	0.040		102	50-150	3	20	07/16/20	
Endrin	0.045	0.00034	0.0050	ug/L	0.040		114	50-150	0	20	07/16/20	
Endrin Aldehyde	0.040	0.0011	0.0050	ug/L	0.040		100	50-150	0	20	07/16/20	
gamma-Chlordane	0.039	0.00042	0.010	ug/L	0.040		96	50-150	2	20	07/16/20	
Heptachlor	0.039	0.00046	0.0050	ug/L	0.040		98	50-150	2	20	07/16/20	
Heptachlor Epoxide	0.042	0.00039	0.0050	ug/L	0.040		105	50-150	4	20	07/16/20	
Lindane	0.039	0.00042	0.0050	ug/L	0.040		99	50-150	3	20	07/16/20	
Surrogate: TCMX	0.30				0.30		99	50-150			07/16/20	

Matrix Spike (ADG0635-MS1), Source: RDG0050-03

4,4'-DDD	0.036	0.00086	0.0050	ug/L	0.038	ND	94	50-150			07/17/20	
4,4'-DDE	0.032	0.00077	0.0050	ug/L	0.038	ND	84	50-150			07/17/20	

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ADG0983 Final FINAL 07 23 2020 0753 07232020 0753



ADG0983

Priority Pollutant Subcontract

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	MCL	RL	Units	Spike Level	Source Result	%REC	Limits	RPD Limit	Date Analyzed	Qual
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EPA 608.3 - Quality Control

Batch: ADG0635

Prepared: 7/14/2020

Prep Method: EPA 3510C

Analyst: PNN

Matrix Spike (ADG0635-MS1), Source: RDG0050-03

4,4'-DDT	0.031	0.00053	0.0050	ug/L	0.038	ND	80	50-150		07/17/20
Aldrin	0.030	0.00071	0.0050	ug/L	0.038	ND	78	50-150		07/17/20
alpha-BHC	0.035	0.00066	0.0050	ug/L	0.038	ND	91	50-150		07/17/20
alpha-Chlordane	0.032	0.00032	0.010	ug/L	0.038	ND	83	50-150		07/17/20
beta-BHC	0.028	0.0017	0.0050	ug/L	0.038	ND	74	50-150		07/17/20
delta-BHC	0.027	0.0016	0.0050	ug/L	0.038	ND	70	50-150		07/17/20
Dieldrin	0.042	0.00028	0.0050	ug/L	0.038	ND	110	50-150		07/17/20
Endosulfan I	0.029	0.00034	0.0050	ug/L	0.038	ND	75	50-150		07/17/20
Endosulfan II	0.036	0.00034	0.0050	ug/L	0.038	ND	93	50-150		07/17/20
Endosulfan Sulfate	0.039	0.00056	0.0050	ug/L	0.038	ND	102	50-150		07/17/20
Endrin	0.037	0.00034	0.0050	ug/L	0.038	ND	96	50-150		07/17/20
Endrin Aldehyde	0.029	0.0011	0.0050	ug/L	0.038	ND	75	50-150		07/17/20
gamma-Chlordane	0.034	0.00042	0.010	ug/L	0.038	ND	89	50-150		07/17/20
Heptachlor	0.029	0.00046	0.0050	ug/L	0.038	ND	75	50-150		07/17/20
Heptachlor Epoxide	0.029	0.00039	0.0050	ug/L	0.038	ND	75	50-150		07/17/20
Lindane	0.031	0.00042	0.0050	ug/L	0.038	ND	79	50-150		07/17/20
Surrogate: TCMX	0.28				0.29		96	50-150		07/17/20

EPA 624.1 - Quality Control

Batch: ADG0498

Prepared: 7/9/2020

Prep Method: no prep-volatiles

Analyst: AMN

Blank (ADG0498-BLK1)

1,1,1-Trichloroethane	ND		0.50	ug/L						07/09/20
1,1,2,2-Tetrachloroethane	ND		0.50	ug/L						07/09/20
1,1,2-Trichloroethane	ND		0.50	ug/L						07/09/20
1,1-Dichloroethane	ND		0.50	ug/L						07/09/20
1,1-Dichloroethene	ND		0.50	ug/L						07/09/20
1,2-Dichlorobenzene	ND		0.50	ug/L						07/09/20
1,2-Dichloroethane	ND		0.50	ug/L						07/09/20
1,2-Dichloropropane	ND		0.50	ug/L						07/09/20
1,3-Dichlorobenzene	ND		0.50	ug/L						07/09/20
1,4-Dichlorobenzene	ND		0.50	ug/L						07/09/20
2-Chloroethyl vinyl ether	ND	0.45	1.0	ug/L						07/09/20
Acrolein	ND	1.9	2.0	ug/L						07/09/20
Acrylonitrile	ND	0.40	2.0	ug/L						07/09/20
Benzene	ND		0.50	ug/L						07/09/20
Bromodichloromethane	ND		0.50	ug/L						07/09/20
Bromoform	ND		0.50	ug/L						07/09/20
Bromomethane	ND		1.0	ug/L						07/09/20
Carbon Tetrachloride	ND		0.50	ug/L						07/09/20
Chlorobenzene	ND		0.50	ug/L						07/09/20
Chloroethane	ND		0.50	ug/L						07/09/20

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ADG0983 Final FINAL 07 23 2020 0753 07232020 0753

BSK Associates Laboratory Fresno
Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	Limit	RFD	Limit	Date Analyzed	Qual
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EPA 624.1 - Quality Control

