Lennberg - DNR, Patrick <patrick.lennberg@state.co.us>

Letter Requesting Removal from Cease and Desist

1 message

Daniel Takami <danieltakami@gmail.com> Tue, Jul 12, 2022 at 1:24 PM
To: Patrick Lennberg - DNR <patrick.lennberg@state.co.us>
Cc: Sergio Rivera <sergio.rivera@novametallix.com>, Richard Mittasch <rmittasch@nedmining.com>

Mr. Lennberg,

Enclosed is our letter requesting removal from the Cease and Desist order that we are currently under. Also included in this email are the 2nd Quarter Wet Test Results, The Quarterly Mercury Results and the June Compliance Samples. All of the files are available at CDPHE as they were filed yesterday. If you have any questions, feel free to contact me.

Respectfully,

Daniel J. Takami
President, Sustainable Metal Solutions, LLC
President, Nederland Mining Consultants Inc.
President, Grand Island Resources, LLC
danieltakami@gmail.com
501.256.4444

4 attachments

Signed GIR to DRMS Letter requesting removal of Cease and Desist.pdf
577K

NetDMR_COR_6287016_CO0032751_001_X_20220630.zip
6700K

NetDMR_COR_6287015_CO0032751_001_Q_20220630.zip
1157K

NetDMR_COR_6287014_CO0032751_001_A_20220630.zip
1880K

GRAND ISLAND RESOURCES

4415 Caribou Rd,
Nederland CO, 80466

Division of Reclamation, Mining & Safety
c/o Mr. Patrick Lennberg
1001 E 62nd Ave,
Room 215
Denver, CO 80216

July 12, 2022

SUBJECT: REQUEST FOR REMOVAL OF CEASE-AND-DESIST ORDER

Mr. Lennberg

Grand Island Resources (GIR) hereby respectfully requests the Removal of the Mined Land Reclamation Board (Board) Cease and Desist Order and Corrective Actions Order. GIR Management believes that the GIR has met the Board Mandated Corrective Actions.

GIR for the second quarter of 2022 has had no violations for any of his discharge reports During the month of June 2022 there were no exceedances at Outfall 001. This includes the test results for low-level mercury taken during the 2nd quarter and the 2nd quarter WET test taken 6/13/2022 – 6/15/2022. Every sampling event passed without issue.

On February 18, 2022 the Colorado Mined Land Reclamation Board (Board) issued to Grand Island Resources LLC (Operator) it's Findings of Fact, Conclusions of Law and Order (Appendix A) on the matter of Notice of Violation No. MV-2021-017 brought before the Board by the Division of Reclamation, Mining & Safety (DRMS) on December 15, 2021 indicating possible violation by the Operator, Civil Penalties, Cease and Desist Order and Corrective Actions for Failure to Minimize Disturbances to the Prevailing Hydrologic Balance, File No. M-1977-410.

The Board found the Operator in violation of section 34-32-116(7)(g), C.R.S. and Rule 3.1.6(1).

The Operator (GIR) has addressed the Corrective Actions Mandated by the Board, as follows:

1.1. CEASE AND DESIST

BOARD ORDER: The Operator shall Cease and Desist any further activities underground, except for those activities approved by the Division, in writing, as necessary to comply with the conditions of the Order, protect water quality, prevent damage to off-site areas, complete reclamation, or to protect public health and safety, until all the corrective actions have been resolved to the satisfaction of the Division.

OPERATORS ACTIONS: The Operator have taken the following actions

1.1.1. Underground Exploration and Ore Production Activities

The operator stopped all activities on November 30, 2021

1.1.2. DRMS Approved Activities

4415 Caribou Rd,
Nederland CO, 80466

On December 21, 2021, the Operator requested in written form, approval from DRMS to conduct 17 specific activities underground activities considered by the Operator to be most pressing to comply with the intent of the Cease-and-Desist Order.

The Operator is in frequent communications with DRMS and continue to request approval for activities underground that are considered essential by the Operator for continued compliance with the intent of the Cease-and-Desist Order.

1.2. CORRECTIVE ACTIONS

1.2.1. Board Ordered Corrective Action #1 - Technical Revision Water Treatment Modifications

On February 28, 2022, the Operator filed with DRMS a Request for Technical Revision (namely TR-10) in response to a Service of Notice of Violation/Cease and Desist Order (Number IO-211130-1) from Colorado Department of Public Health and Environment (CDPHE) dated November 30, 2021, in conjunction with Permit No. M-1977-410.

TR10 describes the Water Treatment Pilot System currently in operation at the site, including additional equipment to increase the current treatment capacity; water quality results and performance of the current system; a Ground Water Monitoring Plan (GWMP) and a Surface Water Monitoring Plan (SWP) as required by the NOV/C&D Order. In addition, measures that have been taken and are further proposed at the site to address water quality baseline data collection.

DRMS issued to the Operator on March 25, 2022, a Preliminary Adequacy Review Letter (Cross Gold Mine, Permit No. M-1977-410, Technical Revision No. 10 (TR-10)) The Preliminary Adequacy Review Letter by DRMS presented 27 main topics and 29 subtopics requiring clarification and/or additional information from the Operator and, given that a decision date was set for April 28, 2022, the Operator requested an extension from the DRMS (Appendix C-3).

DRMS granted the extension to April 14, 2022, via written notification dated March 28, 2022

The Operator submitted to DRMS responses to the Preliminary Adequacy Review Letter on April 17, 2022

DRMS issued to the Operator on April 22, 2022, Adequacy Letter #2

The Operator submitted to DRMS responses to Adequacy Letter # 2 on April 27, 2022

DRMS issued to the Operator on April 28, 2022, Adequacy Letter # 3

The Operator responded to DRMS Adequacy Letter # 3 on April 28, 2022

DRMS issued to the Operator on April 28, 2022, Adequacy Letter #4 whereby Technical Revision 10 (TR10) is approved by DRMS.

4415 Caribou Rd,
Nederland CO, 80466

1.2.2. Board Mandated Corrective Action #2 -Financial Warranty to Operate the Water Treatment System

On March 16, 2022, the Operator filed with DRMS a Financial Warranty, Check for Deposit in the State Treasury Form, Check No. 125 for $162,841.00 (One Hundred and Sixty-Two Thousand Eight Hundred and Forty-One Dollars) the check was deposited by the Operator on March 21, 2022.

As a result of responses to Board Mandated Corrective Action #1, on April 28, 2022 DRMS increased the Water Treatment Financial Warranty to $180,939.00.

The Operator will submit to the State Treasury a check for $18,098.00 to bond the additional Financial Warranty estimated by DRMS.

1.2.3. Board Mandated Corrective Action # 3 - Written Quarterly Report

On March 30, 2022, the Operator issued the First Quarterly Report (Q1 2022) to the Board.

1.2.4. Board Mandated Corrective Action #4 - Appear Before the MLRB – December 2022

Hearing date to be scheduled by the Board.

1.2.5. Board Order Financial Fine for Violations

On March 21, 2022, the Operator issued to DRMS a check for $5,000.00 as payment to the Board Ordered Financial Fine for the violations.

Grand Island Resources LLC, Directors, Management and Technical Personnel appreciate the approval by DRMS of Technical Revision #10 and takes the opportunity to emphasize our commitment to the development of a mining operation that is compliant with all applicable regulatory framework. Our staff has been working diligently and tirelessly to address the temporary shortcoming faced by the operation. The Corporation has committed the necessary financial and personnel resources required to implement measures to ensure that the violations cited by the Board are remedied and that do not occur in the future and look forward to continuing exploring and identifying the metal resources contained within our mining district and advance the development of our mining operation.

Respectfully Submitted,

Daniel J. Takami
President, Grand Island Resources LLC,

1508 Ridge Road
Nederland, CO 80466
Phone (315) 414-6986
www.blackfoxmining.com

July 12, 2022

Permits and Enforcement Section
Water Quality Control Division
CPDHE
4300 Cherry Creek Dr. South
Denver, CO 80246-1530

Subject: Discharge Monitoring Report for June 2022
Cross Gold Mine CO0032751

To whom it may concern,

During the month of June 2022 there were no exceedances at Outfall 001. This includes the test results for low-level mercury taken during the 2nd quarter and the 2nd quarter WET test taken 6/13/2022 – 6/15/2022. Every sampling event passed without issue.

Please contact me with any questions.

Sincerely,

Patrick M. Delaney
Environmental Manager
Black Fox Mining LLC
1508 Ridge Road, Nederland, CO 80466
Phone 315-414-6986
www.blackfoxmining.com | pdelaney@blackfoxmining.com

DMR Copy of Record

Permit

Permit #:	**CO0032751**	**Permittee:**	Grand Island Resources LLC	**Facility:**	CROSS AND CARIBOU MINES
Major:	No	**Permittee Address:**	12567 W Cedar Dr Lakewood, CO 80228	**Facility Location:**	CROSS AND CARIBOU MINES BOULDER COUNTY, CO 80466
Permitted Feature:	001 External Outfall	**Discharge:**	**001-A** Treated Mine Water to Coon Track Creek		

Report Dates & Status

Monitoring Period:	**From 06/01/22 to 06/30/22**	**DMR Due Date:**	**07/28/22**	**Status:**	**NetDMR Validated**

Considerations for Form Completion

Oil and grease - see I.A.2, pg 3. 30 day average is the highest monthly average during period reported.

Principal Executive Officer

First Name:		**Title:**		**Telephone:**	
Last Name:					

No Data Indicator (NODI)

Form NODI: --

Parameter		Monitoring Location	Season #	Param. NODI		Quantity or Loading					Quality or Concentration							# of Ex.	Frequency of Analysis	Sample Type
Code	Name					Qualifier 1	Value 1	Qualifier 2	Value 2	Units	Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units			
00010	**Temperature, water deg. centigrade**	1 - Effluent Gross	0	--	Sample								=	6.66	=	13.7	04 - deg C	0	99/99 - Continuous	RC - Recorder (auto)
					Permit Req.									Req Mon MX WK AV		Req Mon DAILY MX	04 - deg C		99/99 - Continuous	RC - Recorder (auto)
					Value NODI															
00400	**pH**	1 - Effluent Gross	0	--	Sample						=	6.72			=	8.29	12 - SU	0	02/30 - Twice Per Month	GR - GRAB
					Permit Req.						>=	6.5 MINIMUM			<=	9.0 MAXIMUM	12 - SU		02/30 - Twice Per Month	GR - GRAB
					Value NODI															
00530	**Solids, total suspended**	1 - Effluent Gross	0	--	Sample								<	4.0	<	4.0	19 - mg/L	0	01/30 - Monthly	GR - GRAB
					Permit Req.								<=	30.0 30DA AVG	<=	45.0 DAILY MX	19 - mg/L		01/30 - Monthly	GR - GRAB
					Value NODI															
00978	**Arsenic, total recoverable**	1 - Effluent Gross	0	--	Sample								<	5.0			28 - ug/L	0	01/30 - Monthly	GR - GRAB
					Permit Req.									Req Mon 30DA AVG			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
00980	**Iron, total recoverable**	1 - Effluent Gross	0	--	Sample								<	100.0			28 - ug/L	0	01/30 - Monthly	GR - GRAB
					Permit Req.									Req Mon 30DA AVG			28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01094	**Zinc, total recoverable**	1 - Effluent Gross	0	--	Sample								<	10.0	<	10.0	28 - ug/L	0	01/30 - Monthly	GR - GRAB
					Permit Req.								<=	750.0 30DA AVG	<=	1500.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01113	**Cadmium, total recoverable**	1 - Effluent Gross	0	--	Sample								<	1.0	<	1.0	28 - ug/L	0	01/30 - Monthly	GR - GRAB
					Permit Req.								<=	50.0 30DA AVG	<=	300.0 DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB
					Value NODI															
01114	**Lead, total recoverable**	1 - Effluent Gross	0	--	Sample								=	2.4	=	2.25	28 - ug/L	0	02/30 - Twice Per Month	GR - GRAB
					Permit Req.								<=	300.0 30DA AVG	<=	600.0 DAILY MX	28 - ug/L		02/30 - Twice Per Month	GR - GRAB
					Value NODI															
01119	**Copper, total recoverable**	1 - Effluent Gross	0	--	Sample								<	2.0	<	2.0	28 - ug/L	0	02/30 - Twice Per Month	GR - GRAB
					Permit Req.								<=	150.0 30DA AVG	<=	300.0 DAILY MX	28 - ug/L		02/30 - Twice Per Month	GR - GRAB
					Value NODI															
01220	**Chromium, hexavalent dissolved [as**	1 - Effluent	0	--	Sample								<	20.0	<	20.0	28 - ug/L	0	01/30 - Monthly	GR - GRAB
					Permit Req.									Req Mon 30DA AVG		Req Mon DAILY MX	28 - ug/L		01/30 - Monthly	GR - GRAB

