Attachment B-1
Acute Toxicity Effluent Characterization

Attachment A
NPDES Application Form 1 – General Information

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
	WA0001007	Graymont Western US, Inc.	

Form 1 NPDES

EPA

U.S. Environmental Protection Agency
Application for NPDES Permit to Discharge Wastewater
GENERAL INFORMATION

SECTION 1. ACTIVITIES REQUIRING AN NPDES PERMIT (40 CFR 122.21(f) and (f)(1))

Activities Requiring an NPDES Permit

1.1 Applicants *Not Required* to Submit Form 1

1.1.1	Is the facility a new or existing **publicly owned treatment works**? If yes, STOP. Do NOT complete Form 1. Complete Form 2A. ☑ No	1.1.2	Is the facility a new or existing **treatment works treating domestic sewage**? If yes, STOP. Do NOT complete Form 1. Complete Form 2S. ☑ No

1.2 Applicants *Required* to Submit Form 1

1.2.1	Is the facility a **concentrated animal feeding operation** or a **concentrated aquatic animal production facility?** ☐ Yes → Complete Form 1 ***and*** Form 2B. ☑ No	1.2.2	Is the facility an **existing** manufacturing, commercial, mining, or silvicultural **facility** that **is currently discharging process wastewater**? ☑ Yes → Complete Form 1 ***and*** Form 2C. ☐ No
1.2.3	Is the facility a **new** manufacturing, commercial, mining, or silvicultural **facility** that has **not yet commenced to discharge**? ☐ Yes → Complete Form 1 ***and*** Form 2D. ☑ No	1.2.4	Is the facility a **new or existing** manufacturing, commercial, mining, or silvicultural **facility** that **discharges only nonprocess wastewater**? ☐ Yes → Complete Form 1 ***and*** Form 2E. ☑ No
1.2.5	Is the facility a **new or existing facility** whose discharge is composed entirely of **stormwater associated with industrial activity** or whose discharge is composed of **both stormwater and non-stormwater**? ☐ Yes → Complete Form 1 ***and*** Form 2F unless exempted by 40 CFR 122.26(b)(14)(x) or (b)(15). ☑ No		

SECTION 2. NAME, MAILING ADDRESS, AND LOCATION (40 CFR 122.21(f)(2))

Name, Mailing Address, and Location

2.1 Facility Name

Graymont Western Inc., Tacoma Terminal

2.2 EPA Identification Number

WA 0001007

2.3 Facility Contact

Name (first and last)	Title	Phone number
Keith	Wiggs	(253) 428-6544

Email address: kwiggs@graymont.com

2.4 Facility Mailing Address

Street or P.O. box: 1220 Alexander Avenue

City or town	State	ZIP code
Tacoma	WA	98421

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
	WA0001007	Graymont Western US, Inc.	

Name, Mailing Address, and Location Continued

2.5	**Facility Location**		
	Street, route number, or other specific identifier 1220 E. Alexander Avenue		
	County name Pierce	County code (if known)	
	City or town Tacoma	State WA	ZIP code 98421

SECTION 3. SIC AND NAICS CODES (40 CFR 122.21(f)(3))

SIC and NAICS Codes

3.1	**SIC Code(s)**	**Description** (optional)
	3274	Lime
	2816	Precipitated Calcium Carbonate
3.2	**NAICS Code(s)**	**Description** (optional)
	327410	Lime Manufacturing
	325130	Synthetic Dye and Pigment Manufacturing

SECTION 4. OPERATOR INFORMATION (40 CFR 122.21(f)(4))

Operator Information

4.1	**Name of Operator**
	Graymont Western US, Inc.
4.2	Is the name you listed in Item 4.1 also the owner? ☑ Yes ☐ No
4.3	**Operator Status** ☐ Public—federal ☐ Public—state ☐ Other public (specify)________ ☑ Private ☐ Other (specify) ________
4.4	**Phone Number of Operator**
	(801) 716-2621

Operator Information Continued

4.5	**Operator Address**		
	Street or P.O. Box 585 West Southridge Way		
	City or town Sandy	State UT	ZIP code 84070
	Email address of operator nstettler@graymont.com		

SECTION 5. INDIAN LAND (40 CFR 122.21(f)(5))

Indian Land

5.1	Is the facility located on Indian Land? ☐ Yes ☑ No

SECTION 6. EXISTING ENVIRONMENTAL PERMITS (40 CFR 122.21(f)(6))

Existing Environmental Permits

6.1 **Existing Environmental Permits** (check all that apply and print or type the corresponding permit number for each)

☑ NPDES (discharges to surface water) WA0001007	☐ RCRA (hazardous wastes)	☐ UIC (underground injection of fluids)
☐ PSD (air emissions)	☐ Nonattainment program (CAA)	☐ NESHAPs (CAA)
☐ Ocean dumping (MPRSA)	☐ Dredge or fill (CWA Section 404)	☑ Other (specify) 11820 Title V Air Operating Pe

SECTION 7. MAP (40 CFR 122.21(f)(7))

Map

7.1 Have you attached a topographic map containing all required information to this application? (See instructions for specific requirements.)

☑ Yes ☐ No ☐ CAFO—Not Applicable (See requirements in Form 2B.)

SECTION 8. NATURE OF BUSINESS (40 CFR 122.21(f)(8))

Nature of Business

8.1 Describe the nature of your business.

The facility produces lime and lime related products. Hydrated lime, a dry powder, is produced by adding water to quicklime. Precipitated calcium carbonate is produced by introducing CO2 into hydrated lime slurry.
The facility processes quicklime and produces hydrated lime products in both bags and bulk. Bagging facilities, bin-bag loading and bulk storage are available for both quicklime and hydrated lime products. These products can be loaded into trucks, railcars or sea-born shipping containers at the plant. Finished lime products can be shipped by truck, rail or barge.
The facility has the capability to produce quicklime (CaO), hydrated lime (Ca[OH]2), and precipitated calcium carbonate (PCC). The PCC facility and the quicklime production areas have been mothballed, but could be operated again in the future.
No mining of raw materials occurs at the facility.

SECTION 9. COOLING WATER INTAKE STRUCTURES (40 CFR 122.21(f)(9))

Cooling Water Intake Structures

9.1 Does your facility use cooling water?

☐ Yes ☑ No → SKIP to Item 10.1.

9.2 Identify the source of cooling water. (Note that facilities that use a cooling water intake structure as described at 40 CFR 125, Subparts I and J may have additional application requirements at 40 CFR 122.21(r). Consult with your NPDES permitting authority to determine what specific information needs to be submitted and when.)

SECTION 10. VARIANCE REQUESTS (40 CFR 122.21(f)(10))

Variance Requests

10.1 Do you intend to request or renew one or more of the variances authorized at 40 CFR 122.21(m)? (Check all that apply. Consult with your NPDES permitting authority to determine what information needs to be submitted and when.)

☐ Fundamentally different factors (CWA Section 301(n))	☐ Water quality related effluent limitations (CWA Section 302(b)(2))
☐ Non-conventional pollutants (CWA Section 301(c) and (g))	☐ Thermal discharges (CWA Section 316(a))
☑ Not applicable	

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
	WA0001007	Graymont Western US, Inc.	

SECTION 11. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(a) and (d))

Checklist and Certification Statement

11.1 In Column 1 below, mark the sections of Form 1 that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert the permitting authority. Note that not all applicants are required to provide attachments.

Column 1	Column 2
☑ Section 1: Activities Requiring an NPDES Permit	☐ w/ attachments
☑ Section 2: Name, Mailing Address, and Location	☐ w/ attachments
☑ Section 3: SIC Codes	☐ w/ attachments
☑ Section 4: Operator Information	☐ w/ attachments
☑ Section 5: Indian Land	☐ w/ attachments
☑ Section 6: Existing Environmental Permits	☐ w/ attachments
☑ Section 7: Map	☑ w/ topographic map ☐ w/ additional attachments
☑ Section 8: Nature of Business	☐ w/ attachments
☐ Section 9: Cooling Water Intake Structures	☐ w/ attachments
☐ Section 10: Variance Requests	☐ w/ attachments
☑ Section 11: Checklist and Certification Statement	☐ w/ attachments

11.2 **Certification Statement**

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 fine and imprisonment for knowing violations.

Name (print or type first and last name)	Official title
Keith Wriggs	Terminal Supervisor
Signature	**Date signed**
[signature]	3/25/2020

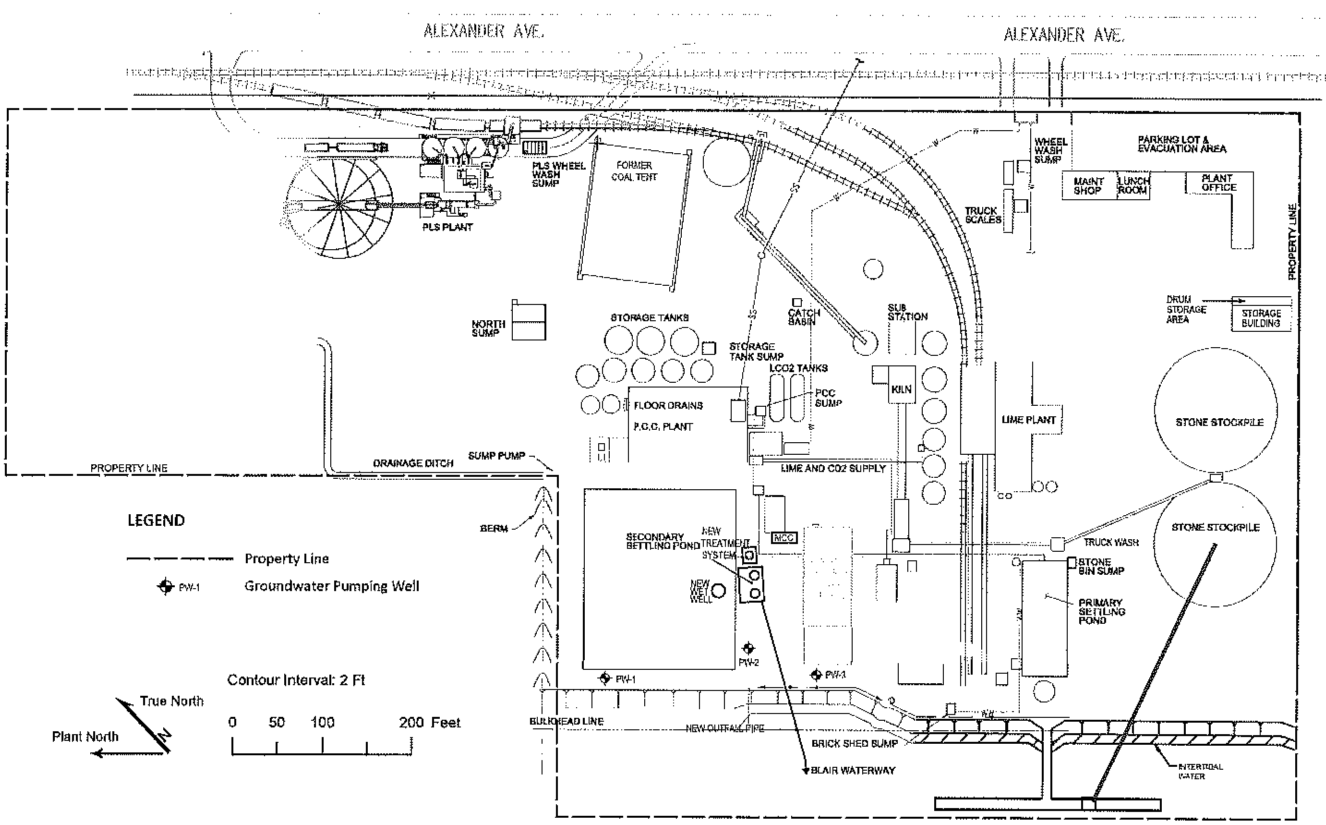
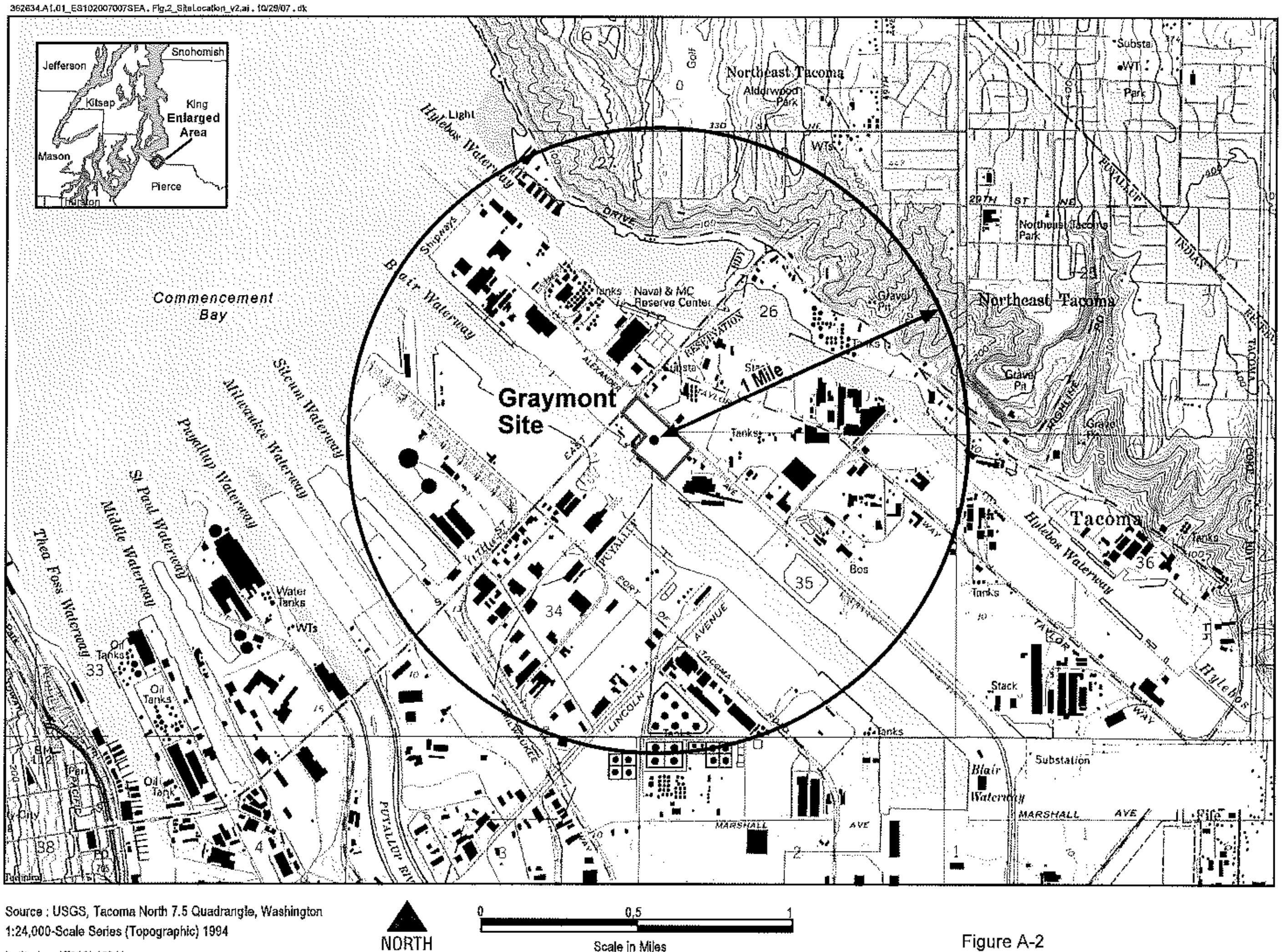


Figure A-1
Site Map
Graymont Western US Inc., Tacoma, Washington

SCO656460.02.20.04.02 graymont_site_map_rev2.ai 6/17

362634.A1.01_ES102007007SEA . Fig.2_SiteLocation_v2.ai . 10/29/07 . dk



Source : USGS, Tacoma North 7.5 Quadrangle, Washington
1:24,000-Scale Series (Topographic) 1994

Latitude: 47°16' 16" N
Longitude: 122° 23' 48" W

Figure A-2
Site Location Map
Graymont Western US Inc., Tacoma Washington

Attachment B
NPDES Application Form 2C, Application for Permit to Discharge Wastewater

EPA Identification Number	NPDES Permit Number	Facility Name
WA0001007	WA0001007	Graymont Western US, Inc.,

Form Approved 03/05/19
OMB No. 2040-0004

DEPARTMENT OF ECOLOGY
MAR 30 2020
WATER QUALITY PROGRAM

Form 2C NPDES

EPA

U.S. Environmental Protection Agency
Application for NPDES Permit to Discharge Wastewater

EXISTING MANUFACTURING, COMMERCIAL, MINING, AND SILVICULTURE OPERATIONS

SECTION 1. OUTFALL LOCATION (40 CFR 122.21(g)(1))

Outfall Location

1.1 Provide information on each of the facility's outfalls in the table below.

Outfall Number	Receiving Water Name	Latitude	Longitude
001	Blair Waterway	47° 16′ 13″ N	122° 23′ 54″ W
		° ′ ″	° ′ ″
		° ′ ″	° ′ ″

SECTION 2. LINE DRAWING (40 CFR 122.21(g)(2))

Line Drawing

2.1 Have you attached a line drawing to this application that shows the water flow through your facility with a water balance? (See instructions for drawing requirements. See Exhibit 2C–1 at end of instructions for example.)

☑ Yes ☐ No

SECTION 3. AVERAGE FLOWS AND TREATMENT (40 CFR 122.21(g)(3))

Average Flows and Treatment

3.1 For each outfall identified under Item 1.1, provide average flow and treatment information. Add additional sheets if necessary.

Outfall Number 001

Operations Contributing to Flow

Operation	Average Flow
Truck Wash	0.000842 mgd
PLS Wheel Wash	0.00003 mgd
Truck Scale Wheel Wash	0.000842 mgd
Stormwater Runoff	0.012656 mgd

Treatment Units

Description (include size, flow rate through each treatment unit, retention time, etc.)	Code from Table 2C-1	Final Disposal of Solid or Liquid Wastes Other Than by Discharge
Settling Basins (21,570 gallons per day)	1-U	N/A
pH Reduction (21,570 gallons per day)	2-K	N/A

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
WA0001007	WA0001007	Graymont Western US, Inc.,	

Average Flows and Treatment Continued

3.1 cont.

****Outfall Number** 001**

Operations Contributing to Flow

Operation	Average Flow
Extracted Groundwater	0.0072 mgd
	mgd
	mgd
	mgd

Treatment Units

Description (include size, flow rate through each treatment unit, retention time, etc.)	Code from Table 2C-1	Final Disposal of Solid or Liquid Wastes Other Than by Discharge

****Outfall Number** ______**

Operations Contributing to Flow

Operation	Average Flow
	mgd
	mgd
	mgd
	mgd

Treatment Units

Description (include size, flow rate through each treatment unit, retention time, etc.)	Code from Table 2C-1	Final Disposal of Solid or Liquid Wastes Other Than by Discharge

System Users

3.2 Are you applying for an NPDES permit to operate a privately owned treatment works?

☐ Yes ☑ No → SKIP to Section 4.

3.3 Have you attached a list that identifies each user of the treatment works?

☐ Yes ☐ No

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
WA0001007	WA0001007	Graymont Western US, Inc.,	

SECTION 4. INTERMITTENT FLOWS (40 CFR 122.21(g)(4))

Intermittent Flows

4.1 Except for storm runoff, leaks, or spills, are any discharges described in Sections 1 and 3 intermittent or seasonal?

☐ Yes ☑ No → SKIP to Section 5.

4.2 Provide information on intermittent or seasonal flows for each applicable outfall. Attach additional pages, if necessary.

Outfall Number	Operation (list)	Frequency: Average Days/Week	Frequency: Average Months/Year	Flow Rate: Long-Term Average	Flow Rate: Maximum Daily	Duration
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days

SECTION 5. PRODUCTION (40 CFR 122.21(g)(5))

Applicable ELGs

5.1 Do any effluent limitation guidelines (ELGs) promulgated by EPA under Section 304 of the CWA apply to your facility?

☑ Yes ☐ No → SKIP to Section 6.

5.2 Provide the following information on applicable ELGs.

ELG Category	ELG Subcategory	Regulatory Citation
Inorganic Chemicals Manufacturir	Calcium Carbonate Production Subcategory	40 CFR 415 Subpart AD

Production-Based Limitations

5.3 Are any of the applicable ELGs expressed in terms of production (or other measure of operation)?

☑ Yes ☐ No → SKIP to Section 6.

5.4 Provide an actual measure of daily production expressed in terms and units of applicable ELGs.

Outfall Number	Operation, Product, or Material	Quantity per Day	Unit of Measure
001	Quick Lime	82,540	pounds
001	Hydrated Lime	27,640	pounds

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
WA0001007	WA0001007	Graymont Western US, Inc.,	

SECTION 6. IMPROVEMENTS (40 CFR 122.21(g)(6))

Upgrades and Improvements

6.1 Are you presently required by any federal, state, or local authority to meet an implementation schedule for constructing, upgrading, or operating wastewater treatment equipment or practices or any other environmental programs that could affect the discharges described in this application?

☐ Yes ☑ No → SKIP to Item 6.3.

6.2 Briefly identify each applicable project in the table below.

Brief Identification and Description of Project	Affected Outfalls (list outfall number)	Source(s) of Discharge	Final Compliance Dates	
			Required	Projected

6.3 Have you attached sheets describing any additional water pollution control programs (or other environmental projects that may affect your discharges) that you now have underway or planned? *(optional item)*

☐ Yes ☐ No ☑ Not applicable

SECTION 7. EFFLUENT AND INTAKE CHARACTERISTICS (40 CFR 122.21(g)(7))

Effluent and Intake Characteristics

See the instructions to determine the pollutants and parameters you are required to monitor and, in turn, the tables you must complete. Not all applicants need to complete each table.

Table A. Conventional and Non-Conventional Pollutants

7.1 Are you requesting a waiver from your NPDES permitting authority for one or more of the Table A pollutants for any of your outfalls?

☐ Yes ☑ No → SKIP to Item 7.3.

7.2 If yes, indicate the applicable outfalls below. Attach waiver request and other required information to the application.

Outfall Number _____ Outfall Number _____ Outfall Number _____

7.3 Have you completed monitoring for all Table A pollutants at each of your outfalls for which a waiver has not been requested and attached the results to this application package?

☑ Yes ☐ No; a waiver has been requested from my NPDES permitting authority for all pollutants at all outfalls.

Table B. Toxic Metals, Cyanide, Total Phenols, and Organic Toxic Pollutants

7.4 Do any of the facility's processes that contribute wastewater fall into one or more of the primary industry categories listed in Exhibit 2C-3? (See end of instructions for exhibit.)

☑ Yes ☐ No → SKIP to Item 7.8.

7.5 Have you checked "Testing Required" for all toxic metals, cyanide, and total phenols in Section 1 of Table B?

☑ Yes ☐ No

7.6 List the applicable primary industry categories and check the boxes indicating the required GC/MS fraction(s) identified in Exhibit 2C-3.

Primary Industry Category	Required GC/MS Fraction(s) (Check applicable boxes.)			
Inorganics chemicals manufacturing	☑ Volatile	☑ Acid	☑ Base/Neutral	☐ Pesticide
	☐ Volatile	☐ Acid	☐ Base/Neutral	☐ Pesticide
	☐ Volatile	☐ Acid	☐ Base/Neutral	☐ Pesticide

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
WA0001007	WA0001007	Graymont Western US, Inc.,	

Effluent and Intake Characteristics Continued		
	7.7	Have you checked "Testing Required" for all required pollutants in Sections 2 through 5 of Table B for each of the GC/MS fractions checked in Item 7.6? ☑ Yes ☐ No
	7.8	Have you checked "Believed Present" or "Believed Absent" for all pollutants listed in Sections 1 through 5 of Table B where testing is not required? ☑ Yes ☐ No
	7.9	Have you provided (1) quantitative data for those Section 1, Table B, pollutants for which you have indicated testing is required or (2) quantitative data or other required information for those Section 1, Table B, pollutants that you have indicated are "Believed Present" in your discharge? ☑ Yes ☐ No
	7.10	Does the applicant qualify for a small business exemption under the criteria specified in the instructions? ☐ Yes ➔ Note that you qualify at the top of Table B, then SKIP to Item 7.12. ☑ No
	7.11	Have you provided (1) quantitative data for those Sections 2 through 5, Table B, pollutants for which you have determined testing is required or (2) quantitative data or an explanation for those Sections 2 through 5, Table B, pollutants you have indicated are "Believed Present" in your discharge? ☑ Yes ☐ No
	Table C. Certain Conventional and Non-Conventional Pollutants	
	7.12	Have you indicated whether pollutants are "Believed Present" or "Believed Absent" for all pollutants listed on Table C for all outfalls? ☑ Yes ☐ No
	7.13	Have you completed Table C by providing (1) quantitative data for those pollutants that are limited either directly or indirectly in an ELG and/or (2) quantitative data or an explanation for those pollutants for which you have indicated "Believed Present"? ☑ Yes ☐ No
	Table D. Certain Hazardous Substances and Asbestos	
	7.14	Have you indicated whether pollutants are "Believed Present" or "Believed Absent" for all pollutants listed in Table D for all outfalls? ☑ Yes ☐ No
	7.15	Have you completed Table D by (1) describing the reasons the applicable pollutants are expected to be discharged and (2) by providing quantitative data, if available? ☑ Yes ☐ No
	Table E. 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (2,3,7,8-TCDD)	
	7.16	Does the facility use or manufacture one or more of the 2,3,7,8-TCDD congeners listed in the instructions, or do you know or have reason to believe that TCDD is or may be present in the effluent? ☐ Yes ➔ Complete Table E. ☑ No ➔ SKIP to Section 8.
	7.17	Have you completed Table E by reporting *qualitative* data for TCDD? ☐ Yes ☐ No

SECTION 8. USED OR MANUFACTURED TOXICS (40 CFR 122.21(g)(9))

Used or Manufactured Toxics				
	8.1	Is any pollutant listed in Table B a substance or a component of a substance used or manufactured at your facility as an intermediate or final product or byproduct? ☐ Yes ☑ No ➔ SKIP to Section 9.		
	8.2	List the pollutants below.		
		1.	4.	7.
		2.	5.	8.
		3.	6.	9.

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
WA0001007	WA0001007	Graymont Western US, Inc.,	

SECTION 9. BIOLOGICAL TOXICITY TESTS (40 CFR 122.21(g)(11))

Biological Toxicity Tests

9.1 Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made within the last three years on (1) any of your discharges or (2) on a receiving water in relation to your discharge?

☑ Yes ☐ No → SKIP to Section 10.

9.2 Identify the tests and their purposes below.

Test(s)	Purpose of Test(s)	Submitted to NPDES Permitting Authority?	Date Submitted
Fathead minnow 96-hour static-renewal test and	Compliance Test	☑ Yes ☐ No	11/29/2018
Fathead minnow 96-hour static-renewal test and	Compliance Test	☑ Yes ☐ No	02/18/2019
		☐ Yes ☐ No	

SECTION 10. CONTRACT ANALYSES (40 CFR 122.21(g)(12))

Contract Analyses

10.1 Were any of the analyses reported in Section 7 performed by a contract laboratory or consulting firm?

☑ Yes ☐ No → SKIP to Section 11.

10.2 Provide information for each contract laboratory or consulting firm below.

	Laboratory Number 1	Laboratory Number 2	Laboratory Number 3
Name of laboratory/firm	TestAmerica Seattle		
Laboratory address	5755 8th Street East Fife, WA 98424		
Phone number	(253) 922-2310		
Pollutant(s) analyzed	Conventional and Non Conventional Pollutants, metals, cyanide, total phenols, volatile, acid, base/neutral, oil and grease, and sulfate		

SECTION 11. ADDITIONAL INFORMATION (40 CFR 122.21(g)(13))

Additional Information

11.1 Has the NPDES permitting authority requested additional information?

☐ Yes ☑ No → SKIP to Section 12.

11.2 List the information requested and attach it to this application.

1.	4.
2.	5.
3.	6.

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
WA0001007	WA0001007	Graymont Western US, Inc.,	

SECTION 12. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(a) and (d))

Checklist and Certification Statement

12.1 In Column 1 below, mark the sections of Form 2C that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert the permitting authority. Note that not all applicants are required to complete all sections or provide attachments.

Column 1	Column 2	
☑ Section 1: Outfall Location	☐ w/ attachments	
☑ Section 2: Line Drawing	☑ w/ line drawing	☑ w/ additional attachments
☑ Section 3: Average Flows and Treatment	☐ w/ attachments	☐ w/ list of each user of privately owned treatment works
☐ Section 4: Intermittent Flows	☐ w/ attachments	
☑ Section 5: Production	☐ w/ attachments	
☐ Section 6: Improvements	☐ w/ attachments	☐ w/ optional additional sheets describing any additional pollution control plans
☑ Section 7: Effluent and Intake Characteristics	☐ w/ request for a waiver and supporting information	☐ w/ explanation for identical outfalls
	☐ w/ small business exemption request	☐ w/ other attachments
	☑ w/ Table A	☑ w/ Table B
	☑ w/ Table C	☑ w/ Table D
	☐ w/ Table E	☑ w/ analytical results as an attachment
☐ Section 8: Used or Manufactured Toxics	☐ w/ attachments	
☑ Section 9: Biological Toxicity Tests	☑ w/ attachments	
☑ Section 10: Contract Analyses	☐ w/ attachments	
☐ Section 11: Additional Information	☐ w/ attachments	
☑ Section 12: Checklist and Certification Statement	☐ w/ attachments	

12.2 **Certification Statement**

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 fine and imprisonment for knowing violations.

Name (print or type first and last name)	Official title
Keith Wiggs	Terminal Supervisor
Signature	**Date signed**
	3/25/2020

This page intentionally left blank.

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE A. CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(iii))[1]

	Pollutant	Waiver Requested (if applicable)	Units (specify)		Effluent				Intake (Optional)	
					Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
☐	Check here if you have applied to your NPDES permitting authority for a waiver for *all* of the pollutants listed on this table for the noted outfall.									
1.	Biochemical oxygen demand (BOD_5)	☐	Concentration	mg/L	<2	--	--	1		
			Mass	lb/day	0.36	--	--	--		
2.	Chemical oxygen demand (COD)	☐	Concentration	mg/L	<10	--	--	1		
			Mass	lb/day	1.8	--	--	--		
3.	Total organic carbon (TOC)	☐	Concentration	mg/L	1.2	--	--	1		
			Mass	lb/day	0.22	--	--	--		
4.	Total suspended solids (TSS)	☐	Concentration	mg/L	15.4	--	5.83	27		
			Mass	lb/day	2.8	--	0.00000104	--		
5.	Ammonia (as N)	☐	Concentration	mg/L	<0.5	--	--	1		
			Mass	lb/day	0.09	--	--	1		
6.	Flow	☐	Rate	GPD	1,084,060	--	21,570	est.	5,822	est.
7.	Temperature (winter)	☐	°C	°C	21.6	--	9.1	26		
	Temperature (summer)	☐	°C	°C	--	--	--	--		
8.	pH (minimum)	☐	Standard units	s.u.	6.65	--	--	25		
	pH (maximum)	☐	Standard units	s.u.	8.61	--	--	25		

[1] Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

This page intentionally left blank.