Batch: ADG0498

Prepared: 7/9/2020

Prep Method: no prep-volatiles

Analyst: AMN

Blank (ADG0498-BLK1)

Chloroform	ND		0.50	ug/L							07/09/20	
Chloromethane	ND		0.50	ug/L							07/09/20	
cis-1,3-Dichloropropene	ND		0.50	ug/L							07/09/20	
Dibromochloromethane	ND		0.50	ug/L							07/09/20	
Dichloromethane	ND		0.50	ug/L							07/09/20	
Ethylbenzene	ND		0.50	ug/L							07/09/20	B2.0
Tetrachloroethene (PCE)	ND		0.50	ug/L							07/09/20	
Toluene	ND		0.50	ug/L							07/09/20	
trans-1,2-Dichloroethene	ND		0.50	ug/L							07/09/20	
trans-1,3-Dichloropropene	ND		0.50	ug/L							07/09/20	
Trichloroethene (TCE)	ND		0.50	ug/L							07/09/20	
Vinyl Chloride	ND		0.50	ug/L							07/09/20	
Surrogate: 1,2-Dichloroethane-d4	46				50		93	70-130			07/09/20	
Surrogate: Bromofluorobenzene	44				50		88	70-130			07/09/20	
Surrogate: Toluene-d8	45				50		89	70-130			07/09/20	

Blank Spike (ADG0498-BS1)

1,1,1-Trichloroethane	12		0.50	ug/L	10	ND	118	52-162			07/09/20	
1,1,2,2-Tetrachloroethane	11		0.50	ug/L	10	ND	110	46-157			07/09/20	
1,1,2-Trichloroethane	11		0.50	ug/L	10	ND	109	52-150			07/09/20	
1,1-Dichloroethane	12		0.50	ug/L	10	ND	116	59-155			07/09/20	
1,1-Dichloroethene	11		0.50	ug/L	10	ND	115	10-234			07/09/20	
1,2-Dichlorobenzene	12		0.50	ug/L	10	ND	115	18-190			07/09/20	
1,2-Dichloroethane	12		0.50	ug/L	10	ND	116	49-155			07/09/20	
1,2-Dichloropropane	11		0.50	ug/L	10	ND	112	10-210			07/09/20	
1,3-Dichlorobenzene	11		0.50	ug/L	10	ND	113	59-156			07/09/20	
1,4-Dichlorobenzene	11		0.50	ug/L	10	ND	115	18-190			07/09/20	
2-Chloroethyl vinyl ether	11	0.45	1.0	ug/L	10		110	10-305			07/09/20	
Acrolein	60	1.9	2.0	ug/L	100		60	44-144			07/09/20	
Acrylonitrile	11	0.40	2.0	ug/L	10		109	54-140			07/09/20	
Benzene	9.9		0.50	ug/L	10	ND	99	37-151			07/09/20	
Bromodichloromethane	12		0.50	ug/L	10	ND	122	35-155			07/09/20	
Bromoform	11		0.50	ug/L	10	ND	111	45-169			07/09/20	
Bromomethane	13		1.0	ug/L	10	ND	129	10-242			07/09/20	
Carbon Tetrachloride	12		0.50	ug/L	10	ND	118	70-140			07/09/20	
Chlorobenzene	11		0.50	ug/L	10	ND	113	37-160			07/09/20	
Chloroethane	13		0.50	ug/L	10	ND	127	14-230			07/09/20	
Chloroform	11		0.50	ug/L	10	ND	113	51-138			07/09/20	
Chloromethane	11		0.50	ug/L	10	ND	107	10-273			07/09/20	
cis-1,3-Dichloropropene	12		0.50	ug/L	10	ND	121	10-227			07/09/20	
Dibromochloromethane	11		0.50	ug/L	10	ND	113	53-149			07/09/20	
Dichloromethane	12		0.50	ug/L	10	ND	121	10-221			07/09/20	
Ethylbenzene	11		0.50	ug/L	10	ND	112	37-162			07/09/20	

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ADG0983 Final FINAL 07 23 2020 0753 07232020 0753

BSK Associates Laboratory Fresno
Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	Limits	RPD	Limit	Date Analyzed	Qual
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EPA 624.1 - Quality Control

Batch: ADG0498

Prepared: 7/9/2020

Prep Method: no prep-volatiles

Analyst: AMN

Blank Spike (ADG0498-BS1)

Tetrachloroethene (PCE)	10		0.50	ug/L	10	ND	103	64-148			07/09/20	
Toluene	11		0.50	ug/L	10	ND	112	47-150			07/09/20	
trans-1,2-Dichloroethene	11		0.50	ug/L	10	ND	111	54-156			07/09/20	
trans-1,3-Dichloropropene	11		0.50	ug/L	10	ND	110	17-183			07/09/20	
Trichloroethene (TCE)	12		0.50	ug/L	10	ND	125	71-157			07/09/20	
Vinyl Chloride	11		0.50	ug/L	10	ND	109	10-251			07/09/20	
Surrogate: 1,2-Dichloroethane-d4	45				50		90	70-130			07/09/20	
Surrogate: Bromofluorobenzene	48				50		97	70-130			07/09/20	
Surrogate: Toluene-d8	47				50		93	70-130			07/09/20	

Blank Spike Dup (ADG0498-BSD1)