	Cr]	Gross			**Value NODI**																
01303	**Zinc, potentially dissolved**	1 - Effluent Gross	6	--	**Sample**							<	10.0	<	10.0	28 - ug/L		02/30 - Twice Per Month	GR - GRAB		
					Permit Req.							<=	262.0 30DA AVG	<=	301.0 DAILY MX	28 - ug/L	0	02/30 - Twice Per Month	GR - GRAB		
					Value NODI																
01304	**Silver, potentially dissolved**	1 - Effluent Gross	6	--	**Sample**							=	0.0	<	0.5	28 - ug/L		02/30 - Twice Per Month	GR - GRAB		
					Permit Req.							<=	0.17 30DA AVG	<=	4.7 DAILY MX	28 - ug/L	0	02/30 - Twice Per Month	GR - GRAB		
					Value NODI																
01306	**Copper, potentially dissolved**	1 - Effluent Gross	6	--	**Sample**							<	2.0	<	2.0	28 - ug/L		02/30 - Twice Per Month	GR - GRAB		
					Permit Req.							<=	13.0 30DA AVG	<=	20.0 DAILY MX	28 - ug/L	0	02/30 - Twice Per Month	GR - GRAB		
					Value NODI																
01309	**Arsenic, potentially dissolved**	1 - Effluent Gross	0	--	**Sample**									<	5.0	28 - ug/L		01/30 - Monthly	GR - GRAB		
					Permit Req.										Req Mon DAILY MX	28 - ug/L	0	01/30 - Monthly	GR - GRAB		
					Value NODI																
01313	**Cadmium, potentially dissolvd**	1 - Effluent Gross	6	--	**Sample**							<	0.5	<	0.5	28 - ug/L		02/30 - Twice Per Month	GR - GRAB		
					Permit Req.							<=	0.89 30DA AVG	<=	3.7 DAILY MX	28 - ug/L	0	02/30 - Twice Per Month	GR - GRAB		
					Value NODI																
01314	**Chromium, trivalent, potentially dissolvd**	1 - Effluent Gross	0	--	**Sample**							<	20.0			28 - ug/L		01/30 - Monthly	GR - GRAB		
					Permit Req.								Req Mon 30DA AVG			28 - ug/L	0	01/30 - Monthly	GR - GRAB		
					Value NODI																
01318	**Lead, potentially dissolvd**	1 - Effluent Gross	6	--	**Sample**							=	1.7	=	1.8	28 - ug/L		02/30 - Twice Per Month	GR - GRAB		
					Permit Req.							<=	5.4 30DA AVG	<=	140.0 DAILY MX	28 - ug/L	0	02/30 - Twice Per Month	GR - GRAB		
					Value NODI																
01319	**Manganese, potentially dissolvd**	1 - Effluent Gross	0	--	**Sample**							<	2.0	<	2.0	28 - ug/L		01/30 - Monthly	GR - GRAB		
					Permit Req.								Req Mon 30DA AVG		Req Mon DAILY MX	28 - ug/L	0	01/30 - Monthly	GR - GRAB		
					Value NODI																
01322	**Nickel, potentially dissolvd**	1 - Effluent Gross	0	--	**Sample**							<	2.0	<	2.0	28 - ug/L		01/30 - Monthly	GR - GRAB		
					Permit Req.								Req Mon 30DA AVG		Req Mon DAILY MX	28 - ug/L	0	01/30 - Monthly	GR - GRAB		
					Value NODI																
01323	**Selenium, potentially dissolvd**	1 - Effluent Gross	0	--	**Sample**							<	5.0	<	5.0	28 - ug/L		01/30 - Monthly	GR - GRAB		
					Permit Req.								Req Mon 30DA AVG		Req Mon DAILY MX	28 - ug/L	0	01/30 - Monthly	GR - GRAB		
					Value NODI																
03582	**Oil and grease**	1 - Effluent Gross	0	--	**Sample**																
					Permit Req.									<=	10.0 INST MAX	19 - mg/L		77/77 - Contingent	GR - GRAB		
					Value NODI										9 - Conditional Monitoring - Not Required This Period						
04262	**Chromium, trivalent total recoverable**	1 - Effluent Gross	0	--	**Sample**									<	20.0	28 - ug/L		01/30 - Monthly	GR - GRAB		
					Permit Req.										Req Mon DAILY MX	28 - ug/L	0	01/30 - Monthly	GR - GRAB		
					Value NODI																
50050	**Flow, in conduit or thru treatment plant**	1 - Effluent Gross	6	--	**Sample**							=	0.307822	=	0.446976	03 - MGD		99/99 - Continuous	RC - Recorder (auto)		
					Permit Req.							<=	0.458 30DA AVG		Req Mon DAILY MX	03 - MGD	0	99/99 - Continuous	RC - Recorder (auto)		
					Value NODI																
51202	**Sulfide-hydrogen sulfide [undissociated]**	1 - Effluent Gross	0	--	**Sample**							<	1.0			19 - mg/L		01/30 - Monthly	GR - GRAB		
					Permit Req.								Req Mon 30DA AVG			19 - mg/L	0	01/30 - Monthly	GR - GRAB		
					Value NODI																
					Sample							<	0.2	=	0.2	28 - ug/L		01/30 - Monthly	GR - GRAB		
					Permit																

71900	**Mercury, total [as Hg]**	1 - Effluent Gross	0	--	Req.								<=	1.0 30DA AVG	<=	2.0 DAILY MX		28 - ug/L	0	01/30 - Monthly	GR - GRAB
					Value NODI																
84066	**Oil and grease visual**	1 - Effluent Gross	0	--	Sample			=	0.0	AB - abst=0;prst=1									0	02/30 - Twice Per Month	VI - VISUAL
					Permit Req.				Req Mon INST MAX	AB - abst=0;prst=1										02/30 - Twice Per Month	VI - VISUAL
					Value NODI																

Submission Note

If a parameter row does not contain any values for the Sample nor Effluent Trading, then none of the following fields will be submitted for that row: Units, Number of Excursions, Frequency of Analysis, and Sample Type.

Edit Check Errors

No errors.

Comments

Attachments

Name	Type	Size
2022_06_CrossCaribouMine_Results_1.pdf	pdf	951590.0
2022_06_CrossCaribouMine_Results_2.pdf	pdf	881583.0
2022_06_CrossCaribouMine_CoverLetter.pdf	pdf	192807.0

Report Last Saved By

Grand Island Resources LLC

User:	pdelaney@alexcoresource.com
Name:	Patrick Delaney
E-Mail:	pdelaney@blackfoxmining.com
Date/Time:	2022-07-12 00:35 (Time Zone: -06:00)

Report Last Signed By

User:	pdelaney@alexcoresource.com
Name:	Patrick Delaney
E-Mail:	pdelaney@blackfoxmining.com
Date/Time:	2022-07-12 00:36 (Time Zone: -06:00)

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-163315-1
Client Project/Site: Wastewater Discharge - Nederland, CO

For:
GS Mining Company LLC
422 Gregory Street
Central City, Colorado 80427

Attn: Patrick Delaney

Authorized for release by:
6/24/2022 9:58:57 AM

Dylan Bieniulis, Project Manager I
(303)736-0138
Dylan.Bieniulis@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: GS Mining Company LLC
Job ID: 280-163315-1
Project/Site: Wastewater Discharge - Nederland, CO

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
^1+	Initial Calibration Verification (ICV) is outside acceptance limits, high biased.
F2	MS/MSD RPD exceeds control limits
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

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
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 280-163315-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: GS Mining Company LLC

Project: Wastewater Discharge - Nederland, CO

Report Number: 280-163315-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 06/10/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 11.9 C.

Receipt temperature is considered acceptable as the samples were collected and submitted to the laboratory on the same date.

TOTAL RECOVERABLE METALS (ICP)
Sample OUTFALL-001 (280-163315-1) was analyzed for Total Recoverable Metals (ICP) in accordance with EPA Method 200.7. The samples were prepared on 06/20/2022 and analyzed on 06/21/2022.

Iron was detected in method blank MB 280-578373/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

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

POTENTIALLY DISSOLVED METALS (ICPMS)
Sample OUTFALL-001 (280-163315-1) was analyzed for potentially dissolved metals (ICPMS) in accordance with EPA Method 200.8. The samples were prepared on 06/17/2022 and analyzed on 06/20/2022.

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

TOTAL RECOVERABLE METALS (ICPMS)
Sample OUTFALL-001 (280-163315-1) was analyzed for total recoverable metals (ICPMS) in accordance with EPA Method 200.8. The samples were prepared and analyzed on 06/20/2022.

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

TOTAL MERCURY (CVAA)
Sample OUTFALL-001 (280-163315-1) was analyzed for total mercury (CVAA) in accordance with EPA Method 245.1. The samples were prepared on 06/13/2022 and analyzed on 06/14/2022.

Job ID: 280-163315-1 (Continued)

Laboratory: Eurofins Denver (Continued)

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

TRIVALENT CHROMIUM - POTENTIALLY DISSOLVED
Sample OUTFALL-001 (280-163315-1) was analyzed for Trivalent Chromium - Potentially Dissolved in accordance with SM3500_CR3_B. The samples were analyzed on 06/23/2022.

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

TRIVALENT CHROMIUM - TOTAL RECOVERABLE
Sample OUTFALL-001 (280-163315-1) was analyzed for Trivalent Chromium - Total Recoverable in accordance with SM3500_CR3_B. The samples were analyzed on 06/23/2022.

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

SPECIFIC CONDUCTIVITY
Sample OUTFALL-001 (280-163315-1) was analyzed for specific conductivity in accordance with SM20 2510B. The samples were analyzed on 06/14/2022.

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

TOTAL SUSPENDED SOLIDS
Sample OUTFALL-001 (280-163315-1) was analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 06/15/2022.

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

HEXAVALENT CHROMIUM
Sample OUTFALL-001 (280-163315-1) was analyzed for hexavalent chromium in accordance with SM 3500 CR B. The samples were analyzed on 06/10/2022.

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

HEXAVALENT CHROMIUM
Sample OUTFALL-001 (280-163315-1) was analyzed for hexavalent chromium in accordance with 3500_CR_B. The samples were analyzed on 06/10/2022.

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

CORROSIVITY (PH)
Sample OUTFALL-001 (280-163315-1) was analyzed for corrosivity (pH) in accordance with SM20 4500 H+ B. The samples were analyzed on 06/20/2022.

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

SULFIDE
Sample OUTFALL-001 (280-163315-1) was analyzed for sulfide in accordance with SM20 4500 S2 D. The samples were analyzed on 06/17/2022.

Sulfide exceeded the RPD limit for the MSD of sample OUTFALL-001 (280-163315-1) in batch 280-578440. Sample matrix interference is suspected. Refer to the QC report for details.

The initial calibration verification (ICV) result for batch 280-578440 was above the upper control limit. Sample results were non-detects, and have been reported as qualified data.

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

Job ID: 280-163315-1 (Continued)

Laboratory: Eurofins Denver (Continued)

HYDROGEN SULFIDE

Sample OUTFALL-001 (280-163315-1) was analyzed for Hydrogen Sulfide in accordance with SM20 4500 S2 H. The samples were analyzed on 06/24/2022.