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))[1]

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
☐	Check here if you qualify as a small business per the instructions to Form 2C and, therefore, do not need to submit quantitative data for any of the organic toxic pollutants in Sections 2 through 5 of this table. Note, however, that you must still indicate in the appropriate column of this table if you believe any of the pollutants listed are present in your discharge.											
Section 1. Toxic Metals, Cyanide, and Total Phenols												
1.1	Antimony, total (7440-36-0)	☑	☐	☐	Concentration	ug/L	1			1		
					Mass	lb/day	0.00018			--		
1.2	Arsenic, total (7440-38-2)	☑	☐	☐	Concentration	ug/L	1.1			1		
					Mass	lb/day	0.0002			--		
1.3	Beryllium, total (7440-41-7)	☑	☐	☐	Concentration	ug/L	<0.4			1		
					Mass	lb/day	0.000072			--		
1.4	Cadmium, total (7440-43-9)	☑	☐	☐	Concentration	ug/L	<0.8			1		
					Mass	lb/day	0.00014			--		
1.5	Chromium, total (7440-47-3)	☑	☐	☐	Concentration	ug/L	0.93			1		
					Mass	lb/day	0.00017			--		
1.6	Copper, total (7440-50-8)	☑	☐	☐	Concentration	ug/L	2.9			1		
					Mass	lb/day	0.00052			--		
1.7	Lead, total (7439-92-1)	☑	☐	☐	Concentration	ug/L	0.43			1		
					Mass	lb/day	0.000077			--		
1.8	Mercury, total (7439-97-6)	☑	☐	☐	Concentration	ug/L	0.0917		0.024	12		
					Mass	lb/day	0.000017		0.00000432	--		
1.9	Nickel, total (7440-02-0)	☑	☐	☐	Concentration	ug/L	0.62			1		
					Mass	lb/day	0.00011			--		
1.10	Selenium, total (7782-49-2)	☑	☐	☐	Concentration	ug/L	<8			1		
					Mass	lb/day	0.0014			--		
1.11	Silver, total (7440-22-4)	☑	☐	☐	Concentration	ug/L	<0.4			1		
					Mass	lb/day	0.000072			--		

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))[1]

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
1.12	Thallium, total (7440-28-0)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
1.13	Zinc, total (7440-66-6)	☑	☐	☐	Concentration	ug/L	7.2			1		
					Mass	lb/day	0.0013			--		
1.14	Cyanide, total (57-12-5)	☑	☐	☐	Concentration	ug/L	<60			1		
					Mass	lb/day	0.011			--		
1.15	Phenols, total	☑	☐	☐	Concentration	ug/L	<0.02			1		
					Mass	lb/day	0.0000036			--		
Section 2. Organic Toxic Pollutants (GC/MS Fraction—Volatile Compounds)												
2.1	Acrolein (107-02-8)	☑	☐	☐	Concentration	ug/L	<30			1		
					Mass	lb/day	0.0054			--		
2.2	Acrylonitrile (107-13-1)	☑	☐	☐	Concentration	ug/L	<30			1		
					Mass	lb/day	0.0054			--		
2.3	Benzene (71-43-2)	☑	☐	☐	Concentration	ug/L	<3			1		
					Mass	lb/day	0.00054			--		
2.4	Bromoform (75-25-2)	☑	☐	☐	Concentration	ug/L	<3			1		
					Mass	lb/day	0.00054			--		
2.5	Carbon tetrachloride (56-23-5)	☑	☐	☐	Concentration	ug/L	<3			1		
					Mass	lb/day	0.00054			--		
2.6	Chlorobenzene (108-90-7)	☑	☐	☐	Concentration	ug/L	<2			1		
					Mass	lb/day	0.00036			--		
2.7	Chlorodibromomethane (124-48-1)	☑	☐	☐	Concentration	ug/L	<2			1		
					Mass	lb/day	0.00036			--		
2.8	Chloroethane (75-00-3)	☑	☐	☐	Concentration	ug/L	<5			1		
					Mass	lb/day	0.0009			--		

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number	Form Approved 03/05/19
WA0001007	WA0001007	Graymont Western US, Inc.,	001	OMB No. 2040-0004

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))[1]

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
2.9	2-chloroethylvinyl ether (110-75-8)	☑	☐	☐	Concentration	ug/L	<20			1		
					Mass	lb/day	0.0036			--		
2.10	Chloroform (67-66-3)	☑	☐	☐	Concentration	ug/L	1.2			1		
					Mass	lb/day	0.00022			--		
2.11	Dichlorobromomethane (75-27-4)	☑	☐	☐	Concentration	ug/L	<2					
					Mass	lb/day	0.00036			--		
2.12	1,1-dichloroethane (75-34-3)	☑	☐	☐	Concentration	ug/L	<2			1		
					Mass	lb/day	0.00036			--		
2.13	1,2-dichloroethane (107-06-2)	☑	☐	☐	Concentration	ug/L	<2			1		
					Mass	lb/day	0.00036			--		
2.14	1,1-dichloroethylene (75-35-4)	☑	☐	☐	Concentration	ug/L	<4			1		
					Mass	lb/day	0.00072			--		
2.15	1,2-dichloropropane (78-87-5)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
2.16	1,3-dichloropropylene (542-75-6)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
2.17	Ethylbenzene (100-41-4)	☑	☐	☐	Concentration	ug/L	<3			1		
					Mass	lb/day	0.00054			--		
2.18	Methyl bromide (74-83-9)	☑	☐	☐	Concentration	ug/L	<6			1		
					Mass	lb/day	0.0011			--		
2.19	Methyl chloride (74-87-3)	☑	☐	☐	Concentration	ug/L	<20			1		
					Mass	lb/day	0.0036			--		
2.20	Methylene chloride (75-09-2)	☑	☐	☐	Concentration	ug/L	<5			1		
					Mass	lb/day	0.0009			--		
2.21	1,1,2,2- tetrachloroethane (79-34-5)	☑	☐	☐	Concentration	ug/L	<3			1		
					Mass	lb/day	0.00054			--		

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))[1]

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
2.22	Tetrachloroethylene (127-18-4)	☑	☐	☐	Concentration	ug/L	<3			1		
					Mass	lb/day	0.00054			--		
2.23	Toluene (108-88-3)	☑	☐	☐	Concentration	ug/L	<2			1		
					Mass	lb/day	0.00036			--		
2.24	1,2-trans-dichloroethylene (156-60-5)	☑	☐	☐	Concentration	ug/L	<3			1		
					Mass	lb/day	0.00054			--		
2.25	1,1,1-trichloroethane (71-55-6)	☑	☐	☐	Concentration	ug/L	<3			1		
					Mass	lb/day	0.00054			--		
2.26	1,1,2-trichloroethane (79-00-5)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
2.27	Trichloroethylene (79-01-6)	☑	☐	☐	Concentration	ug/L	<3			1		
					Mass	lb/day	0.00054			--		
2.28	Vinyl chloride (75-01-4)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
Section 3. Organic Toxic Pollutants (GC/MS Fraction—Acid Compounds)												
3.1	2-chlorophenol (95-57-8)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
3.2	2,4-dichlorophenol (120-83-2)	☑	☐	☐	Concentration	ug/L	<4.1			1		
					Mass	lb/day	0.00074			--		
3.3	2,4-dimethylphenol (105-67-9)	☑	☐	☐	Concentration	ug/L	<4.1			1		
					Mass	lb/day	0.00074			--		
3.4	4,6-dinitro-o-cresol (534-52-1)	☑	☐	☐	Concentration	ug/L	<5.1			1		
					Mass	lb/day	0.00092			--		
3.5	2,4-dinitrophenol (51-28-5)	☑	☐	☐	Concentration	ug/L	<5.1			1		
					Mass	lb/day	0.00092			--		

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))[1]

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
3.6	2-nitrophenol (88-75-5)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
3.7	4-nitrophenol (100-02-7)	☑	☐	☐	Concentration	ug/L	<15			1		
					Mass	lb/day	0.0027			--		
3.8	p-chloro-m-cresol (59-50-7)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		
3.9	Pentachlorophenol (87-86-5)	☑	☐	☐	Concentration	ug/L	<10			1		
					Mass	lb/day	0.0018			--		
3.10	Phenol (108-95-2)	☑	☐	☐	Concentration	ug/L	<4.1			1		
					Mass	lb/day	0.00074			--		
3.11	2,4,6-trichlorophenol (88-05-2)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		
Section 4. Organic Toxic Pollutants (GC/MS Fraction—Base /Neutral Compounds)												
4.1	Acenaphthene (83-32-9)	☑	☐	☐	Concentration	ug/L	<0.41			1		
					Mass	lb/day	0.000074			--		
4.2	Acenaphthylene (208-96-8)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
4.3	Anthracene (120-12-7)	☑	☐	☐	Concentration	ug/L	<15			1		
					Mass	lb/day	0.0027			--		
4.4	Benzidine (92-87-5)	☑	☐	☐	Concentration	ug/L	<10			1		
					Mass	lb/day	0.0018			--		
4.5	Benzo (a) anthracene (56-55-3)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
4.6	Benzo (a) pyrene (50-32-8)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))[1]

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.7	3,4-benzofluoranthene (205-99-2)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
4.8	Benzo (ghi) perylene (191-24-2)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
4.9	Benzo (k) fluoranthene (207-08-9)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
4.10	Bis (2-chloroethoxy) methane (111-91-1)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		
4.11	Bis (2-chloroethyl) ether (111-44-4)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		
4.12	Bis (2-chloroisopropyl) ether (102-80-1)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		
4.13	Bis (2-ethylhexyl) phthalate (117-81-7)	☑	☐	☐	Concentration	ug/L	<15			1		
					Mass	lb/day	0.0027			--		
4.14	4-bromophenyl phenyl ether (101-55-3)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		
4.15	Butyl benzyl phthalate (85-68-7)	☑	☐	☐	Concentration	ug/L	<10			1		
					Mass	lb/day	0.0018			--		
4.16	2-chloronaphthalene (91-58-7)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
4.17	4-chlorophenyl phenyl ether (7005-72-3)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		
4.18	Chrysene (218-01-9)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		
4.19	Dibenzo (a,h) anthracene (53-70-3)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))[1]

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.20	1,2-dichlorobenzene (95-50-1)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		
4.21	1,3-dichlorobenzene (541-73-1)	☑	☐	☐	Concentration	ug/L	<0.41			1		
					Mass	lb/day	0.000074			--		
4.22	1,4-dichlorobenzene (106-46-7)	☑	☐	☐	Concentration	ug/L	<0.41			1		
					Mass	lb/day	0.000074			--		
4.23	3,3-dichlorobenzidine (91-94-1)	☑	☐	☐	Concentration	ug/L	<15			1		
					Mass	lb/day	0.0027			--		
4.24	Diethyl phthalate (84-66-2)	☑	☐	☐	Concentration	ug/L	<12			1		
					Mass	lb/day	0.0022			--		
4.25	Dimethyl phthalate (131-11-3)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		
4.26	Di-n-butyl phthalate (84-74-2)	☑	☐	☐	Concentration	ug/L	<3.1			1		
					Mass	lb/day	0.00056			--		
4.27	2,4-dinitrotoluene (121-14-2)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
4.28	2,6-dinitrotoluene (606-20-2)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		
4.29	Di-n-octyl phthalate (117-84-0)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
4.30	1,2-Diphenylhydrazine (as azobenzene) (122-66-7)	☑	☐	☐	Concentration	ug/L	<2			1		
					Mass	lb/day	0.00036			--		
4.31	Fluoranthene (206-44-0)	☑	☐	☐	Concentration	ug/L	<3.1			1		
					Mass	lb/day	0.00056			--		
4.32	Fluorene (86-73-7)	☑	☐	☐	Concentration	ug/L	<2			1		
					Mass	lb/day	0.00036			--		

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))[1]

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.33	Hexachlorobenzene (118-74-1)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		
4.34	Hexachlorobutadiene (87-68-3)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
4.35	Hexachlorocyclopentadiene (77-47-4)	☑	☐	☐	Concentration	ug/L	<5.1			1		
					Mass	lb/day	0.00092			--		
4.36	Hexachloroethane (67-72-1)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
4.37	Indeno (1,2,3-cd) pyrene (193-39-5)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
4.38	Isophorone (78-59-1)	☑	☐	☐	Concentration	ug/L	<0.41			1		
					Mass	lb/day	0.000074			--		
4.39	Naphthalene (91-20-3)	☑	☐	☐	Concentration	ug/L	<0.41			1		
					Mass	lb/day	0.000074			--		
4.40	Nitrobenzene (98-95-3)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
4.41	N-nitrosodimethylamine (62-75-9)	☑	☐	☐	Concentration	ug/L	<4.1			1		
					Mass	lb/day	0.00074			--		
4.42	N-nitrosodi-n-propylamine (621-64-7)	☑	☐	☐	Concentration	ug/L	<0.61			1		
					Mass	lb/day	0.00011			--		
4.43	N-nitrosodiphenylamine (86-30-6)	☑	☐	☐	Concentration	ug/L	<15			1		
					Mass	lb/day	0.0027			--		
4.44	Phenanthrene (85-01-8)	☑	☐	☐	Concentration	ug/L	<1			1		
					Mass	lb/day	0.00018			--		
4.45	Pyrene (129-00-0)	☑	☐	☐	Concentration	ug/L	<2			1		
					Mass	lb/day	0.00036			--		

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))[1]

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.46	1,2,4-trichlorobenzene (120-82-1)	☑	☐	☐	Concentration	ug/L	<0.41			1		
					Mass	lb/day	0.000074			--		
Section 5. Organic Toxic Pollutants (GC/MS Fraction—Pesticides)												
5.1	Aldrin (309-00-2)	☐	☐	☑	Concentration							
					Mass							
5.2	α-BHC (319-84-6)	☐	☐	☑	Concentration							
					Mass							
5.3	β-BHC (319-85-7)	☐	☐	☑	Concentration							
					Mass							
5.4	γ-BHC (58-89-9)	☐	☐	☑	Concentration							
					Mass							
5.5	δ-BHC (319-86-8)	☐	☐	☑	Concentration							
					Mass							
5.6	Chlordane (57-74-9)	☐	☐	☑	Concentration							
					Mass							
5.7	4,4'-DDT (50-29-3)	☐	☐	☑	Concentration							
					Mass							
5.8	4,4'-DDE (72-55-9)	☐	☐	☑	Concentration							
					Mass							
5.9	4,4'-DDD (72-54-8)	☐	☐	☑	Concentration							
					Mass							
5.10	Dieldrin (60-57-1)	☐	☐	☑	Concentration							
					Mass							
5.11	α-endosulfan (115-29-7)	☐	☐	☑	Concentration							
					Mass							

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))[1]

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
5.12	β-endosulfan (115-29-7)	☐	☐	☑	Concentration							
					Mass							
5.13	Endosulfan sulfate (1031-07-8)	☐	☐	☑	Concentration							
					Mass							
5.14	Endrin (72-20-8)	☐	☐	☑	Concentration							
					Mass							
5.15	Endrin aldehyde (7421-93-4)	☐	☐	☑	Concentration							
					Mass							
5.16	Heptachlor (76-44-8)	☐	☐	☑	Concentration							
					Mass							
5.17	Heptachlor epoxide (1024-57-3)	☐	☐	☑	Concentration							
					Mass							
5.18	PCB-1242 (53469-21-9)	☐	☐	☑	Concentration							
					Mass							
5.19	PCB-1254 (11097-69-1)	☐	☐	☑	Concentration							
					Mass							
5.20	PCB-1221 (11104-28-2)	☐	☐	☑	Concentration							
					Mass							
5.21	PCB-1232 (11141-16-5)	☐	☐	☑	Concentration							
					Mass							
5.22	PCB-1248 (12672-29-6)	☐	☐	☑	Concentration							
					Mass							
5.23	PCB-1260 (11096-82-5)	☐	☐	☑	Concentration							
					Mass							
5.24	PCB-1016 (12674-11-2)	☐	☐	☑	Concentration							
					Mass							

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number	Form Approved 03/05/19 OMB No. 2040-0004
WA0001007	WA0001007	Graymont Western US, Inc.,	001	

TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))[1]

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
5.25	Toxaphene (8001-35-2)	☐	☐	☑	Concentration							
					Mass							

[1] Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

This page intentionally left blank.

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(vi))[1]

	Pollutant	Presence or Absence (check one)		Units (specify)		Effluent				Intake (Optional)	
		Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
☐	Check here if you believe all pollutants on Table C to be ***present*** in your discharge from the noted outfall. You need *not* complete the "Presence or Absence" column of Table C for *each* pollutant.										
☐	Check here if you believe all pollutants on Table C to be ***absent*** in your discharge from the noted outfall. You need *not* complete the "Presence or Absence" column of Table C for *each* pollutant.										
1.	Bromide (24959-67-9)	☐	☑	Concentration							
				Mass							
2.	Chlorine, total residual	☐	☑	Concentration							
				Mass							
3.	Color	☐	☑	Concentration							
				Mass							
4.	Fecal coliform	☐	☑	Concentration							
				Mass							
5.	Fluoride (16984-48-8)	☐	☑	Concentration							
				Mass							
6	Nitrate-nitrite	☐	☑	Concentration							
				Mass							
7.	Nitrogen, total organic (as N)	☐	☑	Concentration							
				Mass							
8.	Oil and grease	☑	☐	Concentration	ug/L	9,470			1		
				Mass	lb/day	1.7			--		
9.	Phosphorus (as P), total (7723-14-0)	☐	☑	Concentration							
				Mass							
10.	Sulfate (as SO_4) (14808-79-8)	☑	☐	Concentration	mg/L	130			1		
				Mass	lb/day	0.023			--		
11.	Sulfide (as S)	☐	☑	Concentration							
				Mass							

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number	Form Approved 03/05/19 OMB No. 2040-0004
WA0001007	WA0001007	Graymont Western US, Inc.,	001	

TABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(vi))[1]

	Pollutant	Presence or Absence (check one)		Units (specify)		Effluent				Intake (Optional)	
		Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
12.	Sulfite (as SO_3) (14265-45-3)	☐	☑	Concentration							
				Mass							
13.	Surfactants	☐	☑	Concentration							
				Mass							
14.	Aluminum, total (7429-90-5)	☐	☑	Concentration							
				Mass							
15.	Barium, total (7440-39-3)	☐	☑	Concentration							
				Mass							
16.	Boron, total (7440-42-8)	☐	☑	Concentration							
				Mass							
17.	Cobalt, total (7440-48-4)	☐	☑	Concentration							
				Mass							
18.	Iron, total (7439-89-6)	☐	☑	Concentration							
				Mass							
19.	Magnesium, total (7439-95-4)	☐	☑	Concentration							
				Mass							
20.	Molybdenum, total (7439-98-7)	☐	☑	Concentration							
				Mass							
21.	Manganese, total (7439-96-5)	☐	☑	Concentration							
				Mass							
22.	Tin, total (7440-31-5)	☐	☑	Concentration							
				Mass							
23.	Titanium, total (7440-32-6)	☐	☑	Concentration							
				Mass							

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(vi))[1]

	Pollutant	Presence or Absence (check one)		Units (specify)		Effluent				Intake (Optional)	
		Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
24.	**Radioactivity**										
	Alpha, total	☐	☑	Concentration							
				Mass							
	Beta, total	☐	☑	Concentration							
				Mass							
	Radium, total	☐	☑	Concentration							
				Mass							
	Radium 226, total	☐	☑	Concentration							
				Mass							

[1] Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

This page intentionally left blank.

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))[1]

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
1.	Asbestos	☐	☑		
2.	Acetaldehyde	☐	☑		
3.	Allyl alcohol	☐	☑		
4.	Allyl chloride	☐	☑		
5.	Amyl acetate	☐	☑		
6.	Aniline	☐	☑		
7.	Benzonitrile	☐	☑		
8.	Benzyl chloride	☐	☑		
9.	Butyl acetate	☐	☑		
10.	Butylamine	☐	☑		
11.	Captan	☐	☑		
12.	Carbaryl	☐	☑		
13.	Carbofuran	☐	☑		
14.	Carbon disulfide	☐	☑		
15.	Chlorpyrifos	☐	☑		
16.	Coumaphos	☐	☑		
17.	Cresol	☐	☑		
18.	Crotonaldehyde	☐	☑		
19.	Cyclohexane	☐	☑		

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))[1]

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
20.	2,4-D (2,4-dichlorophenoxyacetic acid)	☐	☑		
21.	Diazinon	☐	☑		
22.	Dicamba	☐	☑		
23.	Dichlobenil	☐	☑		
24.	Dichlone	☐	☑		
25.	2,2-dichloropropionic acid	☐	☑		
26.	Dichlorvos	☐	☑		
27.	Diethyl amine	☐	☑		
28.	Dimethyl amine	☐	☑		
29.	Dintrobenzene	☐	☑		
30.	Diquat	☐	☑		
31.	Disulfoton	☐	☑		
32.	Diuron	☐	☑		
33.	Epichlorohydrin	☐	☑		
34.	Ethion	☐	☑		
35.	Ethylene diamine	☐	☑		
36.	Ethylene dibromide	☐	☑		
37.	Formaldehyde	☐	☑		
38.	Furfural	☐	☑		

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))[1]

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
39.	Guthion	☐	☑		
40.	Isoprene	☐	☑		
41.	Isopropanolamine	☐	☑		
42.	Kelthane	☐	☑		
43.	Kepone	☐	☑		
44.	Malathion	☐	☑		
45.	Mercaptodimethur	☐	☑		
46.	Methoxychlor	☐	☑		
47.	Methyl mercaptan	☐	☑		
48.	Methyl methacrylate	☐	☑		
49.	Methyl parathion	☐	☑		
50.	Mevinphos	☐	☑		
51.	Mexacarbate	☐	☑		
52.	Monoethyl amine	☐	☑		
53.	Monomethyl amine	☐	☑		
54.	Naled	☐	☑		
55.	Naphthenic acid	☐	☑		
56.	Nitrotoluene	☐	☑		
57.	Parathion	☐	☑		

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))[1]

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
58.	Phenolsulfonate	☐	☑		
59.	Phosgene	☐	☑		
60.	Propargite	☐	☑		
61.	Propylene oxide	☐	☑		
62.	Pyrethrins	☐	☑		
63.	Quinoline	☐	☑		
64.	Resorcinol	☐	☑		
65.	Strontium	☐	☑		
66.	Strychnine	☐	☑		
67.	Styrene	☐	☑		
68.	2,4,5-T (2,4,5-trichlorophenoxyacetic acid)	☐	☑		
69.	TDE (tetrachlorodiphenyl ethane)	☐	☑		
70.	2,4,5-TP [2-(2,4,5-trichlorophenoxy) propanoic acid]	☐	☑		
71.	Trichlorofon	☐	☑		
72.	Triethanolamine	☐	☑		
73.	Triethylamine	☐	☑		
74.	Trimethylamine	☐	☑		
75.	Uranium	☐	☑		
76.	Vanadium	☐	☑		

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))[1]

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
77.	Vinyl acetate	☐	☑		
78.	Xylene	☐	☑		
79.	Xylenol	☐	☑		
80.	Zirconium	☐	☑		

[1] Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

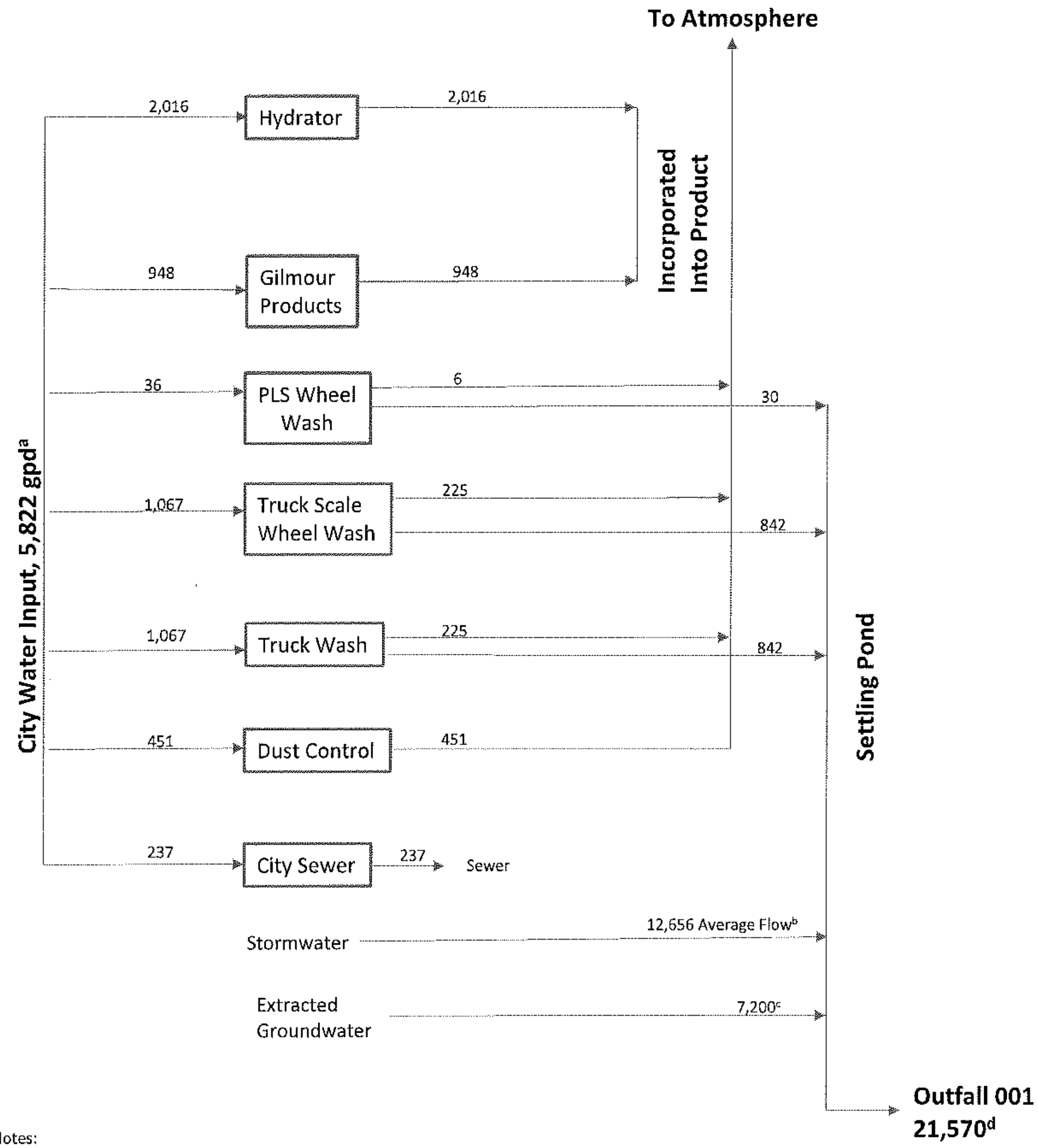
This page intentionally left blank.

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
WA0001007	WA0001007	Graymont Western US, Inc.,	001

Form Approved 03/05/19
OMB No. 2040-0004

TABLE E. 2,3,7,8 TETRACHLORODIBENZO P DIOXIN (2,3,7,8 TCDD) (40 CFR 122.21(g)(7)(viii))

Pollutant	TCDD Congeners Used or Manufactured	Presence or Absence (check one)		Results of Screening Procedure
		Believed Present	Believed Absent	
2,3,7,8-TCDD	☐	☐	☑	



Notes:

All flows in Gallons per Day (GPD).

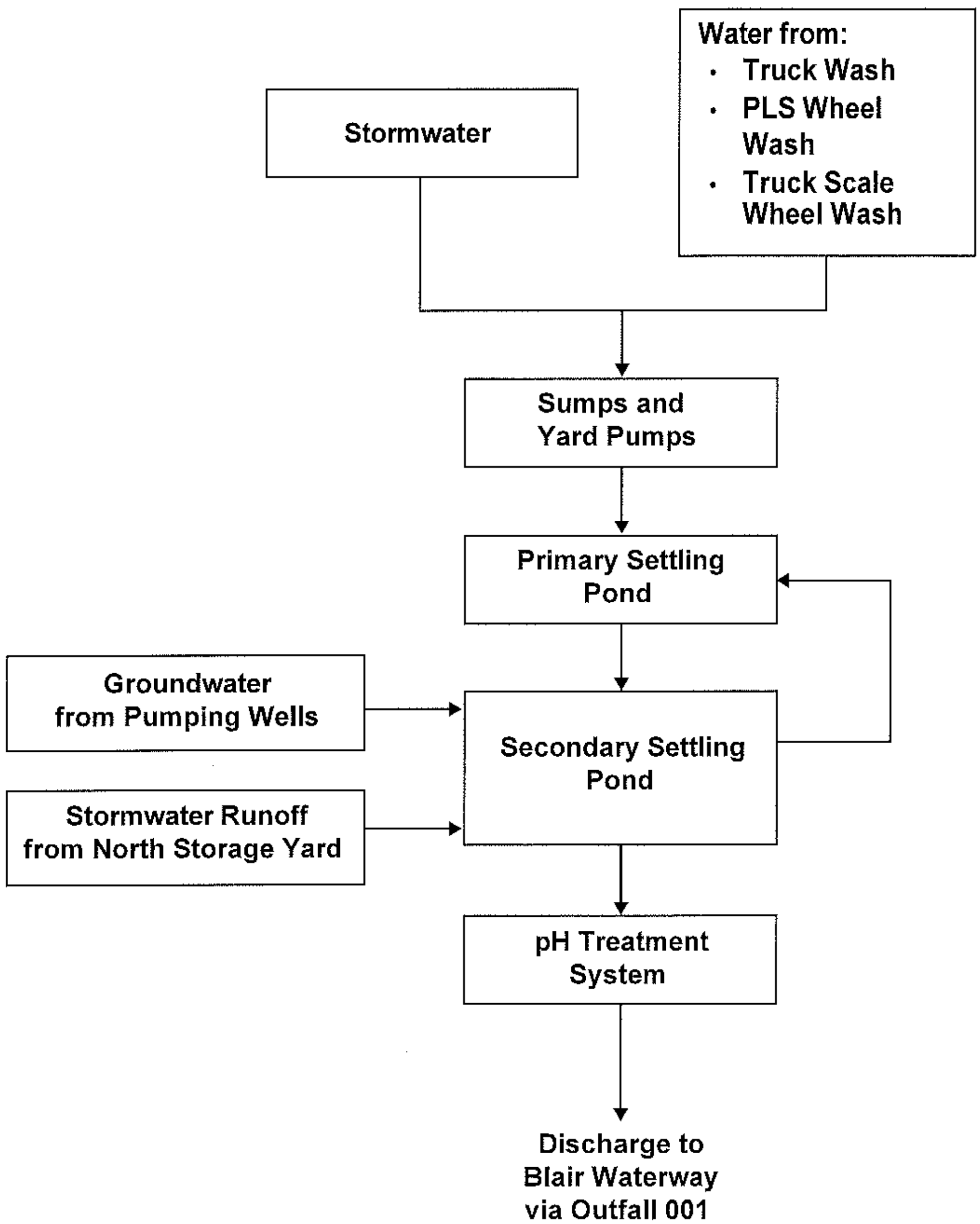
[a] City Water Input based on average water purchase for period between January 2017 and December 2019.

[b] Stormwater average flow based on rain precipitation between January 2017 and December 2019. Assuming all rain that falls at the yard is collected and processed through the systems minus 15% evaporation.

[c] Anticipated flow of 5 gallons per minute.

[d] Estimated average daily discharge flow based on DMR reporting on period between January 2017 through December 2019.