1,1,1-Trichloroethane	9.5		0.50	ug/L	10	ND	95	52-162	22	30	07/09/20	
1,1,2,2-Tetrachloroethane	9.6		0.50	ug/L	10	ND	96	46-157	14	30	07/09/20	
1,1,2-Trichloroethane	9.4		0.50	ug/L	10	ND	94	52-150	15	30	07/09/20	
1,1-Dichloroethane	9.1		0.50	ug/L	10	ND	91	59-155	24	30	07/09/20	
1,1-Dichloroethene	8.9		0.50	ug/L	10	ND	89	10-234	25	30	07/09/20	
1,2-Dichlorobenzene	10		0.50	ug/L	10	ND	102	18-190	12	30	07/09/20	
1,2-Dichloroethane	10		0.50	ug/L	10	ND	101	49-155	14	30	07/09/20	
1,2-Dichloropropane	9.9		0.50	ug/L	10	ND	99	10-210	13	30	07/09/20	
1,3-Dichlorobenzene	9.9		0.50	ug/L	10	ND	99	59-156	13	30	07/09/20	
1,4-Dichlorobenzene	10		0.50	ug/L	10	ND	101	18-190	13	30	07/09/20	
2-Chloroethyl vinyl ether	10	0.45	1.0	ug/L	10		100	10-305	10	30	07/09/20	
Acrolein	77	1.9	2.0	ug/L	100		77	44-144	25	30	07/09/20	
Acrylonitrile	10	0.40	2.0	ug/L	10		101	54-140	7	30	07/09/20	
Benzene	8.4		0.50	ug/L	10	ND	84	37-151	16	30	07/09/20	
Bromodichloromethane	11		0.50	ug/L	10	ND	107	35-155	13	30	07/09/20	
Bromoform	9.3		0.50	ug/L	10	ND	93	45-169	17	30	07/09/20	
Bromomethane	12		1.0	ug/L	10	ND	124	10-242	4	30	07/09/20	
Carbon Tetrachloride	9.4		0.50	ug/L	10	ND	94	70-140	23	30	07/09/20	
Chlorobenzene	9.9		0.50	ug/L	10	ND	99	37-160	14	30	07/09/20	
Chloroethane	12		0.50	ug/L	10	ND	116	14-230	9	30	07/09/20	
Chloroform	9.3		0.50	ug/L	10	ND	93	51-138	19	30	07/09/20	
Chloromethane	11		0.50	ug/L	10	ND	110	10-273	2	30	07/09/20	
cis-1,3-Dichloropropene	11		0.50	ug/L	10	ND	110	10-227	9	30	07/09/20	
Dibromochloromethane	9.8		0.50	ug/L	10	ND	98	53-149	14	30	07/09/20	
Dichloromethane	11		0.50	ug/L	10	ND	113	10-221	7	30	07/09/20	
Ethylbenzene	9.4		0.50	ug/L	10	ND	94	37-162	18	30	07/09/20	
Tetrachloroethene (PCE)	9.8		0.50	ug/L	10	ND	98	64-148	5	30	07/09/20	
Toluene	8.9		0.50	ug/L	10	ND	89	47-150	22	30	07/09/20	
trans-1,2-Dichloroethene	8.8		0.50	ug/L	10	ND	88	54-156	24	30	07/09/20	
trans-1,3-Dichloropropene	9.5		0.50	ug/L	10	ND	95	17-183	15	30	07/09/20	
Trichloroethene (TCE)	11		0.50	ug/L	10	ND	112	71-157	11	30	07/09/20	
Vinyl Chloride	11		0.50	ug/L	10	ND	105	10-251	3	30	07/09/20	

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ADG0983 Final FINAL 07 23 2020 0753 07232020 0753

BSK Associates Laboratory Fresno
Organics Quality Control Report

Analyte	Result	MDL	RL	Units	Spike Level	Source Result	%REC	Limit	RPD	Limit	Date Analyzed	Qual
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EPA 624.1 - Quality Control

Batch: ADG0498

Prepared: 7/9/2020

Prep Method: no prep-volatiles

Analyst: AMN

Blank Spike Dup (ADG0498-BSD1)

Surrogate: 1,2-Dichloroethane-d4	43			50	85	70-130	07/09/20
Surrogate: Bromofluorobenzene	49			50	98	70-130	07/09/20
Surrogate: Toluene-d8	60			50	120	70-130	07/09/20