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

Detection Summary

Client: GS Mining Company LLC
Project/Site: Wastewater Discharge - Nederland, CO

Job ID: 280-163315-1

Client Sample ID: OUTFALL-001

Lab Sample ID: 280-163315-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron	55	J B	100	9.1	ug/L	1		200.7 Rev 4.4	Total Recoverable
Copper	1.3	J	2.0	0.71	ug/L	1		200.8	Total Recoverable
Lead	2.1		1.0	0.23	ug/L	1		200.8	Total Recoverable
Zinc	4.2	J	10	2.0	ug/L	1		200.8	Total Recoverable
Copper	1.2	J	2.0	0.71	ug/L	1		200.8	Potentially Dissolved
Lead	1.6		1.0	0.23	ug/L	1		200.8	Potentially Dissolved
Manganese	0.95	J	2.0	0.51	ug/L	1		200.8	Potentially Dissolved
Zinc	6.8	J	10	2.0	ug/L	1		200.8	Potentially Dissolved
Specific Conductance	89		2.0	2.0	umhos/cm	1		SM 2510B	Total/NA
pH adj. to 25 deg C	7.1	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Temperature	19.8	HF	1.0	1.0	Degrees C	1		SM 4500 H+ B	Total/NA
Field pH	7.1		1.0	1.0	SU	1		SM4500 S2 H	Total/NA
Field Temperature	20		1.0	1.0	Celsius	1		SM4500 S2 H	Total/NA
Specific Conductance	89		2.0	2.0	umhos/cm	1		SM4500 S2 H	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GS Mining Company LLC
Project/Site: Wastewater Discharge - Nederland, CO

Job ID: 280-163315-1

Method	Method Description	Protocol	Laboratory
200.7 Rev 4.4	Metals (ICP)	EPA	TAL DEN
200.8	Metals (ICP/MS)	EPA	TAL DEN
245.1	Mercury (CVAA)	EPA	TAL DEN
SM 2510B	Conductivity, Specific Conductance	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
SM 3500 CR B	Chromium, Hexavalent	SM	TAL DEN
SM 4500 H+ B	pH	SM	TAL DEN
SM 4500 S2 D	Sulfide, Total	SM	TAL DEN
SM3500 CR B	Chromium, Trivalent	SM	TAL DEN
SM4500 S2 H	Unionized Hydrogen Sulfide	SM	TAL DEN
200.7	Preparation, Total Recoverable Metals	EPA	TAL DEN
200.8	Preparation, Total Recoverable Metals	EPA	TAL DEN
245.1	Preparation, Mercury	EPA	TAL DEN
FILTRATION	Sample Filtration	None	TAL DEN
Poten_Diss_Met	Filtration for Potentially Dissolved Metals	EPA	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: GS Mining Company LLC
Project/Site: Wastewater Discharge - Nederland, CO

Job ID: 280-163315-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-163315-1	OUTFALL-001	Water	06/10/22 13:10	06/10/22 15:07

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Client Sample ID: OUTFALL-001
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 15:07

Lab Sample ID: 280-163315-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**55**	**J B**	100	9.1	ug/L		06/20/22 08:27	06/21/22 21:27	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: OUTFALL-001
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 15:07

Lab Sample ID: 280-163315-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	0.50	ug/L		06/20/22 08:20	06/20/22 23:15	1
Cadmium	ND		1.0	0.088	ug/L		06/20/22 08:20	06/20/22 23:15	1
Chromium	ND		3.0	0.88	ug/L		06/20/22 08:20	06/20/22 23:15	1
Copper	**1.3**	**J**	2.0	0.71	ug/L		06/20/22 08:20	06/20/22 23:15	1
Lead	**2.1**		1.0	0.23	ug/L		06/20/22 08:20	06/20/22 23:15	1
Zinc	**4.2**	**J**	10	2.0	ug/L		06/20/22 08:20	06/20/22 23:15	1

Method: 200.8 - Metals (ICP/MS) - Potentially Dissolved

Client Sample ID: OUTFALL-001
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 15:07

Lab Sample ID: 280-163315-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	0.50	ug/L		06/17/22 08:32	06/20/22 16:31	1
Cadmium	ND		1.0	0.088	ug/L		06/17/22 08:32	06/20/22 16:31	1
Chromium	ND		3.0	0.88	ug/L		06/17/22 08:32	06/20/22 16:31	1
Copper	**1.2**	**J**	2.0	0.71	ug/L		06/17/22 08:32	06/20/22 16:31	1
Lead	**1.6**		1.0	0.23	ug/L		06/17/22 08:32	06/20/22 16:31	1
Manganese	**0.95**	**J**	2.0	0.51	ug/L		06/17/22 08:32	06/20/22 16:31	1
Nickel	ND		2.0	0.28	ug/L		06/17/22 08:32	06/20/22 16:31	1
Selenium	ND		5.0	1.0	ug/L		06/17/22 08:32	06/20/22 16:31	1
Silver	ND		0.50	0.045	ug/L		06/17/22 08:32	06/20/22 16:31	1
Zinc	**6.8**	**J**	10	2.0	ug/L		06/17/22 08:32	06/20/22 16:31	1

Method: 245.1 - Mercury (CVAA)

Client Sample ID: OUTFALL-001
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 15:07

Lab Sample ID: 280-163315-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		06/13/22 20:30	06/14/22 16:56	1

General Chemistry

Client Sample ID: OUTFALL-001
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 15:07

Lab Sample ID: 280-163315-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	**89**		2.0	2.0	umhos/cm			06/14/22 08:59	1
Total Suspended Solids	ND		4.0	1.1	mg/L			06/15/22 17:17	1
Chromium, hexavalent	ND		0.020	0.0040	mg/L			06/10/22 17:16	1
pH adj. to 25 deg C	**7.1**	**HF**	0.1	0.1	SU			06/20/22 16:39	1
Temperature	**19.8**	**HF**	1.0	1.0	Degrees C			06/20/22 16:39	1

General Chemistry (Continued)

Client Sample ID: OUTFALL-001
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 15:07

Lab Sample ID: 280-163315-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND	F2 ^1+	0.050	0.022	mg/L			06/17/22 21:25	1
Un-ionized Hydrogen Sulfide	ND		1.0	1.0	mg/L			06/24/22 07:29	1
Field pH	**7.1**		1.0	1.0	SU			06/24/22 07:29	1
Field Temperature	**20**		1.0	1.0	Celsius			06/24/22 07:29	1
Specific Conductance	**89**		2.0	2.0	umhos/cm			06/24/22 07:29	1
Sulfide	ND		4.0	4.0	mg/L			06/24/22 07:29	1

General Chemistry - Total Recoverable

Client Sample ID: OUTFALL-001
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 15:07

Lab Sample ID: 280-163315-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, trivalent	ND	H	0.020	0.020	mg/L			06/23/22 12:35	1

General Chemistry - Dissolved

Client Sample ID: OUTFALL-001
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 15:07

Lab Sample ID: 280-163315-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.020	0.0040	mg/L			06/10/22 17:19	1

General Chemistry - Potentially Dissolved

Client Sample ID: OUTFALL-001
Date Collected: 06/10/22 13:10
Date Received: 06/10/22 15:07

Lab Sample ID: 280-163315-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, trivalent (dissolved)	ND		0.020	0.020	mg/L			06/23/22 12:37	1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 280-578373/1-A
Matrix: Water
Analysis Batch: 578742

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 578373

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	57.0	J	100	9.1	ug/L		06/20/22 08:27	06/21/22 21:15	1

Lab Sample ID: LCS 280-578373/2-A
Matrix: Water
Analysis Batch: 578742

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 578373

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	10000	9470		ug/L		95	85 - 115

Lab Sample ID: LCSD 280-578373/3-A
Matrix: Water
Analysis Batch: 578742

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 578373

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Iron	10000	10100		ug/L		101	85 - 115	6	20

Lab Sample ID: 280-163315-1 MS
Matrix: Water
Analysis Batch: 578742

Client Sample ID: OUTFALL-001
Prep Type: Total Recoverable
Prep Batch: 578373

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	55	J B	10000	9830		ug/L		98	70 - 130

Lab Sample ID: 280-163315-1 MSD
Matrix: Water
Analysis Batch: 578742

Client Sample ID: OUTFALL-001
Prep Type: Total Recoverable
Prep Batch: 578373

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Iron	55	J B	10000	10200		ug/L		101	70 - 130	3	20

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 280-578359/1-A
Matrix: Water
Analysis Batch: 578598

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 578359

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	0.50	ug/L		06/20/22 08:20	06/20/22 23:08	1
Cadmium	ND		1.0	0.088	ug/L		06/20/22 08:20	06/20/22 23:08	1
Chromium	ND		3.0	0.88	ug/L		06/20/22 08:20	06/20/22 23:08	1
Copper	ND		2.0	0.71	ug/L		06/20/22 08:20	06/20/22 23:08	1
Lead	ND		1.0	0.23	ug/L		06/20/22 08:20	06/20/22 23:08	1
Zinc	ND		10	2.0	ug/L		06/20/22 08:20	06/20/22 23:08	1

Lab Sample ID: LCS 280-578359/2-A
Matrix: Water
Analysis Batch: 578598

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 578359

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	40.0	36.7		ug/L		92	89 - 111

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

Lab Sample ID: LCS 280-578359/2-A
Matrix: Water
Analysis Batch: 578598

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 578359

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	40.0	38.3		ug/L		96	89 - 111
Chromium	40.0	38.6		ug/L		97	86 - 115
Copper	40.0	40.8		ug/L		102	90 - 115
Lead	40.0	39.2		ug/L		98	88 - 115
Zinc	40.0	42.2		ug/L		106	88 - 115

Lab Sample ID: 280-163315-1 MS
Matrix: Water
Analysis Batch: 578598

Client Sample ID: OUTFALL-001
Prep Type: Total Recoverable
Prep Batch: 578359

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	ND		40.0	39.7		ug/L		99	79 - 120
Cadmium	ND		40.0	38.5		ug/L		96	89 - 111
Chromium	ND		40.0	39.4		ug/L		99	86 - 115
Copper	1.3	J	40.0	40.5		ug/L		98	90 - 115
Lead	2.1		40.0	42.8		ug/L		102	88 - 115
Zinc	4.2	J	40.0	44.6		ug/L		101	88 - 115

Lab Sample ID: 280-163315-1 MSD
Matrix: Water
Analysis Batch: 578598

Client Sample ID: OUTFALL-001
Prep Type: Total Recoverable
Prep Batch: 578359

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	ND		40.0	38.1		ug/L		95	79 - 120	4	20
Cadmium	ND		40.0	38.1		ug/L		95	89 - 111	1	20
Chromium	ND		40.0	39.7		ug/L		99	86 - 115	1	20
Copper	1.3	J	40.0	41.0		ug/L		99	90 - 115	1	20
Lead	2.1		40.0	42.2		ug/L		100	88 - 115	1	20
Zinc	4.2	J	40.0	45.1		ug/L		102	88 - 115	1	20

Lab Sample ID: MB 280-577817/1-B
Matrix: Water
Analysis Batch: 578570

Client Sample ID: Method Blank
Prep Type: Potentially Dissolved
Prep Batch: 578261

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	0.50	ug/L		06/17/22 08:32	06/20/22 15:41	1
Cadmium	ND		1.0	0.088	ug/L		06/17/22 08:32	06/20/22 15:41	1
Chromium	ND		3.0	0.88	ug/L		06/17/22 08:32	06/20/22 15:41	1
Copper	ND		2.0	0.71	ug/L		06/17/22 08:32	06/20/22 15:41	1
Lead	ND		1.0	0.23	ug/L		06/17/22 08:32	06/20/22 15:41	1
Manganese	ND		2.0	0.51	ug/L		06/17/22 08:32	06/20/22 15:41	1
Nickel	ND		2.0	0.28	ug/L		06/17/22 08:32	06/20/22 15:41	1
Selenium	ND		5.0	1.0	ug/L		06/17/22 08:32	06/20/22 15:41	1
Silver	ND		0.50	0.045	ug/L		06/17/22 08:32	06/20/22 15:41	1
Zinc	ND		10	2.0	ug/L		06/17/22 08:32	06/20/22 15:41	1

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

Lab Sample ID: LCS 280-577817/2-B
Matrix: Water
Analysis Batch: 578570

Client Sample ID: Lab Control Sample
Prep Type: Potentially Dissolved
Prep Batch: 578261

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	40.0	40.8		ug/L		102	89 - 111
Cadmium	40.0	40.7		ug/L		102	89 - 111
Chromium	40.0	40.5		ug/L		101	86 - 115
Copper	40.0	41.3		ug/L		103	90 - 115
Lead	40.0	38.0		ug/L		95	88 - 115
Manganese	40.0	39.3		ug/L		98	87 - 115
Nickel	40.0	40.6		ug/L		102	86 - 115
Selenium	40.0	42.0		ug/L		105	85 - 114
Silver	40.0	40.1		ug/L		100	90 - 114
Zinc	40.0	41.0		ug/L		103	88 - 115

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 280-577883/1-A
Matrix: Water
Analysis Batch: 578022

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 577883

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		06/13/22 20:30	06/14/22 15:45	1

Lab Sample ID: LCS 280-577883/2-A
Matrix: Water
Analysis Batch: 578022

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 577883

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	5.00	4.67		ug/L		93	90 - 110

Lab Sample ID: LCSD 280-577883/3-A
Matrix: Water
Analysis Batch: 578022

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 577883

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	5.00	4.80		ug/L		96	90 - 110	3	10

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 280-577924/5
Matrix: Water
Analysis Batch: 577924

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		2.0	2.0	umhos/cm			06/14/22 08:58	1