NPDES Form 2C, Section 2
Schematic of Water Flow
Graymont Western US Inc., Tacoma, Washington



NPDES Form 2C, Section 2
Treatment System Process Flow Diagram

BIOASSAY REPORT

ACUTE
BIOASSAYS CONDUCTED
November 1 through 5, 2018

Prepared for

JACOBS ENGINEERING
GRAYMONT WESTERN
BELLEVUE, WASHINGTON

Prepared by

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
ASL

1100 NE Circle Boulevard, Suite 310
Corvallis, Oregon 97330
541-243-6137

NELAC #OR100022
State of Washington Department of Ecology (WDOE), Lab ID C1233

Report Date: November 26, 2018
Lab I.D. No. B4140

CONTENTS

INTRODUCTION

TestAmerica - ASL conducted an acute bioassay tests from November 1 through 5, 2018, on a sample provided by the Jacobs Engineering (Graymont Western), Bellevue, Washington.

SUMMARY OF TEST RESULTS

Exhibits 1 and 2 provide a summary of the final test results.

EXHIBIT 1
Summary of Acute Test Results

Species	NOEC (%)	LOEC (%)	LC_{50} (%)
C. dubia	100	> 100	> 100
P. promelas	100	>100	> 100

Note: acronyms are as defined below.

More detailed information is provided in the Acute Results and Data Interpretation sections

ACRONYM DEFINITIONS (from EPA guidance):

NOEC = No Observed Effect Concentration: The highest test concentration that causes no observable adverse effects on the test organisms (i.e. no statistically significant reduction from the control).
LOEC = Low Observed Effect Concentration: The lowest test concentration that does cause an observable adverse effect on the test organisms (i.e. is statistically significant reduction from the control).
LC_{50} = Lethal Concentration (50%): A point estimate of the test concentration that would cause death in 50 percent of the test population.

SAMPLE INFORMATION

Exhibit 2 provides a summary of the sample conditions as received.

EXHIBIT 2
Sample Conditions on Receipt

Sample ID	**Effluent Sample**
CH2M SDG	B4140
Collection - Date and Time	10/31/2018 10:38
Receipt - Date and Time	11/01/2018 10:40
Temperature (^{o}C)	2.5
Dissolved Oxygen (mg/L)	9.6
pH	8.6
Conductivity (µS/cm)	722
Total Residual Chlorine (mg/L)	<0.02
Ammonia (mg/L as NH_3-N)	<0.10
Total Hardness (mg/L as $CaCO_3$)	113
Total Alkalinity (mg/L as $CaCO_3$)	57

METHODS AND MATERIALS

TEST METHODS

The acute test methods were performed according to: *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, USEPA Office of Water (2002), EPA-821-R-02-012.

Additional guidance was provided by:

- *Whole Effluent Toxicity Testing Guidance and Test Review Criteria*, Washington State Department of Ecology (revised Jun 2016) Pub# WQ-R-95-80.

DEVIATIONS FROM PROTOCOLS

Deviations from <u>required</u> procedures in the test methods:

- None noted.

Deviations from <u>recommended</u> procedures in the test methods:

- None noted.

TEST DESIGN

The following summarizes the conditions used for both overall testing and the specifics for each test (observations and notations can be found on the datasheets in Appendix A):

<u>Overall Test Design:</u>

- Acute test: 6.25, 12.5, 25, 50, and 100 percent sample + dilution water for the control.

<u>Test Organism Conditions:</u>

- All organisms tested were fed and maintained during culturing, acclimation, and testing as prescribed by the EPA (2002).
- The test organisms appeared vigorous and in good condition prior to testing.

<u>*C. dubia* acute test:</u>

- Source: TA-ASL's in-house cultures
- Age: Less than 24 hours old
- Design: Four test vessels per concentration, five organisms per vessel
- Test Solution Renewal: None (i.e. static test)
- Monitoring:
  - Daily: Survival, DO, pH, and temperature; all concentrations.
  - Test Initiation and Termination: Conductivity, all concentrations
- Termination: 48 hours.
- Endpoints: Survival (at termination)

P. promelas acute test:

- Source: Aquatox Inc., Hot Springs, Arkansas
- Age: 1 to 14 days old, within a 24 hour age range
- Design: Four test vessels per concentration, Ten organisms per vessel
- Test Solution Renewal: Once @ 48 hours (i.e. static-renewal test)
- Monitoring:
  - Daily: Survival, DO, pH, and temperature; all concentrations.
  - Pre and Post Renewal solutions: DO and pH, all concentrations.
  - Test Initiation, with each new sample use, and Termination:
    - Conductivity, all concentrations
- Termination: 96 hours.
- Endpoints: Survival (at termination)

DILUTION WATER

The dilution water used was the standard culture water used by TA-ASL:

- Reconstituted, moderately hard water (as per EPA protocol) with a total hardness of 80 to 100 mg/L as $CaCO_3$ and an alkalinity of 60 to 70 mg/L as $CaCO_3$.

SAMPLE COLLECTION AND STORAGE

A sample was collected by Jacobs's personnel. The sample was accepted as scheduled by TA-ASL. Chain of Custody and Sample Receipt Records are provided in Appendix C.

- The sample was received within the EPA recommended 0 to 6 °C range.
- The sample was received within the WDOE required 0 to 6 °C range.
- The sample was initially used for test initiation or test solution renewal within the EPA recommended maximum holding time of 36 hours of sample collection.
- All subsequent uses of a sample occurred within the EPA recommended maximum holding time of 72 hours past the time of initial use of that sample.
- All subsequent uses of a sample occurred within the WDOE recommended maximum holding time of 72 hours past the time of sample collection.
- Following receipt, the sample was stored in the dark at 0 to 6 °C until test solutions were prepared and tested.

SAMPLE PREPARATION

Samples used during these tests were:

- Temperature adjusted prior to test initiation and renewal.

DATA ANALYSIS

The statistical analyses performed for the acute tests were those outlined in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, USEPA Office of Water, Fifth Edition (2002), EPA-821-R-02-012, using CETIS.

Additional guidance was provided by:

- *Whole Effluent Toxicity Testing Guidance and Test Review Criteria*, Washington State Department of Ecology (revised Jun 2016) Pub# WQ-R-95-80.

- The specific statistical analysis and CETIS version used for each endpoint evaluation is listed with the statistical outputs included with each test in Appendix A.
- If any additional analysis methods were also used, an explanation of the rationale and reference to the source method is included with the presentation of those results below.

RESULTS AND DISCUSSION

The raw data sheets are presented in Appendix A.

ACUTE BIOASSAYS

Table 1 summarizes the survival data for the *C. dubia* acute test.

Table 1
Summary of Acute Results
C. dubia

Sample Concentration (%)	Percent Survival (at Test Termination)
Control	100
6.25	95
12.5	100
25.0	100
50	90
100	100

Statistical analysis in accordance with the EPA protocol and WDOE guidance results in:

- NOEC = 100 %
- LOEC > 100 %
- LC_{50} > 100 %

From the NPDES permit: There is No Permit Limit for Acute Toxicity.

Dissolved oxygen concentrations remained at 4.0 mg/L or greater throughout the test period. Test temperatures remained in the range of 20±1 °C.

The *C. dubia* acute test meets Test Acceptability Criteria (TAC) of a minimum 90 percent control survival. Unless referenced above, the tests proceeded without any noted deviations or interruptions that could have affected test results. The testing should be considered "valid".

Table 2 summarizes the survival data for the *P. promelas* acute test initiated on 5-5-2018.

Table 2 Summary of Acute Results *P. promelas*	
Sample Concentration (%)	**Percent Survival (at Test Termination)**
Control	100
6.25	97.5
12.5	100
25	100
50	97.5
100	97.5

Statistical analysis in accordance with the EPA protocol and WDOE guidance results in:

- NOEC = 100 %
- LOEC > 100 %
- LC_{50} > 100 %

From the NPDES permit: There is No Permit Limit for Acute Toxicity.

Dissolved oxygen concentrations remained at 4.0 mg/L or greater throughout the test period. Test temperatures remained in the range of 20±1 °C.

The *P. promelas* acute test meets Test Acceptability Criteria (TAC) of a minimum 90 percent control survival. Unless referenced above, the tests proceeded without any noted deviations or interruptions that could have affected test results. The testing should be considered "valid".

REFERENCE TOXICANT TESTS

Reference toxicant (reftox) testing is performed to document both initial and ongoing laboratory performance of the test method(s). While the health of the test organisms is primarily evaluated by the performance of the laboratory control, reftox test results also may be used to assess the health and sensitivity of the test organisms. Reftox test results within their respective sensitivity range are indicative of consistent laboratory performance and normal test organism sensitivity.

The results of the reftox tests indicate that the test organisms were within their respective cusum chart limits based on EPA guidelines. This demonstrates ongoing laboratory proficiency of the test methods and suggests normal test organism sensitivity in the associated client testing.

The *P. promelas* and *C. dubia* reftox tests were conducted using sodium chloride. The data sheets for the reference toxicant tests are provided in Appendix B.

The data sheets for the reference toxicant test are provided in Appendix B and the reftox test results are summarized in Table 3.

Table 3
Acute Reference Toxicant Tests (g/L)

Species	LC_{50}	Control Chart limits
C. dubia	1.79	1.68 to 2.68
P. promelas	6.2	6.1 to 8.4

APPENDIX A

RAW DATA SHEETS

TestAmerica

FRESHWATER TOXICITY TEST: SAMPLE AND DILUTION WATER DATA

Client: Graymont Western

Contact: Rachel Chang (425) 233 - 3326

SDG # B 4140

Test Initiation: Date 11-1-18

Test Termination: Date 11-5-18

Sample ID Number	Field ID	Collected Date (mm/dd/yy)	Collected Time (Pacific Zone)	Received Date (mm/dd/yy)	Received Time (Pacific Zone)	Temp (°C) as Rc'vd	Total Residual Chlorine (mg/l) ☐ Dechlorination allowed as Rc'vd / after Dechlor.	Ammonia NH_3-N mg/l as Rc'vd	Hardness mg/l as $CaCO_3$ as Rc'vd	Alkalinity mg/l as $CaCO_3$ as Rc'vd	DO (mg/L) as Rc'vd	pH as Rc'vd	Cond. (uS) as Rc'vd	60 um filtered? (organisms noted)
~~BK~~ B4140-01 BK wo 11-1-18	GWNPDES-1-103118	10/31/18	10:38	11/1/18	10 40	2.5	<0.02 / -	<0.10	113	57	9.6	8.6	722	☐ NS
							/							
							/							
							/							
							/							
							/							
							/							
							/							
							/							
							/							
				Reporting Limits:		na	0.02 mg/L	0.10 mg/L	5 mg/L	5 mg/L	na	na	na	na

Note: "–" Indicates data collection or dechlorination not needed. Any other adjustments to samples prior to use are documented in Comments below or on Dilutions page.

Dilution Water	ID#	Hardness mg/l as $CaCO_3$	Alkalinity mg/l as $CaCO_3$
Recon MH (FHM)	4741	85	67
	4743	90	70

Comments: ☑ Indicates the action was taken, (☐= action not taken): " - " = sample not dechlorinated, or analyte not collected/needed.

Water Quality Meters Used/ID#: Dissolved Oxygen # 4 pH # 11 Conductivity # 7

Jacobs - Seattle FHM, CD acutes Doc Control ID: ASL899-0917

TestAmerica

FRESHWATER TOXICITY TEST: TEST ORGANISM INFORMATION

Client Graymont Western

Sample Designation (SDG): B 4140

Test Species Information	Cd # 3494 *Ceriodaphnia dubia* Acute	FHM # 2016 *Pimephales promelas* Acute			
Organism Age at Initiation	< 24 hrs	3 Days, within a 24 hour window			
Test Container Size	30 ml	400 ml			
Test Volume	25 ml	250 ml			
Feeding: Type and Amount	Algae and YCT during acclimation	0.15 ml *Artemia*, @ 48 hrs			
Aeration: In Test Chambers via Slow Bubble :	☒ None ☐ Prior to use	☒ None ☐ Prior to use ☐ @ ______ hrs			
Acclimation Period	<24 hrs	<24 hrs			
Organism Source	In-House	Aquatox			
Size	-	-			
Loading Rate	-	-			

Dissolved Oxygen aeration justifications (in test chambers):

Test(s): ☐ All ☐ ____________

Date:

Comments:

Test Solution Preparation and Dilution Record

Client: Graymont Western

Note: ☐ Indicates task not done, ☑ Indicates task was done. Temp adj. = Temperature adjusted to ambient or test temp

Ditto marks (' ') indicate that the same SDG, batch of dilution water, or food as the previous day's entry was used.

Ceriodaphnia dubia - Acute

Test Concentration (%)	Sample Volume (mls)		Final Volume (mls)
Control	0.00	→	200
6.25	12.5	→	200
12.5	25.0	→	200
25	50.0	→	200
50	100	→	200
100	200	→	200

Test Day	Sample ID Used	Daily Sample Preparation (prior to dilution)	Dilution Water Used	Date	Time	Initials
0 (Initiation)	B4140 01	☐ Temp adj, ☐ Aerated	ID # 4741	11/1/2018	11:35	MB

Total Sample volume needed per day = 388 mls

Fathead minnow - Acute

Test Concentration (%)	Sample Volume (mls)		Final Volume (mls)
Control	0.00	→	1000
6.25	62.5	→	1000
12.5	125	→	1000
25	250	→	1000
50	500	→	1000
100	1,000	→	1000

Test Day	Sample ID Used	Daily Sample Preparation (prior to dilution)	Dilution Water Used	Date	Time	Initials
0 (Initiation)	B4140-01	☐ Temp adj, ☐ Aerated	ID # 4741	11/1/2018	11:35	MB
2	B ↓ -01	☐ Temp adj, ☐ Aerated	ID # 4743	11/3/2018	0825	[illegible]

Total Sample volume needed per day = 1938 mls

TestAmerica

48 HOUR FRESHWATER TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Client: Graymont Western
Sample ID # B 4140-01
Beginning, Date 11-1-18 Time 1255
Ending, Date 11-3-18 Time 1205
Sample Description

	0 hr	24 hr	48 hr
Technician	UB	UB	Bm
Time	1255	1000	1205
Therm. ID#	#252	#255	#232

Random Template Used: Whiskey Cup random # 59
Waterbath/Incubator Used: # 10
Test Species: *Ceriodaphnia dubia*
ID# Cd 3494

Percent	Test Container Number	Number of Live Organisms 0	24	48	Dissolved Oxygen (mg/l) 0	24	48	pH 0	24	48	Temperature (°C) 0	24	48	Conductivity (µmohs/cm) 0	24	48
Control	Surrogate					8.1			7.5			20.7				
	A	5	5	5	8.0		9.0	7.6		7.7	20.9		20.0	326		345
	B	5	5	5												
	C	5	5	5												
	D	5	5	5												
6.25	Surrogate					8.1			7.5			20.7				
	A	5	4	4	8.2		8.6	7.7		7.7	20.7		20.1	353		355
	B	5	5	5												
	C	5	5	5												
	D	5	5	5												
12.5	Surrogate					8.3			7.6			20.7				
	A	5	5	5	8.5		9.0	7.7		7.7	20.5		20.2	382		404
	B	5	5	5												
	C	5	5	5												
	D	5	5	5												
25	Surrogate					8.3			7.6			20.7				
	A	5	5	5	8.6		8.8	7.8		7.7	19.9		20.0	432		460
	B	5	5	5												
	C	5	5	5												
	D	5	5	5												
50	Surrogate					8.3			7.6			20.8				
	A	5	5	5	8.8		8.6	7.9		7.7	19.8		20.1	516		555
	B	5	5	5												
	C	5	5	4												
	D	5	5	4												
100	Surrogate					8.1			7.6			20.8				
	A	5	5	5	8.9		9.0	8.0		7.7	19.1		20.2	735		792
	B	5	5	5												
	C	5	5	5												
	D	5	5	5												

Note: Use surrogate test chamber to determine temperature, DO, pH, and Conductivity measurements @ 24 hrs (to avoid injuring the organisms).

CETIS Summary Report

Report Date: 26 Nov-18 09:52 (p 1 of 1)
Test Code: B414001cda | 05-5805-1013

Ceriodaphnia 48-h Acute Survival Test — **TestAmerica - ASL**

Batch ID:	14-0472-8028	**Test Type:**	Survival (48h)	**Analyst:**	Michelle Bennett
Start Date:	01 Nov-18 12:55	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	03 Nov-18 12:05	**Species:**	Ceriodaphnia dubia	**Brine:**	
Duration:	47h	**Source:**	In-House Culture	**Age:**	<24H

Sample ID:	13-6133-1966	**Code:**	B4140-01	**Client:**	
Sample Date:	31 Oct-18 10:38	**Material:**	Unknown	**Project:**	
Receive Date:	01 Nov-18 10:40	**Source:**	Graymont Western (WA0001007)		
Sample Age:	26h (2.5 °C)	**Station:**			

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
06-2233-0251	48h Survival Rate	100	>100	NA	11.9%	1	Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
13-3502-4893	48h Survival Rate	EC50	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
06-2233-0251	48h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria
13-3502-4893	48h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

48h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Dilution Water	4	1	1	1	1	1	0	0	0.0%	0.0%
6.25		4	0.95	0.7909	1	0.8	1	0.05	0.1	10.53%	5.0%
12.5		4	1	1	1	1	1	0	0	0.0%	0.0%
25		4	1	1	1	1	1	0	0	0.0%	0.0%
50		4	0.9	0.7163	1	0.8	1	0.05774	0.1155	12.83%	10.0%
100		4	1	1	1	1	1	0	0	0.0%	0.0%

48h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	1	1	1	1
6.25		0.8	1	1	1
12.5		1	1	1	1
25		1	1	1	1
50		1	1	0.8	0.8
100		1	1	1	1

48h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	5/5	5/5	5/5	5/5
6.25		4/5	5/5	5/5	5/5
12.5		5/5	5/5	5/5	5/5
25		5/5	5/5	5/5	5/5
50		5/5	5/5	4/5	4/5
100		5/5	5/5	5/5	5/5

CETIS Analytical Report

Report Date:	26 Nov-18 09:52 (p 1 of 2)
Test Code:	B414001cda | 05-5805-1013

Ceriodaphnia 48-h Acute Survival Test — **TestAmerica - ASL**

Analysis ID:	06-2233-0251	**Endpoint:**	48h Survival Rate	**CETIS Version:**	CETISv1.8.8
Analyzed:	26 Nov-18 9:30	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	14-0472-8028	**Test Type:**	Survival (48h)	**Analyst:**	Michelle Bennett
Start Date:	01 Nov-18 12:55	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	03 Nov-18 12:05	**Species:**	Ceriodaphnia dubia	**Brine:**	
Duration:	47h	**Source:**	In-House Culture	**Age:**	<24H

Sample ID:	13-6133-1966	**Code:**	B4140-01	**Client:**	
Sample Date:	31 Oct-18 10:38	**Material:**	Unknown	**Project:**	
Receive Date:	01 Nov-18 10:40	**Source:**	Graymont Western (WA0001007)		
Sample Age:	26h (2.5 °C)	**Station:**			

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	11.9%	100	>100	NA	1

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Dilution Water		6.25	16	10	1	6	0.6105	Asymp	Non-Significant Effect
		12.5	18	10	1	6	0.8333	Asymp	Non-Significant Effect
		25	18	10	1	6	0.8333	Asymp	Non-Significant Effect
		50	14	10	1	6	0.3451	Asymp	Non-Significant Effect
		100	18	10	1	6	0.8333	Asymp	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.04961941	0.009923882	5	1.8	0.1637	Non-Significant Effect
Error	0.09923882	0.005513268	18			
Total	0.1488582		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	4.2	4.248	0.0105	Equal Variances
Variances	Levene Equality of Variance	20.2	4.248	<0.0001	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.7721	0.884	0.0001	Non-normal Distribution

48h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Dilution Water	4	1	1	1	#Error	1	1	0	0.0%	0.0%
6.25		4	0.95	0.7909	1	#Error	0.8	1	0.05	10.53%	5.0%
12.5		4	1	1	1	#Error	1	1	0	0.0%	0.0%
25		4	1	1	1	#Error	1	1	0	0.0%	0.0%
50		4	0.9	0.7163	1	#Error	0.8	1	0.05774	12.83%	10.0%
100		4	1	1	1	#Error	1	1	0	0.0%	0.0%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	1.345	1.345	1.346	#Error	1.345	1.345	0	0.0%	0.0%
6.25		4	1.286	1.096	1.475	#Error	1.107	1.345	0.05953	9.26%	4.43%
12.5		4	1.345	1.345	1.346	#Error	1.345	1.345	0	0.0%	0.0%
25		4	1.345	1.345	1.346	#Error	1.345	1.345	0	0.0%	0.0%
50		4	1.226	1.007	1.445	#Error	1.107	1.345	0.06874	11.21%	8.85%
100		4	1.345	1.345	1.346	#Error	1.345	1.345	0	0.0%	0.0%

CETIS Analytical Report

Report Date:	26 Nov-18 09:52 (p 2 of 2)
Test Code:	B414001cda | 05-5805-1013

Ceriodaphnia 48-h Acute Survival Test — **TestAmerica - ASL**

Analysis ID:	06-2233-0251	**Endpoint:**	48h Survival Rate	**CETIS Version:**	CETISv1.8.8
Analyzed:	26 Nov-18 9:30	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

48h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1	1	1	1
6.25		0.8	1	1	1
12.5		1	1	1	1
25		1	1	1	1
50		1	1	0.8	0.8
100		1	1	1	1

Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.345	1.345	1.345	1.345
6.25		1.107	1.345	1.345	1.345
12.5		1.345	1.345	1.345	1.345
25		1.345	1.345	1.345	1.345
50		1.345	1.345	1.107	1.107
100		1.345	1.345	1.345	1.345

48h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	D	5/5	5/5	5/5	5/5
6.25		4/5	5/5	5/5	5/5
12.5		5/5	5/5	5/5	5/5
25		5/5	5/5	5/5	5/5
50		5/5	5/5	4/5	4/5
100		5/5	5/5	5/5	5/5

CETIS Analytical Report

Ceriodaphnia 48-h Acute Survival Test — **TestAmerica - ASL**

Analysis ID:	13-3502-4893	**Endpoint:**	48h Survival Rate	**CETIS Version:**	CETISv1.8.8
Analyzed:	26 Nov-18 9:30	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	14-0472-8028	**Test Type:**	Survival (48h)	**Analyst:**	Michelle Bennett
Start Date:	01 Nov-18 12:55	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	03 Nov-18 12:05	**Species:**	Ceriodaphnia dubia	**Brine:**	
Duration:	47h	**Source:**	In-House Culture	**Age:**	<24H

Sample ID:	13-6133-1966	**Code:**	B4140-01	**Client:**	
Sample Date:	31 Oct-18 10:38	**Material:**	Unknown	**Project:**	
Receive Date:	01 Nov-18 10:40	**Source:**	Graymont Western (WA0001007)		
Sample Age:	26h (2.5 °C)	**Station:**			

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X+1)	Linear	1150458	200	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC50	>100	N/A	N/A	<1	NA	NA

48h Survival Rate Summary — Calculated Variate(A/B)

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Dilution Water	4	1	1	1	0	0	0.0%	0.0%	20	20
6.25		4	0.95	0.8	1	0.05	0.1	10.53%	5.0%	19	20
12.5		4	1	1	1	0	0	0.0%	0.0%	20	20
25		4	1	1	1	0	0	0.0%	0.0%	20	20
50		4	0.9	0.8	1	0.05774	0.1155	12.83%	10.0%	18	20
100		4	1	1	1	0	0	0.0%	0.0%	20	20

48h Survival Rate Detail

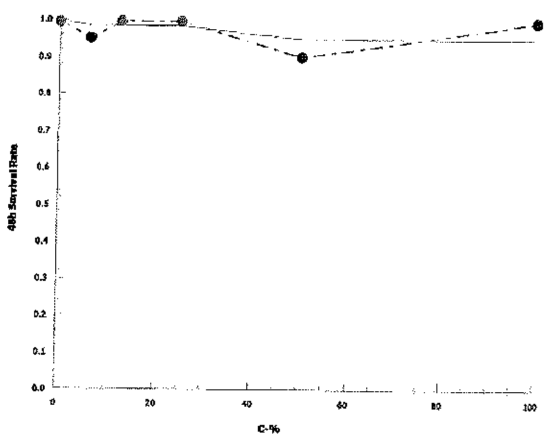
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	1	1	1	1
6.25		0.8	1	1	1
12.5		1	1	1	1
25		1	1	1	1
50		1	1	0.8	0.8
100		1	1	1	1

48h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	5/5	5/5	5/5	5/5
6.25		4/5	5/5	5/5	5/5
12.5		5/5	5/5	5/5	5/5
25		5/5	5/5	5/5	5/5
50		5/5	5/5	4/5	4/5
100		5/5	5/5	5/5	5/5

Ceriodaphnia 48-h Acute Survival Test					**TestAmerica - ASL**
Analysis ID:	13-3502-4893	**Endpoint:**	48h Survival Rate	**CETIS Version:**	CETISv1.8.8
Analyzed:	26 Nov-18 9:30	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



TestAmerica

96 HOUR FRESHWATER TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Random Template Used: 6 conc. x 4 reps. # 2

Sample Description

Client: Graymont Western

Test Species: *Pimephales promelas* ID# FHM 2016

Waterbath/Incubator Used: # 10

Initial Sample ID # B 4140-01

Test Initiation Date: 11 / 1 / 2016 Time: 13:35

Termination Date: 11 / 5 / 2016 Time: 12:40

	0 hr	24 hr	48 hr	72 hr	96 hr
Technician	MB	MB	[illegible]	[illegible]	MB
Time	13:35	09:55	12:35	13:05	12:40
Therm. ID#	# 252	# 255	# 252	# 252	# 252

Percent	Test Container Number	Number of Live Organisms 0	24	48	72	96	Dissolved Oxygen (mg/l) 0	24	48	72	96	pH 0	24	48	72	96	Temperature (°C) 0	24	48	72	96	Conductivity (umhos/cm) 0	24	48	72	96
Control	A	10	10	10	10	10	8.0	7.9	7.8 / 8.3	7.7	7.3	7.6	7.7	7.7 / 8.1	7.8	7.5	20.9	20.8	20.4	20.6	20.5	326		336 / 348		301
	B	10	10	10	10	10																				
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				
6.25	A	10	10	10	10	10	8.2	7.9	7.8 / 8.2	7.6	7.2	7.7	7.6	7.7 / 8.2	7.8	7.5	20.7	20.7	20.4	20.6	20.3	353		370 / 363		335
	B	10	10	10	10	10																				
	C	10	10	10	10	10																				
	D	10	10	10	10	9																				
12.5	A	10	10	10	10	10	8.5	8.0	7.8 / 8.2	7.3	7.3	7.7	7.6	7.7 / 8.2	7.7	7.6	20.5	20.8	20.5	20.5	20.4	382		384 / 389		360
	B	10	10	10	10	10																				
	C	10	10	~~9~~ 10 [illegible] 11/3/16	10	10																				
	D	10	10	10	10	10																				

TestAmerica

96 HOUR FRESHWATER TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Random Template Used: 6 conc. x 4 reps. # 2

Sample Description: ______

Client: Graymont Western

Test Species: *Pimephales promelas* ID# FHM 2016

Waterbath/Incubator Used: # 10

Initial Sample ID # B 4140-01

	0 hr	24 hr	48 hr	72 hr	96 hr
Technician	MB	MB	BW	BW	MB
Time	13:35	09:55	12:35	13:05	12:40
Therm. ID#	# 252	# 255	# 252	# 252	# 252

Test Initiation Date: 11/1/2018 Time: 13:35

Termination Date: 11/5/2018 Time: 12:40

Percent	Test Container Number	Number of Live Organisms 0	24	48	72	96	Dissolved Oxygen (mg/l) 0	24	48	72	96	pH 0	24	48	72	96	Temperature (°C) 0	24	48	72	96	Conductivity (µmohs/cm) 0	24	48	72	96
25	A	10	10	10	10	10	8.6	7.7	7.7/8.4	7.1	7.4	7.8	7.6	7.7/8.3	7.7	7.5	19.9	20.9	20.4	20.6	20.5	432		444/441		403
	B	10	10	10	10	10																				
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				
50	A	10	10	10	10	10	8.8	7.6	7.2/8.7	6.5	7.3	7.9	7.6	7.7/8.3	7.7	7.4	19.8	20.7	20.4	20.6	20.5	516		539/544		503
	B	10	9	9	9	9																				
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				
100	A	10	10	10	9	9	8.9	7.5	7.5/8.8	6.6	7.3	8.0	7.6	7.6/8.3	7.6	7.3	19.1	20.7	20.4	20.6	20.6	735		763/749		701
	B	10	10	10	10	10																				
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				

CETIS Summary Report

Report Date: 26 Nov-18 09:50 (p 1 of 1)
Test Code: B414001ppa | 10-1399-9890

Fathead Minnow 96-h Acute Survival Test — **TestAmerica - ASL**

Batch ID:	08-4638-2990	**Test Type:**	Survival (96h)	**Analyst:**	Michelle Bennett
Start Date:	01 Nov-18 13:35	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	05 Nov-18 12:40	**Species:**	Pimephales promelas	**Brine:**	
Duration:	95h	**Source:**	Aquatox, AR	**Age:**	3 D

Sample ID:	13-6133-1966	**Code:**	B4140-01	**Client:**	
Sample Date:	31 Oct-18 10:38	**Material:**	Unknown	**Project:**	
Receive Date:	01 Nov-18 10:40	**Source:**	Graymont Western (WA0001007)		
Sample Age:	27h (2.5 °C)	**Station:**			

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
09-0029-8878	96h Survival Rate	100	>100	NA	6.45%	1	Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
03-7250-2529	96h Survival Rate	EC50	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
03-7250-2529	96h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria
09-0029-8878	96h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Dilution Water	4	1	1	1	1	1	0	0	0.0%	0.0%
6.25		4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	2.5%
12.5		4	1	1	1	1	1	0	0	0.0%	0.0%
25		4	1	1	1	1	1	0	0	0.0%	0.0%
50		4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	2.5%
100		4	0.975	0.8954	1	0.9	1	0.025	0.05	5.13%	2.5%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	1	1	1	1
6.25		1	1	1	0.9
12.5		1	1	1	1
25		1	1	1	1
50		1	0.9	1	1
100		0.9	1	1	1

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	10/10	10/10	10/10	10/10
6.25		10/10	10/10	10/10	9/10
12.5		10/10	10/10	10/10	10/10
25		10/10	10/10	10/10	10/10
50		10/10	9/10	10/10	10/10
100		9/10	10/10	10/10	10/10

CETIS Analytical Report

Report Date:	26 Nov-18 09:50 (p 1 of 2)	Test Code:	B414001ppa | 10-1399-9890

Fathead Minnow 96-h Acute Survival Test — **TestAmerica - ASL**

Analysis ID:	09-0029-8878	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.8
Analyzed:	26 Nov-18 9:50	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

Batch ID:	08-4638-2990	**Test Type:**	Survival (96h)	**Analyst:**	Michelle Bennett
Start Date:	01 Nov-18 13:35	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	05 Nov-18 12:40	**Species:**	Pimephales promelas	**Brine:**	
Duration:	95h	**Source:**	Aquatox, AR	**Age:**	3 D

Sample ID:	13-6133-1966	**Code:**	B4140-01	**Client:**	
Sample Date:	31 Oct-18 10:38	**Material:**	Unknown	**Project:**	
Receive Date:	01 Nov-18 10:40	**Source:**	Graymont Western (WA0001007)		
Sample Age:	27h (2.5 °C)	**Station:**			