Matrix Spike (ADG0498-MS1), Source: ADG0764-01

1,1,1-Trichloroethane	12		0.50	ug/L	10	ND	122	52-162	07/09/20
1,1,2,2-Tetrachloroethane	11		0.50	ug/L	10	ND	113	46-157	07/09/20
1,1,2-Trichloroethane	11		0.50	ug/L	10	ND	109	52-150	07/09/20
1,1-Dichloroethane	11		0.50	ug/L	10	ND	115	59-155	07/09/20
1,1-Dichloroethene	12		0.50	ug/L	10	ND	118	10-234	07/09/20
1,2-Dichlorobenzene	11		0.50	ug/L	10	ND	109	18-190	07/09/20
1,2-Dichloroethane	11		0.50	ug/L	10	ND	112	49-155	07/09/20
1,2-Dichloropropane	11		0.50	ug/L	10	ND	112	10-210	07/09/20
1,3-Dichlorobenzene	11		0.50	ug/L	10	ND	108	59-156	07/09/20
1,4-Dichlorobenzene	11		0.50	ug/L	10	ND	109	18-190	07/09/20
Acrylonitrile	11	0.40	2.0	ug/L	10	ND	113	54-140	07/09/20
Benzene	12		0.50	ug/L	10	ND	121	37-151	07/09/20
Bromodichloromethane	11		0.50	ug/L	10	ND	114	35-155	07/09/20
Bromoform	10		0.50	ug/L	10	ND	102	45-169	07/09/20
Bromomethane	9.1		1.0	ug/L	10	ND	91	10-242	07/09/20
Carbon Tetrachloride	13		0.50	ug/L	10	ND	125	70-140	07/09/20
Chlorobenzene	11		0.50	ug/L	10	ND	110	37-160	07/09/20
Chloroethane	11		0.50	ug/L	10	ND	106	14-230	07/09/20
Chloroform	11		0.50	ug/L	10	ND	110	51-138	07/09/20
Chloromethane	9.3		0.50	ug/L	10	ND	93	10-273	07/09/20
cis-1,3-Dichloropropene	11		0.50	ug/L	10	ND	109	10-227	07/09/20
Dibromochloromethane	11		0.50	ug/L	10	ND	106	53-149	07/09/20
Dichloromethane	11		0.50	ug/L	10	ND	107	10-221	07/09/20
Ethylbenzene	11		0.50	ug/L	10	ND	104	37-162	07/09/20
Tetrachloroethene (PCE)	9.8		0.50	ug/L	10	ND	98	64-148	07/09/20
Toluene	11		0.50	ug/L	10	ND	111	47-150	07/09/20
trans-1,2-Dichloroethene	11		0.50	ug/L	10	ND	112	54-156	07/09/20
trans-1,3-Dichloropropene	10		0.50	ug/L	10	ND	104	17-183	07/09/20
Trichloroethene (TCE)	13		0.50	ug/L	10	ND	131	71-157	07/09/20
Vinyl Chloride	8.1		0.50	ug/L	10	ND	81	10-251	07/09/20
Surrogate: 1,2-Dichloroethane-d4	53				50		105	70-130	07/09/20
Surrogate: Bromofluorobenzene	51				50		102	70-130	07/09/20
Surrogate: Toluene-d8	48				50		96	70-130	07/09/20

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

****NA****

Certificate of Analysis

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno

State of California - ELAP	1180
Los Angeles CSD	9254479
State of Nevada	CA000792020-2
EPA - UCMR4	CA00079

State of Hawaii	4021
NELAP certified	4021-014
State of Oregon - NELAP	4021-014
State of Washington	C997-20b

Sacramento

State of California - ELAP	2435
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San Bernardino

State of California - ELAP	2993
NELAP certified	4119-004

Los Angeles CSD	9254478
State of Oregon - NELAP	4119-004

Vancouver

NELAP certified	WA100008-012
State of Washington	C824-19

State of Oregon - NELAP	WA100008-013
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Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info		Is temperature within range? Chemistry $\leq 6^{\circ}\text{C}$ Micro $< 8^{\circ}\text{C}$		Yes <u>No</u> NA		Are correct containers and preservatives received for the tests requested?		Yes <u>No</u> NA	
		If samples were taken today, is there evidence that chilling has begun?		Yes <u>No</u> NA		Bubbles Present in VOA (524.2/TCP/TTHM)? TB Received? (Check Method Below)		Yes <u>No</u> NA	
		Did all bottles arrive unbroken and intact?		Yes <u>No</u>		Is sufficient amount of sample received?		Yes <u>No</u>	
		Do all bottle labels agree with COC?		Yes <u>No</u>		Do samples have a hold time <72 hours?		Yes <u>No</u>	
		Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?		Yes <u>No</u> NA		Has PM been notified of discrepancies? PM: _____ By/Time: _____		Yes <u>No</u> NA	
		250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)		Checks		Passed?		1 2	
		Bacti Na ₂ S ₂ O ₃		—		—			
		None (P) White Cap		—		—			
		Cr6 (P) Lt. Green Label/Blue Cap NH ₄ OH(NH ₄) ₂ SO ₄ DW		Cl, pH > 8		P F			
		Cr6 (P) Pink Label/Blue Cap NH ₄ OH(NH ₄) ₂ SO ₄ WW		pH 9.3-9.7		P F			
		Cr6 (P) Black Label/Blue Cap NH ₄ OH(NH ₄) ₂ SO ₄ 7199 ***24 HOUR HOLD TIME***		pH 9.0-9.5		P F			
		HNO ₃ (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label		—		—			
		H ₂ SO ₄ (P) or (AG) Yellow Cap/Label		pH < 2		P F			
		NaOH (P) Green Cap		Cl, pH > 10		P F			
		NaOH + ZnAc (P)		pH > 9		P F			
		Dissolved Oxygen 300ml (g)		—		—			
		None (AG) 808/8081/8082, 625, 632/8321, 8151, 8270		—		—		2C	
		HCl (AG) Lt. Blue Label O&G, Diesel, TCP		—		—			
		Ascorbic, EDTA, KH ₂ Ct (AG) Pink Label 525		—		—			
		Na ₂ SO ₃ 250mL (AG) Neon Green Label 515		—		—			
		Na ₂ S ₂ O ₃ 1 Liter (Brown P) 549		—		—			
		Na ₂ S ₂ O ₃ (AG) Blue Label 548, THM, 524		—		—			
		Na ₂ S ₂ O ₃ (CG) Blue Label 504, 505, 547		—		—			
		Na ₂ S ₂ O ₃ + MCAA (CG) Orange Label 531		pH < 3		P F			
		NH ₄ Cl (AG) Purple Label 552		—		—			
		EDA (AG) Brown Label DBPs		—		—			
		HCL (CG) 524.2, BTEX, Gas, MTBE, 8260/624		—		—		2V 2V TB	
		Buffer pH 4 (CG)		—		—		IV	
		H ₃ PO ₄ (CG) Salmon Label		—		—			
		Trizma - EPA 537.1		—		—			
		Other:		—		—			
		Asbestos 1L (P) w/ Foil / LL Metals Bottle		—		—			
		Bottled Water		—		—			
		Clear Glass 125mL / 250mL / 500mL / 1 Liter		—		—		IV	
		Solids: Brass / Steel / Plastic Bag		—		—			
Split		Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials	
		S P				S P			
		S P				S P			
Comments		✓ Indicates Blanks Received 504 ___ 524.2 ✓ TCP ___ TTHM ___ 537 ___ 8260/624 ___							