Lab Sample ID: LCS 280-577924/4
Matrix: Water
Analysis Batch: 577924

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Specific Conductance	1410	1480		umhos/cm		105	90 - 110

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

Lab Sample ID: MB 280-578154/3
Matrix: Water
Analysis Batch: 578154

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			06/15/22 17:17	1

Lab Sample ID: LCS 280-578154/1
Matrix: Water
Analysis Batch: 578154

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			100	80.0		mg/L		80	79 - 114		

Lab Sample ID: LCSD 280-578154/2
Matrix: Water
Analysis Batch: 578154

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
Total Suspended Solids			100	89.6		mg/L		90	79 - 114	11	20

Method: SM 3500 CR B - Chromium, Hexavalent

Lab Sample ID: MB 280-577801/10
Matrix: Water
Analysis Batch: 577801

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.020	0.0040	mg/L			06/10/22 17:16	1

Lab Sample ID: LCS 280-577801/8
Matrix: Water
Analysis Batch: 577801

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chromium, hexavalent			0.100	0.102		mg/L		102	91 - 112		

Lab Sample ID: LCSD 280-577801/9
Matrix: Water
Analysis Batch: 577801

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
Chromium, hexavalent			0.100	0.102		mg/L		102	91 - 112	0	20

Lab Sample ID: 280-163315-1 MS
Matrix: Water
Analysis Batch: 577801

Client Sample ID: OUTFALL-001
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chromium, hexavalent	ND		0.100	0.102		mg/L		102	91 - 112		

Method: SM 3500 CR B - Chromium, Hexavalent (Continued)

Lab Sample ID: 280-163315-1 MSD
Matrix: Water
Analysis Batch: 577801

Client Sample ID: OUTFALL-001
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chromium, hexavalent	ND		0.100	0.102		mg/L					

Lab Sample ID: 280-163315-1 DU
Matrix: Water
Analysis Batch: 577801

Client Sample ID: OUTFALL-001
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chromium, hexavalent	ND			ND		mg/L				NC	20

Lab Sample ID: MB 280-577791/3-A
Matrix: Water
Analysis Batch: 577801

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.020	0.0040	mg/L			06/10/22 17:19	1

Lab Sample ID: LCS 280-577791/1-A
Matrix: Water
Analysis Batch: 577801

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chromium, hexavalent			0.100	0.102		mg/L		102	91 - 112		

Lab Sample ID: LCSD 280-577791/2-A
Matrix: Water
Analysis Batch: 577801

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chromium, hexavalent			0.100	0.102		mg/L		102	91 - 112	0	20

Lab Sample ID: 280-163315-1 MS
Matrix: Water
Analysis Batch: 577801

Client Sample ID: OUTFALL-001
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chromium, hexavalent	ND		0.100	0.102		mg/L		102	91 - 112		

Lab Sample ID: 280-163315-1 MSD
Matrix: Water
Analysis Batch: 577801

Client Sample ID: OUTFALL-001
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chromium, hexavalent	ND		0.100	0.104		mg/L		104	91 - 112	2	20

Lab Sample ID: 280-163315-1 DU
Matrix: Water
Analysis Batch: 577801

Client Sample ID: OUTFALL-001
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chromium, hexavalent	ND			ND		mg/L				NC	20

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 280-578603/4
Matrix: Water
Analysis Batch: 578603

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
pH adj. to 25 deg C			7.00	7.0		SU		100	99 - 101		

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-578440/11
Matrix: Water
Analysis Batch: 578440

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND	^1+	0.050	0.022	mg/L			06/17/22 21:25	1

Lab Sample ID: LCS 280-578440/9
Matrix: Water
Analysis Batch: 578440

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfide			0.501	0.541	^1+	mg/L		108	81 - 122		

Lab Sample ID: LCSD 280-578440/10
Matrix: Water
Analysis Batch: 578440

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
Sulfide			0.501	0.564	^1+	mg/L		113	81 - 122	4	10

Lab Sample ID: 280-163315-1 MS
Matrix: Water
Analysis Batch: 578440

Client Sample ID: OUTFALL-001
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Sulfide	ND	F2 ^1+	0.501	0.425	^1+	mg/L		85	81 - 122		

Lab Sample ID: 280-163315-1 MSD
Matrix: Water
Analysis Batch: 578440

Client Sample ID: OUTFALL-001
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfide	ND	F2 ^1+	0.501	0.553	F2 ^1+	mg/L		110	81 - 122	26	10

Method: SM4500 S2 H - Unionized Hydrogen Sulfide

Lab Sample ID: MB 280-579003/1
Matrix: Water
Analysis Batch: 579003

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Un-ionized Hydrogen Sulfide	ND		1.0	1.0	mg/L			06/24/22 07:29	1
Field pH	ND		1.0	1.0	SU			06/24/22 07:29	1
Field Temperature	ND		1.0	1.0	Celsius			06/24/22 07:29	1
Specific Conductance	ND		2.0	2.0	umhos/cm			06/24/22 07:29	1

Client: GS Mining Company LLC
Project/Site: Wastewater Discharge - Nederland, CO

Job ID: 280-163315-1

Method: SM4500 S2 H - Unionized Hydrogen Sulfide (Continued)

Lab Sample ID: MB 280-579003/1
Matrix: Water
Analysis Batch: 579003

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		4.0	4.0	mg/L			06/24/22 07:29	1

Metals

Filtration Batch: 577817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Potentially Dissolvec	Water	Poten_Diss_Met	
MB 280-577817/1-B	Method Blank	Potentially Dissolvec	Water	Poten_Diss_Met	
LCS 280-577817/2-B	Lab Control Sample	Potentially Dissolvec	Water	Poten_Diss_Met	

Prep Batch: 577883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Total/NA	Water	245.1	
MB 280-577883/1-A	Method Blank	Total/NA	Water	245.1	
LCS 280-577883/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 280-577883/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	

Analysis Batch: 578022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Total/NA	Water	245.1	577883
MB 280-577883/1-A	Method Blank	Total/NA	Water	245.1	577883
LCS 280-577883/2-A	Lab Control Sample	Total/NA	Water	245.1	577883
LCSD 280-577883/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	577883

Prep Batch: 578261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Potentially Dissolvec	Water	200.8	577817
MB 280-577817/1-B	Method Blank	Potentially Dissolvec	Water	200.8	577817
LCS 280-577817/2-B	Lab Control Sample	Potentially Dissolvec	Water	200.8	577817

Prep Batch: 578359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Total Recoverable	Water	200.8	
MB 280-578359/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 280-578359/2-A	Lab Control Sample	Total Recoverable	Water	200.8	
280-163315-1 MS	OUTFALL-001	Total Recoverable	Water	200.8	
280-163315-1 MSD	OUTFALL-001	Total Recoverable	Water	200.8	

Prep Batch: 578373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Total Recoverable	Water	200.7	
MB 280-578373/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 280-578373/2-A	Lab Control Sample	Total Recoverable	Water	200.7	
LCSD 280-578373/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.7	
280-163315-1 MS	OUTFALL-001	Total Recoverable	Water	200.7	
280-163315-1 MSD	OUTFALL-001	Total Recoverable	Water	200.7	

Analysis Batch: 578570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Potentially Dissolvec	Water	200.8	578261
MB 280-577817/1-B	Method Blank	Potentially Dissolvec	Water	200.8	578261
LCS 280-577817/2-B	Lab Control Sample	Potentially Dissolvec	Water	200.8	578261

Analysis Batch: 578598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Total Recoverable	Water	200.8	578359
MB 280-578359/1-A	Method Blank	Total Recoverable	Water	200.8	578359

Metals (Continued)

Analysis Batch: 578598 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-578359/2-A	Lab Control Sample	Total Recoverable	Water	200.8	578359
280-163315-1 MS	OUTFALL-001	Total Recoverable	Water	200.8	578359
280-163315-1 MSD	OUTFALL-001	Total Recoverable	Water	200.8	578359

Analysis Batch: 578742

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Total Recoverable	Water	200.7 Rev 4.4	578373
MB 280-578373/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	578373
LCS 280-578373/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	578373
LCSD 280-578373/3-A	Lab Control Sample Dup	Total Recoverable	Water	200.7 Rev 4.4	578373
280-163315-1 MS	OUTFALL-001	Total Recoverable	Water	200.7 Rev 4.4	578373
280-163315-1 MSD	OUTFALL-001	Total Recoverable	Water	200.7 Rev 4.4	578373

General Chemistry

Filtration Batch: 577791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Dissolved	Water	FILTRATION	
MB 280-577791/3-A	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-577791/1-A	Lab Control Sample	Dissolved	Water	FILTRATION	
LCSD 280-577791/2-A	Lab Control Sample Dup	Dissolved	Water	FILTRATION	
280-163315-1 MS	OUTFALL-001	Dissolved	Water	FILTRATION	
280-163315-1 MSD	OUTFALL-001	Dissolved	Water	FILTRATION	
280-163315-1 DU	OUTFALL-001	Dissolved	Water	FILTRATION	

Analysis Batch: 577801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Dissolved	Water	SM 3500 CR B	577791
280-163315-1	OUTFALL-001	Total/NA	Water	SM 3500 CR B	
MB 280-577791/3-A	Method Blank	Dissolved	Water	SM 3500 CR B	577791
MB 280-577801/10	Method Blank	Total/NA	Water	SM 3500 CR B	
LCS 280-577791/1-A	Lab Control Sample	Dissolved	Water	SM 3500 CR B	577791
LCS 280-577801/8	Lab Control Sample	Total/NA	Water	SM 3500 CR B	
LCSD 280-577791/2-A	Lab Control Sample Dup	Dissolved	Water	SM 3500 CR B	577791
LCSD 280-577801/9	Lab Control Sample Dup	Total/NA	Water	SM 3500 CR B	
280-163315-1 MS	OUTFALL-001	Dissolved	Water	SM 3500 CR B	577791
280-163315-1 MS	OUTFALL-001	Total/NA	Water	SM 3500 CR B	
280-163315-1 MSD	OUTFALL-001	Dissolved	Water	SM 3500 CR B	577791
280-163315-1 MSD	OUTFALL-001	Total/NA	Water	SM 3500 CR B	
280-163315-1 DU	OUTFALL-001	Dissolved	Water	SM 3500 CR B	577791
280-163315-1 DU	OUTFALL-001	Total/NA	Water	SM 3500 CR B	

Analysis Batch: 577924

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Total/NA	Water	SM 2510B	
MB 280-577924/5	Method Blank	Total/NA	Water	SM 2510B	
LCS 280-577924/4	Lab Control Sample	Total/NA	Water	SM 2510B	

Analysis Batch: 578154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Total/NA	Water	SM 2540D	

General Chemistry (Continued)

Analysis Batch: 578154 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-578154/3	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-578154/1	Lab Control Sample	Total/NA	Water	SM 2540D	
LCSD 280-578154/2	Lab Control Sample Dup	Total/NA	Water	SM 2540D	

Analysis Batch: 578440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Total/NA	Water	SM 4500 S2 D	
MB 280-578440/11	Method Blank	Total/NA	Water	SM 4500 S2 D	
LCS 280-578440/9	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
LCSD 280-578440/10	Lab Control Sample Dup	Total/NA	Water	SM 4500 S2 D	
280-163315-1 MS	OUTFALL-001	Total/NA	Water	SM 4500 S2 D	
280-163315-1 MSD	OUTFALL-001	Total/NA	Water	SM 4500 S2 D	

Analysis Batch: 578603

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Total/NA	Water	SM 4500 H+ B	
LCS 280-578603/4	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 578940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Total Recoverable	Water	SM3500 CR B	

Analysis Batch: 578941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Potentially Dissolvec	Water	SM3500 CR B	

Analysis Batch: 579003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163315-1	OUTFALL-001	Total/NA	Water	SM4500 S2 H	
MB 280-579003/1	Method Blank	Total/NA	Water	SM4500 S2 H	