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	6.45%	100	>100	NA	1

Steel Many-One Rank Sum Test

Control vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Dilution Water	6.25	16	10	1	6	0.6105	Asymp	Non-Significant Effect
	12.5	18	10	1	6	0.8333	Asymp	Non-Significant Effect
	25	18	10	1	6	0.8333	Asymp	Non-Significant Effect
	50	16	10	1	6	0.6105	Asymp	Non-Significant Effect
	100	16	10	1	6	0.6105	Asymp	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.009959749	0.00199195	5	0.6	0.7006	Non-Significant Effect
Error	0.0597585	0.003319917	18			
Total	0.06971824		23			

Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	0.6	4.248	0.7006	Equal Variances
Variances	Levene Equality of Variance	5.4	4.248	0.0033	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.6694	0.884	<0.0001	Non-normal Distribution

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Dilution Water	4	1	1	1	1	1	1	0	0.0%	0.0%
6.25		4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	2.5%
12.5		4	1	1	1	1	1	1	0	0.0%	0.0%
25		4	1	1	1	1	1	1	0	0.0%	0.0%
50		4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	2.5%
100		4	0.975	0.8954	1	1	0.9	1	0.025	5.13%	2.5%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Dilution Water	4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	0.0%
6.25		4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	2.89%
12.5		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	0.0%
25		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.0%	0.0%
50		4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	2.89%
100		4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	2.89%

Fathead Minnow 96-h Acute Survival Test			TestAmerica - ASL
Analysis ID: 09-0029-8878	Endpoint: 96h Survival Rate	CETIS Version: CETISv1.8.8	
Analyzed: 26 Nov-18 9:50	Analysis: Nonparametric-Control vs Treatments	Official Results: Yes	

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	1	1	1	1
6.25		1	1	1	0.9
12.5		1	1	1	1
25		1	1	1	1
50		1	0.9	1	1
100		0.9	1	1	1

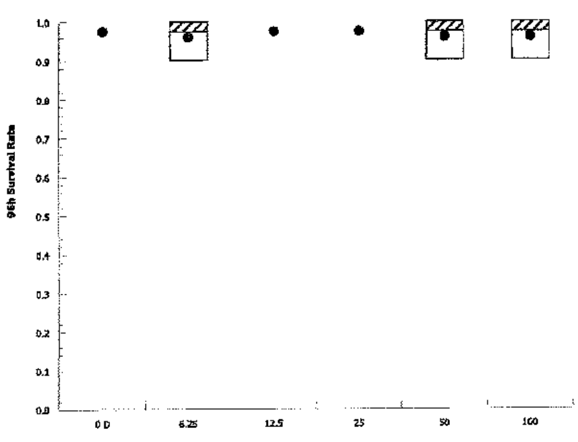
Angular (Corrected) Transformed Detail

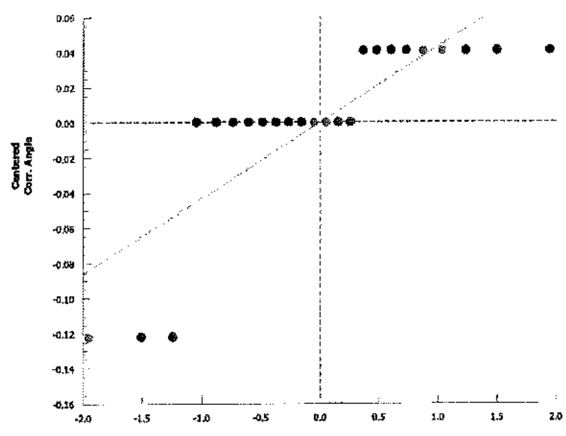
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	1.412	1.412	1.412	1.412
6.25		1.412	1.412	1.412	1.249
12.5		1.412	1.412	1.412	1.412
25		1.412	1.412	1.412	1.412
50		1.412	1.249	1.412	1.412
100		1.249	1.412	1.412	1.412

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	10/10	10/10	10/10	10/10
6.25		10/10	10/10	10/10	9/10
12.5		10/10	10/10	10/10	10/10
25		10/10	10/10	10/10	10/10
50		10/10	9/10	10/10	10/10
100		9/10	10/10	10/10	10/10

Graphics





CETIS Analytical Report

Report Date:	26 Nov-18 09:50 (p 1 of 2)		
Test Code:	B414001ppa | 10-1399-9890		

Fathead Minnow 96-h Acute Survival Test — **TestAmerica - ASL**

Analysis ID:	03-7250-2529	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.8
Analyzed:	26 Nov-18 9:50	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	08-4638-2990	**Test Type:**	Survival (96h)	**Analyst:**	Michelle Bennett
Start Date:	01 Nov-18 13:35	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	05 Nov-18 12:40	**Species:**	Pimephales promelas	**Brine:**	
Duration:	95h	**Source:**	Aquatox, AR	**Age:**	3 D

Sample ID:	13-6133-1966	**Code:**	B4140-01	**Client:**	
Sample Date:	31 Oct-18 10:38	**Material:**	Unknown	**Project:**	
Receive Date:	01 Nov-18 10:40	**Source:**	Graymont Western (WA0001007)		
Sample Age:	27h (2.5 °C)	**Station:**			

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X+1)	Linear	1242490	200	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC50	>100	N/A	N/A	<1	NA	NA

96h Survival Rate Summary

						Calculated Variate(A/B)					
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Dilution Water	4	1	1	1	0	0	0.0%	0.0%	40	40
6.25		4	0.975	0.9	1	0.025	0.05	5.13%	2.5%	39	40
12.5		4	1	1	1	0	0	0.0%	0.0%	40	40
25		4	1	1	1	0	0	0.0%	0.0%	40	40
50		4	0.975	0.9	1	0.025	0.05	5.13%	2.5%	39	40
100		4	0.975	0.9	1	0.025	0.05	5.13%	2.5%	39	40

96h Survival Rate Detail

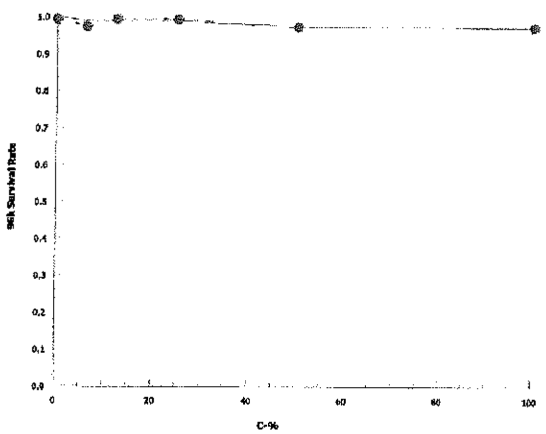
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	1	1	1	1
6.25		1	1	1	0.9
12.5		1	1	1	1
25		1	1	1	1
50		1	0.9	1	1
100		0.9	1	1	1

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	10/10	10/10	10/10	10/10
6.25		10/10	10/10	10/10	9/10
12.5		10/10	10/10	10/10	10/10
25		10/10	10/10	10/10	10/10
50		10/10	9/10	10/10	10/10
100		9/10	10/10	10/10	10/10

Fathead Minnow 96-h Acute Survival Test					**TestAmerica - ASL**
Analysis ID:	03-7250-2529	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.8
Analyzed:	26 Nov-18 9:50	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



APPENDIX B

REFERENCE TOXICANT DATA SHEETS

REFERENCE TOXICANT DATA SHEET

Client	QA / QC	Reference Toxicant	NaCl	Test Begin: Date	11-6-18	Time	1340
Test Organism	*Ceriodaphnia dubia*	Stock Solution	20 g/L	Test End: Date	11-8-18	Time	1155
Source	In-House culture	Solvent	Milli-Q water	Reagent Log ID #	2 B 070-01		
ID#	Cd 3496	*Dilution Water Type	Recon MH (FHM)	Dilution Water ID#	4744		
Age	< 24 hours	Total Hardness as $CaCO_3$	93	Total Alkalinity as $CaCO_3$	70		
Feeding:	none	Conductivity (µmhos/cm)	336	Temperature (°C)	20 ± 1 °C		
Test Chamber Size	30 ml	Technician	0 hr [illegible]/MB	24 hr [illegible]	48 hr MB		
Volume per Replicate	25 ml	Time	0 hr 1340	24 hr 0855	48 hr 1155		
		Therm. ID #	0 hr 252	24 hr 250	48 hr 250		

Toxicant Concentration (g/L)	Test Chamber Number	Number of Live Organisms			Dissolved Oxygen (mg/l)			pH			Temperature (°C)			Conductivity (µS)		
		0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control	A	5	5	5	7.5	—	7.2	7.7	—	8.2	20.7	20.2	20.3	292		320
	B	5	5	5												
1.0	A	5	5	5	7.5	—	7.3	7.9	—	8.0	20.6	20.2	20.2	1831		1847
	B	5	5	5												
1.5	A	5	5	5	7.6	—	7.5	8.0	—	8.1	20.5	20.1	20.3	2690		2790
	B	5	5	5												
2.0	A	5	2	0	7.6	—	7.6	8.0	—	8.1	20.5	20.1	20.3	3490		3700
	B	5	3	1												
3.0	A	5	1	0	7.7	—	7.7	8.0	—	8.0	20.6	20.1	20.2	5010		5160
	B	5	1	0												
4.0	A	5	0	—	7.7	7.5	—	8.0	7.8	—	20.6	20.2	—	6410	6460	—
	B	5	0	—			—			—						
Test Acceptability Criteria:		Survival in Controls: > or = 90%			(@ 20°C): >4.0 and <9.1			pH: > 6.0 and < 9.0			Temperature + 1 °C					

*Dilution Water Code
Recon. - reconstituted water
S - soft
MH - moderately hard
H - hard
Art. Sea - Artificial Sea Water

48 Hour LC_{50} 1.79

Cusum Chart Limits 1.68 to 2.68

Statistical Method Spearman-Karber

We verify this data is true and correct.

Task Manager

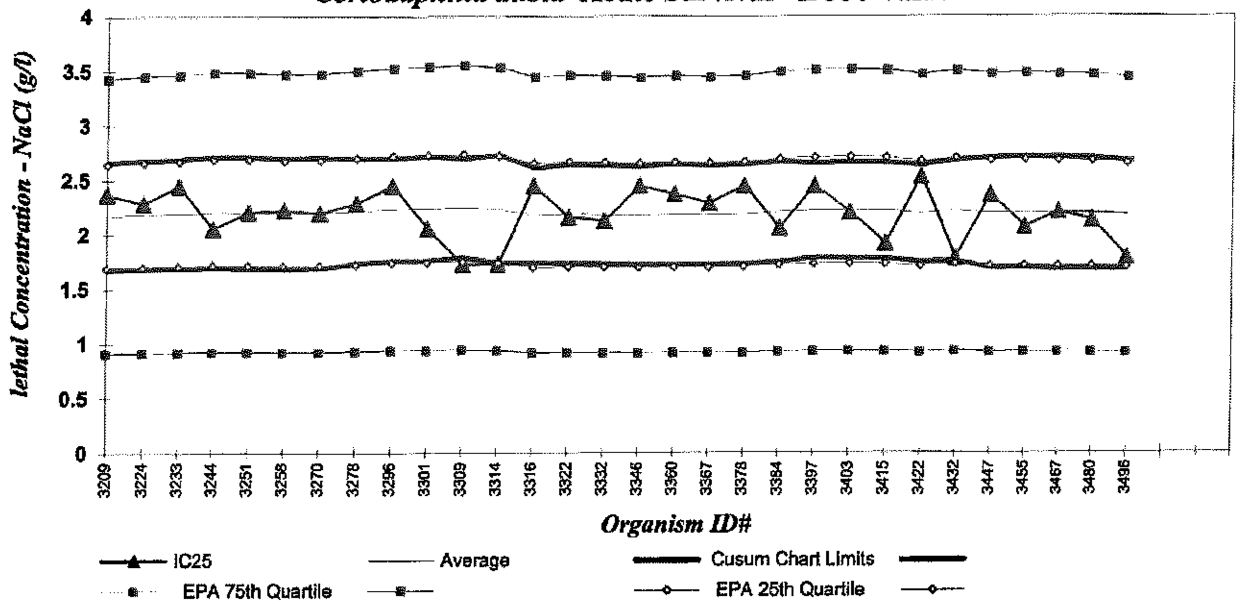
Project Manager

QA Officer 11-9-18

REFTOX - Cerio acute.XLS
Doc Control ID: ASL670-0510

REFERENCE TOXICANT CUMLATIVE SUMMARY (CUSUM) CHART

Ceriodaphnia dubia Acute Survival - LC50 Values



Ceriodaphnia dubia - **ACUTE (EPA Test Method 2002.0)**

SODIUM CHLORIDE (g/L)

Endpoint: 48 hour Survival

Stats Method: Probit, Spearman-Karber, Linear Interpolation

Test Conditions: Recon MH, 20 oC

From EPA 833-R-00-003:

10th Quartile CV (*control limit*) = 0.06

25th Quartile CV (*warning limit*) = 0.11

75th Quartile CV (warning *limit*) = 0.29

90th Quartile CV (*control limit*) = 0.34

*Intralab CV is compared to EPA **Warning limits** (25th and 75th CV's) and **Control limits** (10th and 90th CV's).*

If lab CV is outside EPA Control limits, the EPA Control limits are used to set Cusum chart limits.

Event #	Cerio ID #	Test Start Date	LC50	Running Average	Running SD	Cusum Chart Limits AVG-2SD	Cusum Chart Limits AVG+2SD	Intralab CV
154	3397	02/06/18	**2.45**	2.2	0.22	**1.79**	**2.65**	0.10
155	3403	03/06/18	**2.21**	2.2	0.22	**1.78**	**2.67**	0.10
156	3415	04/09/18	**1.92**	2.2	0.22	**1.78**	**2.66**	0.10
157	3422	05/01/18	**2.54**	2.2	0.22	**1.75**	**2.64**	0.10
158	3432	06/01/18	**1.78**	2.2	0.23	**1.75**	**2.68**	0.11
159	3447	07/24/18	**2.37**	2.2	0.25	**1.69**	**2.70**	0.12
160	3455	08/07/18	**2.07**	2.2	0.25	**1.69**	**2.71**	0.12
161	3467	09/05/18	**2.21**	2.2	0.26	**1.68**	**2.71**	0.12
162	3480	10/05/18	**2.13**	2.2	0.26	**1.68**	**2.71**	0.11
163	3496	11/06/18	**1.79**	2.2	0.25	**1.68**	**2.68**	0.12
164								
165								

REFERENCE TOXICANT DATA SHEET

Client	QA / QC	Reference Toxicant	NaCl	Test Begin: Date 11-9-18	Time 1120
Test Organism	*Pimephales promelas*	Stock Solution	20 g/L	Test End: Date 11-11-18	Time 1300
Source	Aquatox	Solvent	Milli-Q water	Reagent Log ID # 2 B70 -01	
ID#	FHM 2017	*Dilution Water Type	Recon MH (FHM)	Dilution Water ID# 4747	
Age	4 days	Total Hardness as $CaCO_3$	83	Total Alkalinity as $CaCO_3$ 66	
Feeding:	none	Conductivity (µmhos/cm)	282	Temperature (°C) 20 ± 1 °C	
Test Chamber Size	800 ml	Technician	0 hr MB	24 hr MB	48 hr BAm
Volume per Replicate	750 ml	Time	0 hr 1120	24 hr 0855	48 hr 1300
		Therm. ID #	0 hr 256	24 hr 255	48 hr 255

Toxicant Concentration (g/L)	Test Chamber Number	Number of Live Organisms			Dissolved Oxygen (mg/l)			pH			Temperature (°C)			Conductivity (µS)		
		0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control	A	10	10	10	7.6	7.8	7.5	8.3	7.7	7.5	20.7	20.6	20.6	303		314
4.0	A	10	10	10	7.6	7.9	7.8	8.2	7.4	7.5	20.6	20.5	20.5	6100		6280
6.0	A	10	10	6	7.7	7.9	7.8	8.2	7.5	7.6	20.6	20.5	20.5	9040		9300
8.0	A	10	3	1	7.9	8.0	8.0	8.2	7.5	7.7	20.6	20.5	20.5	11900		12230
10.0	A	10	0	—	7.9	8.1	—	8.2	7.5	—	20.6	20.4	—	14270	13910	—
12.0	A	10	0	—	8.0	8.0	—	8.2	7.5	—	20.6	20.4	—	17090	16910	—
Test Acceptability Criteria:		Survival in Controls: > or = 90%			(@ 20°C): >4.0 and <9.1			pH: > 6.0 and < 9.0			Temperature ± 1 °C					

*Dilution Water Code
Recon. - reconstituted water
S - soft
MH - moderately hard
H - hard
Art. Sea - Artificial Sea Water

48 Hour LC_{50} 6.2

Cusum Chart Limits 6.1 to 8.4

Statistical Method Spearman-Kärber

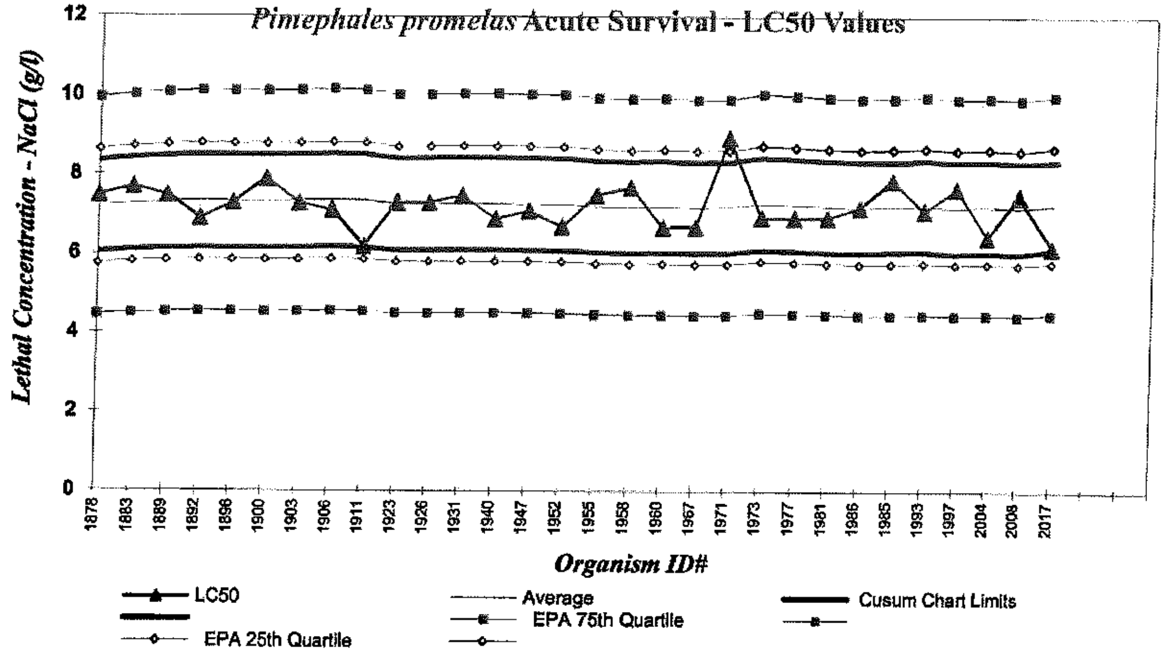
We verify this data is true and correct.

Task Manager [signature]

Project Manager [signature]

QA Officer Kathy Mercado

REFERENCE TOXICANT CUMLATIVE SUMMARY (CUSUM) CHART



Pimephales promelas - ACUTE (EPA Test Method 2000.0)

SODIUM CHLORIDE (g/L)

Organism age: 1 to 14 days
Endpoint: 48 hour Survival
Stats Method: Probit, Spearman-Karber, Linear Interpolation
Test Conditions: Recon MH, 20 oC

From EPA 833-R-00-003:

10th Quartile CV (*control limit*) =	0.08
25th Quartile CV (*warning limit*) =	0.10
75th Quartile CV (*warning limit*) =	0.19
90th Quartile CV (*control limit*) =	0.33

Intralab CV is compared to EPA Warning limits (25th and 75th CV's) and Control limits (10th and 90th CV's). If lab CV is outside EPA Control limits, the EPA Control limits are used to set Cusum chart limits.

Event #	FHM ID #	Test Start Date	LC50	Running Average	Running SD	Cusum Chart Limits AVG-2SD	AVG+2SD	Intralab CV
909	1960	1/20/2018	**6.7**	7.2	0.42	**6.1**	**8.4**	0.06
910	1967	2/6/2018	**6.7**	7.2	0.44	**6.0**	**8.3**	0.06
911	1971	3/6/2018	**8.9**	7.2	0.42	**6.0**	**8.3**	0.08
912	1973	3/16/2018	**6.9**	7.3	0.57	**6.1**	**8.4**	0.08
913	1977	4/4/2018	**6.9**	7.3	0.58	**6.1**	**8.4**	0.08
914	1981	5/2/2018	**6.9**	7.2	0.57	**6.1**	**8.4**	0.08
915	1986	6/6/2018	**7.2**	7.2	0.57	**6.0**	**8.3**	0.08
916	1985	6/1/2018	**7.9**	7.2	0.57	**6.1**	**8.3**	0.08
917	1993	7/10/2018	**7.1**	7.2	0.58	**6.1**	**8.4**	0.08
918	1997	8/1/2018	**7.7**	7.2	0.56	**6.0**	**8.3**	0.08
919	2004	9/5/2018	**6.5**	7.2	0.57	**6.1**	**8.4**	0.08
920	2008	10/5/2018	**7.5**	7.2	0.60	**6.0**	**8.3**	0.08
921	2017	11/9/2018	**6.2**	7.2	0.55	**6.1**	**8.4**	0.08
922								
923								

APPENDIX C

CHAIN OF CUSTODY

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY RECORD FOR NPDES COMPLIANCE BIOMONITORING

Client: JACOBS (CH2MHILL)
Address: 1100 112TH AVE NE SUITE 500
BELLEVUE, WA. 98004

Contact Person: RACHEL CHANG
Phone: 425-453-5000

Project #: 463384.DL.01

NPDES#:
Composite Sample Information:
Samples/Hour: 1 Volume/Sample: 2.0
Total Hours: 1 Total Volume: 2.0
Initiated: Date 10/31 Time 10:38
Ended: Date 10/31 Time 10:40
Chilled During Collection:

Ship Samples to:
PO#

TestAmerica ASL
Attention: Aquatic Toxicology Laboratory
1100 NE Circle Blvd, Suite 310
Corvallis, OR 97330
Phone: 541.243.6137

Check Chlorine (Y/N): N
Temp. Upon Arrival (°C):
Check Ammonia (Y/N): Dechlorinated (Y/N):

Analysis Required / Comments

Sample ID	Date	Time	Sample Type: Comp.	Sample Type: Grab	# of Containers	Lab ID#	Fathead Acute	Fathead Chronic	Cerio Acute	Cerio Chronic	Daphnia Acute	Trout Acute	SHM Acute	SHM Chronic	MB Acute	MB Chronic	MYS Acute	MYS Chronic	Algae	Haz Waste				Concentration and/or Comments
G-NPDES-7-103118	10/31/2018	10:38		✓	1	B4140-01	✓				✓													

Sampled By & Title (Please sign and print name)	Date/Time	Relinquished By (Please sign and print name)	Date/Time
MARIO LOPEZ RAMOS	10/31/2018 10:38	MARIO LOPEZ RAMOS	10/31/2018 1115
Received By (Please sign and print name) TA-AS Michelle Bonnett	Date/Time 11-1-18 1040	Relinquished By (Please sign and print name)	Date/Time
Received By (Please sign and print name)	Date/Time	Relinquished By (Please sign and print name)	Date/Time
Received By (Please sign and print name)	Date/Time	Shipped Via: UPS Bis Fed-Ex Hand Other	Shipping #
Work Authorized By (Please sign and print name)	Remarks: Graymont		

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Receipt Record

Batch Number: B4140-01 Date Received: 11-1-18

Client/Project: Jacobs/Graymont Received By: MB

Were custody seals intact?	☒ Yes	☐ No	☐ N/A
Packing Material:	☒ Ice	☐ Blue Ice	☐ Box
Temp OK? (<6°C) Therm ID: TH173 Expires: 01/16/2019 Observed: 0.3 °C, Actual Temp: 2.5 °C	☒ Yes	☐ No	☐ N/A
Was a Chain of Custody (CoC) Provided?	☒ Yes	☐ No	☐ N/A
Was the CoC correctly filled out? (If No, document below)	☒ Yes	☐ No	☐ N/A
Were the sample containers in good condition (not broken or leaking)?	☒ Yes	☐ No	☐ N/A
Are all samples within 36 hours of collection?	☒ Yes	☐ No	☐ N/A

Method of Shipment: ☐ Hand Delivered, ☒ FedEx, ☐ UPS, ☐ Greyhound, ☐ Other: ________ ☐ N/A

Sample Exception Report (The following exceptions were noted)

ORIGIN ID:TCMA (206) 380-3056
MARIO LOPEZRAMOS
4381 249TH AVE SE
ISSAQUAH, WA 98029
UNITED STATES US

SHIP DATE: 31OCT18
ACTWGT: 56.40 LB
CAD: 006995068/SSFE1922
DIMS: 24x13x13 IN
BILL CREDIT CARD

TO AQUATIC TOXICOLOGY LABORATORY
TEST AMERICA ASL
1100 NE CIRCLE BLVD STE 310
463384-04-01
CORVALLIS OR 97330
(541) 243-6137 REF:
INV:
PO: DEPT:

FedEx Express

E

REL# 3785346

THU - 01 NOV 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7835 3806 8569

97330
OR-US PDX

86 CVOA

Client was no

Resolution to

Bioassay Receipt verification (ASL933-0918).xlsx
Doc Control ID: ASL933-0918

eurofins

Environment Testing
TestAmerica

AQUATIC TOXICOLOGY REPORT

Project Name: GRAYMONT WESTERN US, Inc.

Location: TACOMA, WASHINGTON

c/o JACOBS

Prepared by

TestAmerica Laboratories, Inc.

TestAmerica Corvallis
1100 NE Circle Boulevard, Suite 310
Corvallis, Oregon 97330
541-243-6137

Oregon Environmental Laboratory Accreditation Program #OR100022
State of Washington DOE Environmental Laboratory Accreditation Program, Lab ID C556
California State Environmental Laboratory Accreditation Program, Certificate No.: 1726

Report Date: February 7, 2019 Released by: Brett Muckey

Lab I.D. No. B4214

CONTENTS

LABORATORY CONTACT: Brett Muckey, Aquatic Toxicity Department Manager
brett.muckey@testamericainc.com (541) 243-0976

INTRODUCTION

TestAmerica Laboratories, Inc. (TAL) – Corvallis Aquatic Toxicology Laboratory (formerly TestAmerica ASL) conducted toxicity testing on sample(s) from Graymont Western US, Inc. in Tacoma, Washington.

Testing was conducted on behalf of: Jacobs – Bellevue, WA

The Project Name was: Graymont NPDES

Testing was initiated on: January 17, 2019.

The test(s) were conducted using:

- the water flea (*Ceriodaphnia dubia*)
- the fathead minnow (*Pimephales promelas*)

SUMMARY OF TEST RESULTS

Exhibit 1 provides a summary of the final test results.

EXHIBIT 1
Summary of Acute Test Results

Species	**NOEC (%)**	**LOEC (%)**	**LC_{50} (%)**
C. dubia	100	> 100	> 100
P. promelas	100	> 100	> 100

Note: acronyms are as defined below.

More detailed information is provided in the Results and Discussion section.

ACRONYM DEFINITIONS (from EPA guidance):

NOEC = No Observed Effect Concentration: The highest test concentration that causes no observable adverse effects on the test organisms (i.e. no statistically significant reduction from the control).
LOEC = Low Observed Effect Concentration: The lowest test concentration that does cause an observable adverse effect on the test organisms (i.e. is statistically significant reduction from the control).
LC_{50} = Lethal Concentration (50%): A point estimate of the test concentration that would cause death in 50 percent of the test population.

SAMPLE INFORMATION

Exhibit 2 provides a summary of the sample conditions as received.

EXHIBIT 2
Sample Conditions on Receipt

Sample ID	**G-NPDES-1-01162019**
TA- SDG	B4216
Collection - Date and Time	01/16/2019 13:25
Receipt - Date and Time	01/17/2019 10:35
Temperature (°C)	2.6
Dissolved Oxygen (mg/L)	9.6
pH	7.4
Conductivity (µS/cm)	695
Total Residual Chlorine (mg/L)	< 0.02
Ammonia (mg/L as NH_3-N)	0.22
Total Hardness (mg/L as $CaCO_3$)	230
Total Alkalinity (mg/L as $CaCO_3$)	25

METHODS AND MATERIALS

TEST METHODS

The acute test methods were performed according to: *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, USEPA Office of Water (2002), EPA-821-R-02-012.

Additional guidance was provided by:

- *Whole Effluent Toxicity Testing Guidance and Test Review Criteria*, Washington State Department of Ecology (revised Jun 2016) Pub# WQ-R-95-80.

DEVIATIONS FROM PROTOCOLS

Deviations from <u>required</u> procedures in the test methods:

- None noted.

Deviations from <u>recommended</u> procedures in the test methods:

- None noted

TEST DESIGN

The following summarizes the conditions used for both overall testing and the specifics for each test (observations and notations can be found on the datasheets in Appendix A):

<u>Overall Test Design:</u>

- Acute tests: 6.25, 12.5, 25, 50, and 100 percent sample + dilution water for the control.

<u>Test Organism Conditions:</u>

- All organisms tested were fed and maintained during culturing, acclimation, and testing as prescribed by the EPA (2002).
- The test organisms appeared vigorous and in good condition prior to testing.

<u>*C. dubia* acute test:</u>

- Source: TAL's in-house cultures
- Age: Less than 24 hours old
- Design: Four test vessels per concentration, five organisms per vessel
- Test Solution Renewal: None (i.e. static test)
- Monitoring:
    - Daily: Survival, DO, pH, and temperature; all concentrations.
    - Test Initiation and Termination: Conductivity, all concentrations
- Termination: 48 hours.
- Endpoints: Survival (at termination)

<u>*P. promelas* acute test:</u>

- Source: Aquatox Inc., Hot Springs, Arkansas
- Age: 1 to 14 days old, within a 24 hour age range
- Design: Four test vessels per concentration, Ten organisms per vessel
- Test Solution Renewal: Once @ 48 hours (i.e. static-renewal test)
- Monitoring:
    - Daily: Survival, DO, pH, and temperature; all concentrations.
    - Pre and Post Renewal solutions: DO and pH, all concentrations.
    - Test Initiation, with each new sample use, and Termination: Conductivity, all concentrations
- Termination: 96 hours.
- Endpoints: Survival (at termination)

DILUTION WATER

The dilution water used was the standard culture water used by TAL:

- Reconstituted, moderately hard water (as per EPA protocol) with a total hardness of 80 to 100 mg/L as $CaCO_3$ and an alkalinity of 60 to 70 mg/L as $CaCO_3$.

SAMPLE COLLECTION AND STORAGE

Samples were collected by Jacobs's personnel. The samples were accepted as scheduled by TAL. Chain of Custody and Sample Receipt Records are provided in Appendix C.

- All samples were received within the EPA recommended 0 to 6 °C range.
- All samples were received within the WDOE required 0 to 8 °C range.
- All samples were initially used for test initiation or test solution renewal within the EPA recommended maximum holding time of 36 hours of sample collection.
- All subsequent uses of a sample occurred within the EPA recommended maximum holding time of 72 hours past the time of initial use of that sample.
- All subsequent uses of a sample occurred within the WDOE recommended maximum holding time of 72 hours past the time of sample collection.
- Following receipt, the samples were stored in the dark at 0 to 6 °C until test solutions were prepared and tested.