AGRICULTURAL &
ENVIRONMENTAL ANALYSIS

3019 G.S. Center Rd.
Wenatchee, WA 98801

(509) 662-1888
Fax: (509) 662-8183
1-800-545-4206

SPECIAL SERVICE ORDER FORM

010453		SAMPLE #	1	2	3	4
SEND RESULTS TO						
1) Client 2) Billing 3) Both		Client	X			
SAMPLE REPRESENTS						
1) Food 2) Water 3) Soil 4) Plant Tissue 5) Other		Water		X		
SAMPLE BY						
1) Client 2) Field Rep. 3) Quality Control 4) Cascade 5) Other			X			
SAMPLER'S NAME		SARAH DUMAN				

CLIENT NAME/ADDRESS	
REC Silicon	
3322 RD "N" NE	
MOSES LAKE WA 98837	
PHONE NO.	509-766-9314
EMAIL	Sarah.Duman@recsilicon.com

BILLING NAME/ADDRESS	
SAME	
PHONE NO.	
EMAIL	MLact@recsilicon.com

FORM MUST BE COMPLETED BEFORE ANALYSIS WILL BE PERFORMED.

RELINQUISHED BY: (Signature) [1]	DATE	RELINQUISHED BY: (Signature) [2]	DATE	RELINQUISHED BY: (Signature) [3]	DATE
	7-7-20				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
SARAH DUMAN	09:00				
RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE
	7-7-20				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
D. Smith	14:40				

1	SAMPLE I.D.	519038	Sample Date	7-7-20	Sample Time	08:00
	ANALYSIS REQUESTED	624 VOC Extended, 625 SVOC (WA PBT List) 608 PCB, Pest				
	COMMENT	20-CO 13628				
2	SAMPLE I.D.		Sample Date		Sample Time	
	ANALYSIS REQUESTED					
	COMMENT					
3	SAMPLE I.D.		Sample Date		Sample Time	
	ANALYSIS REQUESTED					
	COMMENT					
4	SAMPLE I.D.		Sample Date		Sample Time	
	ANALYSIS REQUESTED					
	COMMENT					

Sample container received by client was sealed
Sample container received by laboratory was sealed

Yes ☐ No ☐
Yes ☐ No ☐

Disclaimer:

Cascade Analytical, Inc., makes no warranty of any kind, expressed or implied, and customer assumes all risk and liability from use of Cascade Analytical test results. Cascade neither assumes nor authorizes any person to assume for Cascade any other liability in connection with the testing done by Cascade Analytical, Inc., and there are not other oral agreements or warranties collateral to or affecting this agreement.

Cascade Analytical, Inc.'s liability to customer as a result of customers use of Cascade's tests results shall be limited to a sum equal to the fees paid by customer to Cascade Analytical, Inc. for the testing work.

Customer Signature

Date

7-7-20

PACKAGING/SHIPPING INSTRUCTIONS:

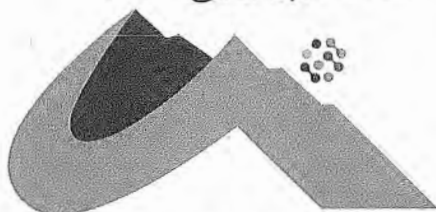
Contact Laboratory to establish:

- a) performance of analysis
- b) sampling protocol, if unknown
- c) storage and shipping requirements

Complete order form. Attach chain of custody form if required.

Use container supplied by or approved by the laboratory. Other containers may contaminate sample. Pack in protective material to prevent sample vessel breakage. Ship sample refrigerated if required.

ORIGINAL



CASCADE ANALYTICAL
A EUROFINS COMPANY

3019 G. S. Center Rd.
Wenatchee, WA 98801
(509) 662-1888
Fax: (509) 662-8183
1-800-545-4206

1008 W. Ahtanum Rd.
Union Gap, WA 98903
(509) 452-7707
Fax: (509) 452-7773

WATER ANALYSIS ORDER FORM

Batch#	010453	SAMPLE #				
SEND RESULTS TO		1	2	3	4	5
1) Client 2) Billing 3) Both		X				
SAMPLE REPRESENTS						
1) Irrigation 2) Waste Water 3) Other			X			
SAMPLE BY						
1) Client 2) Quality Control 3) Cascade 4) Other		X				

New Acct. #

(see legend on back)

SAMPLE #

CLIENT NAME/ADDRESS
REC Silicon
3322 Rd "N" NE
MOSES LAKE, WA 98837
SAMPLER'S NAME

BILLING NAME/ADDRESS
PHONE
509-766-9314

E-mail Sarah.oman@recsilicon.comE-mail MLaatt@recsilicon.com

RELINQUISHED BY: (Signature) 1	DATE	RELINQUISHED BY: (Signature) 2	DATE	RELINQUISHED BY: (Signature) 3	DATE
<i>[Signature]</i>	7-7-20				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
	09:00				
RECEIVED BY: (Signature)	DATE	RECEIVED BY: (Signature)	DATE	RECEIVED FOR LAB BY: (Signature)	DATE
<i>[Signature]</i>	7/7/20				
(Printed)	TIME	(Printed)	TIME	(Printed)	TIME
	14:40				

FORM MUST BE COMPLETED BEFORE ANALYSIS WILL BE PERFORMED.