Lab Chronicle

Client: GS Mining Company LLC
Project/Site: Wastewater Discharge - Nederland, CO

Job ID: 280-163315-1

Client Sample ID: OUTFALL-001

Date Collected: 06/10/22 13:10
Date Received: 06/10/22 15:07

Lab Sample ID: 280-163315-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			50 mL	50 mL	578373	06/20/22 08:27	PFM	TAL DEN
Total Recoverable	Analysis	200.7 Rev 4.4		1			578742	06/21/22 21:27	MAB	TAL DEN
Potentially Dissolvec	Filtration	Poten_Diss_Met			250 mL	250 mL	577817	06/10/22 21:15	LRD	TAL DEN
Potentially Dissolvec	Prep	200.8			50 mL	50 mL	578261	06/17/22 08:32	KMS	TAL DEN
Potentially Dissolvec	Analysis	200.8		1			578570	06/20/22 16:31	LMT	TAL DEN
Total Recoverable	Prep	200.8			50 mL	50 mL	578359	06/20/22 08:20	KMS	TAL DEN
Total Recoverable	Analysis	200.8		1			578598	06/20/22 23:15	LMT	TAL DEN
Total/NA	Prep	245.1			30 mL	50 mL	577883	06/13/22 20:30	CEH	TAL DEN
Total/NA	Analysis	245.1		1			578022	06/14/22 16:56	CEH	TAL DEN
Total/NA	Analysis	SM 2510B		1			577924	06/14/22 08:59	KEG	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	578154	06/15/22 17:17	CAI	TAL DEN
Dissolved	Filtration	FILTRATION			2 mL	2 mL	577791	06/10/22 16:31	SVC	TAL DEN
Dissolved	Analysis	SM 3500 CR B		1	2 mL	2 mL	577801	06/10/22 17:19	SVC	TAL DEN
Total/NA	Analysis	SM 3500 CR B		1	2 mL	2 mL	577801	06/10/22 17:16	SVC	TAL DEN
Total/NA	Analysis	SM 4500 H+ B		1			578603	06/20/22 16:39	KEG	TAL DEN
Total/NA	Analysis	SM 4500 S2 D		1	2 mL	2 mL	578440	06/17/22 21:25	LRB	TAL DEN
Potentially Dissolvec	Analysis	SM3500 CR B		1			578941	06/23/22 12:37	DNM	TAL DEN
Total Recoverable	Analysis	SM3500 CR B		1			578940	06/23/22 12:35	DNM	TAL DEN
Total/NA	Analysis	SM4500 S2 H		1			579003	06/24/22 07:29	SAH	TAL DEN

Laboratory References:

TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: GS Mining Company LLC
Job ID: 280-163315-1
Project/Site: Wastewater Discharge - Nederland, CO

Laboratory: Eurofins 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	10-31-23
A2LA	ISO/IEC 17025	2907.01	10-31-23
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-08-23
Arizona	State	AZ0713	12-20-22
Arkansas DEQ	State	19-047-0	06-01-22 *
California	State	2513	01-09-23
Connecticut	State	PH-0686	09-30-22
Florida	NELAP	E87667-57	06-30-22
Georgia	State	4025-011	01-08-23
Illinois	NELAP	2000172019-1	04-30-23
Iowa	State	IA#370	12-02-22
Kansas	NELAP	E-10166	05-31-22 *
Kentucky (WW)	State	KY98047	12-31-22
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-22
Minnesota	NELAP	1788752	12-31-22
Nevada	State	CO000262020-1	07-31-22
New Hampshire	NELAP	205319	04-28-20 *
New Jersey	NELAP	190002	06-30-22
New York	NELAP	59923	04-01-23
North Carolina (WW/SW)	State	358	12-31-22
North Dakota	State	R-034	01-08-23
Oklahoma	NELAP	8614	08-31-22
Oregon	NELAP	4025-011	01-09-23
Pennsylvania	NELAP	013	07-31-22
South Carolina	State	72002001	01-08-23
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-21-19	10-01-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-20-00065	03-06-23
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-22
Virginia	NELAP	10490	06-14-23
Washington	State	C583-19	08-03-22
West Virginia DEP	State	354	11-30-22
Wisconsin	State	999615430	08-31-22
Wyoming (UST)	A2LA	2907.01	10-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: BM	Lab PM: Bieniulis, Dylan T	Carrier Tracking No(s):	COC No:
Client Contact: Patrick Delaney	Phone: 303-506-1618	E-Mail: Dylan.Bieniulis@Eurofinset.com	State of Origin:	Page:
Company: Grand Island Resources	PWSID:			Job #:
Address: 12567 West Cedar Road Suite 250	Due Date Requested:			
City: Lakewood	TAT Requested (days):			
State, Zip: CO, 80466	Compliance Project: Δ Yes Δ No			
Phone: ~~720-346-6145~~ 315-414-6986	PO #: Advance Payment Required			
Email: pdelaney@blackfoxmining.com	WO #:			
Project Name: Wastewater Discharge - Nederland, CO	Project #: 28022821			
Site: ~~Surface Water Sampling~~	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)	2510B - Specific Conductance, 2540D - TSS, SM4500_H+ - pH / Temp	3500_CR_B - Total Hexavalent Cr and Trivalent Cr (calc)	3500_CR_B - Dissolved Hexavalent Cr (LAB FILTER) and Potentially Dissolved Trivalent Cr (calc)	SM4500_S2_D - Sulfide and SM3500_S2_H - Unionized Hydrogen Sulfide (calc)	1631E - Low Level Mercury (ETA Pensacola)	200.8 - Potentially Dissolved Metals (First half of the month permit list)	200.7 / 200.8 / 245.1 - Total Recoverable Metals and Mercury (First half of the month permit list)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	CB	N	D	D		
OUTFALL-001	6/10/22	13 10	G	W			X	X	X	X		X	X		

* Surface water potentially dissolved metals permit list = 200.8 (As, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, Zn)

*Surface water total recoverable metals list = 200.7 (Fe), 200.8 (As, Cd, Cr, Cu, Pb, Zn), and 245.1 (Hg)

pH = 6.8

temp = 8°C

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Patrick Delaney	6/10/2022 15:07		KNL	6/10/22 1507	ETADGR
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	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: 11.8 IR2 CF +0.1

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: GS Mining Company LLC

Job Number: 280-163315-1

Login Number: 163315
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	N/A	
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.	False	Refer to Job Narrative for details.
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	

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ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-163773-1
Client Project/Site: Wastewater Discharge - Nederland, CO

For:
GS Mining Company LLC
422 Gregory Street
Central City, Colorado 80427

Attn: Patrick Delaney

Authorized for release by:
7/5/2022 2:57:34 PM

Dylan Bieniulis, Project Manager I
(303)736-0138
Dylan.Bieniulis@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: GS Mining Company LLC
Job ID: 280-163773-1
Project/Site: Wastewater Discharge - Nederland, CO

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 280-163773-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: GS Mining Company LLC

Project: Wastewater Discharge - Nederland, CO

Report Number: 280-163773-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 06/24/2022; the samples arrived in good condition and properly preserved. The temperature of the coolers at receipt was 12.2 C.

POTENTIALLY DISSOLVED METALS (ICPMS)
Sample OUTFALL-001 (280-163773-1) was analyzed for potentially dissolved metals (ICPMS) in accordance with EPA Method 200.8. The samples were prepared on 06/28/2022 and analyzed on 06/29/2022.

Copper and Zinc were detected in method blank MB 280-579117/1-C at levels that were above the method detection limit but below the reporting limit. The values should be considered estimates, and have been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

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

TOTAL RECOVERABLE METALS (ICPMS)
Sample OUTFALL-001 (280-163773-1) was analyzed for total recoverable metals (ICPMS) in accordance with EPA Method 200.8. The samples were prepared and analyzed on 06/29/2022.

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

Detection Summary

Client: GS Mining Company LLC
Job ID: 280-163773-1
Project/Site: Wastewater Discharge - Nederland, CO

Client Sample ID: OUTFALL-001
Lab Sample ID: 280-163773-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	1.3	J	2.0	0.71	ug/L	1		200.8	Total Recoverable
Lead	2.4		1.0	0.23	ug/L	1		200.8	Total Recoverable
Copper	0.92	J B	2.0	0.71	ug/L	1		200.8	Potentially Dissolved
Lead	1.8		1.0	0.23	ug/L	1		200.8	Potentially Dissolved
Zinc	9.5	J B	10	2.0	ug/L	1		200.8	Potentially Dissolved

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GS Mining Company LLC
Job ID: 280-163773-1
Project/Site: Wastewater Discharge - Nederland, CO

Method	Method Description	Protocol	Laboratory
200.8	Metals (ICP/MS)	EPA	TAL DEN
200.8	Preparation, Total Recoverable Metals	EPA	TAL DEN
Poten_Diss_Met	Filtration for Potentially Dissolved Metals	EPA	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: GS Mining Company LLC
Job ID: 280-163773-1
Project/Site: Wastewater Discharge - Nederland, CO

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-163773-1	OUTFALL-001	Water	06/24/22 11:45	06/24/22 12:58

Client Sample Results

Client: GS Mining Company LLC
Project/Site: Wastewater Discharge - Nederland, CO

Job ID: 280-163773-1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: OUTFALL-001
Date Collected: 06/24/22 11:45
Date Received: 06/24/22 12:58

Lab Sample ID: 280-163773-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	**1.3**	**J**	2.0	0.71	ug/L		06/29/22 08:53	06/29/22 19:20	1
Lead	**2.4**		1.0	0.23	ug/L		06/29/22 08:53	06/29/22 19:20	1

Method: 200.8 - Metals (ICP/MS) - Potentially Dissolved

Client Sample ID: OUTFALL-001
Date Collected: 06/24/22 11:45
Date Received: 06/24/22 12:58

Lab Sample ID: 280-163773-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.088	ug/L		06/28/22 08:35	06/29/22 18:09	1
Copper	**0.92**	**J B**	2.0	0.71	ug/L		06/28/22 08:35	06/29/22 18:09	1
Lead	**1.8**		1.0	0.23	ug/L		06/28/22 08:35	06/29/22 18:09	1
Silver	ND		0.50	0.045	ug/L		06/28/22 08:35	06/29/22 18:09	1
Zinc	**9.5**	**J B**	10	2.0	ug/L		06/28/22 08:35	06/29/22 18:09	1

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 280-579309/1-A
Matrix: Water
Analysis Batch: 579562

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 579309

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Copper	ND		2.0	0.71	ug/L		06/29/22 08:53	06/29/22 17:55	1
Lead	ND		1.0	0.23	ug/L		06/29/22 08:53	06/29/22 17:55	1

Lab Sample ID: LCS 280-579309/2-A
Matrix: Water
Analysis Batch: 579562

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 579309

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Copper	40.0	41.4		ug/L		103	90 - 115
Lead	40.0	42.2		ug/L		106	88 - 115

Lab Sample ID: MB 280-579117/1-C
Matrix: Water
Analysis Batch: 579561

Client Sample ID: Method Blank
Prep Type: Potentially Dissolved
Prep Batch: 579181

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cadmium	ND		1.0	0.088	ug/L		06/28/22 08:35	06/29/22 17:16	1
Copper	0.963	J	2.0	0.71	ug/L		06/28/22 08:35	06/29/22 17:16	1
Lead	ND		1.0	0.23	ug/L		06/28/22 08:35	06/29/22 17:16	1
Silver	ND		0.50	0.045	ug/L		06/28/22 08:35	06/29/22 17:16	1
Zinc	9.72	J	10	2.0	ug/L		06/28/22 08:35	06/29/22 17:16	1

Lab Sample ID: LCS 280-579117/2-C
Matrix: Water
Analysis Batch: 579417

Client Sample ID: Lab Control Sample
Prep Type: Potentially Dissolved
Prep Batch: 579181

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cadmium	40.0	42.5		ug/L		106	89 - 111
Copper	40.0	43.1		ug/L		108	90 - 115
Lead	40.0	41.4		ug/L		104	88 - 115
Silver	40.0	42.9		ug/L		107	90 - 114

QC Association Summary

Client: GS Mining Company LLC
Job ID: 280-163773-1
Project/Site: Wastewater Discharge - Nederland, CO

Metals

Filtration Batch: 579117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-579117/1-C	Method Blank	Potentially Dissolvec	Water	FILTRATION	
LCS 280-579117/2-C	Lab Control Sample	Potentially Dissolvec	Water	FILTRATION	

Filtration Batch: 579143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163773-1	OUTFALL-001	Potentially Dissolvec	Water	Poten_Diss_Met	

Prep Batch: 579181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163773-1	OUTFALL-001	Potentially Dissolvec	Water	200.8	579143
MB 280-579117/1-C	Method Blank	Potentially Dissolvec	Water	200.8	579117
LCS 280-579117/2-C	Lab Control Sample	Potentially Dissolvec	Water	200.8	579117

Prep Batch: 579309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163773-1	OUTFALL-001	Total Recoverable	Water	200.8	
MB 280-579309/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 280-579309/2-A	Lab Control Sample	Total Recoverable	Water	200.8	

Analysis Batch: 579417

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 280-579117/2-C	Lab Control Sample	Potentially Dissolvec	Water	200.8	579181