SAMPLE PREPARATION

Samples used during these tests were:

- Temperature adjusted prior to test initiation and each daily renewal.

DATA ANALYSIS

The statistical analyses performed for the acute tests were those outlined in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, USEPA Office of Water, Fifth Edition (2002), EPA-821-R-02-012, using CETIS.

- The specific statistical analysis and CETIS version used for each endpoint evaluation is listed with the statistical outputs included with each test in Appendix A.
- If any additional analysis methods were also used, an explanation of the rationale and reference to the source method is included with the presentation of those results below.

Additional guidance was provided by:

- *Whole Effluent Toxicity Testing Guidance and Test Review Criteria*, Washington State Department of Ecology (revised Jun 2016) Pub# WQ-R-95-80.

RESULTS AND DISCUSSION

The raw data sheets for all tests are presented in Appendix A.

ACUTE BIOASSAYS

Table 1 summarizes the survival data for the *C. dubia* acute test.

Table 1 **Summary of Acute Results** ***C. dubia***	
Sample Concentration (%)	**Percent Survival (at Test Termination)**
Control	100
6.25	100
12.5	100
25.0	100
50	100
100	100

Statistical analysis in accordance with the EPA protocol and WDOE guidance results in:

- NOEC = 100 %
- LOEC > 100 %
- LC_{50} > 100 %

From the NPDES permit: There is No Permit Limit for Acute Toxicity.

Dissolved oxygen concentrations remained at 4.0 mg/L or greater throughout the test period. Test temperatures remained in the range of 20±1 °C.

The *C. dubia* acute test meets Test Acceptability Criteria (TAC) of a minimum 90 percent control survival. Unless referenced above, the tests proceeded without any noted deviations or interruptions that could have affected test results. The testing should be considered "valid".

Table 2 summarizes the survival data for the *P. promelas* acute test.

Table 2 **Summary of Acute Results** ***P. promelas***	
Sample Concentration (%)	**Percent Survival (at Test Termination)**
Control	100
6.25	100
12.5	100
25.0	100
50	100
100	100

Statistical analysis in accordance with the EPA protocol and WDOE guidance results in:

- NOEC = 100 %
- LOEC > 100 %
- LC_{50} > 100 %

From the NPDES permit: There is No Permit Limit for Acute Toxicity.

Dissolved oxygen concentrations remained at 4.0 mg/L or greater throughout the test period. Test temperatures remained in the range of 20±1 °C.

The *P. promelas* acute test meets Test Acceptability Criteria (TAC) of a minimum 90 percent control survival. Unless referenced above, the tests proceeded without any noted deviations or interruptions that could have affected test results. The testing should be considered "valid".

REFERENCE TOXICANT TESTS

Reference toxicant (reftox) testing is performed to document both initial and ongoing laboratory performance of the test method(s). While the health of the test organisms is primarily evaluated by the performance of the laboratory control, reftox test results also may be used to assess the health and sensitivity of the test organisms. Reftox test results within their respective cumulative summary (Cusum) chart limits are indicative of consistent laboratory performance and normal test organism sensitivity.

The results of the reftox tests indicate that the test organisms were within their respective cusum chart limits based on EPA guidelines. This demonstrates ongoing laboratory proficiency of the test methods and suggests normal test organism sensitivity in the associated client testing.

The *P. promelas* and *C. dubia* acute reftox test was conducted using sodium chloride.

The data sheets for the reference toxicant tests are provided in Appendix B.

Table 3 summarizes the reference toxicant test results and Cusum chart limits.

Table 3
Acute Reference Toxicant Tests (g/L)

Species	LC_{50}	Cusum Chart Limits
C. dubia	2.13	1.71 to 2.67
P. promelas	7.5	6.0 to 8.4

APPENDIX A

RAW DATA SHEETS

TestAmerica

FRESHWATER TOXICITY TEST: SAMPLE AND DILUTION WATER DATA

Client: Graymont Western

Contact: Rachel Chang (425) 233 - 3326

SDG # B 4216

Test Initiation: Date 1-17-19

Test Termination: Date 1-21-19

Sample ID Number	Field ID	Collected Date (mm/dd/yy)	Collected Time (Pacific Zone)	Received Date (mm/dd/yy)	Received Time (Pacific Zone)	Temp (°C) as Rc'vd	Total Residual Chlorine (mg/l) ☐ Dechlorination allowed as Rc'vd / after Dechlor.	Ammonia NH_3-N mg/l as Rc'vd	Hardness mg/l as $CaCO_3$ as Rc'vd	Alkalinity mg/l as $CaCO_3$ as Rc'vd	DO (mg/L) as Rc'vd	pH as Rc'vd	Cond. (uS) as Rc'vd	60 um filtered? (organisms noted)
B4216 -01	G-NPDES-1-0116219	1/16/19	13:25	1/17/19	10:23	2.6	<0.02 / -	0.22	230	25	9.6	7.4	695	☐ WB
							/							
							/							
							/							
							/							
							/							
							/							
							/							
							/							
							/							
				Reporting Limits:		na	0.02 mg/L	0.10 mg/L	5 mg/L	5 mg/L	na	na	na	na

Note: "–" Indicates data collection or dechlorination not needed. Any other adjustments to samples prior to use are documented in Comments below or on Dilutions page.

Dilution Water	ID#	Hardness mg/l as $CaCO_3$	Alkalinity mg/l as $CaCO_3$
Recon MH (FHM)	4785	92	70

Comments: ☑ Indicates the action was taken, (☐= action not taken): " – " = sample not dechlorinated, or analyte not collected/needed.

Water Quality Meters Used/ID#: Dissolved Oxygen #4 pH #11 Conductivity #2

TestAmerica

FRESHWATER TOXICITY TEST: TEST ORGANISM INFORMATION

Client Graymont Western

Sample Designation (SDG): B 42116

Test Species Information	Cd # 3615 *Ceriodaphnia dubia* Acute	FHM # 2026 *Pimephales promelas* Acute			
Organism Age at Initiation	< 24 hrs	2 Days, within a 24 hour window			
Test Container Size	30 ml	400 ml			
Test Volume	25 ml	250 ml			
Feeding: Type and Amount	Algae and YCT during acclimation	0.15 ml *Artemia*, @ 48 hrs			
Aeration: In Test Chambers via Slow Bubble :	☒ None ☐ Prior to use	☒ None ☐ Prior to use ☐ @ ______ hrs			
Acclimation Period	<24 hrs	<24 hrs			
Organism Source	In-House	Aquatox			
Size	-	-			
Loading Rate	-	-			

Dissolved Oxygen aeration justifications (in test chambers):

Test(s): ☐ All ☐ ____________________

Date:

Comments:

Test Solution Preparation and Dilution Record

Client: Graymont Western

Note: ☐ Indicates task not done, ☑ Indicates task was done. Temp adj. = Temperature adjusted to ambient or test temp

Ditto marks (' ') indicate that the same SDG, batch of dilution water, or food as the previous day's entry was used.

Ceriodaphnia dubia - Acute

Test Concentration (%)	Sample Volume (mls)		Final Volume (mls)
Control	0.00	→	200
6.25	12.5	→	200
12.5	25.0	→	200
25	50.0	→	200
50	100	→	200
100	200	→	200

Test Day	Sample ID Used	Daily Sample Preparation (prior to dilution)	Dilution Water Used	Date	Time	Initials
0 (Initiation)	B4216 - 01	☐ Temp adj, ☐ Aerated	ID # 4785	1/17/2019	10:50	MB

Total Sample volume needed per day = 388 mls

Fathead minnow - Acute

Test Concentration (%)	Sample Volume (mls)		Final Volume (mls)
Control	0.00	→	1000
6.25	62.5	→	1000
12.5	125	→	1000
25	250	→	1000
50	500	→	1000
100	1,000	→	1000

Test Day	Sample ID Used	Daily Sample Preparation (prior to dilution)	Dilution Water Used	Date	Time	Initials
0 (Initiation)	B4216 - 01	☐ Temp adj, ☐ Aerated	ID # 4785	1/17/2019	10:50	MB
2	B | -01	☐ Temp adj, ☐ Aerated	ID # 4785	1/19/2019	08:30	[illegible]

Total Sample volume needed per day = 1938 mls

TestAmerica

48 HOUR FRESHWATER TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Client: Graymont Western   Sample ID #: B 4216-01   Beginning, Date: 1-17-19   Time: 1310

Sample Description: Ending, Date: 1-19-19   Time: 1115

	0 hr	24 hr	48 hr
Technician	UB	UB	UB
Time	1310	1055	1115
Therm. ID#	#252	#252	#250

Random Template Used: Whiskey Cup random # 65   Waterbath/Incubator Used: # 10

Test Species: *Ceriodaphnia dubia*   ID#: Cd 3515

Percent	Test Container Number	Number of Live Organisms 0	24	48	Dissolved Oxygen (mg/l) 0	24	48	pH 0	24	48	Temperature (°C) 0	24	48	Conductivity (µmhos/cm) 0	24	48
Control	Surrogate					7.6			7.3			20.4				
	A	5	5	5	8.7		8.2	7.7		7.3	20.3		20.5	340		339
	B	5	5	5												
	C	5	5	5												
	D	5	5	5												
6.25	Surrogate					7.6			7.4			20.5				
	A	5	5	5	8.6		8.5	7.7		7.4	20.4		20.6	370		370
	B	5	5	5												
	C	5	5	5												
	D	5	5	5												
12.5	Surrogate					7.7			7.4			20.5				
	A	5	5	5	8.6		8.5	7.8		7.5	20.4		20.6	393		391
	B	5	5	5												
	C	5	5	5												
	D	5	5	5												
25	Surrogate					7.8			7.5			20.4				
	A	5	5	5	8.7		8.5	7.8		7.4	20.4		20.6	420		434
	B	5	5	5												
	C	5	5	5												
	D	5	5	5												
50	Surrogate					7.8			7.4			20.3				
	A	5	5	5	8.7		8.5	7.7		7.3	20.3		20.7	520		513
	B	5	5	5												
	C	5	5	5												
	D	5	5	5												
100	Surrogate					7.9			7.4			20.2				
	A	5	5	5	8.9		8.6	7.7		7.3	20.2		20.6	690		680
	B	5	5	5												
	C	5	5	5												
	D	5	5	5												

Note: Use surrogate test chamber to determine temperature, DO, pH, and Conductivity measurements @ 24 hrs (to avoid injuring the organisms).

CETIS Summary Report

Report Date: 30 Jan-19 13:40 (p 1 of 1)
Test Code: B421601cda | 05-1851-8673

Ceriodaphnia 48-h Acute Survival Test — **TestAmerica - ASL**

Batch ID:	14-8916-2016	**Test Type:**	Survival (48h)	**Analyst:**	Michelle Bennett
Start Date:	17 Jan-19 13:10	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	19 Jan-19 11:15	**Species:**	Ceriodaphnia dubia	**Brine:**	
Duration:	46h	**Source:**	In-House Culture	**Age:**	<24H

Sample ID:	02-2392-2656	**Code:**	B4216-01	**Client:**	
Sample Date:	16 Jan-19 13:25	**Material:**	Unknown	**Project:**	
Receive Date:	17 Jan-19 10:35	**Source:**	Graymont Western (WA0001007)		
Sample Age:	24h (2.6 °C)	**Station:**			

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
19-9092-8973	48h Survival Rate	100	>100	NA	NA	1	Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
20-1462-3325	48h Survival Rate	EC50	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
19-9092-8973	48h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria ✓
20-1462-3325	48h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria ✓

✓ ß

48h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Dilution Water	4	1	1	1	1	1	0	0	0.0%	0.0%
6.25		4	1	1	1	1	1	0	0	0.0%	0.0%
12.5		4	1	1	1	1	1	0	0	0.0%	0.0%
25		4	1	1	1	1	1	0	0	0.0%	0.0%
50		4	1	1	1	1	1	0	0	0.0%	0.0%
100		4	1	1	1	1	1	0	0	0.0%	0.0%

48h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	1	1	1	1
6.25		1	1	1	1
12.5		1	1	1	1
25		1	1	1	1
50		1	1	1	1
100		1	1	1	1

48h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	5/5	5/5	5/5	5/5
6.25		5/5	5/5	5/5	5/5
12.5		5/5	5/5	5/5	5/5
25		5/5	5/5	5/5	5/5
50		5/5	5/5	5/5	5/5
100		5/5	5/5	5/5	5/5

CETIS Analytical Report

Ceriodaphnia 48-h Acute Survival Test			TestAmerica - ASL
Analysis ID: 19-9092-8973	**Endpoint:** 48h Survival Rate	**CETIS Version:** CETISv1.8.8	
Analyzed: 30 Jan-19 13:39	**Analysis:** Nonparametric-Control vs Treatments	**Official Results:** Yes	

Batch ID: 14-8916-2016	**Test Type:** Survival (48h)	**Analyst:** Michelle Bennett
Start Date: 17 Jan-19 13:10	**Protocol:** EPA/821/R-02-012 (2002)	**Diluent:** Mod-Hard Synthetic Water
Ending Date: 19 Jan-19 11:15	**Species:** Ceriodaphnia dubia	**Brine:**
Duration: 46h	**Source:** In-House Culture	**Age:** <24H

Sample ID: 02-2392-2656	**Code:** B4216-01	**Client:**
Sample Date: 16 Jan-19 13:25	**Material:** Unknown	**Project:**
Receive Date: 17 Jan-19 10:35	**Source:** Graymont Western (WA0001007)	
Sample Age: 24h (2.6 °C)	**Station:**	

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	100	>100	NA	1

Steel Many-One Rank Sum Test

Control	vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Dilution Water		6.25	18	10	1	6	0.8333	Asymp	Non-Significant Effect
		12.5	18	10	1	6	0.8333	Asymp	Non-Significant Effect
		25	18	10	1	6	0.8333	Asymp	Non-Significant Effect
		50	18	10	1	6	0.8333	Asymp	Non-Significant Effect
		100	18	10	1	6	0.8333	Asymp	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	5	65540	<0.0001	Significant Effect
Error	0	0	18			
Total	0		23			

48h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Dilution Water	4	1	1	1	1	1	1	0	0.0%	0.0%
6.25		4	1	1	1	1	1	1	0	0.0%	0.0%
12.5		4	1	1	1	1	1	1	0	0.0%	0.0%
25		4	1	1	1	1	1	1	0	0.0%	0.0%
50		4	1	1	1	1	1	1	0	0.0%	0.0%
100		4	1	1	1	1	1	1	0	0.0%	0.0%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Dilution Water	4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
6.25		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
12.5		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
25		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
50		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%
100		4	1.345	1.345	1.346	1.345	1.345	1.345	0	0.0%	0.0%

Ceriodaphnia 48-h Acute Survival Test			**TestAmerica - ASL**
Analysis ID: 19-9092-8973	**Endpoint:** 48h Survival Rate	**CETIS Version:** CETISv1.8.8	
Analyzed: 30 Jan-19 13:39	**Analysis:** Nonparametric-Control vs Treatments	**Official Results:** Yes	

48h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	1	1	1	1
6.25		1	1	1	1
12.5		1	1	1	1
25		1	1	1	1
50		1	1	1	1
100		1	1	1	1

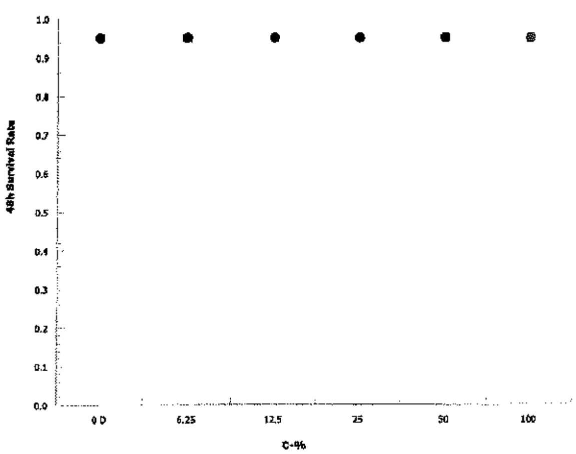
Angular (Corrected) Transformed Detail

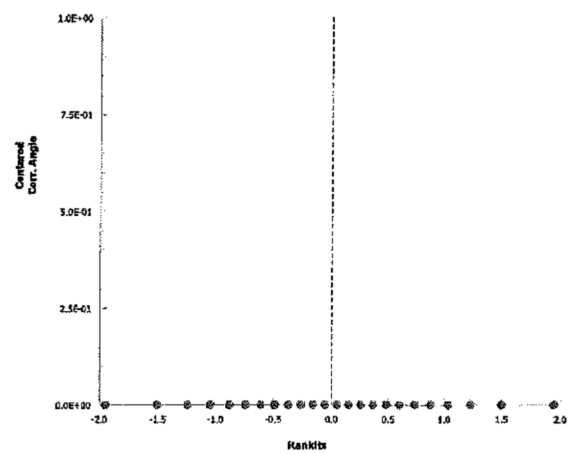
C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	1.345	1.345	1.345	1.345
6.25		1.345	1.345	1.345	1.345
12.5		1.345	1.345	1.345	1.345
25		1.345	1.345	1.345	1.345
50		1.345	1.345	1.345	1.345
100		1.345	1.345	1.345	1.345

48h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	5/5	5/5	5/5	5/5
6.25		5/5	5/5	5/5	5/5
12.5		5/5	5/5	5/5	5/5
25		5/5	5/5	5/5	5/5
50		5/5	5/5	5/5	5/5
100		5/5	5/5	5/5	5/5

Graphics





CETIS Analytical Report

Report Date: 30 Jan-19 13:40 (p 1 of 2)
Test Code: B421601cda | 05-1851-8673

Ceriodaphnia 48-h Acute Survival Test — TestAmerica - ASL

Analysis ID:	20-1462-3325	**Endpoint:**	48h Survival Rate	**CETIS Version:**	CETISv1.8.8
Analyzed:	30 Jan-19 13:40	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	14-8916-2016	**Test Type:**	Survival (48h)	**Analyst:**	Michelle Bennett
Start Date:	17 Jan-19 13:10	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	19 Jan-19 11:15	**Species:**	Ceriodaphnia dubia	**Brine:**	
Duration:	46h	**Source:**	In-House Culture	**Age:**	<24H

Sample ID:	02-2392-2656	**Code:**	B4216-01	**Client:**	
Sample Date:	16 Jan-19 13:25	**Material:**	Unknown	**Project:**	
Receive Date:	17 Jan-19 10:35	**Source:**	Graymont Western (WA0001007)		
Sample Age:	24h (2.6 °C)	**Station:**			

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X+1)	Linear	831524	200	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC50	>100	N/A	N/A	<1	NA	NA

48h Survival Rate Summary

C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
							Calculated Variate(A/B)				
0	Dilution Water	4	1	1	1	0	0	0.0%	0.0%	20	20
6.25		4	1	1	1	0	0	0.0%	0.0%	20	20
12.5		4	1	1	1	0	0	0.0%	0.0%	20	20
25		4	1	1	1	0	0	0.0%	0.0%	20	20
50		4	1	1	1	0	0	0.0%	0.0%	20	20
100		4	1	1	1	0	0	0.0%	0.0%	20	20

48h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	1	1	1	1
6.25		1	1	1	1
12.5		1	1	1	1
25		1	1	1	1
50		1	1	1	1
100		1	1	1	1

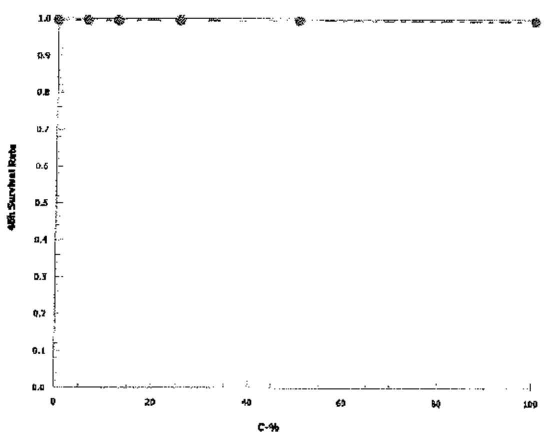
48h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	5/5	5/5	5/5	5/5
6.25		5/5	5/5	5/5	5/5
12.5		5/5	5/5	5/5	5/5
25		5/5	5/5	5/5	5/5
50		5/5	5/5	5/5	5/5
100		5/5	5/5	5/5	5/5

Ceriodaphnia 48-h Acute Survival Test — **TestAmerica - ASL**

Analysis ID:	20-1462-3325	**Endpoint:**	48h Survival Rate	**CETIS Version:**	CETISv1.8.8
Analyzed:	30 Jan-19 13:40	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



TestAmerica

96 HOUR FRESHWATER TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Random Template Used: 6 conc. x 4 reps. # 5

Sample Description

Client: Graymont Western

Test Species: *Pimephales promelas* ID# FHM 2026

Waterbath/Incubator Used: # 10

Initial Sample ID # B4216-01

Test Initiation Date: 1 / 17 / 2019 Time: 14 : 10

Termination Date: 1 / 21 / 2019 Time: 13 : 45

	0 hr	24 hr	48 hr	72 hr	96 hr
Technician	MB	MB	MB	MB	MB
Time	14 10	11 : 00	09 : 45	11 : 25	13 : 45
Therm. ID#	# 252	# 252	# 251	# 251	# 251

Percent	Test Container Number	Number of Live Organisms 0	24	48	72	96	Dissolved Oxygen (mg/l) 0	24	48	72	96	pH 0	24	48	72	96	Temperature (°C) 0	24	48	72	96	Conductivity (µmohs/cm) 0	24	48	72	96
Control	A	10	10	10	10	10	8.7	8.6	7.5/8.1	7.9	7.3	7.7	7.5	7.5/7.8	7.5	7.2	20.3	20.6	20.5	20.5	20.5	340				355
	B	10	10	10	10	10																				
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				
6.25	A	10	10	10	10	10	8.6	8.0	7.7/8.1	7.9	7.5	7.7	7.6	7.5/7.7	7.5	7.3	20.4	20.5	20.4	20.4	20.5	370				368
	B	10	10	10	10	10																				
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				
12.5	A	10	10	10	10	10	8.6	8.0	7.8/8.1	7.9	7.6	7.8	7.6	7.5/7.7	7.5	7.3	20.4	20.5	20.4	20.3	20.5	393				390
	B	10	10	10	10	10																				
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				

TestAmerica

96 HOUR FRESHWATER TOXICITY TEST SURVIVAL AND WATER QUALITY DATA

Random Template Used: 6 conc. x 4 reps. # 5

Sample Description:

Client: Graymont Western

Test Species: *Pimephales promelas* ID# FHM 2026

Waterbath/Incubator Used: # 10

Initial Sample ID # B4216

Test Initiation Date: 1/17/2019 Time: 14:10

Termination Date: 1/21/2019 Time: 13:45

	0 hr	24 hr	48 hr	72 hr	96 hr
Technician	WB	WB	WB	WB	WB
Time	14:10	11:00	09:45	11:25	13:45
Therm. ID#	# 252	# 252	# 251	# 251	# 251

Percent	Test Container Number	Number of Live Organisms 0	24	48	72	96	Dissolved Oxygen (mg/l) 0	24	48	72	96	pH 0	24	48	72	96	Temperature (°C) 0	24	48	72	96	Conductivity (µmohs/cm) 0	24	48	72	96
25	A	10	10	10	10	10	8.7	7.9	7.9/8.2	8.0	7.7	7.8	7.6	7.6/7.7	7.5	7.3	20.4	20.6	20.3	20.4	20.3	420				455
	B	10	10	10	10	10																				
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				
50	A	10	10	10	10	10	8.7	7.9	8.0/8.3	8.3	7.8	7.7	7.6	7.5/7.7	7.4	7.3	20.4	20.5	20.4	20.4	20.4	520				537
	B	10	10	10	10	10																				
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				
100	A	10	10	10	10	10	8.9	7.9	8.0/8.4	8.4	7.9	7.7	7.5	7.5/7.6	7.3	7.2	20.2	20.5	20.4	20.4	20.4	690				695
	B	10	10	10	10	10																				
	C	10	10	10	10	10																				
	D	10	10	10	10	10																				

CETIS Summary Report

Report Date:	30 Jan-19 13:48 (p 1 of 1)
Test Code:	B421601ppa | 05-6484-9809

Fathead Minnow 96-h Acute Survival Test — **TestAmerica - ASL**

Batch ID:	18-7592-4371	**Test Type:**	Survival (96h)	**Analyst:**	Michelle Bennett
Start Date:	17 Jan-19 14:10	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	21 Jan-19 13:45	**Species:**	Pimephales promelas	**Brine:**	
Duration:	96h	**Source:**	Aquatox, AR	**Age:**	2 D

Sample ID:	02-2392-2656	**Code:**	B4216-01	**Client:**	
Sample Date:	16 Jan-19 13:25	**Material:**	Unknown	**Project:**	
Receive Date:	17 Jan-19 10:35	**Source:**	Graymont Western (WA0001007)		
Sample Age:	25h (2.6 °C)	**Station:**			

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
10-5261-8264	96h Survival Rate	100	>100	NA	NA	1	Steel Many-One Rank Sum Test

Point Estimate Summary

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
12-0641-1881	96h Survival Rate	EC50	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
10-5261-8264	96h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria
12-0641-1881	96h Survival Rate	Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Dilution Water	4	1	1	1	1	1	0	0	0.0%	0.0%
6.25		4	1	1	1	1	1	0	0	0.0%	0.0%
12.5		4	1	1	1	1	1	0	0	0.0%	0.0%
25		4	1	1	1	1	1	0	0	0.0%	0.0%
50		4	1	1	1	1	1	0	0	0.0%	0.0%
100		4	1	1	1	1	1	0	0	0.0%	0.0%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	1	1	1	1
6.25		1	1	1	1
12.5		1	1	1	1
25		1	1	1	1
50		1	1	1	1
100		1	1	1	1

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	10/10	10/10	10/10	10/10
6.25		10/10	10/10	10/10	10/10
12.5		10/10	10/10	10/10	10/10
25		10/10	10/10	10/10	10/10
50		10/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

CETIS Analytical Report

Fathead Minnow 96-h Acute Survival Test					TestAmerica - ASL
Analysis ID:	10-5261-8264	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.8
Analyzed:	30 Jan-19 13:47	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes
Batch ID:	18-7592-4371	**Test Type:**	Survival (96h)	**Analyst:**	Michelle Bennett
Start Date:	17 Jan-19 14:10	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	21 Jan-19 13:45	**Species:**	Pimephales promelas	**Brine:**	
Duration:	96h	**Source:**	Aquatox, AR	**Age:**	2 D
Sample ID:	02-2392-2656	**Code:**	B4216-01	**Client:**	
Sample Date:	16 Jan-19 13:25	**Material:**	Unknown	**Project:**	
Receive Date:	17 Jan-19 10:35	**Source:**	Graymont Western (WA0001007)		
Sample Age:	25h (2.6 °C)	**Station:**			

Data Transform	Zeta	Alt Hyp	Trials	Seed	NOEL	LOEL	TOEL	TU
Angular (Corrected)	NA	C > T	NA	NA	100	>100	NA	1

Steel Many-One Rank Sum Test

Control vs	C-%	Test Stat	Critical	Ties	DF	P-Value	P-Type	Decision(α:5%)
Dilution Water	6.25	18	10	1	6	0.8333	Asymp	Non-Significant Effect
	12.5	18	10	1	6	0.8333	Asymp	Non-Significant Effect
	25	18	10	1	6	0.8333	Asymp	Non-Significant Effect
	50	18	10	1	6	0.8333	Asymp	Non-Significant Effect
	100	18	10	1	6	0.8333	Asymp	Non-Significant Effect

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0	0	5	65540	<0.0001	Significant Effect
Error	0	0	18			
Total	0		23			

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Dilution Water	4	1	1	1	#Error	1	1	0	0.0%	0.0%
6.25		4	1	1	1	#Error	1	1	0	0.0%	0.0%
12.5		4	1	1	1	#Error	1	1	0	0.0%	0.0%
25		4	1	1	1	#Error	1	1	0	0.0%	0.0%
50		4	1	1	1	#Error	1	1	0	0.0%	0.0%
100		4	1	1	1	#Error	1	1	0	0.0%	0.0%

Angular (Corrected) Transformed Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Dilution Water	4	1.412	1.412	1.412	#Error	1.412	1.412	0	0.0%	0.0%
6.25		4	1.412	1.412	1.412	#Error	1.412	1.412	0	0.0%	0.0%
12.5		4	1.412	1.412	1.412	#Error	1.412	1.412	0	0.0%	0.0%
25		4	1.412	1.412	1.412	#Error	1.412	1.412	0	0.0%	0.0%
50		4	1.412	1.412	1.412	#Error	1.412	1.412	0	0.0%	0.0%
100		4	1.412	1.412	1.412	#Error	1.412	1.412	0	0.0%	0.0%

Fathead Minnow 96-h Acute Survival Test TestAmerica - ASL

Analysis ID:	10-5261-8264	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.8
Analyzed:	30 Jan-19 13:47	**Analysis:**	Nonparametric-Control vs Treatments	**Official Results:**	Yes

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	1	1	1	1
6.25		1	1	1	1
12.5		1	1	1	1
25		1	1	1	1
50		1	1	1	1
100		1	1	1	1

Angular (Corrected) Transformed Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.412	1.412	1.412	1.412
6.25		1.412	1.412	1.412	1.412
12.5		1.412	1.412	1.412	1.412
25		1.412	1.412	1.412	1.412
50		1.412	1.412	1.412	1.412
100		1.412	1.412	1.412	1.412

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	D	10/10	10/10	10/10	10/10
6.25		10/10	10/10	10/10	10/10
12.5		10/10	10/10	10/10	10/10
25		10/10	10/10	10/10	10/10
50		10/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Fathead Minnow 96-h Acute Survival Test — TestAmerica - ASL

Analysis ID:	12-0641-1881	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.8
Analyzed:	30 Jan-19 13:47	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Batch ID:	18-7592-4371	**Test Type:**	Survival (96h)	**Analyst:**	Michelle Bennett
Start Date:	17 Jan-19 14:10	**Protocol:**	EPA/821/R-02-012 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	21 Jan-19 13:45	**Species:**	Pimephales promelas	**Brine:**	
Duration:	96h	**Source:**	Aquatox, AR	**Age:**	2 D

Sample ID:	02-2392-2656	**Code:**	B4216-01	**Client:**	
Sample Date:	16 Jan-19 13:25	**Material:**	Unknown	**Project:**	
Receive Date:	17 Jan-19 10:35	**Source:**	Graymont Western (WA0001007)		
Sample Age:	25h (2.6 °C)	**Station:**			

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Log(X+1)	Linear	1996374	200	Yes	Two-Point Interpolation

Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1	0.9 - NL	Yes	Passes Acceptability Criteria

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
EC50	>100	N/A	N/A	<1	NA	NA

96h Survival Rate Summary

										Calculated Variate(A/B)	
C-%	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Dilution Water	4	1	1	1	0	0	0.0%	0.0%	40	40
6.25		4	1	1	1	0	0	0.0%	0.0%	40	40
12.5		4	1	1	1	0	0	0.0%	0.0%	40	40
25		4	1	1	1	0	0	0.0%	0.0%	40	40
50		4	1	1	1	0	0	0.0%	0.0%	40	40
100		4	1	1	1	0	0	0.0%	0.0%	40	40

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	1	1	1	1
6.25		1	1	1	1
12.5		1	1	1	1
25		1	1	1	1
50		1	1	1	1
100		1	1	1	1

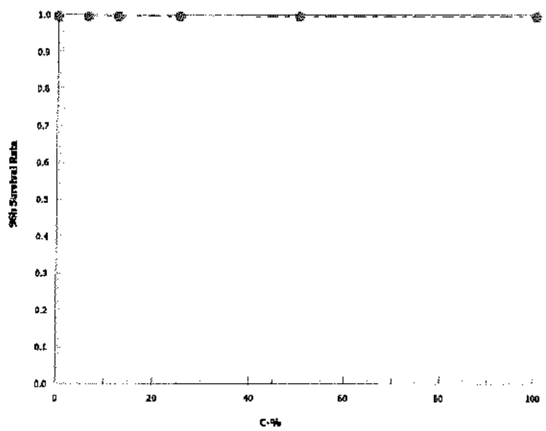
96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Dilution Water	10/10	10/10	10/10	10/10
6.25		10/10	10/10	10/10	10/10
12.5		10/10	10/10	10/10	10/10
25		10/10	10/10	10/10	10/10
50		10/10	10/10	10/10	10/10
100		10/10	10/10	10/10	10/10

Fathead Minnow 96-h Acute Survival Test	**TestAmerica - ASL**

Analysis ID:	12-0641-1881	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.8
Analyzed:	30 Jan-19 13:47	**Analysis:**	Linear Interpolation (ICPIN)	**Official Results:**	Yes

Graphics



APPENDIX B

REFERENCE TOXICANT DATA SHEETS

REFERENCE TOXICANT DATA SHEET

Client	QA / QC	Reference Toxicant	NaCl	Test Begin: Date 1-9-19	Time 1100
Test Organism	*Ceriodaphnia dubia*	Stock Solution	20 g/L	Test End: Date 1-11-19	Time 0955
Source	In-House culture	Solvent	Milli-Q water	Reagent Log ID # 2B070-01	
ID#	Cd 3510	*Dilution Water Type	Recon MH (FHM)	Dilution Water ID#	4777
Age	< 24 hours	Total Hardness as $CaCO_3$	95	Total Alkalinity as $CaCO_3$	70
Feeding:	none	Conductivity (µmhos/cm)	373	Temperature (°C)	20 ± 1 °C
Test Chamber Size	30 ml	Technician	0 hr MB / BAM	24 hr BAM	48 hr MB
Volume per Replicate	25 ml	Time	0 hr 1100	24 hr 0925	48 hr 0955
		Therm. ID #	0 hr 250	24 hr 250	48 hr 250

Toxicant Concentration (g/L)	Test Chamber Number	Number of Live Organisms			Dissolved Oxygen (mg/l)			pH			Temperature (°C)			Conductivity (µS)		
		0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control	A	5	5	5	8.3	—	7.7	8.0	—	7.6	20.3	20.6	20.5	343		339
	B	5	5	5												
1.0	A	5	~~4~~ 5	5	8.5	—	7.9	8.0	—	7.5	20.3	20.5	20.6	2270		2210
	B	5	5	5												
1.5	A	5	4	4	8.3	—	8.0	8.1	—	7.5	20.3	20.4	20.2	3210		3130
	B	5	5	5												
2.0	A	5	4	3	8.5	—	8.1	8.2	—	7.5	20.3	20.6	20.4	3930		3850
	B	5	5	4												
3.0	A	5	1	0	8.6	—	8.2	8.2	—	~~7~~ 7.5	20.3	20.6	20.4	5870		5710
	B	5	3	0												
4.0	A	5	0	—	8.6	8.3	—	8.3	7.7	—	20.3	20.6	—	7450	6960	—
	B	5	0	—												
Test Acceptability Criteria:		Survival in Controls: > or = 90%			(@ 20°C): >4.0 and <9.1			pH: > 6.0 and < 9.0			Temperature + 1 °C					

*Dilution Water Code

Recon.	- reconstituted water
S	- soft
MH	- moderately hard
H	- hard
Art. Sea	- Artificial Sea Water

48 Hour LC_{50}: 2.13

Cusum Chart Limits: 1.71 to 2.67

Statistical Method: Spearman-Kärber

We verify this data is true and correct.