1	519038	Sample Date	7-7-20
	-SEE ATTACHED SPECIAL ORDER FORMS	Sample Time	05:30
2		Sample Date	
		Sample Time	
3		Sample Date	
		Sample Time	
4		Sample Date	
		Sample Time	
5		Sample Date	
		Sample Time	

*METALS - circle type of analysis - T=total or D=dissolved

Total N package = TKN, NO₃, NO₂, NH₃

Sample container received by client was sealed Yes _____ No _____

Sample container received by laboratory was sealed Yes _____ No _____

Disclaimer:

Cascade Analytical, Inc., makes no warranty of any kind, expressed or implied, and customer assumes all risk and liability from the use of Cascade's test results. Cascade neither assumes nor authorizes any person to assume for Cascade any other liability in connection with the testing done by Cascade Analytical, Inc., and there are no other oral agreements or warranties collateral to or affecting this agreement.

Cascade Analytical Inc.'s liability to customer as a result of customers use of Cascade's test results shall be limited to a sum equal to the fees paid by customer to Cascade Analytical, Inc. for the testing work.

Customer Signature: *[Signature]*Date 7-7-20

This form also serves as "Chain of Custody."

CAICOF - 03

REV. 04/26/2013

IRRIGATION WATER	1	2	3	4	5
Standard					
GENERAL CHEMISTRY					
1135 pH					
1140 Conductivity					
1200 Solids-Dis. (TDS)					
1230 Solids-Susp. (TSS)					
1240 Tot. Phosphorus					
1250 Orthophosphate					
1260 Kjeldahl Nitrogen (TKN)					
1170 Nitrate+Nitrite					
1265 NO ₃ (As N)					
1280 Ammonia					
1300 Biol. Oxy. Demand					
1310 Chem. Oxy. Demand					
1190 Sulfate (SO ₄)					
1180 Chloride (Cl)					
1150 Turbidity					
1320 Hexane Ext. Mat.					
1340 Alkalinity					
217 Total N Pkg					
MICROBIOLOGY					
10040 Total Coliform MF					
10010 Fecal Coliform MF					
10041 Total Coliform MPN					
10011 Fecal Coliform MPN					
METALS - TOTAL OR DISSOLVED					
1391 Antimony (Sb)					
1011 Arsenic (As)					
1025 Barium (Ba)					
1405 Beryllium (Be)					
1031 Cadmium (Cd)					
1045 Chromium (Cr)					
1215 Copper (Cu)					
1065 Iron (Fe)					
1075 Manganese (Mn)					
1081 Mercury (Hg)					
1435 Molybdenum (Mo)					
1051 Lead (Pb)					
1335 Nickel (Ni)					
1091 Selenium (Se)					
1105 Silver (Ag)					
1381 Thallium (Tl)					
1225 Zinc (Zn)					
MINERALS					
1120 Calcium (Ca)					
1130 Magnesium (Mg)					
1115 Potassium (K)					
1110 Sodium (Na)					

SAMPLING INSTRUCTIONS

WATER QUALITY SAMPLES

1. Container - Use sample bottles provided by the lab. Other containers may contaminate water.
2. **ORDER FORM MUST BE COMPLETED BEFORE ANALYSIS WILL BE PERFORMED.**
3. Sample timing and technique are source dependent. Contact the lab or engineer for specific instructions. Label samples clearly. Sample early in the week, month or quarter so that samples can be retaken before compliance due date.
4. Shipping - For long distance shipping (more than 50 miles or more than 2 days transit), please ship pre cooled samples in a durable cooler. The shipping temperature will affect the results if stored at warm temperatures for an extended period. See shipping information in shaded box below. Cooler will be returned via UPS.

WASTE WATER SAMPLES

1. Container - Use appropriate container requested from laboratory. Unapproved containers will contaminate or improperly preserve water. Please call the laboratory to order appropriate containers with preservatives. Fill container to the shoulder, leaving some air space.
2. **ORDER FORM MUST BE COMPLETED BEFORE ANALYSIS CAN BE PERFORMED.** Call laboratory to verify requested analysis, fill in form accordingly.
3. Sample Timing and Technique - Sample in compliance with NPDES permit, seal container. Label samples clearly.
4. Shipping - Refrigerate samples to 4° C and ship immediately. Shipping container should have pre-frozen coolant and coolers are to be packed to prevent sample breakage and sealed adequately.

Delivery Services that will bring sample to our laboratory are: Brett & Son Delivery call (1-800-572-2235), UPS, FED-X. Complimentary delivery, on Brett & Son if pre-arranged with laboratory. For further shipping information contact our lab.

OTHER WATER ANALYSIS - by arrangement

1. Sample as for waste water. Request custody seal or chain of custody form if necessary.

Standard Irrigation Water Analysis:

1) pH
Conductivity (EC)
Nitrate Nitrogen (NO₃N)
Total Dissolved Solids (TDS)
Sulfur (SO₄S)
Calcium (Ca)
Magnesium (Mg)
Sodium (Na)
Boron (B)
Alkalinity
 Carbonate
 Bicarbonate
Calculations for:
Hardness
Sodium absorption ratio (SAR)
Lime deposition potential
Sulfuric Acid Requirement
Sodium Class
Conductivity Class
Irrigation Suitability

Expanded Irrigation Water Analysis:

1) All Standard Analysis Parameters Plus:
Iron (Fe)
Manganese (Mn)
Heterotrophic Plate Count

Note: Expanded Irrigation is applicable where irrigation emitter plugging/deposits occur, or when water treatment systems are being considered.