Analysis Batch: 579561

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163773-1	OUTFALL-001	Potentially Dissolvec	Water	200.8	579181
MB 280-579117/1-C	Method Blank	Potentially Dissolvec	Water	200.8	579181

Analysis Batch: 579562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-163773-1	OUTFALL-001	Total Recoverable	Water	200.8	579309
MB 280-579309/1-A	Method Blank	Total Recoverable	Water	200.8	579309
LCS 280-579309/2-A	Lab Control Sample	Total Recoverable	Water	200.8	579309

Lab Chronicle

Client: GS Mining Company LLC
Job ID: 280-163773-1
Project/Site: Wastewater Discharge - Nederland, CO

Client Sample ID: OUTFALL-001
Lab Sample ID: 280-163773-1

Date Collected: 06/24/22 11:45
Matrix: Water
Date Received: 06/24/22 12:58

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Potentially Dissolvec	Filtration	Poten_Diss_Met			250 mL	250 mL	579143	06/26/22 14:30	LRD	TAL DEN
Potentially Dissolvec	Prep	200.8			50 mL	50 mL	579181	06/28/22 08:35	KMS	TAL DEN
Potentially Dissolvec	Analysis	200.8		1			579561	06/29/22 18:09	LMT	TAL DEN
Total Recoverable	Prep	200.8			50 mL	50 mL	579309	06/29/22 08:53	PFM	TAL DEN
Total Recoverable	Analysis	200.8		1			579562	06/29/22 19:20	LMT	TAL DEN

Laboratory References:

TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Accreditation/Certification Summary

Client: GS Mining Company LLC
Job ID: 280-163773-1
Project/Site: Wastewater Discharge - Nederland, CO

Laboratory: Eurofins 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	10-31-23
A2LA	ISO/IEC 17025	2907.01	10-31-23
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-08-23
Arizona	State	AZ0713	12-20-22
Arkansas DEQ	State	19-047-0	06-01-22 *
California	State	2513	01-09-23
Connecticut	State	PH-0686	09-30-22
Florida	NELAP	E87667-57	06-30-22
Georgia	State	4025-011	01-08-23
Illinois	NELAP	2000172019-1	04-30-23
Iowa	State	IA#370	12-02-22
Kansas	NELAP	E-10166	05-31-22 *
Kentucky (WW)	State	KY98047	12-31-22
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-22
Minnesota	NELAP	1788752	12-31-22
Nevada	State	CO000262020-1	07-31-22
New Hampshire	NELAP	205319	04-28-23
New Jersey	NELAP	190002	06-30-22
New York	NELAP	59923	04-01-23
North Carolina (WW/SW)	State	358	12-31-22
North Dakota	State	R-034	01-08-23
Oklahoma	NELAP	8614	08-31-22
Oregon	NELAP	4025-011	01-09-23
Pennsylvania	NELAP	013	07-31-22
South Carolina	State	72002001	01-08-23
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-21-19	10-01-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-20-00065	03-06-23
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-22
Virginia	NELAP	10490	06-14-23
Washington	State	C583-19	08-03-22
West Virginia DEP	State	354	11-30-22
Wisconsin	State	999615430	08-31-22
Wyoming (UST)	A2LA	2907.01	10-31-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: BM	Lab PM: Bieniulis, Dylan T	Carrier Tracking No(s):	COC No:
Client Contact: ~~Daniel Pollock~~ Patrick Delaney	Phone: 303-506-1618	E-Mail: Dylan.Bieniulis@Eurofinset.com	State of Origin:	Page:
Company: Grand Island Resources	PWSID:			Job #:
Address: 12567 West Cedar Road Suite 250	Due Date Requested:			
City: Lakewood	TAT Requested (days):			
State, Zip: CO, 80466	Compliance Project: Δ Yes Δ No			
Phone: ~~312-342-6145~~ 315-414-6986	PO #: Advance Payment Required			
Email: ~~Dpollock@nedmining.com~~ pdelaney@blackfoxmining.com	WO #:			
Project Name: Wastewater Discharge - Nederland, CO	Project #: 28022821			
Site: second half of the month event	SSOW#:			

Analysis Requested

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	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)	200.8 - Potentially Dissolved Metals (Second half of the month permit list)	200.8 - Total Recoverable Metals (Second half of the month permit list)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D		
OUTFALL-001	6/24/22	11:45 am	G	W	N		X	X		*Second half of the month potentially dissolved metals permit list = 200.8 (Cd, Cu, Pb, Ag, Zn)
										*Second half of the month total recoverable metals permit list = 200.8 (Cu, Pb)
										pH = 7.4 temp = 8°C
										*No labels with COC

280-163773 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: ~~Brock Watson~~ Date: 6/24/22 Time: 12:58 pm Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Brock Watson	6/24/22 12:58 pm			6/24/22 1258	ETADEN
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.: Drop off

Cooler Temperature(s) °C and Other Remarks: 12.1 IR#12 CF(+0.1)

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: GS Mining Company LLC

Job Number: 280-163773-1

Login Number: 163773
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	N/A	
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	

1508 Ridge Road
Nederland, CO 80466
Phone (315) 414-6986
www.blackfoxmining.com

July 12, 2022

Permits and Enforcement Section
Water Quality Control Division
CPDHE
4300 Cherry Creek Dr. South
Denver, CO 80246-1530

Subject: Discharge Monitoring Report for June 2022
Cross Gold Mine CO0032751

To whom it may concern,

During the month of June 2022 there were no exceedances at Outfall 001. This includes the test results for low-level mercury taken during the 2nd quarter and the 2nd quarter WET test taken 6/13/2022 – 6/15/2022. Every sampling event passed without issue.

Please contact me with any questions.

Sincerely,

Patrick M. Delaney
Environmental Manager
Black Fox Mining LLC
1508 Ridge Road, Nederland, CO 80466
Phone 315-414-6986
www.blackfoxmining.com | pdelaney@blackfoxmining.com

DMR Copy of Record

Permit

Permit #:	**CO0032751**	**Permittee:**	Grand Island Resources LLC	**Facility:**	CROSS AND CARIBOU MINES
Major:	No	**Permittee Address:**	12567 W Cedar Dr Lakewood, CO 80228	**Facility Location:**	CROSS AND CARIBOU MINES BOULDER COUNTY, CO 80466
Permitted Feature:	001 External Outfall	**Discharge:**	**001-Q** Quarterly Monitoring for 001A		

Report Dates & Status

Monitoring Period:	**From 04/01/22 to 06/30/22**	**DMR Due Date:**	**07/28/22**	**Status:**	**NetDMR Validated**

Considerations for Form Completion

Quarterly monitoring - see I.C.18, pg 3.

Principal Executive Officer

First Name:		**Title:**		**Telephone:**	
Last Name:					

No Data Indicator (NODI)

Form NODI: --

Parameter		Monitoring Location	Season #	Param. NODI		Quantity or Loading					Quality or Concentration							# of Ex.	Frequency of Analysis	Sample Type
Code	Name					Qualifier 1	Value 1	Qualifier 2	Value 2	Units	Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units			
50286	**Mercury, total [low level]**	1 - Effluent Gross	0	--	Sample								=	0.0019	=	0.0019	28 - ug/L	0	01/90 - Quarterly	GR - GRAB
					Permit Req.									Req Mon 30DA AVG		Req Mon DAILY MX	28 - ug/L		01/90 - Quarterly	GR - GRAB
					Value NODI															

Submission Note

If a parameter row does not contain any values for the Sample nor Effluent Trading, then none of the following fields will be submitted for that row: Units, Number of Excursions, Frequency of Analysis, and Sample Type.

Edit Check Errors

No errors.

Comments

Attachments

Name	Type	Size
2022_2ndQuarter_LL_Mercury_Test_GIR.pdf	pdf	1092511.0
2022_06_CrossCaribouMine_CoverLetter.pdf	pdf	192807.0

Report Last Saved By

Grand Island Resources LLC

User:	pdelaney@alexcoresource.com
Name:	Patrick Delaney
E-Mail:	pdelaney@blackfoxmining.com
Date/Time:	2022-07-12 00:35 (Time Zone: -06:00)

Report Last Signed By

User:	pdelaney@alexcoresource.com
Name:	Patrick Delaney
E-Mail:	pdelaney@blackfoxmining.com
Date/Time:	2022-07-12 00:36 (Time Zone: -06:00)

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

Laboratory Job ID: 280-161049-1
Client Project/Site: Wastewater Discharge - Nederland, CO

For:
GS Mining Company LLC
422 Gregory Street
Central City, Colorado 80427

Attn: Patrick Delaney

Authorized for release by:
4/28/2022 11:42:49 AM

Dylan Bieniulis, Project Manager I
(303)736-0138
Dylan.Bieniulis@et.eurofinsus.com

Table of Contents

Definitions/Glossary

Client: GS Mining Company LLC
Project/Site: Wastewater Discharge - Nederland, CO

Job ID: 280-161049-1

Qualifiers

Metals

Qualifier	Qualifier Description
^+	Continuing Calibration Verification (CCV) is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
^2	Calibration Blank (ICB and/or CCB) is outside acceptance limits.
H	Sample was prepped or analyzed beyond the specified holding time
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 280-161049-1

Laboratory: Eurofins Denver

Narrative

CASE NARRATIVE

Client: GS Mining Company LLC

Project: Wastewater Discharge - Nederland, CO

Report Number: 280-161049-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 04/15/2022; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 5.6 C.

Due to laboratory error the low level mercury sampling kit bag containing the sample containers holding sample volume collected for OUTFALL-001 (280-161049-1) was briefly opened during login procedures. Actual containers were not opened. The bag was re-sealed to await subcontracting to the laboratory performing the analysis. The laboratory will proceed with the requested analysis unless instructed otherwise. The client was notified on 4/15/2022.

TOTAL RECOVERABLE METALS (ICP)

Sample OUTFALL-001 (280-161049-1) was analyzed for Total Recoverable Metals (ICP) in accordance with EPA Method 200.7. The samples were prepared on 04/19/2022 and analyzed on 04/20/2022.

Iron was detected in method blank MB 280-572174/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

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

POTENTIALLY DISSOLVED METALS (ICPMS)

Sample OUTFALL-001 (280-161049-1) was analyzed for potentially dissolved metals (ICPMS) in accordance with EPA Method 200.8. The samples were prepared on 04/20/2022 and analyzed on 04/21/2022.

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

TOTAL RECOVERABLE METALS (ICPMS)

Sample OUTFALL-001 (280-161049-1) was analyzed for total recoverable metals (ICPMS) in accordance with EPA Method 200.8. The samples were prepared on 04/18/2022 and analyzed on 04/20/2022.

The continuing calibration verification (CCV) associated with batch 280-572522 recovered at 111% which is above the upper control limit (110%) for Arsenic. The samples associated with this CCV were <RL for the affected analytes; therefore, the data have been reported. The associated samples are impacted: OUTFALL-001 (280-161049-1), (CCV 280-572522/134), (LCS 280-572186/2-A), and (MB

Job ID: 280-161049-1 (Continued)

Laboratory: Eurofins Denver (Continued)

280-572186/1-A).

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

TOTAL MERCURY (CVAA)
Sample OUTFALL-001 (280-161049-1) was analyzed for total mercury (CVAA) in accordance with EPA Method 245.1. The samples were prepared on 04/18/2022 and analyzed on 04/19/2022.

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

TRIVALENT CHROMIUM - POTENTIALLY DISSOLVED
Sample OUTFALL-001 (280-161049-1) was analyzed for Trivalent Chromium - Potentially Dissolved in accordance with SM3500_CR3_B. The samples were analyzed on 04/27/2022.

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

TRIVALENT CHROMIUM - TOTAL RECOVERABLE
Sample OUTFALL-001 (280-161049-1) was analyzed for Trivalent Chromium - Total Recoverable in accordance with SM3500_CR3_B. The samples were analyzed on 04/27/2022.

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

SPECIFIC CONDUCTIVITY
Sample OUTFALL-001 (280-161049-1) was analyzed for specific conductivity in accordance with SM20 2510B. The samples were analyzed on 04/18/2022.

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

TOTAL SUSPENDED SOLIDS
Sample OUTFALL-001 (280-161049-1) was analyzed for total suspended solids in accordance with SM20 2540D. The samples were analyzed on 04/20/2022.

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

DISSOLVED HEXAVALENT CHROMIUM
Sample OUTFALL-001 (280-161049-1) was analyzed for dissolved hexavalent chromium in accordance with SM 3500 CR B. The samples were analyzed on 04/15/2022.