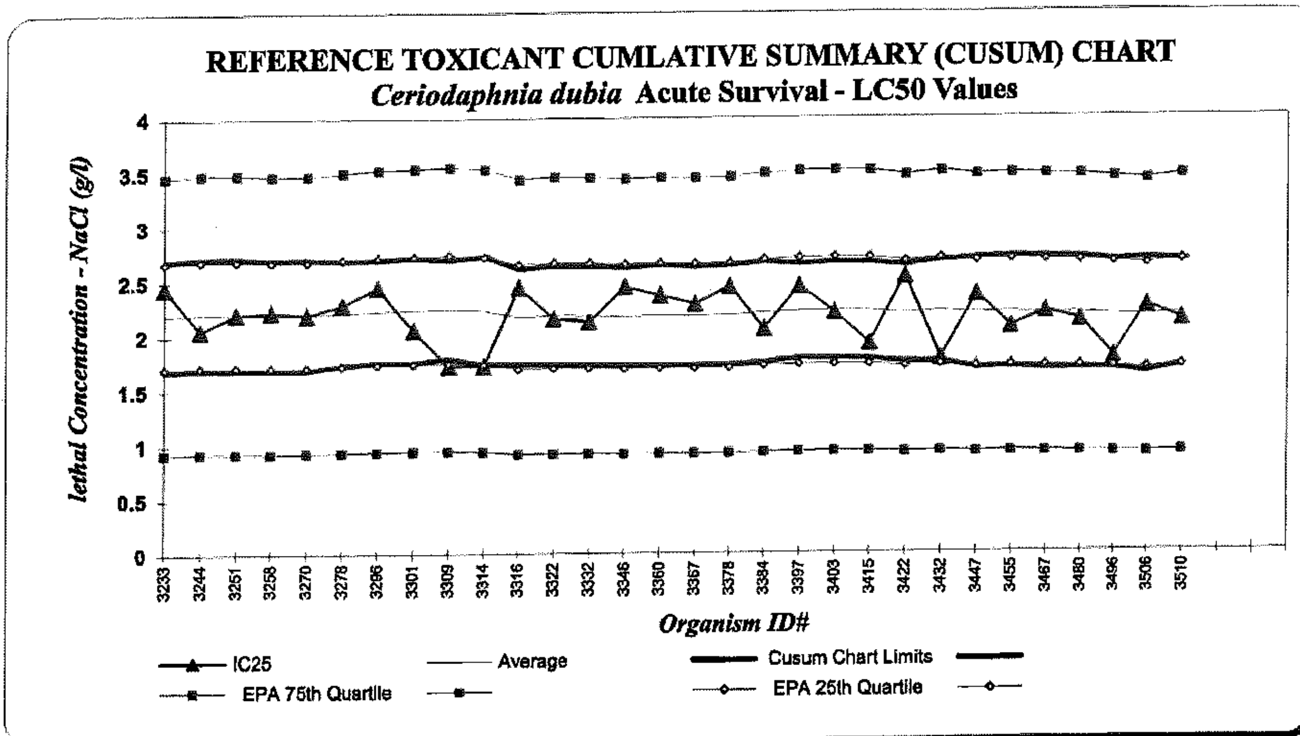
Task Manager: [signature]

Project Manager: [signature]

QA Officer: [signature] for Regan McMorris 1-17-19

REFTOX - Cerio acute

Doc Control ID: ASL670-0510



***Ceriodaphnia dubia* - ACUTE (EPA Test Method 2002.0)**

SODIUM CHLORIDE (g/L)

Endpoint: 48 hour Survival

Stats Method: Probit, Spearman-Karber, Linear Interpolation

Test Conditions: Recon MH, 20 oC

From EPA 833-R-00-003:

10th Quartile CV (*control limit*) = 0.06

25th Quartile CV (*warning limit*) = 0.11

75th Quartile CV (warning *limit*) = 0.29

90th Quartile CV (*control limit*) = 0.34

Intralab CV is compared to EPA ***Warning limits*** *(25th and 75th CV's) and* ***Control limits*** *(10th and 90th CV's).*

If lab CV is outside EPA Control limits, the EPA Control limits are used to set Cusum chart limits.

Event #	Cerio ID #	Test Start Date	LC50	Running Average	Running SD	Cusum Chart Limits AVG-2SD	AVG+2SD	Intralab CV
156	3415	04/09/18	**1.92**	2.2	0.22	**1.78**	**2.66**	0.10
157	3422	05/01/18	**2.54**	2.2	0.22	**1.75**	**2.64**	0.10
158	3432	06/01/18	**1.78**	2.2	0.23	**1.75**	**2.68**	0.11
159	3447	07/24/18	**2.37**	2.2	0.25	**1.69**	**2.70**	0.12
160	3455	08/07/18	**2.07**	2.2	0.25	**1.69**	**2.71**	0.12
161	3467	09/05/18	**2.21**	2.2	0.26	**1.68**	**2.71**	0.12
162	3480	10/05/18	**2.13**	2.2	0.26	**1.68**	**2.71**	0.11
163	3496	11/06/18	**1.79**	2.2	0.25	**1.68**	**2.68**	0.12
164	3506	12/19/18	**2.26**	2.2	0.26	**1.64**	**2.69**	0.11
165	3510	01/09/19	**2.13**	2.2	0.24	**1.71**	**2.67**	0.10
166								
167								

REFERENCE TOXICANT DATA SHEET

Client: QA / QC
Test Organism: *Pimephales promelas*
Source: Aquatox
ID#: FHM 2026
Age: 1 day
Feeding: none
Test Chamber Size: 800 ml
Volume per Replicate: 750 ml

Reference Toxicant: NaCl
Stock Solution: 20 g/L
Solvent: Milli-Q water
*Dilution Water Type: Recon MH (FHM)
Total Hardness as $CaCO_3$: 90
Conductivity (µmhos/cm): 345
Technician: 0 hr MB / BAM; 24 hr BAM; 48 hr MR
Time: 0 hr 1555; 24 hr 0935; 48 hr 1315
Therm. ID #: 0 hr 250; 24 hr 250; 48 hr 250

Test Begin: Date 1-15-19 Time 1555
Test End: Date 1-17-19 Time 1315
Reagent Log ID # 2B070-01
Dilution Water ID# 4783
Total Alkalinity as $CaCO_3$: 68
Temperature (°C): 20 ± 1 °C

Toxicant Concentration (g/L)	Test Chamber Number	Number of Live Organisms			Dissolved Oxygen (mg/l)			pH			Temperature (°C)			Conductivity (µS)		
		0	24	48	0	24	48	0	24	48	0	24	48	0	24	48
Control	A	10	10	10	8.1	7.7	7.7	7.5	7.3	7.6	20.4	20.3	20.3	344		359
4.0	A	10	10	10	8.0	7.6	7.7	7.5	7.5	7.5	20.4	20.3	20.3	6940		7360
6.0	A	10	10	10	8.0	7.5	7.8	7.5	7.8	7.6	20.4	20.3	20.4	10650		11020
8.0	A	10	10	3	7.9	7.5	7.8	7.5	7.8	7.6	20.4	20.3	20.4	13730		14100
10.0	A	10	1	0	7.9	7.5	7.8	7.5	7.8	7.6	20.4	20.3	20.4	16680		17190
12.0	A	10	0	—	7.9	7.5	—	7.5	7.8	—	20.4	20.3	—	19050	19070	—
Test Acceptability Criteria:		Survival in Controls: > or = 90%			(@ 20°C): >4.0 and <9.1			pH: > 6.0 and < 9.0			Temperature ± 1 °C					

*Dilution Water Code
Recon. - reconstituted water
S - soft
MH - moderately hard
H - hard
Art. Sea - Artificial Sea Water

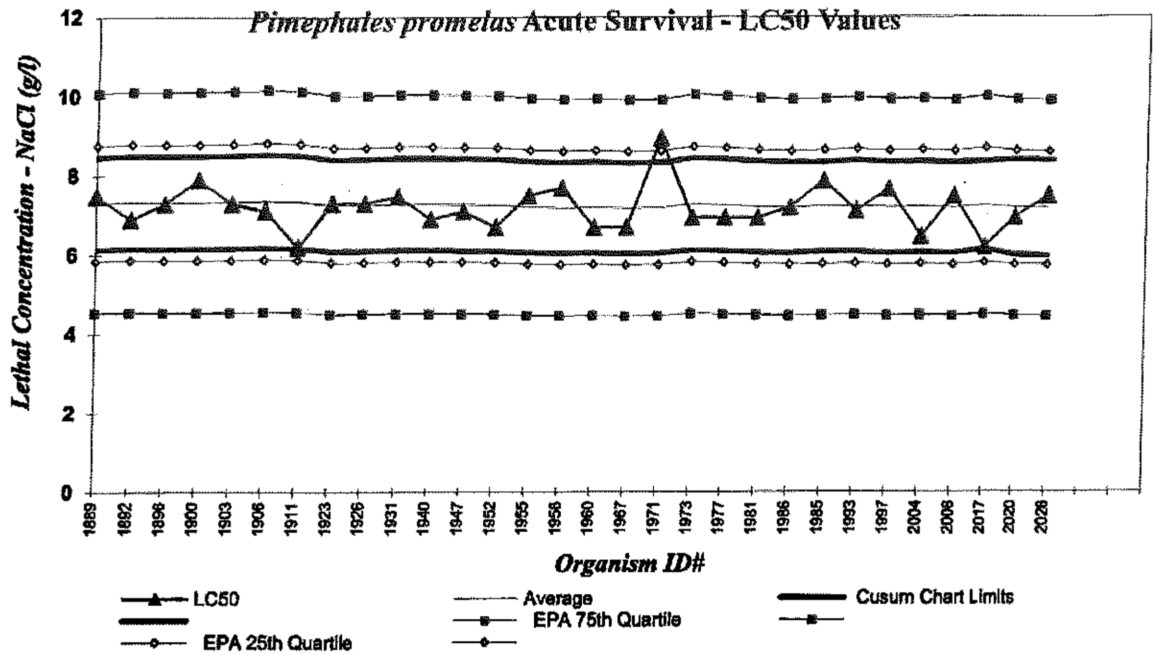
48 Hour LC_{50}: 7.5
Cusum Chart Limits: 6.0 to 8.4
Statistical Method: Spearman-Kärber

We verify this data is true and correct.

Task Manager: [signature]
Project Manager: [signature]
QA Officer: [signature] for Regan McManus 1-17-19

REFTOX - FHM acute
Doc Control ID: ASL674-0510

REFERENCE TOXICANT CUMLATIVE SUMMARY (CUSUM) CHART



Pimephales promelas - ACUTE (EPA Test Method 2000.0)

SODIUM CHLORIDE (g/L) — **From EPA 833-R-00-003:**

Organism age: 1 to 14 days — 10th Quartile CV (*control limit*) = 0.08

Endpoint: 48 hour Survival — 25th Quartile CV (*warning limit*) = 0.10

Stats Method: Probit, Spearman-Karber, Linear Interpolation — 75th Quartile CV (*warning limit*) = 0.19

Test Conditions: Recon MH, 20 oC — 90th Quartile CV (*control limit*) = 0.33

Intralab CV is compared to EPA Warning limits (25th and 75th CV's) and Control limits (10th and 90th CV's).

If lab CV is outside EPA Control limits, the EPA Control limits are used to set Cusum chart limits.

Event #	FHM ID #	Test Start Date	LC50	Running Average	Running SD	Cusum Chart Limits AVG-2SD	AVG+2SD	Intralab CV
914	1981	5/2/2018	**6.9**	7.2	0.57	**6.1**	**8.4**	0.08
915	1986	6/6/2018	**7.2**	7.2	0.57	**6.0**	**8.3**	0.08
916	1985	6/1/2018	**7.9**	7.2	0.57	**6.1**	**8.3**	0.08
917	1993	7/10/2018	**7.1**	7.2	0.58	**6.1**	**8.4**	0.08
918	1997	8/1/2018	**7.7**	7.2	0.56	**6.0**	**8.3**	0.08
919	2004	9/5/2018	**6.5**	7.2	0.57	**6.1**	**8.4**	0.08
920	2008	10/5/2018	**7.5**	7.2	0.60	**6.0**	**8.3**	0.08
921	2017	11/9/2018	**6.2**	7.2	0.55	**6.1**	**8.4**	0.08
922	2020	12/5/2018	**6.9**	7.2	0.60	**6.0**	**8.4**	0.08
923	2026	1/15/2019	**7.5**	7.2	0.60	**6.0**	**8.4**	0.08
924								
925								
926								

APPENDIX C

CHAIN OF CUSTODY

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Receipt Record

Batch Number: B 4216 -01 Date Received: 1-17-19
Client/Project: Jacobs Graymont Received By: Bw

Were custody seals intact?	☒ Yes ☐ No ☐ N/A
Packing Material:	☒ Ice ☐ Blue Ice ☐ Box
Temp OK? (<6°C) Therm ID: 173 Expires: 4/16/2019 Observed: 1.8 °C, Actual Temp: 2.6 °C	☒ Yes ☐ No ☐ N/A
Was a Chain of Custody (CoC) Provided?	☒ Yes ☐ No ☐ N/A
Was the CoC correctly filled out? (If No, document below)	☒ Yes ☐ No ☐ N/A
Were the sample containers in good condition (not broken or leaking)?	☒ Yes ☐ No ☐ N/A
Are all samples within 36 hours of collection?	☒ Yes ☐ No ☐ N/A

Method of Shipment: ☐ Hand Delivered, ☒ FedEx, ☐ UPS, ☐ Greyhound, ☐ Other: ________ ☐ N/A

Sample Exception Report (The following exceptions were noted)

Client was notified on: Client contact:

Resolution to Exception:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.testamericainc.com

☑ Rush
☑ Short Hold

Chain of Custody Record

Client: JACOBS	Client Contact: RACHEL CHANG	Date: 1/16/2019	Chain of Custody Number: 37136
Address: 1100 112TH AVENUE SUITE 500	Telephone Number (Area Code)/Fax Number: 425-453-5000	Lab Number	Page 1 of 1
City: BELLEVUE — State: WA — Zip Code: 98004	Sampler: MLR — Lab Contact		
Project Name and Location (State): GRAYMONNT NPDES	Billing Contact		
Contract/Purchase Order/Quote No.: 463381CH.04.01.EX			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis: FATHEAD ACUTE	DAPHNIA ACUTE	Special Instructions/ Conditions of Receipt
G-NPDES-1-01162019	01/16/2016	1325		✓			4						✓	✓	B4216-01

Cooler: ☑ Yes ☐ No Cooler Temp: ______

Possible Hazard Identification: ☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☑ Disposal By Lab ☐ Archive For ______ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☑ Other STANDARD

QC Requirements (Specify)

1. Relinquished By Sign/Print: MARIO LOPEZ RAMOS / JACOBS	Date: 1/16/2019	Time: 1415	1. Received By Sign/Print: BRETT [illegible] TA-ASC	Date: 1-17-19	Time: 1035
2. Relinquished By Sign/Print	Date	Time	2. Received By Sign/Print	Date	Time
3. Relinquished By Sign/Print	Date	Time	3. Received By Sign/Print	Date	Time

Comments

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

TAL-8274-580 (0210)

ORIGIN ID:BVUA (425) 453-5000
MARIO LOPEZ RAMOS
1100 112TH AVENUE NE
SUITE 500
BELLEVUE, WA 98004
UNITED STATES US

SHIP DATE: 16JAN19
ACTWGT: 45.00 LB
CAD: 105505917/INET4040
DIMS: 24x13x14 IN
BILL SENDER

TO SAMPLE RECEIVING
TEST AMERICA ASL
1100 NE CIRCLE BLVD
SUITE 310
CORVALLIS OR 97330
(425) 453-5000 REF 4635P4,CH04 01 EV
INV:
PO: DEPT

552J2/D74C/DCA5

FedEx Express

E

J122118081501uv

TRK# 0201 7742 1048 3303

THU - 17 JAN 10:30A
PRIORITY OVERNIGHT

86 CVOA

97330
OR-US PDX

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Receipt Record

Batch Number: B4213-01 (Greyhound) Date Received: 1-16-19
Client/Project: Jacobs-Bellevue Received By:

Were custody seals intact?	☒ Yes ☐ No ☐ N/A
Packing Material:	☒ Ice ☐ Blue Ice ☐ Box
Temp OK? (<6°C) Therm ID: 173 Expires: 1/16/2019 Observed: 1.6 °C, Actual Temp: 2.2°C	☒ Yes ☐ No ☐ N/A
Was a Chain of Custody (CoC) Provided?	☒ Yes ☐ No ☐ N/A
Was the CoC correctly filled out? (If No, document below)	☒ Yes ☐ No ☐ N/A
Were the sample containers in good condition (not broken or leaking)?	☒ Yes ☐ No ☐ N/A
Are all samples within 36 hours of collection?	☒ Yes ☐ No ☐ N/A

Method of Shipment: ☐ Hand Delivered, ☒ FedEx, ☐ UPS, ☐ Greyhound, ☐ Other: ______ ☐ N/A

Sample Exception Report (The following exceptions were noted)

Sample has ice - cannot use.

Client was notified on: 1-1-19 Client contact: Rachel Clamp

Resolution to Exception:

ORIGIN ID:BVUA (425) 453-5000
MARIO LOPEZ RAMOS
1100 112TH AVENUE NE
SUITE 500
BELLEVUE, WA 98004
UNITED STATES US

SHIP DATE: 15JAN19
ACTWGT: 45.00 LB
CAD: 105505917/INET4040
DIMS: 24x13x14 IN
BILL SENDER

TO SAMPLE RECEIVING
TEST AMERICA ASL
1100 NE CIRCLE BLVD
SUITE 310
CORVALLIS OR 97330
(425) 453-5000 REF 4633940H0401 EX
INV:
PO: DEPT:

552J2/D740/C0A5

FedEx Express

J132118081501uv

WED - 16 JAN 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7742 0187 6992

97330
OR-US PDX

86 CVOA

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com.FedEx will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery,misdelivery,or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim.Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental,consequential, or special is limited to the greater of $100 or the authorized declared value. Recovery cannot exceed actual documented loss.Maximum for items of extraordinary value is $1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

Mario Lopez-Ramos
1-15-19

CH2M HILL — CHAIN OF CUSTODY RECORD FOR NPDES COMPLIANCE BIOMONITORING

Client: Jacobs
Address: 1100 112TH AVE NE SUITE 500
BELLEVUE, WA 98004
Contact Person: Rachel Chang
Phone: 425-453-5000
E-mail: rachel.chang@jacobs.com
CH2M HILL Project # / Purchase Order #: 463384CH.01.01.EX

NPDES#:

Composite Sample Information:
Initiated: Date 01/15/19 Time 1110
Ended: Date 01/15/19 Time 1113
Chilled During Collection? Yes ___ No ✓
Dechlorinated prior to shipping? Yes ___ No ✓

Ship Samples to:
CH2M HILL - Applied Sciences Laboratory
Attention: Bioasssay Lab
1100 NE Circle Blvd. Suite 300
Corvallis, OR 97330
Lab Phone: (541) 768-3160
Customer Service: (541) 768-3120

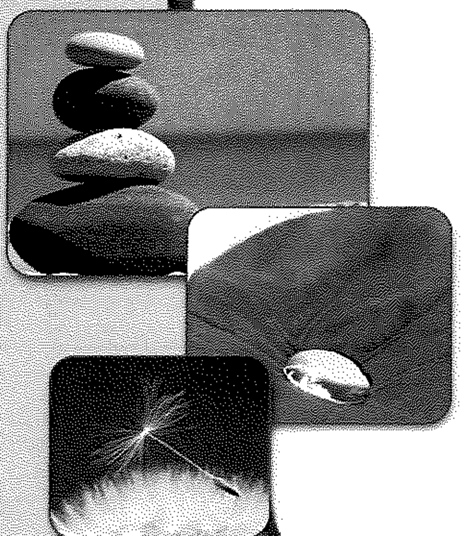
Analysis Required / Comments

Sample ID	Date	Time	Sample Type: Comp.	Sample Type: Grab	# of Containers	Lab ID#	Fathead Acute	Fathead Chronic	Cerio Acute	Cerio Chronic	Green Algae	Trout Acute	Sheepshead Acute	Sheepshead Chronic	Menidia Acute	Menidia Chronic	Mysid Acute	Mysid Chronic	Haz Waste	Daphnia Acute			Concentration and/or Comments
G-NPDES-1-01152019	01/15/2019	1110		✓	1	B4213-C	✓													✓			

Sampled By & Title (Please sign and print name): Mario Lopez Ramos / Jacobs	Date/Time: 01/15/2019 1118	Relinquished By (Please sign and print name): Jacobs Mario Lopez Ramos	Date/Time: 01/15/2019 1420
Received By (Please sign and print name):	Date/Time: 1-16-19 1020	Relinquished By (Please sign and print name):	Date/Time:
Received By (Please sign and print name):	Date/Time:	Relinquished By (Please sign and print name):	Date/Time:
Received By (Please sign and print name):	Date/Time:	Shipped Via: UPS ___ Bus ___ Fed-Ex ✓ Hand ___ Other ___	Shipping #: 7742 0187 6992
Work Authorized By (Please sign and print name):	Remarks:		

Attachment B-2
Effluent Characterization for Pollutants
Laboratory Analytical Results

eurofins | Environment Testing
TestAmerica



ANALYTICAL REPORT

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

Laboratory Job ID: 580-92304-1
Client Project/Site: Graymont, Tacoma
Revision: 2

For:
CH2M Hill, Inc.
1100 - 112th Ave NE
Suite 500
Bellevue, Washington 98004-4504

Attn: Rachel Chang

Kristine D. Allen

Authorized for release by:
3/2/2020 3:12:00 PM

Kristine Allen, Client Service Manager
(253)248-4970
kristine.allen@testamericainc.com

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.

Table of Contents

Job ID: 580-92304-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-92304-1

Comments
Report was revised to report the 625.1 results without a dilution.

Report was revised to include 1,1,2,2 - Tetrachloroethane.

No additional comments.

Receipt
The samples were received on 1/24/2020 12:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3° C.

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

GC/MS Semi VOA
Method 625.1: The CCV for analytical batch 580-321613 recovered outside control limits for the following analyte(s): Benzidine. Benzidine has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

Method 625.1: The method blank for preparation batch 580-321516 and analytical batch 580-321613 contained Diethyl phthalate above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method 625.1: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-321516 and analytical batch 580-321613 recovered outside control limits for the following analytes: Di-n-butyl phthalate. This analyte was biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 625.1: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-321516 and 580-321516 and analytical batch 580-321613 recovered outside control limits for the following analytes: Benzidine. The individual recoveries of both the LCS and LCSD met the acceptance criteria.

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

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

General Chemistry
Method SM 5210B: The glucose-glutamic acid standard recovered outside the recovery limits specified in the method in batch 580-321600 .

Method 1664A: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 580-321923 and analytical batch 580-321929 recovered outside control limits for the following analytes: HEM. The individual recoveries of both the LCS and LCSD met the acceptance criteria.

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

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

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

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits
*	LCS or LCSD is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample Results

Client: CH2M Hill, Inc. Job ID: 580-92304-1
Project/Site: Graymont, Tacoma

Client Sample ID: GR-NPDES-1-01242020 Lab Sample ID: 580-92304-1

Date Collected: 01/24/20 10:55 **Matrix: Water**
Date Received: 01/24/20 12:50

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrolein	ND		30	7.3	ug/L			01/31/20 19:02	1
Acrylonitrile	ND		30	9.2	ug/L			01/31/20 19:02	1
Benzene	ND		3.0	0.53	ug/L			01/31/20 19:02	1
Bromoform	ND		3.0	0.56	ug/L			01/31/20 19:02	1
Bromomethane	ND		6.0	1.1	ug/L			01/31/20 19:02	1
Carbon tetrachloride	ND		3.0	0.30	ug/L			01/31/20 19:02	1
Chlorobenzene	ND		2.0	0.44	ug/L			01/31/20 19:02	1
Chlorodibromomethane	ND		2.0	0.50	ug/L			01/31/20 19:02	1
Chloroethane	ND		5.0	1.1	ug/L			01/31/20 19:02	1
2-Chloroethyl vinyl ether	ND		20	4.0	ug/L			01/31/20 19:02	1
Chloroform	**1.2**	**J**	5.0	0.50	ug/L			01/31/20 19:02	1
Chloromethane	ND		20	5.4	ug/L			01/31/20 19:02	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			01/31/20 19:02	1
Dichlorobromomethane	ND		2.0	0.14	ug/L			01/31/20 19:02	1
1,1-Dichloroethane	ND		2.0	0.22	ug/L			01/31/20 19:02	1
1,2-Dichloroethane	ND		2.0	0.53	ug/L			01/31/20 19:02	1
1,1-Dichloroethene	ND		4.0	0.78	ug/L			01/31/20 19:02	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			01/31/20 19:02	1
1,3-Dichloropropene, Total	ND		1.0	0.20	ug/L			01/31/20 19:02	1
Ethylbenzene	ND		3.0	0.50	ug/L			01/31/20 19:02	1
Methylene Chloride	ND		5.0	1.4	ug/L			01/31/20 19:02	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			01/31/20 19:02	1
o-Xylene	ND		2.0	0.39	ug/L			01/31/20 19:02	1
Tetrachloroethene	ND		3.0	0.41	ug/L			01/31/20 19:02	1
Toluene	ND		2.0	0.39	ug/L			01/31/20 19:02	1
trans-1,2-Dichloroethene	ND		3.0	0.39	ug/L			01/31/20 19:02	1
trans-1,3-Dichloropropene	ND		1.0	0.16	ug/L			01/31/20 19:02	1
1,1,1-Trichloroethane	ND		3.0	0.39	ug/L			01/31/20 19:02	1
1,1,2-Trichloroethane	ND		1.0	0.24	ug/L			01/31/20 19:02	1
Trichloroethene	ND		3.0	0.85	ug/L			01/31/20 19:02	1
Vinyl chloride	ND		1.0	0.22	ug/L			01/31/20 19:02	1
1,1,2,2-Tetrachloroethane	ND		3.0	0.52	ug/L			01/31/20 19:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*78 - 119*		*01/31/20 19:02*	*1*
Dibromofluoromethane (Surr)	*103*		*70 - 120*		*01/31/20 19:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*87*		*70 - 120*		*01/31/20 19:02*	*1*
Toluene-d8 (Surr)	*105*		*79 - 122*		*01/31/20 19:02*	*1*
Trifluorotoluene (Surr)	*112*		*74 - 123*		*01/31/20 19:02*	*1*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		4.1	0.37	ug/L		01/28/20 11:55	02/19/20 16:09	1
Bis(2-chloroethyl)ether	ND		0.61	0.031	ug/L		01/28/20 11:55	02/19/20 16:09	1
2-Chlorophenol	ND		1.0	0.051	ug/L		01/28/20 11:55	02/19/20 16:09	1
1,3-Dichlorobenzene	ND		0.41	0.041	ug/L		01/28/20 11:55	02/19/20 16:09	1
1,4-Dichlorobenzene	ND		0.41	0.041	ug/L		01/28/20 11:55	02/19/20 16:09	1
1,2-Dichlorobenzene	ND		0.61	0.051	ug/L		01/28/20 11:55	02/19/20 16:09	1
N-Nitrosodi-n-propylamine	ND		0.61	0.061	ug/L		01/28/20 11:55	02/19/20 16:09	1
Hexachloroethane	ND		1.0	0.051	ug/L		01/28/20 11:55	02/19/20 16:09	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Graymont, Tacoma

Job ID: 580-92304-1

Client Sample ID: GR-NPDES-1-01242020
Date Collected: 01/24/20 10:55
Date Received: 01/24/20 12:50