NOTE: PLEASE DO NOT USE THIS FORM FOR DRINKING WATER UNLESS PREVIOUSLY ARRANGED.



Sample Receipt Form

Date Received:

7/7/20

Time Received:

13:40

Initials:

DA

Client Name:

REC Silicon

Project Name:

Temperature of cooler upon receipt:

2 °C

Thermometer ID:

OR2

Custody seals:

☒ Intact

☐ Broken

☐ None

☐ N/A

Chain of Custody Completed:

Client name, address, and phone number;

☒ Yes

☐ No

Date and time of sampling;

☒ Yes

☐ No

Test requests clear;

☒ Yes

☐ No

Completed in ink;

☒ Yes

☐ No

Signed by client;

☒ Yes

☐ No

All samples received:

☒ Yes

☐ No

All samples intact:

☒ Yes

☐ No

Sample ID's match COC form:

☒ Yes

☐ No

Appropriate containers used:

☒ Yes

☐ No

Sufficient amount of sample for analysis:

☒ Yes

☐ No

Correct preservative verified:

N/A

☒ Yes

☐ No

Air bubbles in VOC, TTHM, or HAA5 samples:

N/A

☐ Yes

☒ No

Sample(s) exceed hold time:

☐ Yes

☒ No

Type of coolant:

☐ Ice

☒ Blue Ice

☐ None

☐ Other

Comment:

Shipping Method:

☐ FedEx

☐ UPS

☐ USPS

☐ Brett & Sons

☒ Hand Delivered

☐ CAI Sampled

Shipping Container:

☐ E-CA Cooler

☒ E-CA Cooler Box

☐ Client's Cooler

☐ None

☐ Other

Samples accepted for analysis:

☒ Yes

☐ No

Reason for Rejection:

Name of Person Contacted:

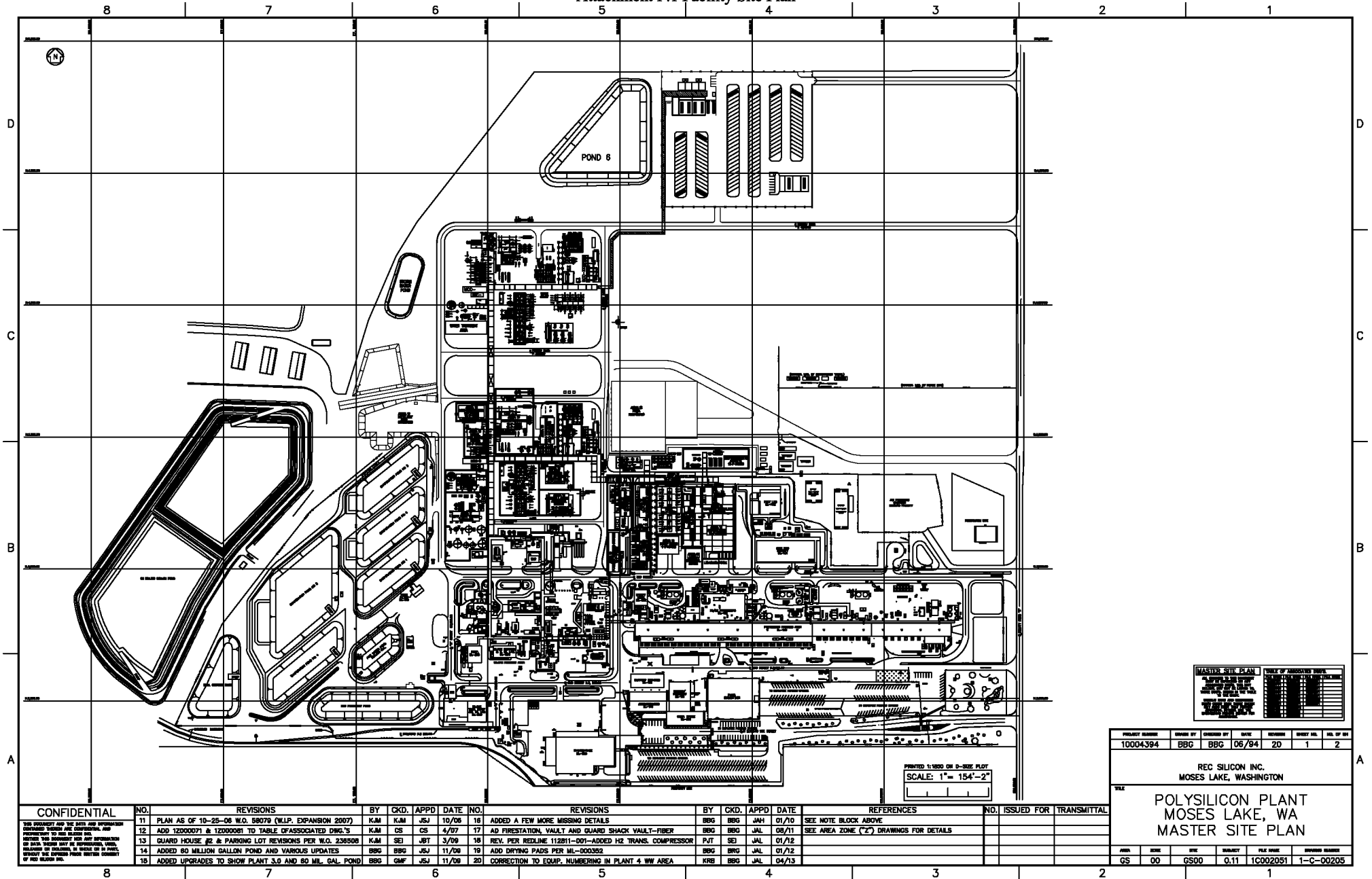
Date Contacted:

Comments:

F.1.