Chromium, hexavalent failed the recovery criteria high for LCS 280-572067/1-A. The analyte recovered within control limits in the associated laboratory control sample duplicate (LCSD). Associated client sample result was less than the reporting limit. Data has been qualified and reported. Refer to the QC report for details.

The continuing calibration blank (CCB) for preparation batch 280-572067 contained hexavalent chromium above the reporting limit (RL). None of the samples associated with this CCB contained the target compound above the reporting limit; therefore, re-extraction and/or re-analysis of samples were not performed. Data has been qualified and reported: OUTFALL-001 (280-161049-1), (CCB1 280-572071/25) and (280-161049-1 DU).

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

HEXAVALENT CHROMIUM
Sample OUTFALL-001 (280-161049-1) was analyzed for hexavalent chromium in accordance with 3500_CR_B. The samples were analyzed on 04/15/2022.

Chromium, hexavalent was detected in method blank MB 280-572071/10 at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above

Job ID: 280-161049-1 (Continued)

Laboratory: Eurofins Denver (Continued)

the MDL and/or RL, the result has been flagged. Refer to the QC report for details.

Chromium, hexavalent failed the recovery criteria high for LCSD 280-572071/9. The associated laboratory control sample (LCS) recovered within control limits. Chromium, hexavalent exceeded the RPD limit. The associated client sample result was less than the reporting limit. Data has been qualified and reported. Refer to the QC report for details.

The continuing calibration blank (CCB) for preparation batch 280-572067 contained hexavalent chromium above the reporting limit (RL). None of the samples associated with this CCB contained the target compound above the reporting limit; therefore, re-extraction and/or re-analysis of samples were not performed. Data has been qualified and reported: OUTFALL-001 (280-161049-1), (CCB1 280-572071/25) and (280-161049-1 DU).

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

CORROSIVITY (PH)
Sample OUTFALL-001 (280-161049-1) was analyzed for corrosivity (pH) in accordance with SM20 4500 H+ B. The samples were analyzed on 04/25/2022.

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

SULFIDE
Sample OUTFALL-001 (280-161049-1) was analyzed for sulfide in accordance with SM20 4500 S2 D. The samples were analyzed on 04/19/2022.

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

HYDROGEN SULFIDE
Sample OUTFALL-001 (280-161049-1) was analyzed for Hydrogen Sulfide in accordance with SM20 4500 S2 H. The samples were analyzed on 04/28/2022.

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

LOW LEVEL MERCURY
Sample OUTFALL-001 (280-161049-1) was analyzed for Low Level Mercury in accordance with EPA 1631. The samples were prepared on 04/19/2022 and analyzed on 04/22/2022.

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

Detection Summary

Client: GS Mining Company LLC
Job ID: 280-161049-1
Project/Site: Wastewater Discharge - Nederland, CO

Client Sample ID: OUTFALL-001
Lab Sample ID: 280-161049-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Mercury	1.9		0.50	0.20	ng/L	1		1631E	Total/NA
Iron	36	J B	100	9.1	ug/L	1		200.7 Rev 4.4	Total Recoverable
Lead	0.84	J	1.0	0.23	ug/L	1		200.8	Total Recoverable
Zinc	3.5	J	10	2.0	ug/L	1		200.8	Total Recoverable
Lead	0.76	J	1.0	0.23	ug/L	1		200.8	Potentially Dissolved
Zinc	6.9	J	10	2.0	ug/L	1		200.8	Potentially Dissolved
Specific Conductance	210		2.0	2.0	umhos/cm	1		SM 2510B	Total/NA
pH adj. to 25 deg C	7.5	HF	0.1	0.1	SU	1		SM 4500 H+ B	Total/NA
Temperature	17.6	HF	1.0	1.0	Degrees C	1		SM 4500 H+ B	Total/NA
Field pH	7.5		1.0	1.0	SU	1		SM4500 S2 H	Total/NA
Field Temperature	18		1.0	1.0	Celsius	1		SM4500 S2 H	Total/NA
Specific Conductance	210		2.0	2.0	umhos/cm	1		SM4500 S2 H	Total/NA
Chromium, hexavalent	0.011	J ^2 *+	0.020	0.0040	mg/L	1		SM 3500 CR B	Dissolved

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GS Mining Company LLC
Project/Site: Wastewater Discharge - Nederland, CO

Job ID: 280-161049-1

Method	Method Description	Protocol	Laboratory
1631E	Mercury, Low Level (CVAFS)	EPA	TAL PEN
200.7 Rev 4.4	Metals (ICP)	EPA	TAL DEN
200.8	Metals (ICP/MS)	EPA	TAL DEN
245.1	Mercury (CVAA)	EPA	TAL DEN
SM 2510B	Conductivity, Specific Conductance	SM	TAL DEN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL DEN
SM 3500 CR B	Chromium, Hexavalent	SM	TAL DEN
SM 4500 H+ B	pH	SM	TAL DEN
SM 4500 S2 D	Sulfide, Total	SM	TAL DEN
SM3500 CR B	Chromium, Trivalent	SM	TAL DEN
SM4500 S2 H	Unionized Hydrogen Sulfide	SM	TAL DEN
1631E	Preparation, Mercury, Low Level	EPA	TAL PEN
200.7	Preparation, Total Recoverable Metals	EPA	TAL DEN
200.8	Preparation, Total Recoverable Metals	EPA	TAL DEN
245.1	Preparation, Mercury	EPA	TAL DEN
FILTRATION	Sample Filtration	None	TAL DEN
Poten_Diss_Met	Filtration for Potentially Dissolved Metals	EPA	TAL DEN

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL PEN = Eurofins Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Sample Summary

Client: GS Mining Company LLC
Project/Site: Wastewater Discharge - Nederland, CO

Job ID: 280-161049-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-161049-1	OUTFALL-001	Water	04/15/22 10:15	04/15/22 11:30

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

Client Sample ID: OUTFALL-001
Date Collected: 04/15/22 10:15
Date Received: 04/15/22 11:30
Lab Sample ID: 280-161049-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**1.9**		0.50	0.20	ng/L		04/19/22 16:45	04/22/22 12:13	1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Client Sample ID: OUTFALL-001
Date Collected: 04/15/22 10:15
Date Received: 04/15/22 11:30
Lab Sample ID: 280-161049-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	**36**	**J B**	100	9.1	ug/L		04/19/22 11:40	04/20/22 19:49	1

Method: 200.8 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: OUTFALL-001
Date Collected: 04/15/22 10:15
Date Received: 04/15/22 11:30
Lab Sample ID: 280-161049-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND	^+	5.0	0.50	ug/L		04/18/22 12:10	04/20/22 23:08	1
Cadmium	ND		1.0	0.088	ug/L		04/18/22 12:10	04/20/22 23:08	1
Chromium	ND		3.0	0.88	ug/L		04/18/22 12:10	04/20/22 23:08	1
Copper	ND		2.0	0.71	ug/L		04/18/22 12:10	04/20/22 23:08	1
Lead	**0.84**	**J**	1.0	0.23	ug/L		04/18/22 12:10	04/20/22 23:08	1
Zinc	**3.5**	**J**	10	2.0	ug/L		04/18/22 12:10	04/20/22 23:08	1

Method: 200.8 - Metals (ICP/MS) - Potentially Dissolved

Client Sample ID: OUTFALL-001
Date Collected: 04/15/22 10:15
Date Received: 04/15/22 11:30
Lab Sample ID: 280-161049-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	0.50	ug/L		04/20/22 09:02	04/21/22 02:05	1
Cadmium	ND		1.0	0.088	ug/L		04/20/22 09:02	04/21/22 02:05	1
Chromium	ND		3.0	0.88	ug/L		04/20/22 09:02	04/21/22 02:05	1
Copper	ND		2.0	0.71	ug/L		04/20/22 09:02	04/21/22 02:05	1
Lead	**0.76**	**J**	1.0	0.23	ug/L		04/20/22 09:02	04/21/22 02:05	1
Manganese	ND		2.0	0.51	ug/L		04/20/22 09:02	04/21/22 02:05	1
Nickel	ND		2.0	0.28	ug/L		04/20/22 09:02	04/21/22 02:05	1
Selenium	ND		5.0	1.0	ug/L		04/20/22 09:02	04/21/22 02:05	1
Silver	ND		1.0	0.045	ug/L		04/20/22 09:02	04/21/22 02:05	1
Zinc	**6.9**	**J**	10	2.0	ug/L		04/20/22 09:02	04/21/22 02:05	1

Method: 245.1 - Mercury (CVAA)

Client Sample ID: OUTFALL-001
Date Collected: 04/15/22 10:15
Date Received: 04/15/22 11:30
Lab Sample ID: 280-161049-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		04/18/22 19:18	04/19/22 01:49	1

Client: GS Mining Company LLC
Job ID: 280-161049-1
Project/Site: Wastewater Discharge - Nederland, CO

General Chemistry

Client Sample ID: OUTFALL-001
Date Collected: 04/15/22 10:15
Date Received: 04/15/22 11:30
Lab Sample ID: 280-161049-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	**210**		2.0	2.0	umhos/cm			04/18/22 09:36	1
Total Suspended Solids	ND		4.0	1.1	mg/L			04/20/22 16:13	1
Chromium, hexavalent	ND	*+ *1	0.020	0.0040	mg/L			04/15/22 18:56	1
pH adj. to 25 deg C	**7.5**	**HF**	0.1	0.1	SU			04/25/22 15:12	1
Temperature	**17.6**	**HF**	1.0	1.0	Degrees C			04/25/22 15:12	1
Sulfide	ND		0.050	0.022	mg/L			04/19/22 15:06	1
Un-ionized Hydrogen Sulfide	ND		1.0	1.0	mg/L			04/28/22 09:15	1
Field pH	**7.5**		1.0	1.0	SU			04/28/22 09:15	1
Field Temperature	**18**		1.0	1.0	Celsius			04/28/22 09:15	1
Specific Conductance	**210**		2.0	2.0	umhos/cm			04/28/22 09:15	1
Sulfide	ND		4.0	4.0	mg/L			04/28/22 09:15	1

General Chemistry - Total Recoverable

Client Sample ID: OUTFALL-001
Date Collected: 04/15/22 10:15
Date Received: 04/15/22 11:30
Lab Sample ID: 280-161049-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, trivalent	ND	H	0.020	0.020	mg/L			04/27/22 17:00	1

General Chemistry - Dissolved

Client Sample ID: OUTFALL-001
Date Collected: 04/15/22 10:15
Date Received: 04/15/22 11:30
Lab Sample ID: 280-161049-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	**0.011**	**J ^2 *+**	0.020	0.0040	mg/L			04/15/22 19:00	1

General Chemistry - Potentially Dissolved

Client Sample ID: OUTFALL-001
Date Collected: 04/15/22 10:15
Date Received: 04/15/22 11:30
Lab Sample ID: 280-161049-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, trivalent (dissolved)	ND		0.020	0.020	mg/L			04/27/22 17:01	1

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

Lab Sample ID: MB 400-574810/3-A
Matrix: Water
Analysis Batch: 574905

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 574810

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.50	0.20	ng/L		04/21/22 16:36	04/22/22 10:03	1

Lab Sample ID: LCS 400-574810/4-A
Matrix: Water
Analysis Batch: 574905

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 574810

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	5.00	5.28		ng/L		106	79 - 121

Lab Sample ID: LCSD 400-574810/5-A
Matrix: Water
Analysis Batch: 574905

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 574810

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	5.00	5.46		ng/L		109	79 - 121	3	20

Lab Sample ID: 280-161049-1 MS
Matrix: Water
Analysis Batch: 574905

Client Sample ID: OUTFALL-001
Prep Type: Total/NA
Prep Batch: 574810

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.9		5.00	6.07		ng/L		84	71 - 125

Lab Sample ID: 280-161049-1 MSD
Matrix: Water
Analysis Batch: 574905

Client Sample ID: OUTFALL-001
Prep Type: Total/NA
Prep Batch: 574810

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	1.9		5.00	5.98		ng/L		82	71 - 125	2	24

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 280-572174/1-A
Matrix: Water
Analysis Batch: 572617

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 572174

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	23.0	J	100	9.1	ug/L		04/19/22 11:40	04/20/22 20:09	1

Lab Sample ID: LCS 280-572174/2-A
Matrix: Water
Analysis Batch: 572617

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 572174

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Iron	10000	10100		ug/L		101	85 - 115

Method: 200.8 - Metals (ICP/MS)