Lab Sample ID: 580-92304-1
Matrix: Water

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrobenzene	ND		1.0	0.041	ug/L		01/28/20 11:55	02/19/20 16:09	1
Isophorone	ND		0.41	0.10	ug/L		01/28/20 11:55	02/19/20 16:09	1
2-Nitrophenol	ND		1.0	0.15	ug/L		01/28/20 11:55	02/19/20 16:09	1
2,4-Dimethylphenol	ND		4.1	0.16	ug/L		01/28/20 11:55	02/19/20 16:09	1
Bis(2-chloroethoxy)methane	ND		0.61	0.051	ug/L		01/28/20 11:55	02/19/20 16:09	1
2,4-Dichlorophenol	ND		4.1	0.20	ug/L		01/28/20 11:55	02/19/20 16:09	1
1,2,4-Trichlorobenzene	ND		0.41	0.041	ug/L		01/28/20 11:55	02/19/20 16:09	1
Naphthalene	ND		0.41	0.041	ug/L		01/28/20 11:55	02/19/20 16:09	1
Hexachlorobutadiene	ND		1.0	0.061	ug/L		01/28/20 11:55	02/19/20 16:09	1
4-Chloro-3-methylphenol	ND		0.61	0.13	ug/L		01/28/20 11:55	02/19/20 16:09	1
Hexachlorocyclopentadiene	ND		5.1	0.10	ug/L		01/28/20 11:55	02/19/20 16:09	1
2,4,6-Trichlorophenol	ND		0.61	0.10	ug/L		01/28/20 11:55	02/19/20 16:09	1
2-Chloronaphthalene	ND		1.0	0.031	ug/L		01/28/20 11:55	02/19/20 16:09	1
Dimethyl phthalate	ND		0.61	0.061	ug/L		01/28/20 11:55	02/19/20 16:09	1
Acenaphthylene	ND		1.0	0.061	ug/L		01/28/20 11:55	02/19/20 16:09	1
2,6-Dinitrotoluene	ND		0.61	0.041	ug/L		01/28/20 11:55	02/19/20 16:09	1
Acenaphthene	ND		0.41	0.051	ug/L		01/28/20 11:55	02/19/20 16:09	1
2,4-Dinitrophenol	ND		5.1	1.6	ug/L		01/28/20 11:55	02/19/20 16:09	1
4-Nitrophenol	ND		15	1.7	ug/L		01/28/20 11:55	02/19/20 16:09	1
2,4-Dinitrotoluene	ND		1.0	0.10	ug/L		01/28/20 11:55	02/19/20 16:09	1
Diethyl phthalate	ND		12	0.15	ug/L		01/28/20 11:55	02/19/20 16:09	1
4-Chlorophenyl phenyl ether	ND		0.61	0.051	ug/L		01/28/20 11:55	02/19/20 16:09	1
Fluorene	ND		2.0	0.051	ug/L		01/28/20 11:55	02/19/20 16:09	1
4,6-Dinitro-2-methylphenol	ND		5.1	0.27	ug/L		01/28/20 11:55	02/19/20 16:09	1
N-Nitrosodiphenylamine	ND		15	0.072	ug/L		01/28/20 11:55	02/19/20 16:09	1
4-Bromophenyl phenyl ether	ND		0.61	0.061	ug/L		01/28/20 11:55	02/19/20 16:09	1
Hexachlorobenzene	ND		0.61	0.041	ug/L		01/28/20 11:55	02/19/20 16:09	1
Pentachlorophenol	ND		10	0.52	ug/L		01/28/20 11:55	02/19/20 16:09	1
Phenanthrene	ND		1.0	0.031	ug/L		01/28/20 11:55	02/19/20 16:09	1
Anthracene	ND		15	0.051	ug/L		01/28/20 11:55	02/19/20 16:09	1
Di-n-butyl phthalate	ND	*	3.1	0.45	ug/L		01/28/20 11:55	02/19/20 16:09	1
Fluoranthene	ND		3.1	0.061	ug/L		01/28/20 11:55	02/19/20 16:09	1
Pyrene	ND		2.0	0.041	ug/L		01/28/20 11:55	02/19/20 16:09	1
Butyl benzyl phthalate	ND		10	0.95	ug/L		01/28/20 11:55	02/19/20 16:09	1
3,3'-Dichlorobenzidine	ND		15	0.63	ug/L		01/28/20 11:55	02/19/20 16:09	1
Benzo[a]anthracene	ND		1.0	0.051	ug/L		01/28/20 11:55	02/19/20 16:09	1
Chrysene	ND		0.61	0.041	ug/L		01/28/20 11:55	02/19/20 16:09	1
Bis(2-ethylhexyl) phthalate	ND		15	0.89	ug/L		01/28/20 11:55	02/19/20 16:09	1
Di-n-octyl phthalate	ND		1.0	0.13	ug/L		01/28/20 11:55	02/19/20 16:09	1
Benzo[a]pyrene	ND		1.0	0.041	ug/L		01/28/20 11:55	02/19/20 16:09	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.13	ug/L		01/28/20 11:55	02/19/20 16:09	1
Dibenz(a,h)anthracene	ND		0.61	0.072	ug/L		01/28/20 11:55	02/19/20 16:09	1
Benzo[g,h,i]perylene	ND		1.0	0.041	ug/L		01/28/20 11:55	02/19/20 16:09	1
Carbazole	ND		0.61	0.10	ug/L		01/28/20 11:55	02/19/20 16:09	1
N-Nitrosodimethylamine	ND		4.1	0.27	ug/L		01/28/20 11:55	02/19/20 16:09	1
Benzidine	ND	*	10	3.1	ug/L		01/28/20 11:55	02/19/20 16:09	1
Benzo[k]fluoranthene	ND		1.0	0.051	ug/L		01/28/20 11:55	02/19/20 16:09	1
Benzo[b]fluoranthene	ND		1.0	0.041	ug/L		01/28/20 11:55	02/19/20 16:09	1
1,2-Diphenylhydrazine (as Azobenzene)	ND		2.0	0.061	ug/L		01/28/20 11:55	02/19/20 16:09	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Graymont, Tacoma

Job ID: 580-92304-1

Client Sample ID: GR-NPDES-1-01242020
Date Collected: 01/24/20 10:55
Date Received: 01/24/20 12:50

Lab Sample ID: 580-92304-1
Matrix: Water

5

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
bis (2-chloroisopropyl) ether	ND		0.61	0.061	ug/L		01/28/20 11:55	02/19/20 16:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*45*		*20 - 122*	*01/28/20 11:55*	*02/19/20 16:09*	*1*
Phenol-d5	*24*		*20 - 123*	*01/28/20 11:55*	*02/19/20 16:09*	*1*
Nitrobenzene-d5	*89*		*59 - 123*	*01/28/20 11:55*	*02/19/20 16:09*	*1*
2-Fluorobiphenyl	*70*		*56 - 124*	*01/28/20 11:55*	*02/19/20 16:09*	*1*
2,4,6-Tribromophenol	*88*		*47 - 137*	*01/28/20 11:55*	*02/19/20 16:09*	*1*
Terphenyl-d14	*98*		*60 - 135*	*01/28/20 11:55*	*02/19/20 16:09*	*1*

Method: 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	**1.0**		0.80	0.11	ug/L		01/27/20 14:26	01/28/20 10:26	1
Arsenic	**1.1**		1.0	0.20	ug/L		01/27/20 14:26	01/28/20 10:26	1
Beryllium	ND		0.40	0.071	ug/L		01/27/20 14:26	01/28/20 10:26	1
Cadmium	ND		0.80	0.10	ug/L		01/27/20 14:26	01/28/20 10:26	1
Chromium	**0.93**		0.80	0.17	ug/L		01/27/20 14:26	01/28/20 10:26	1
Copper	**2.9**		2.0	0.60	ug/L		01/27/20 14:26	01/28/20 10:26	1
Lead	**0.43**	**J**	0.80	0.20	ug/L		01/27/20 14:26	01/28/20 10:26	1
Nickel	**0.62**	**J**	3.0	0.12	ug/L		01/27/20 14:26	01/28/20 10:26	1
Selenium	ND		8.0	2.1	ug/L		01/27/20 14:26	01/28/20 10:26	1
Silver	ND		0.40	0.055	ug/L		01/27/20 14:26	01/28/20 10:26	1
Thallium	ND		1.0	0.065	ug/L		01/27/20 14:26	01/28/20 10:26	1
Zinc	**7.2**		7.0	1.9	ug/L		01/27/20 14:26	01/28/20 10:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	**130**		2.4	0.52	mg/L			01/28/20 09:48	2
Phenols, Total	ND		0.020	0.0068	mg/L		01/30/20 11:08	01/31/20 11:35	1
Total Organic Carbon - Duplicates	**1.2**		1.0	0.35	mg/L			02/04/20 01:09	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	**9470**	*	5140	5140	ug/L		02/04/20 11:10	02/04/20 13:30	1
Cyanide, Total	ND		60	60	ug/L		01/31/20 11:49	01/31/20 11:49	1
Total Suspended Solids	**11**		2.0	2.0	mg/L			01/29/20 12:30	1
Ammonia as N	ND	F1	0.50	0.50	mg/L			01/27/20 16:13	1
Biochemical Oxygen Demand	ND	*	2.0	2.0	mg/L			01/25/20 14:00	1
Chemical Oxygen Demand	ND		10	10	mg/L		01/28/20 14:16	01/28/20 14:16	1

Client Sample Results

Client Sample ID: Trip Blank **Lab Sample ID: 580-92304-2**
Date Collected: 01/24/20 00:01 **Matrix: Water**
Date Received: 01/24/20 12:50

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrolein	ND		30	7.3	ug/L			01/31/20 14:54	1
Acrylonitrile	ND		30	9.2	ug/L			01/31/20 14:54	1
Benzene	ND		3.0	0.53	ug/L			01/31/20 14:54	1
Bromoform	ND		3.0	0.56	ug/L			01/31/20 14:54	1
Bromomethane	ND		6.0	1.1	ug/L			01/31/20 14:54	1
Carbon tetrachloride	ND		3.0	0.30	ug/L			01/31/20 14:54	1
Chlorobenzene	ND		2.0	0.44	ug/L			01/31/20 14:54	1
Chlorodibromomethane	ND		2.0	0.50	ug/L			01/31/20 14:54	1
Chloroethane	ND		5.0	1.1	ug/L			01/31/20 14:54	1
2-Chloroethyl vinyl ether	ND		20	4.0	ug/L			01/31/20 14:54	1
Chloroform	ND		5.0	0.50	ug/L			01/31/20 14:54	1
Chloromethane	ND		20	5.4	ug/L			01/31/20 14:54	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			01/31/20 14:54	1
Dichlorobromomethane	ND		2.0	0.14	ug/L			01/31/20 14:54	1
1,1-Dichloroethane	ND		2.0	0.22	ug/L			01/31/20 14:54	1
1,2-Dichloroethane	ND		2.0	0.53	ug/L			01/31/20 14:54	1
1,1-Dichloroethene	ND		4.0	0.78	ug/L			01/31/20 14:54	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			01/31/20 14:54	1
1,3-Dichloropropene, Total	ND		1.0	0.20	ug/L			01/31/20 14:54	1
Ethylbenzene	ND		3.0	0.50	ug/L			01/31/20 14:54	1
Methylene Chloride	ND		5.0	1.4	ug/L			01/31/20 14:54	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			01/31/20 14:54	1
o-Xylene	ND		2.0	0.39	ug/L			01/31/20 14:54	1
Tetrachloroethene	ND		3.0	0.41	ug/L			01/31/20 14:54	1
Toluene	ND		2.0	0.39	ug/L			01/31/20 14:54	1
trans-1,2-Dichloroethene	ND		3.0	0.39	ug/L			01/31/20 14:54	1
trans-1,3-Dichloropropene	ND		1.0	0.16	ug/L			01/31/20 14:54	1
1,1,1-Trichloroethane	ND		3.0	0.39	ug/L			01/31/20 14:54	1
1,1,2-Trichloroethane	ND		1.0	0.24	ug/L			01/31/20 14:54	1
Trichloroethene	ND		3.0	0.85	ug/L			01/31/20 14:54	1
Vinyl chloride	ND		1.0	0.22	ug/L			01/31/20 14:54	1
1,1,2,2-Tetrachloroethane	ND		3.0	0.52	ug/L			01/31/20 14:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*78 - 119*		*01/31/20 14:54*	*1*
Dibromofluoromethane (Surr)	*99*		*70 - 120*		*01/31/20 14:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*84*		*70 - 120*		*01/31/20 14:54*	*1*
Toluene-d8 (Surr)	*103*		*79 - 122*		*01/31/20 14:54*	*1*
Trifluorotoluene (Surr)	*110*		*74 - 123*		*01/31/20 14:54*	*1*

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Graymont, Tacoma

Job ID: 580-92304-1

Method: 624.1 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-321775/7
Matrix: Water
Analysis Batch: 321775

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acrolein	ND		30	7.3	ug/L			01/31/20 14:04	1
Acrylonitrile	ND		30	9.2	ug/L			01/31/20 14:04	1
Benzene	ND		3.0	0.53	ug/L			01/31/20 14:04	1
Bromoform	ND		3.0	0.56	ug/L			01/31/20 14:04	1
Bromomethane	ND		6.0	1.1	ug/L			01/31/20 14:04	1
Carbon tetrachloride	ND		3.0	0.30	ug/L			01/31/20 14:04	1
Chlorobenzene	ND		2.0	0.44	ug/L			01/31/20 14:04	1
Chlorodibromomethane	ND		2.0	0.50	ug/L			01/31/20 14:04	1
Chloroethane	ND		5.0	1.1	ug/L			01/31/20 14:04	1
2-Chloroethyl vinyl ether	ND		20	4.0	ug/L			01/31/20 14:04	1
Chloroform	ND		5.0	0.50	ug/L			01/31/20 14:04	1
Chloromethane	ND		20	5.4	ug/L			01/31/20 14:04	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			01/31/20 14:04	1
Dichlorobromomethane	ND		2.0	0.14	ug/L			01/31/20 14:04	1
1,1-Dichloroethane	ND		2.0	0.22	ug/L			01/31/20 14:04	1
1,2-Dichloroethane	ND		2.0	0.53	ug/L			01/31/20 14:04	1
1,1-Dichloroethene	ND		4.0	0.78	ug/L			01/31/20 14:04	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			01/31/20 14:04	1
1,3-Dichloropropene, Total	ND		1.0	0.20	ug/L			01/31/20 14:04	1
Ethylbenzene	ND		3.0	0.50	ug/L			01/31/20 14:04	1
Methylene Chloride	ND		5.0	1.4	ug/L			01/31/20 14:04	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			01/31/20 14:04	1
o-Xylene	ND		2.0	0.39	ug/L			01/31/20 14:04	1
Tetrachloroethene	ND		3.0	0.41	ug/L			01/31/20 14:04	1
Toluene	ND		2.0	0.39	ug/L			01/31/20 14:04	1
trans-1,2-Dichloroethene	ND		3.0	0.39	ug/L			01/31/20 14:04	1
trans-1,3-Dichloropropene	ND		1.0	0.16	ug/L			01/31/20 14:04	1
1,1,1-Trichloroethane	ND		3.0	0.39	ug/L			01/31/20 14:04	1
1,1,2-Trichloroethane	ND		1.0	0.24	ug/L			01/31/20 14:04	1
Trichloroethene	ND		3.0	0.85	ug/L			01/31/20 14:04	1
Vinyl chloride	ND		1.0	0.22	ug/L			01/31/20 14:04	1
1,1,2,2-Tetrachloroethane	ND		3.0	0.52	ug/L			01/31/20 14:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*78 - 119*		*01/31/20 14:04*	*1*
Dibromofluoromethane (Surr)	*97*		*70 - 120*		*01/31/20 14:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*84*		*70 - 120*		*01/31/20 14:04*	*1*
Toluene-d8 (Surr)	*105*		*79 - 122*		*01/31/20 14:04*	*1*
Trifluorotoluene (Surr)	*107*		*74 - 123*		*01/31/20 14:04*	*1*

Lab Sample ID: LCS 580-321775/4
Matrix: Water
Analysis Batch: 321775

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acrolein	60.0	43.4		ug/L		72	33 - 150
Acrylonitrile	100	81.6		ug/L		82	67 - 125
Benzene	10.0	10.1		ug/L		101	65 - 135

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-321775/4
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 321775

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoform	10.0	10.2		ug/L		102	70 - 130
Bromomethane	10.0	10.6		ug/L		106	15 - 185
Carbon tetrachloride	10.0	8.88		ug/L		89	70 - 130
Chlorobenzene	10.0	10.6		ug/L		106	65 - 135
Chlorodibromomethane	10.0	9.64		ug/L		96	71 - 120
Chloroethane	10.0	9.20		ug/L		92	40 - 160
2-Chloroethyl vinyl ether	10.0	7.38	J	ug/L		74	10 - 225
Chloroform	10.0	9.59		ug/L		96	70 - 135
Chloromethane	10.0	7.34	J	ug/L		73	10 - 205
cis-1,3-Dichloropropene	10.0	8.17		ug/L		82	25 - 175
Dichlorobromomethane	10.0	9.84		ug/L		98	70 - 135
1,1-Dichloroethane	10.0	9.20		ug/L		92	70 - 130
1,2-Dichloroethane	10.0	7.94		ug/L		79	70 - 130
1,1-Dichloroethene	10.0	10.4		ug/L		104	50 - 150
1,2-Dichloropropane	10.0	8.98		ug/L		90	35 - 165
1,3-Dichloropropene, Total	20.0	17.6		ug/L		88	73 - 122
Ethylbenzene	10.0	10.4		ug/L		104	60 - 140
Methylene Chloride	10.0	9.04		ug/L		90	60 - 140
m-Xylene & p-Xylene	10.0	10.1		ug/L		101	75 - 120
o-Xylene	10.0	10.3		ug/L		103	74 - 120
Tetrachloroethene	10.0	10.4		ug/L		104	70 - 130
Toluene	10.0	9.98		ug/L		100	70 - 130
trans-1,2-Dichloroethene	10.0	9.65		ug/L		96	70 - 130
trans-1,3-Dichloropropene	10.0	9.42		ug/L		94	50 - 150
1,1,1-Trichloroethane	10.0	9.03		ug/L		90	70 - 130
1,1,2-Trichloroethane	10.0	10.0		ug/L		100	70 - 130
Trichloroethene	10.0	10.9		ug/L		109	65 - 135
Vinyl chloride	10.0	8.84		ug/L		88	10 - 195
1,1,2,2-Tetrachloroethane	10.0	8.65		ug/L		87	60 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*78 - 119*
Dibromofluoromethane (Surr)	*98*		*70 - 120*
1,2-Dichloroethane-d4 (Surr)	*85*		*70 - 120*
Toluene-d8 (Surr)	*104*		*79 - 122*
Trifluorotoluene (Surr)	*107*		*74 - 123*

Lab Sample ID: LCSD 580-321775/5
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 321775

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acrolein	60.0	41.8		ug/L		70	33 - 150	4	35
Acrylonitrile	100	77.6		ug/L		78	67 - 125	5	35
Benzene	10.0	10.0		ug/L		100	65 - 135	1	33
Bromoform	10.0	9.94		ug/L		99	70 - 130	3	25
Bromomethane	10.0	10.1		ug/L		101	15 - 185	5	35
Carbon tetrachloride	10.0	9.14		ug/L		91	70 - 130	3	19

Client: CH2M Hill, Inc.
Project/Site: Graymont, Tacoma

Job ID: 580-92304-1

Method: 624.1 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-321775/5
Matrix: Water
Analysis Batch: 321775

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chlorobenzene	10.0	10.7		ug/L		107	65 - 135	1	15
Chlorodibromomethane	10.0	9.72		ug/L		97	71 - 120	1	35
Chloroethane	10.0	8.80		ug/L		88	40 - 160	4	35
2-Chloroethyl vinyl ether	10.0	7.42	J	ug/L		74	10 - 225	1	29
Chloroform	10.0	9.52		ug/L		95	70 - 135	1	15
Chloromethane	10.0	7.15	J	ug/L		71	10 - 205	3	35
cis-1,3-Dichloropropene	10.0	8.81		ug/L		88	25 - 175	8	12
Dichlorobromomethane	10.0	9.51		ug/L		95	70 - 135	3	34
1,1-Dichloroethane	10.0	8.94		ug/L		89	70 - 130	3	20
1,2-Dichloroethane	10.0	7.73		ug/L		77	70 - 130	3	11
1,1-Dichloroethene	10.0	9.74		ug/L		97	50 - 150	7	27
1,2-Dichloropropane	10.0	9.01		ug/L		90	35 - 165	0	26
1,3-Dichloropropene, Total	20.0	18.5		ug/L		92	73 - 122	5	13
Ethylbenzene	10.0	10.5		ug/L		105	60 - 140	1	14
Methylene Chloride	10.0	8.40		ug/L		84	60 - 140	7	29
m-Xylene & p-Xylene	10.0	10.2		ug/L		102	75 - 120	1	14
o-Xylene	10.0	10.1		ug/L		101	74 - 120	2	16
Tetrachloroethene	10.0	10.1		ug/L		101	70 - 130	2	20
Toluene	10.0	9.98		ug/L		100	70 - 130	0	13
trans-1,2-Dichloroethene	10.0	9.37		ug/L		94	70 - 130	3	21
trans-1,3-Dichloropropene	10.0	9.64		ug/L		96	50 - 150	2	13
1,1,1-Trichloroethane	10.0	8.89		ug/L		89	70 - 130	2	18
1,1,2-Trichloroethane	10.0	10.1		ug/L		101	70 - 130	1	14
Trichloroethene	10.0	10.6		ug/L		106	65 - 135	2	15
Vinyl chloride	10.0	8.80		ug/L		88	10 - 195	0	35
1,1,2,2-Tetrachloroethane	10.0	8.55		ug/L		85	60 - 140	1	18

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*78 - 119*
Dibromofluoromethane (Surr)	*96*		*70 - 120*
1,2-Dichloroethane-d4 (Surr)	*80*		*70 - 120*
Toluene-d8 (Surr)	*106*		*79 - 122*
Trifluorotoluene (Surr)	*107*		*74 - 123*

Method: 625.1 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-321516/1-A
Matrix: Water
Analysis Batch: 321613

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 321516

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		4.0	0.36	ug/L		01/28/20 11:55	01/29/20 13:34	1
Bis(2-chloroethyl)ether	ND		0.60	0.030	ug/L		01/28/20 11:55	01/29/20 13:34	1
2-Chlorophenol	ND		1.0	0.050	ug/L		01/28/20 11:55	01/29/20 13:34	1
1,3-Dichlorobenzene	ND		0.40	0.040	ug/L		01/28/20 11:55	01/29/20 13:34	1
1,4-Dichlorobenzene	ND		0.40	0.040	ug/L		01/28/20 11:55	01/29/20 13:34	1
1,2-Dichlorobenzene	ND		0.60	0.050	ug/L		01/28/20 11:55	01/29/20 13:34	1
N-Nitrosodi-n-propylamine	ND		0.60	0.060	ug/L		01/28/20 11:55	01/29/20 13:34	1
Hexachloroethane	ND		1.0	0.050	ug/L		01/28/20 11:55	01/29/20 13:34	1

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Graymont, Tacoma

Job ID: 580-92304-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-321516/1-A
Matrix: Water
Analysis Batch: 321613

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 321516

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrobenzene	ND		1.0	0.040	ug/L		01/28/20 11:55	01/29/20 13:34	1
Isophorone	ND		0.40	0.10	ug/L		01/28/20 11:55	01/29/20 13:34	1
2-Nitrophenol	ND		1.0	0.15	ug/L		01/28/20 11:55	01/29/20 13:34	1
2,4-Dimethylphenol	ND		4.0	0.16	ug/L		01/28/20 11:55	01/29/20 13:34	1
Bis(2-chloroethoxy)methane	ND		0.60	0.050	ug/L		01/28/20 11:55	01/29/20 13:34	1
2,4-Dichlorophenol	ND		4.0	0.20	ug/L		01/28/20 11:55	01/29/20 13:34	1
1,2,4-Trichlorobenzene	ND		0.40	0.040	ug/L		01/28/20 11:55	01/29/20 13:34	1
Naphthalene	ND		0.40	0.040	ug/L		01/28/20 11:55	01/29/20 13:34	1
Hexachlorobutadiene	ND		1.0	0.060	ug/L		01/28/20 11:55	01/29/20 13:34	1
4-Chloro-3-methylphenol	ND		0.60	0.13	ug/L		01/28/20 11:55	01/29/20 13:34	1
Hexachlorocyclopentadiene	ND		5.0	0.10	ug/L		01/28/20 11:55	01/29/20 13:34	1
2,4,6-Trichlorophenol	ND		0.60	0.10	ug/L		01/28/20 11:55	01/29/20 13:34	1
2-Chloronaphthalene	ND		1.0	0.030	ug/L		01/28/20 11:55	01/29/20 13:34	1
Dimethyl phthalate	ND		0.60	0.060	ug/L		01/28/20 11:55	01/29/20 13:34	1
Acenaphthylene	ND		1.0	0.060	ug/L		01/28/20 11:55	01/29/20 13:34	1
2,6-Dinitrotoluene	ND		0.60	0.040	ug/L		01/28/20 11:55	01/29/20 13:34	1
Acenaphthene	ND		0.40	0.050	ug/L		01/28/20 11:55	01/29/20 13:34	1
2,4-Dinitrophenol	ND		5.0	1.6	ug/L		01/28/20 11:55	01/29/20 13:34	1
4-Nitrophenol	ND		15	1.7	ug/L		01/28/20 11:55	01/29/20 13:34	1
2,4-Dinitrotoluene	ND		1.0	0.10	ug/L		01/28/20 11:55	01/29/20 13:34	1
Diethyl phthalate	0.269	J	12	0.15	ug/L		01/28/20 11:55	01/29/20 13:34	1
4-Chlorophenyl phenyl ether	ND		0.60	0.050	ug/L		01/28/20 11:55	01/29/20 13:34	1
Fluorene	ND		2.0	0.050	ug/L		01/28/20 11:55	01/29/20 13:34	1
4,6-Dinitro-2-methylphenol	ND		5.0	0.26	ug/L		01/28/20 11:55	01/29/20 13:34	1
N-Nitrosodiphenylamine	ND		15	0.070	ug/L		01/28/20 11:55	01/29/20 13:34	1
4-Bromophenyl phenyl ether	ND		0.60	0.060	ug/L		01/28/20 11:55	01/29/20 13:34	1
Hexachlorobenzene	ND		0.60	0.040	ug/L		01/28/20 11:55	01/29/20 13:34	1
Pentachlorophenol	ND		10	0.51	ug/L		01/28/20 11:55	01/29/20 13:34	1
Phenanthrene	ND		1.0	0.030	ug/L		01/28/20 11:55	01/29/20 13:34	1
Anthracene	ND		15	0.050	ug/L		01/28/20 11:55	01/29/20 13:34	1
Di-n-butyl phthalate	ND		3.0	0.44	ug/L		01/28/20 11:55	01/29/20 13:34	1
Fluoranthene	ND		3.0	0.060	ug/L		01/28/20 11:55	01/29/20 13:34	1
Pyrene	ND		2.0	0.040	ug/L		01/28/20 11:55	01/29/20 13:34	1
Butyl benzyl phthalate	ND		10	0.93	ug/L		01/28/20 11:55	01/29/20 13:34	1
3,3'-Dichlorobenzidine	ND		15	0.62	ug/L		01/28/20 11:55	01/29/20 13:34	1
Benzo[a]anthracene	ND		1.0	0.050	ug/L		01/28/20 11:55	01/29/20 13:34	1
Chrysene	ND		0.60	0.040	ug/L		01/28/20 11:55	01/29/20 13:34	1
Bis(2-ethylhexyl) phthalate	ND		15	0.87	ug/L		01/28/20 11:55	01/29/20 13:34	1
Di-n-octyl phthalate	ND		1.0	0.13	ug/L		01/28/20 11:55	01/29/20 13:34	1
Benzo[a]pyrene	ND		1.0	0.040	ug/L		01/28/20 11:55	01/29/20 13:34	1
Indeno[1,2,3-cd]pyrene	ND		1.0	0.13	ug/L		01/28/20 11:55	01/29/20 13:34	1
Dibenz(a,h)anthracene	ND		0.60	0.070	ug/L		01/28/20 11:55	01/29/20 13:34	1
Benzo[g,h,i]perylene	ND		1.0	0.040	ug/L		01/28/20 11:55	01/29/20 13:34	1
Carbazole	ND		0.60	0.10	ug/L		01/28/20 11:55	01/29/20 13:34	1
N-Nitrosodimethylamine	ND		4.0	0.26	ug/L		01/28/20 11:55	01/29/20 13:34	1
Benzidine	ND		10	3.0	ug/L		01/28/20 11:55	01/29/20 13:34	1
Benzo[k]fluoranthene	ND		1.0	0.050	ug/L		01/28/20 11:55	01/29/20 13:34	1
Benzo[b]fluoranthene	ND		1.0	0.040	ug/L		01/28/20 11:55	01/29/20 13:34	1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-321516/1-A
Client Sample ID: Method Blank
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 321613
Prep Batch: 321516

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Diphenylhydrazine (as Azobenzene)	ND		2.0	0.060	ug/L		01/28/20 11:55	01/29/20 13:34	1
bis (2-chloroisopropyl) ether	ND		0.60	0.060	ug/L		01/28/20 11:55	01/29/20 13:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol	*51*		*20 - 122*	*01/28/20 11:55*	*01/29/20 13:34*	*1*
Phenol-d5	*27*		*20 - 123*	*01/28/20 11:55*	*01/29/20 13:34*	*1*
Nitrobenzene-d5	*76*		*59 - 123*	*01/28/20 11:55*	*01/29/20 13:34*	*1*
2-Fluorobiphenyl	*88*		*56 - 124*	*01/28/20 11:55*	*01/29/20 13:34*	*1*
2,4,6-Tribromophenol	*54*		*47 - 137*	*01/28/20 11:55*	*01/29/20 13:34*	*1*
Terphenyl-d14	*98*		*60 - 135*	*01/28/20 11:55*	*01/29/20 13:34*	*1*

Lab Sample ID: LCS 580-321516/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA
Analysis Batch: 321613
Prep Batch: 321516

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenol	2.00	0.775	J	ug/L		39	17 - 120
Bis(2-chloroethyl)ether	2.00	1.77		ug/L		89	43 - 126
2-Chlorophenol	2.00	1.67		ug/L		84	36 - 120
1,3-Dichlorobenzene	2.00	1.46		ug/L		73	34 - 121
1,4-Dichlorobenzene	2.00	1.43		ug/L		71	40 - 120
1,2-Dichlorobenzene	2.00	1.47		ug/L		73	44 - 120
N-Nitrosodi-n-propylamine	2.00	1.81		ug/L		91	14 - 198
Hexachloroethane	2.00	1.35		ug/L		67	55 - 120
Nitrobenzene	2.00	1.82		ug/L		91	54 - 158
Isophorone	2.00	1.89		ug/L		94	47 - 180
2-Nitrophenol	2.00	1.77		ug/L		88	45 - 167
2,4-Dimethylphenol	2.00	1.73	J	ug/L		87	42 - 120
Bis(2-chloroethoxy)methane	2.00	1.79		ug/L		90	49 - 165
2,4-Dichlorophenol	2.00	1.69	J	ug/L		84	53 - 122
1,2,4-Trichlorobenzene	2.00	1.47		ug/L		73	57 - 130
Naphthalene	2.00	1.66		ug/L		83	36 - 120
Hexachlorobutadiene	2.00	1.28		ug/L		64	38 - 120
4-Chloro-3-methylphenol	2.00	1.65		ug/L		83	41 - 128
Hexachlorocyclopentadiene	2.00	1.22	J	ug/L		61	20 - 120
2,4,6-Trichlorophenol	2.00	1.57		ug/L		78	55 - 129
2-Chloronaphthalene	2.00	1.60		ug/L		80	65 - 120
Dimethyl phthalate	2.00	1.86		ug/L		93	1 - 120
Acenaphthylene	2.00	1.69		ug/L		84	54 - 126
2,6-Dinitrotoluene	2.00	1.75		ug/L		87	68 - 137
Acenaphthene	2.00	1.70		ug/L		85	60 - 132
2,4-Dinitrophenol	4.00	2.51	J	ug/L		63	1 - 173
4-Nitrophenol	4.00	ND		ug/L		33	13 - 129
2,4-Dinitrotoluene	2.00	1.73		ug/L		86	48 - 127
Diethyl phthalate	2.00	2.05	J	ug/L		102	1 - 120
4-Chlorophenyl phenyl ether	2.00	1.72		ug/L		86	38 - 145
Fluorene	2.00	1.73	J	ug/L		87	70 - 120
4,6-Dinitro-2-methylphenol	4.00	2.84	J	ug/L		71	53 - 130