Facility Site Map

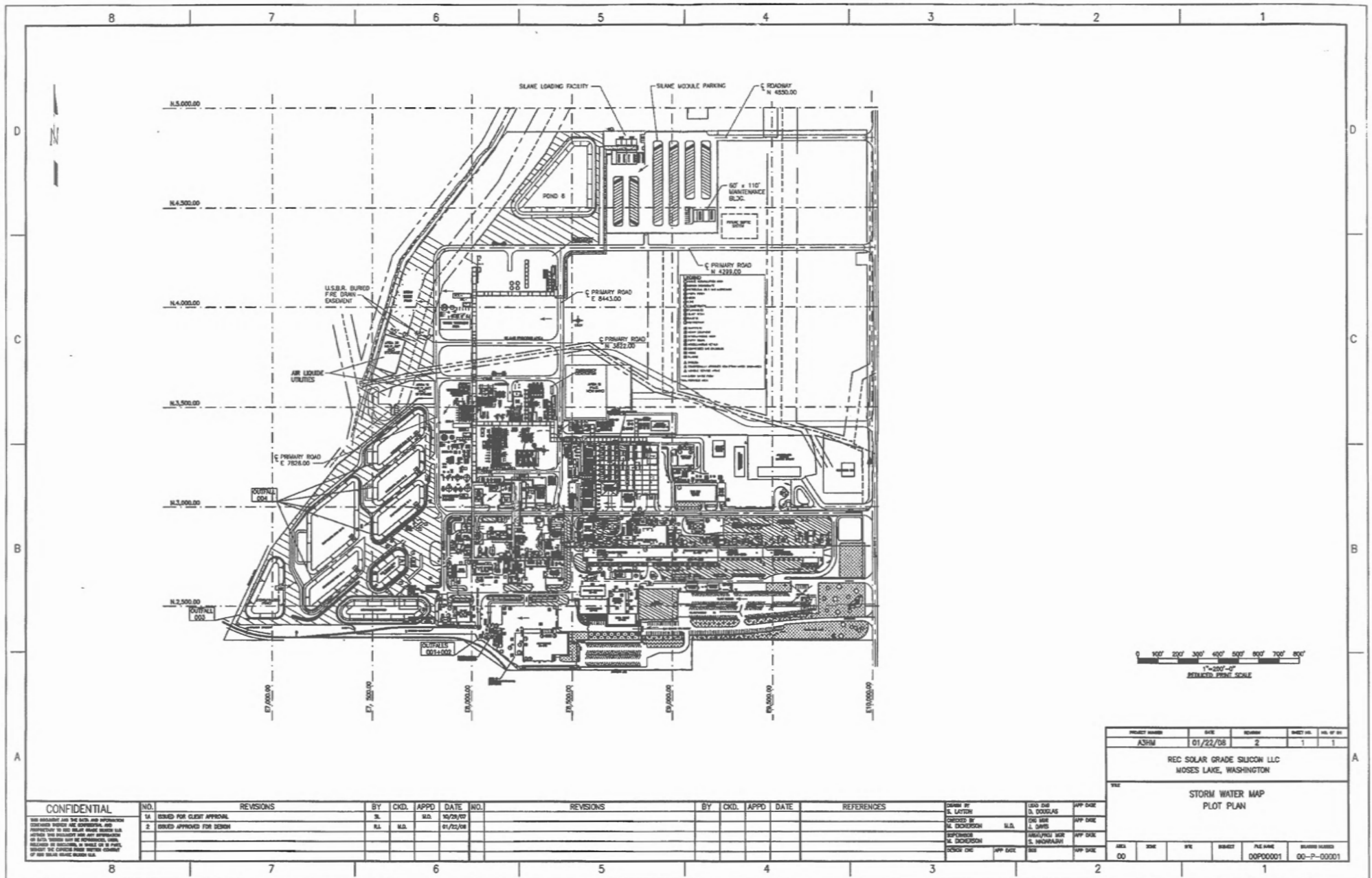
Attachment F.1 Facility Site Plan



H.5.

Stormwater Drainage Map

Attachment H.5 Stormwater Map



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NO.	REVISIONS	BY	CHKD.	APPD.	DATE	NO.	REVISIONS	BY	CHKD.	APPD.	DATE
1A	DESIGNED FOR CLIENT APPROVAL	SL		N.A.	10/28/07						
2	DESIGNED APPROVED FOR DESIGN	SL	N.A.		01/22/08						

NO.	REVISIONS	BY	CHKD.	APPD.	DATE	NO.	REVISIONS	BY	CHKD.	APPD.	DATE

DESIGNED BY	CHKD. BY	APPD. BY	DATE	NO.	REVISIONS	BY	CHKD.	APPD.	DATE
SL	SL	SL	10/28/07						
N. DICKERSON	N.A.								
N. DICKERSON									
DOCK CHC	APP DATE	SL							

PROJECT NUMBER	DATE	REVISION	SHEET NO.	TOTAL NO.
A3RM	01/22/08	2	1	1
REC SOLAR GRADE SILICON LLC MOSES LAKE, WASHINGTON				
STORM WATER MAP PLOT PLAN				
REL.	ZONE	BY	REVISION	FILE NAME
00				00P00001
				00-P-00001