Client: CH2M Hill, Inc. Job ID: 580-92304-1
Project/Site: Graymont, Tacoma

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-321516/2-A **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 321613 **Prep Batch: 321516**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
N-Nitrosodiphenylamine	2.00	1.82	J	ug/L		91	22 - 135
4-Bromophenyl phenyl ether	2.00	1.75		ug/L		87	65 - 120
Hexachlorobenzene	2.00	1.74		ug/L		87	8 - 142
Pentachlorophenol	4.00	1.90	J	ug/L		47	38 - 152
Phenanthrene	2.00	1.78		ug/L		89	65 - 120
Anthracene	2.00	1.74	J	ug/L		87	43 - 120
Di-n-butyl phthalate	2.00	2.42	J *	ug/L		121	8 - 120
Fluoranthene	2.00	1.85	J	ug/L		93	43 - 121
Pyrene	2.00	2.08		ug/L		104	70 - 120
Butyl benzyl phthalate	2.00	2.12	J	ug/L		106	1 - 140
3,3'-Dichlorobenzidine	4.00	4.21	J	ug/L		105	8 - 213
Benzo[a]anthracene	2.00	1.94		ug/L		97	42 - 133
Chrysene	2.00	1.91		ug/L		95	44 - 140
Bis(2-ethylhexyl) phthalate	2.00	1.98	J	ug/L		99	29 - 137
Di-n-octyl phthalate	2.00	1.84		ug/L		92	19 - 132
Benzo[a]pyrene	2.00	1.80		ug/L		90	32 - 148
Indeno[1,2,3-cd]pyrene	2.00	1.58		ug/L		79	1 - 151
Dibenz(a,h)anthracene	2.00	1.66		ug/L		83	1 - 200
Benzo[g,h,i]perylene	2.00	1.69		ug/L		85	1 - 195
Carbazole	2.00	2.55		ug/L		127	80 - 135
N-Nitrosodimethylamine	2.00	1.07	J	ug/L		54	45 - 125
Benzidine	4.00	ND		ug/L		27	5 - 125
Benzo[k]fluoranthene	2.00	1.63		ug/L		81	25 - 146
Benzo[b]fluoranthene	2.00	1.69		ug/L		85	42 - 140
1,2-Diphenylhydrazine (as Azobenzene)	2.00	1.99	J	ug/L		99	23 - 132
bis (2-chloroisopropyl) ether	2.00	1.73		ug/L		87	53 - 133

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol	*49*		*20 - 122*
Phenol-d5	*30*		*20 - 123*
Nitrobenzene-d5	*86*		*59 - 123*
2-Fluorobiphenyl	*82*		*56 - 124*
2,4,6-Tribromophenol	*84*		*47 - 137*
Terphenyl-d14	*97*		*60 - 135*

Lab Sample ID: LCSD 580-321516/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 321613 **Prep Batch: 321516**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenol	2.00	0.883	J	ug/L		44	17 - 120	13	26
Bis(2-chloroethyl)ether	2.00	2.11		ug/L		105	43 - 126	17	20
2-Chlorophenol	2.00	1.94		ug/L		97	36 - 120	15	20
1,3-Dichlorobenzene	2.00	1.69		ug/L		84	34 - 121	15	29
1,4-Dichlorobenzene	2.00	1.62		ug/L		81	40 - 120	13	25
1,2-Dichlorobenzene	2.00	1.72		ug/L		86	44 - 120	16	20
N-Nitrosodi-n-propylamine	2.00	2.04		ug/L		102	14 - 198	12	20
Hexachloroethane	2.00	1.55		ug/L		77	55 - 120	14	35

Client: CH2M Hill, Inc.
Project/Site: Graymont, Tacoma

Job ID: 580-92304-1

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-321516/3-A
Matrix: Water
Analysis Batch: 321613

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 321516

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrobenzene	2.00	2.10		ug/L		105	54 - 158	14	20
Isophorone	2.00	2.08		ug/L		104	47 - 180	10	20
2-Nitrophenol	2.00	2.00		ug/L		100	45 - 167	12	35
2,4-Dimethylphenol	2.00	1.97	J	ug/L		99	42 - 120	13	35
Bis(2-chloroethoxy)methane	2.00	2.05		ug/L		102	49 - 165	13	26
2,4-Dichlorophenol	2.00	1.97	J	ug/L		98	53 - 122	15	26
1,2,4-Trichlorobenzene	2.00	1.69		ug/L		85	57 - 130	14	20
Naphthalene	2.00	1.91		ug/L		95	36 - 120	14	20
Hexachlorobutadiene	2.00	1.48		ug/L		74	38 - 120	15	31
4-Chloro-3-methylphenol	2.00	1.78		ug/L		89	41 - 128	8	20
Hexachlorocyclopentadiene	2.00	1.32	J	ug/L		66	20 - 120	8	35
2,4,6-Trichlorophenol	2.00	1.76		ug/L		88	55 - 129	12	20
2-Chloronaphthalene	2.00	1.77		ug/L		88	65 - 120	10	20
Dimethyl phthalate	2.00	1.99		ug/L		100	1 - 120	7	20
Acenaphthylene	2.00	1.86		ug/L		93	54 - 126	10	20
2,6-Dinitrotoluene	2.00	1.91		ug/L		96	68 - 137	9	24
Acenaphthene	2.00	1.87		ug/L		94	60 - 132	10	20
2,4-Dinitrophenol	4.00	2.53	J	ug/L		63	1 - 173	1	35
4-Nitrophenol	4.00	ND		ug/L		35	13 - 129	7	23
2,4-Dinitrotoluene	2.00	1.86		ug/L		93	48 - 127	8	29
Diethyl phthalate	2.00	2.33	J	ug/L		116	1 - 120	13	20
4-Chlorophenyl phenyl ether	2.00	1.87		ug/L		93	38 - 145	9	20
Fluorene	2.00	1.90	J	ug/L		95	70 - 120	9	20
4,6-Dinitro-2-methylphenol	4.00	3.35	J	ug/L		84	53 - 130	17	35
N-Nitrosodiphenylamine	2.00	2.02	J	ug/L		101	22 - 135	10	29
4-Bromophenyl phenyl ether	2.00	1.88		ug/L		94	65 - 120	8	20
Hexachlorobenzene	2.00	1.79		ug/L		90	8 - 142	3	20
Pentachlorophenol	4.00	2.09	J	ug/L		52	38 - 152	10	35
Phenanthrene	2.00	1.93		ug/L		96	65 - 120	8	20
Anthracene	2.00	1.89	J	ug/L		95	43 - 120	8	26
Di-n-butyl phthalate	2.00	2.46	J *	ug/L		123	8 - 120	2	20
Fluoranthene	2.00	1.99	J	ug/L		100	43 - 121	7	20
Pyrene	2.00	2.26		ug/L		113	70 - 120	8	20
Butyl benzyl phthalate	2.00	2.39	J	ug/L		120	1 - 140	12	20
3,3'-Dichlorobenzidine	4.00	4.88	J	ug/L		122	8 - 213	15	35
Benzo[a]anthracene	2.00	2.26		ug/L		113	42 - 133	15	20
Chrysene	2.00	2.15		ug/L		108	44 - 140	12	20
Bis(2-ethylhexyl) phthalate	2.00	2.32	J	ug/L		116	29 - 137	16	35
Di-n-octyl phthalate	2.00	2.01		ug/L		101	19 - 132	9	20
Benzo[a]pyrene	2.00	2.04		ug/L		102	32 - 148	13	35
Indeno[1,2,3-cd]pyrene	2.00	1.79		ug/L		90	1 - 151	13	20
Dibenz(a,h)anthracene	2.00	1.80		ug/L		90	1 - 200	8	20
Benzo[g,h,i]perylene	2.00	1.87		ug/L		93	1 - 195	10	20
Carbazole	2.00	2.63		ug/L		132	80 - 135	3	20
N-Nitrosodimethylamine	2.00	1.30	J	ug/L		65	45 - 125	19	25
Benzidine	4.00	ND	*	ug/L		39	5 - 125	36	35
Benzo[k]fluoranthene	2.00	1.80		ug/L		90	25 - 146	10	20
Benzo[b]fluoranthene	2.00	2.02		ug/L		101	42 - 140	17	20

Method: 625.1 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-321516/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 321613 — **Prep Batch: 321516**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Diphenylhydrazine (as Azobenzene)	2.00	2.13		ug/L		106	23 - 132	7	35
bis (2-chloroisopropyl) ether	2.00	1.98		ug/L		99	53 - 133	13	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorophenol	*57*		*20 - 122*
Phenol-d5	*36*		*20 - 123*
Nitrobenzene-d5	*100*		*59 - 123*
2-Fluorobiphenyl	*88*		*56 - 124*
2,4,6-Tribromophenol	*91*		*47 - 137*
Terphenyl-d14	*104*		*60 - 135*

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 580-321447/14-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 321568 — **Prep Batch: 321447**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	ND		0.80	0.11	ug/L		01/27/20 14:26	01/28/20 10:21	1
Arsenic	ND		1.0	0.20	ug/L		01/27/20 14:26	01/28/20 10:21	1
Beryllium	ND		0.40	0.071	ug/L		01/27/20 14:26	01/28/20 10:21	1
Cadmium	ND		0.80	0.10	ug/L		01/27/20 14:26	01/28/20 10:21	1
Chromium	ND		0.80	0.17	ug/L		01/27/20 14:26	01/28/20 10:21	1
Copper	ND		2.0	0.60	ug/L		01/27/20 14:26	01/28/20 10:21	1
Lead	ND		0.80	0.20	ug/L		01/27/20 14:26	01/28/20 10:21	1
Nickel	ND		3.0	0.12	ug/L		01/27/20 14:26	01/28/20 10:21	1
Selenium	ND		8.0	2.1	ug/L		01/27/20 14:26	01/28/20 10:21	1
Silver	ND		0.40	0.055	ug/L		01/27/20 14:26	01/28/20 10:21	1
Thallium	ND		1.0	0.065	ug/L		01/27/20 14:26	01/28/20 10:21	1
Zinc	ND		7.0	1.9	ug/L		01/27/20 14:26	01/28/20 10:21	1

Lab Sample ID: LCS 580-321447/15-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 321568 — **Prep Batch: 321447**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	1000	934		ug/L		93	85 - 115
Arsenic	1000	921		ug/L		92	85 - 115
Beryllium	1000	943		ug/L		94	85 - 115
Cadmium	1000	947		ug/L		95	85 - 115
Chromium	1000	922		ug/L		92	85 - 115
Copper	1000	927		ug/L		93	85 - 115
Lead	1000	933		ug/L		93	85 - 115
Nickel	1000	925		ug/L		93	85 - 115
Selenium	1000	935		ug/L		94	85 - 115
Silver	1000	932		ug/L		93	85 - 115
Thallium	1000	923		ug/L		92	85 - 115
Zinc	1000	945		ug/L		95	85 - 115

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 580-321447/16-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 321568 **Prep Batch: 321447**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	1000	943		ug/L		94	85 - 115	1	20
Arsenic	1000	935		ug/L		93	85 - 115	1	20
Beryllium	1000	943		ug/L		94	85 - 115	0	20
Cadmium	1000	946		ug/L		95	85 - 115	0	20
Chromium	1000	926		ug/L		93	85 - 115	0	20
Copper	1000	931		ug/L		93	85 - 115	0	20
Lead	1000	942		ug/L		94	85 - 115	1	20
Nickel	1000	930		ug/L		93	85 - 115	1	20
Selenium	1000	941		ug/L		94	85 - 115	1	20
Silver	1000	938		ug/L		94	85 - 115	1	20
Thallium	1000	933		ug/L		93	85 - 115	1	20
Zinc	1000	954		ug/L		95	85 - 115	1	20

Lab Sample ID: 580-92304-1 MS **Client Sample ID: GR-NPDES-1-01242020**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 321568 **Prep Batch: 321447**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	1.0		1000	922		ug/L		92	70 - 130
Arsenic	1.1		1000	909		ug/L		91	70 - 130
Beryllium	ND		1000	901		ug/L		90	70 - 130
Cadmium	ND		1000	933		ug/L		93	70 - 130
Chromium	0.93		1000	900		ug/L		90	70 - 130
Copper	2.9		1000	910		ug/L		91	70 - 130
Lead	0.43	J	1000	911		ug/L		91	70 - 130
Nickel	0.62	J	1000	902		ug/L		90	70 - 130
Selenium	ND		1000	925		ug/L		93	70 - 130
Silver	ND		1000	912		ug/L		91	70 - 130
Thallium	ND		1000	907		ug/L		91	70 - 130
Zinc	7.2		1000	923		ug/L		92	70 - 130

Lab Sample ID: 580-92304-1 MSD **Client Sample ID: GR-NPDES-1-01242020**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 321568 **Prep Batch: 321447**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	1.0		1000	925		ug/L		92	70 - 130	0	20
Arsenic	1.1		1000	928		ug/L		93	70 - 130	2	20
Beryllium	ND		1000	914		ug/L		91	70 - 130	2	20
Cadmium	ND		1000	941		ug/L		94	70 - 130	1	20
Chromium	0.93		1000	914		ug/L		91	70 - 130	2	20
Copper	2.9		1000	928		ug/L		92	70 - 130	2	20
Lead	0.43	J	1000	929		ug/L		93	70 - 130	2	20
Nickel	0.62	J	1000	920		ug/L		92	70 - 130	2	20
Selenium	ND		1000	918		ug/L		92	70 - 130	1	20
Silver	ND		1000	938		ug/L		94	70 - 130	3	20
Thallium	ND		1000	925		ug/L		93	70 - 130	2	20
Zinc	7.2		1000	942		ug/L		93	70 - 130	2	20

Method: 200.8 - Metals (ICP/MS) (Continued)

Lab Sample ID: 580-92304-1 DU
Matrix: Water
Analysis Batch: 321568

Client Sample ID: GR-NPDES-1-01242020
Prep Type: Total/NA
Prep Batch: 321447

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Antimony	1.0		1.03		ug/L		0.1	20
Arsenic	1.1		1.13		ug/L		2	20
Beryllium	ND		ND		ug/L		NC	20
Cadmium	ND		ND		ug/L		NC	20
Chromium	0.93		0.963		ug/L		4	20
Copper	2.9		2.96		ug/L		3	20
Lead	0.43	J	0.425	J	ug/L		2	20
Nickel	0.62	J	0.609	J	ug/L		2	20
Selenium	ND		ND		ug/L		NC	20
Silver	ND		ND		ug/L		NC	20
Thallium	ND		ND		ug/L		NC	20
Zinc	7.2		7.32		ug/L		1	20

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 580-321923/1-A
Matrix: Water
Analysis Batch: 321929

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 321923

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
HEM (Oil & Grease)	ND		5150	5150	ug/L		02/04/20 09:01	02/04/20 09:35	1

Lab Sample ID: LCS 580-321923/2-A
Matrix: Water
Analysis Batch: 321929

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 321923

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM (Oil & Grease)	42500	34010		ug/L		80	78 - 114

Lab Sample ID: LCSD 580-321923/3-A
Matrix: Water
Analysis Batch: 321929

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 321923

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
HEM (Oil & Grease)	42200	41460	*	ug/L		98	78 - 114	20	18

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-321512/3
Matrix: Water
Analysis Batch: 321512

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		1.2	0.26	mg/L			01/27/20 17:31	1

Client: CH2M Hill, Inc.
Project/Site: Graymont, Tacoma

Job ID: 580-92304-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 580-321512/4
Matrix: Water
Analysis Batch: 321512

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	50.5		mg/L		101	90 - 110

Lab Sample ID: LCSD 580-321512/5
Matrix: Water
Analysis Batch: 321512

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	50.0	50.4		mg/L		101	90 - 110	0	15

Lab Sample ID: 580-92304-1 MS
Matrix: Water
Analysis Batch: 321512

Client Sample ID: GR-NPDES-1-01242020
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	120	F1	50.0	163	F1	mg/L		81	90 - 110

Lab Sample ID: 580-92304-1 MSD
Matrix: Water
Analysis Batch: 321512

Client Sample ID: GR-NPDES-1-01242020
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	120	F1	50.0	163	F1	mg/L		81	90 - 110	0	15

Method: 335.4 - Cyanide, Total

Lab Sample ID: MB 580-321779/1-A
Matrix: Water
Analysis Batch: 321787

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 321779

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		60	60	ug/L		01/31/20 11:49	01/31/20 11:49	1

Lab Sample ID: LCS 580-321779/2-A
Matrix: Water
Analysis Batch: 321787

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 321779

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	500	482		ug/L		96	90 - 110

Lab Sample ID: LCSD 580-321779/3-A
Matrix: Water
Analysis Batch: 321787

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 321779

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	500	491		ug/L		98	90 - 110	2	10

Method: 420.4 - Phenolics, Total Recoverable

Lab Sample ID: MB 280-484463/2-A
Matrix: Water
Analysis Batch: 484632

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 484463

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenols, Total	ND		0.020	0.0068	mg/L		01/30/20 11:08	01/31/20 11:29	1

Lab Sample ID: LCS 280-484463/1-A
Matrix: Water
Analysis Batch: 484632

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 484463

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phenols, Total	0.201	0.185		mg/L		92	90 - 110

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 580-321627/1
Matrix: Water
Analysis Batch: 321627

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		2.0	2.0	mg/L			01/29/20 12:30	1

Lab Sample ID: LCS 580-321627/2
Matrix: Water
Analysis Batch: 321627

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	27.6	23.2		mg/L		84	80 - 120

Method: SM 4500 NH3 G - Ammonia

Lab Sample ID: MB 580-321457/1
Matrix: Water
Analysis Batch: 321457

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia as N	ND		0.50	0.50	mg/L			01/27/20 16:13	1

Lab Sample ID: LCS 580-321457/2
Matrix: Water
Analysis Batch: 321457

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia as N	2.00	1.92		mg/L		96	90 - 110

Lab Sample ID: 580-92304-1 MS
Matrix: Water
Analysis Batch: 321457

Client Sample ID: GR-NPDES-1-01242020
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia as N	ND	F1	2.00	2.34	F1	mg/L		117	90 - 110

Method: SM 4500 NH3 G - Ammonia (Continued)

Lab Sample ID: 580-92304-1 MSD
Matrix: Water
Analysis Batch: 321457

Client Sample ID: GR-NPDES-1-01242020
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ammonia as N	ND	F1	2.00	2.33	F1	mg/L		117	90 - 110	0	20

Lab Sample ID: 580-92304-1 DU
Matrix: Water
Analysis Batch: 321457

Client Sample ID: GR-NPDES-1-01242020
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Ammonia as N	ND	F1	ND		mg/L		NC	20

Method: SM 5210B - BOD, 5-Day

Lab Sample ID: USB 580-321600/1
Matrix: Water
Analysis Batch: 321600

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

Analyte	USB Result	USB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Biochemical Oxygen Demand	ND		2.0	2.0	mg/L			01/25/20 14:00	1

Lab Sample ID: LCS 580-321600/2
Matrix: Water
Analysis Batch: 321600

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Biochemical Oxygen Demand	198	160	*	mg/L		81	85 - 115

Method: SM 5220D - COD

Lab Sample ID: MB 580-321532/3-A
Matrix: Water
Analysis Batch: 321538

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 321532

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chemical Oxygen Demand	ND		10	10	mg/L		01/28/20 14:16	01/28/20 14:16	1

Lab Sample ID: LCS 580-321532/4-A
Matrix: Water
Analysis Batch: 321538

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 321532

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chemical Oxygen Demand	75.0	78.0		mg/L		104	80 - 120

Lab Sample ID: LCSD 580-321532/5-A
Matrix: Water
Analysis Batch: 321538

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 321532

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chemical Oxygen Demand	75.0	78.3		mg/L		104	80 - 120	0	20

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Graymont, Tacoma

Job ID: 580-92304-1

Method: SM 5310B - Organic Carbon, Total (TOC)

Lab Sample ID: MB 280-484842/4
Matrix: Water
Analysis Batch: 484842

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon - Duplicates	ND		1.0	0.35	mg/L			02/03/20 16:55	1

Lab Sample ID: LCS 280-484842/3
Matrix: Water
Analysis Batch: 484842

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	25.0	23.4		mg/L		93	88 - 112

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Graymont, Tacoma

Job ID: 580-92304-1

Client Sample ID: GR-NPDES-1-01242020

Lab Sample ID: 580-92304-1

Date Collected: 01/24/20 10:55
Date Received: 01/24/20 12:50

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	321775	01/31/20 19:02	CJB	TAL SEA
Total/NA	Prep	CWA_Prep			321516	01/28/20 11:55	T1L	TAL SEA
Total/NA	Analysis	625.1		1	323113	02/19/20 16:09	JCM	TAL SEA
Total/NA	Prep	200.8			321447	01/27/20 14:26	A1B	TAL SEA
Total/NA	Analysis	200.8		1	321568	01/28/20 10:26	FCW	TAL SEA
Total/NA	Prep	1664A			321923	02/04/20 11:10	ESB	TAL SEA
Total/NA	Analysis	1664A		1	321929	02/04/20 13:30	ESB	TAL SEA
Total/NA	Analysis	300.0		2	321512	01/28/20 09:48	AAC	TAL SEA
Total/NA	Prep	Distill/CN			321779	01/31/20 11:49	R1K	TAL SEA
Total/NA	Analysis	335.4		1	321787	01/31/20 11:49	R1K	TAL SEA
Total/NA	Prep	Distill/Phenol			484463	01/30/20 11:08	JAM	TAL DEN
Total/NA	Analysis	420.4		1	484632	01/31/20 11:35	JAM	TAL DEN
Total/NA	Analysis	SM 2540D		1	321627	01/29/20 12:30	ESB	TAL SEA
Total/NA	Analysis	SM 4500 NH3 G		1	321457	01/27/20 16:13	AAC	TAL SEA
Total/NA	Analysis	SM 5210B		1	321600	01/25/20 14:00	R1K	TAL SEA
Total/NA	Prep	SM 5220			321532	01/28/20 14:16	R1K	TAL SEA
Total/NA	Analysis	SM 5220D		1	321538	01/28/20 14:16	R1K	TAL SEA
Total/NA	Analysis	SM 5310B		1	484842	02/04/20 01:09	SGB	TAL DEN

Client Sample ID: Trip Blank

Lab Sample ID: 580-92304-2

Date Collected: 01/24/20 00:01
Date Received: 01/24/20 12:50

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	624.1		1	321775	01/31/20 14:54	CJB	TAL SEA

Laboratory References:

TAL DEN = Eurofins TestAmerica, Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100
TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Laboratory: Eurofins TestAmerica, Seattle

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

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

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
200.8	200.8	Water	Antimony
200.8	200.8	Water	Arsenic
200.8	200.8	Water	Beryllium
200.8	200.8	Water	Cadmium
200.8	200.8	Water	Chromium
200.8	200.8	Water	Copper
200.8	200.8	Water	Lead
200.8	200.8	Water	Nickel
200.8	200.8	Water	Selenium
200.8	200.8	Water	Silver
200.8	200.8	Water	Thallium
200.8	200.8	Water	Zinc
300.0		Water	Sulfate
335.4	Distill/CN	Water	Cyanide, Total
624.1		Water	1,3-Dichloropropene, Total
625.1	CWA_Prep	Water	1,2-Dichlorobenzene
625.1	CWA_Prep	Water	1,2-Diphenylhydrazine (as Azobenzene)
625.1	CWA_Prep	Water	1,3-Dichlorobenzene
625.1	CWA_Prep	Water	1,4-Dichlorobenzene
625.1	CWA_Prep	Water	Benzidine

Accreditation/Certification Summary

Client: CH2M Hill, Inc.
Project/Site: Graymont, Tacoma

Job ID: 580-92304-1

Laboratory: Eurofins TestAmerica, Denver

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	2907.01	10-31-21
A2LA	ISO/IEC 17025	2907.01	10-31-21
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	01-08-20 *
Arizona	State	AZ0713	12-20-20
Arkansas DEQ	State	19-047-0	06-01-20
California	State	2513	01-08-21
Connecticut	State	PH-0686	09-30-20
Florida	NELAP	E87667-57	06-30-20
Illinois	NELAP	2000172019-1	04-30-20
Iowa	State	IA#370	12-01-20
Kansas	NELAP	E-10166	04-30-20
Louisiana	NELAP	30785	06-30-20
Maine	State	2019011 (231)	03-03-21
Minnesota	NELAP	1788752	12-31-20
Nevada	State	CO000262020-1	07-31-20
New Hampshire	NELAP	205319	04-28-20
New Jersey	NELAP	190002	06-30-20
New York	NELAP	59923	04-01-20
North Carolina (WW/SW)	State	358	12-31-20
North Dakota	State	R-034	01-08-20 *
North Dakota	State	R-034	01-08-21
Oklahoma	State	2018-006	08-31-20
Oregon	NELAP	4025-011	01-08-21
Pennsylvania	NELAP	013	08-01-20
South Carolina	State	72002001	01-08-20 *
Texas	NELAP	T104704183-19-17	09-30-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-18-00099	03-26-21
Utah	NELAP	CO000262019-11	07-31-20
Virginia	NELAP	10490	06-14-20
Washington	State	C583-19	08-05-20
West Virginia DEP	State	354	11-30-20
Wisconsin	State	999615430	08-31-20
Wyoming (UST)	A2LA	2907.01	10-31-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: CH2M Hill, Inc.
Project/Site: Graymont, Tacoma

Job ID: 580-92304-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-92304-1	GR-NPDES-1-01242020	Water	01/24/20 10:55	01/24/20 12:50	
580-92304-2	Trip Blank	Water	01/24/20 00:01	01/24/20 12:50	

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

Chain of Custody Record

eurofins Environment Testing TestAmerica

Client Information	Sampler: MARIO LOPEZ RAMOS	Lab PM: Allen, Kristine D	Carrier Tracking No(s):	COC No: 580-37424-11968.1
Client Contact: ~~Mario Lopez~~ RACHEL CHANG	Phone: 206-380-3056	E-Mail: kristine.allen@testamericainc.com		Page: Page 1 of 1
Company: CH2M Hill, Inc.				Job #: 92304
Address: 1100 - 112th Ave NE Suite 500	Due Date Requested:			
City: Bellevue	TAT Requested (days): Standard			
State, Zip: WA, 98004-4504				
Phone:	PO #: D3264200.B.PN.GEN.03			
Email: Mario.Lopez@ch2m.com /rachel.chang@jacobs.com	WO #:			
Project Name: Graymont, Tacoma	Project #: 58013708			
Site:	SSOW#:			

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	420.4 - Phenolics, Total Recoverable	5220D, SM4500NH3_G	300.0_28D - Sulfate	200.8_CWA - (MOD) Template to build analyte list	1664A - HEM (Oil and Grease)	SM5310_TOC_B - Organic Carbon, Total (TOC)	624.1_PREC - Volatiles, custom list	625.1 - (MOD) Semivolatiles, custom list	2540D, SM5210B_Calc	335.4 - Cyanide, Total	Total Number of containers	Special Instructions/Note:
			Preservation Code:				S	S	N	D	A	S	A	N	N	B		
GR-NPDES-1-01242020	1/24/2020	1055	G	Water	N	N	X	X	X	X	X	X	X	X	X	X		
TRIP BLANK	"	—	G	Water									X					

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)
Other:

580-92304 Chain of Custody

Therm. ID: A2 Cor: 5.3 Unc: 5.5
Cooler Dsc: LB
Packing: B-b
Cust. Seal: Yes___ No
Blue Ice, Wet, Dry, None
FedEx:
UPS:
Lab Cour:
Other: CD

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	1/24/2020 1250	JACOBS	[signature]	1-24-20 1250	TAsea
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

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

Chain of Custody Record

eurofins Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Allen, Kristine D	Carrier Tracking No(s):	COC No: 580-74142.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: kristine.allen@testamericainc.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State - Washington		Job #: 580-92304-1
Address: 4955 Yarrow Street,	Due Date Requested: 2/5/2020	Analysis Requested		Preservation Codes:
City: Arvada	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA; M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:			
Email:	WO #:			
Project Name: Graymont Tacoma	Project #: 58013708			Other:
Site:	SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	420.4/Distill_Phenol	Total Number of containers	Special Instructions/Note:
				Preservation Code:					
GR-NPDES-1-01242020 (580-92304-1)	1/24/20	10:55 Pacific		Water			X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.

Possible Hazard Identification		*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*	
Unconfirmed		Return To Client / Disposal By Lab / Archive For ____ Months	
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2	Special Instructions/QC Requirements:	
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	1-27-20	TA-Sea	[signature]	1/28/20 0950	TA-DEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Yes / No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.1, 0.9, 1.9, ~~5.8~~ 1/28/20

Ver: 01/16/2019

10

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

Chain of Custody Record

eurofins

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Allen, Kristine D	Carrier Tracking No(s):	COC No: 580-74241.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: kristine.allen@testamericainc.com	State of Origin: Washington	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note): State - Washington		Job #: 580-92304-1
Address: 4955 Yarrow Street,	Due Date Requested: 2/5/2020	**Analysis Requested**		Preservation Codes:
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone: 303-736-0100(Tel) 303-431-7171(Fax)	PO #:			
Email:	WO #:			
Project Name: Graymont Tacoma	Project #: 58013708			
Site:	SSOW#:			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SM5310B/ Organic Carbon, Total (TOC)	Total Number of containers	Special Instructions/Note:
				Preservation Code:					
GR-NPDES-1-01242020 (580-92304-1)	1/24/20	10:55 Pacific		Water			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ____ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) — Primary Deliverable Rank: 2
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:		Time:		Method of Shipment:	
Relinquished by:	Date/Time: 1/30/20	Company: TA-Sea	Received by:	Date/Time: 1/31/20 0905	Company: TASDEN	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:	
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 2.4, 0.4, IR9, S&, 1/31/20			

Ver: 01.16.2019

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 580-92304-1

Login Number: 92304
List Number: 1
Creator: Blankinship, Tom X

List Source: Eurofins TestAmerica, Seattle

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

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 580-92304-1

Login Number: 92304
List Number: 2
Creator: Zimmerman, Steven M

List Source: Eurofins TestAmerica, Denver
List Creation: 01/28/20 03:07 PM

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

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 580-92304-1

Login Number: 92304
List Number: 3
Creator: Lubin, Julius C

List Source: Eurofins TestAmerica, Denver
List Creation: 01/31/20 05:50 PM

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