Lab Sample ID: MB 280-572186/1-A
Matrix: Water
Analysis Batch: 572522

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 572186

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND	^+	5.0	0.50	ug/L		04/18/22 12:10	04/20/22 22:23	1
Cadmium	ND		1.0	0.088	ug/L		04/18/22 12:10	04/20/22 22:23	1
Chromium	ND		3.0	0.88	ug/L		04/18/22 12:10	04/20/22 22:23	1
Copper	ND		2.0	0.71	ug/L		04/18/22 12:10	04/20/22 22:23	1
Lead	ND		1.0	0.23	ug/L		04/18/22 12:10	04/20/22 22:23	1
Zinc	ND		10	2.0	ug/L		04/18/22 12:10	04/20/22 22:23	1

Lab Sample ID: LCS 280-572186/2-A
Matrix: Water
Analysis Batch: 572522

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 572186

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	40.0	42.1	^+	ug/L		105	89 - 111
Cadmium	40.0	40.7		ug/L		102	89 - 111
Chromium	40.0	40.2		ug/L		101	86 - 115
Copper	40.0	42.6		ug/L		107	90 - 115
Lead	40.0	39.6		ug/L		99	88 - 115
Zinc	40.0	43.3		ug/L		108	88 - 115

Lab Sample ID: MB 280-571923/1-C
Matrix: Water
Analysis Batch: 572514

Client Sample ID: Method Blank
Prep Type: Potentially Dissolved
Prep Batch: 572302

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		5.0	0.50	ug/L		04/20/22 09:02	04/21/22 01:05	1
Cadmium	ND		1.0	0.088	ug/L		04/20/22 09:02	04/21/22 01:05	1
Chromium	ND		3.0	0.88	ug/L		04/20/22 09:02	04/21/22 01:05	1
Copper	ND		2.0	0.71	ug/L		04/20/22 09:02	04/21/22 01:05	1
Lead	ND		1.0	0.23	ug/L		04/20/22 09:02	04/21/22 01:05	1
Manganese	ND		2.0	0.51	ug/L		04/20/22 09:02	04/21/22 01:05	1
Nickel	ND		2.0	0.28	ug/L		04/20/22 09:02	04/21/22 01:05	1
Selenium	ND		5.0	1.0	ug/L		04/20/22 09:02	04/21/22 01:05	1
Silver	ND		1.0	0.045	ug/L		04/20/22 09:02	04/21/22 01:05	1
Zinc	ND		10	2.0	ug/L		04/20/22 09:02	04/21/22 01:05	1

Lab Sample ID: LCS 280-571923/2-C
Matrix: Water
Analysis Batch: 572514

Client Sample ID: Lab Control Sample
Prep Type: Potentially Dissolved
Prep Batch: 572302

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	40.0	39.3		ug/L		98	89 - 111
Cadmium	40.0	39.9		ug/L		100	89 - 111
Chromium	40.0	39.4		ug/L		99	86 - 115
Copper	40.0	40.5		ug/L		101	90 - 115
Lead	40.0	40.9		ug/L		102	88 - 115
Manganese	40.0	40.8		ug/L		102	87 - 115
Nickel	40.0	39.0		ug/L		97	86 - 115
Selenium	40.0	40.6		ug/L		101	85 - 114
Silver	40.0	38.5		ug/L		96	90 - 114

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

Lab Sample ID: LCS 280-571923/2-C
Matrix: Water
Analysis Batch: 572514

Client Sample ID: Lab Control Sample
Prep Type: Potentially Dissolved
Prep Batch: 572302

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	40.0	42.5		ug/L		106	88 - 115

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 280-572206/1-A
Matrix: Water
Analysis Batch: 572314

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 572206

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.20	0.061	ug/L		04/18/22 19:18	04/19/22 00:56	1

Lab Sample ID: LCS 280-572206/2-A
Matrix: Water
Analysis Batch: 572314

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 572206

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	5.00	4.96		ug/L		99	90 - 110

Lab Sample ID: LCSD 280-572206/3-A
Matrix: Water
Analysis Batch: 572314

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 572206

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	5.00	4.85		ug/L		97	90 - 110	2	10

Method: SM 2510B - Conductivity, Specific Conductance

Lab Sample ID: MB 280-572146/5
Matrix: Water
Analysis Batch: 572146

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	ND		2.0	2.0	umhos/cm			04/18/22 09:36	1

Lab Sample ID: LCS 280-572146/4
Matrix: Water
Analysis Batch: 572146

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Specific Conductance	1410	1460		umhos/cm		104	90 - 110

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

Lab Sample ID: MB 280-572487/2
Matrix: Water
Analysis Batch: 572487

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	1.1	mg/L			04/20/22 16:13	1

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

Lab Sample ID: LCS 280-572487/1
Matrix: Water
Analysis Batch: 572487

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			100	90.4		mg/L		90	79 - 114		

Method: SM 3500 CR B - Chromium, Hexavalent

Lab Sample ID: MB 280-572071/10
Matrix: Water
Analysis Batch: 572071

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.00731	J	0.020	0.0040	mg/L			04/15/22 18:56	1

Lab Sample ID: LCS 280-572071/8
Matrix: Water
Analysis Batch: 572071

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chromium, hexavalent			0.100	0.103		mg/L		103	91 - 112		

Lab Sample ID: LCSD 280-572071/9
Matrix: Water
Analysis Batch: 572071

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
Chromium, hexavalent			0.100	0.136	*+ *1	mg/L		136	91 - 112	28	20

Lab Sample ID: 280-161049-1 MS
Matrix: Water
Analysis Batch: 572071

Client Sample ID: OUTFALL-001
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chromium, hexavalent	ND	*+ *1	0.100	0.105		mg/L		105	91 - 112		

Lab Sample ID: 280-161049-1 MSD
Matrix: Water
Analysis Batch: 572071

Client Sample ID: OUTFALL-001
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chromium, hexavalent	ND	*+ *1	0.100	0.105		mg/L		105	91 - 112	0	20

Lab Sample ID: 280-161049-1 DU
Matrix: Water
Analysis Batch: 572071

Client Sample ID: OUTFALL-001
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chromium, hexavalent	ND	*+ *1		ND	*+ *1	mg/L				NC	20

Method: SM 3500 CR B - Chromium, Hexavalent (Continued)

Lab Sample ID: MB 280-572067/3-A
Matrix: Water
Analysis Batch: 572071

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.020	0.0040	mg/L			04/15/22 19:00	1

Lab Sample ID: LCS 280-572067/1-A
Matrix: Water
Analysis Batch: 572071

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Chromium, hexavalent			0.100	0.123	*+	mg/L		123	91 - 112		

Lab Sample ID: LCSD 280-572067/2-A
Matrix: Water
Analysis Batch: 572071

Client Sample ID: Lab Control Sample Dup
Prep Type: Dissolved

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chromium, hexavalent			0.100	0.104		mg/L		104	91 - 112	17	20

Lab Sample ID: 280-161049-1 MS
Matrix: Water
Analysis Batch: 572071

Client Sample ID: OUTFALL-001
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Chromium, hexavalent	0.011	J ^2 *+	0.100	0.106		mg/L		95	91 - 112		

Lab Sample ID: 280-161049-1 MSD
Matrix: Water
Analysis Batch: 572071

Client Sample ID: OUTFALL-001
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chromium, hexavalent	0.011	J ^2 *+	0.100	0.105		mg/L		94	91 - 112	1	20

Lab Sample ID: 280-161049-1 DU
Matrix: Water
Analysis Batch: 572071

Client Sample ID: OUTFALL-001
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Chromium, hexavalent	0.011	J ^2 *+		ND	*+	mg/L				NC	20

Method: SM 4500 H+ B - pH

Lab Sample ID: LCS 280-572977/6
Matrix: Water
Analysis Batch: 572977

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
pH adj. to 25 deg C			7.00	7.0		SU		100	99 - 101		

Client: GS Mining Company LLC
Project/Site: Wastewater Discharge - Nederland, CO

Job ID: 280-161049-1

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 280-572346/11
Matrix: Water
Analysis Batch: 572346

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.050	0.022	mg/L			04/19/22 13:44	1

Lab Sample ID: LCS 280-572346/9
Matrix: Water
Analysis Batch: 572346

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	0.501	0.487		mg/L		97	81 - 122

Lab Sample ID: LCSD 280-572346/10
Matrix: Water
Analysis Batch: 572346

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
Sulfide	0.501	0.491		mg/L		98	81 - 122	1	10

Method: SM4500 S2 H - Unionized Hydrogen Sulfide

Lab Sample ID: MB 280-573236/1
Matrix: Water
Analysis Batch: 573236

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Un-ionized Hydrogen Sulfide	ND		1.0	1.0	mg/L			04/28/22 09:15	1
Field pH	ND		1.0	1.0	SU			04/28/22 09:15	1
Field Temperature	ND		1.0	1.0	Celsius			04/28/22 09:15	1
Specific Conductance	ND		2.0	2.0	umhos/cm			04/28/22 09:15	1
Sulfide	ND		4.0	4.0	mg/L			04/28/22 09:15	1

Metals

Filtration Batch: 571923

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 280-571923/1-C	Method Blank	Potentially Dissolvec	Water	FILTRATION	
LCS 280-571923/2-C	Lab Control Sample	Potentially Dissolvec	Water	FILTRATION	

Filtration Batch: 572073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Potentially Dissolvec	Water	Poten_Diss_Met	

Prep Batch: 572174

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total Recoverable	Water	200.7	
MB 280-572174/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 280-572174/2-A	Lab Control Sample	Total Recoverable	Water	200.7	

Prep Batch: 572186

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total Recoverable	Water	200.8	
MB 280-572186/1-A	Method Blank	Total Recoverable	Water	200.8	
LCS 280-572186/2-A	Lab Control Sample	Total Recoverable	Water	200.8	

Prep Batch: 572206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total/NA	Water	245.1	
MB 280-572206/1-A	Method Blank	Total/NA	Water	245.1	
LCS 280-572206/2-A	Lab Control Sample	Total/NA	Water	245.1	
LCSD 280-572206/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	

Prep Batch: 572302

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Potentially Dissolvec	Water	200.8	572073
MB 280-571923/1-C	Method Blank	Potentially Dissolvec	Water	200.8	571923
LCS 280-571923/2-C	Lab Control Sample	Potentially Dissolvec	Water	200.8	571923

Analysis Batch: 572314

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total/NA	Water	245.1	572206
MB 280-572206/1-A	Method Blank	Total/NA	Water	245.1	572206
LCS 280-572206/2-A	Lab Control Sample	Total/NA	Water	245.1	572206
LCSD 280-572206/3-A	Lab Control Sample Dup	Total/NA	Water	245.1	572206

Analysis Batch: 572514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Potentially Dissolvec	Water	200.8	572302
MB 280-571923/1-C	Method Blank	Potentially Dissolvec	Water	200.8	572302
LCS 280-571923/2-C	Lab Control Sample	Potentially Dissolvec	Water	200.8	572302

Analysis Batch: 572522

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total Recoverable	Water	200.8	572186
MB 280-572186/1-A	Method Blank	Total Recoverable	Water	200.8	572186
LCS 280-572186/2-A	Lab Control Sample	Total Recoverable	Water	200.8	572186

Metals

Analysis Batch: 572617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total Recoverable	Water	200.7 Rev 4.4	572174
MB 280-572174/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	572174
LCS 280-572174/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	572174

Prep Batch: 574810

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total/NA	Water	1631E	
MB 400-574810/3-A	Method Blank	Total/NA	Water	1631E	
LCS 400-574810/4-A	Lab Control Sample	Total/NA	Water	1631E	
LCSD 400-574810/5-A	Lab Control Sample Dup	Total/NA	Water	1631E	
280-161049-1 MS	OUTFALL-001	Total/NA	Water	1631E	
280-161049-1 MSD	OUTFALL-001	Total/NA	Water	1631E	

Analysis Batch: 574905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total/NA	Water	1631E	574810
MB 400-574810/3-A	Method Blank	Total/NA	Water	1631E	574810
LCS 400-574810/4-A	Lab Control Sample	Total/NA	Water	1631E	574810
LCSD 400-574810/5-A	Lab Control Sample Dup	Total/NA	Water	1631E	574810
280-161049-1 MS	OUTFALL-001	Total/NA	Water	1631E	574810
280-161049-1 MSD	OUTFALL-001	Total/NA	Water	1631E	574810

General Chemistry

Filtration Batch: 572067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Dissolved	Water	FILTRATION	
MB 280-572067/3-A	Method Blank	Dissolved	Water	FILTRATION	
LCS 280-572067/1-A	Lab Control Sample	Dissolved	Water	FILTRATION	
LCSD 280-572067/2-A	Lab Control Sample Dup	Dissolved	Water	FILTRATION	
280-161049-1 MS	OUTFALL-001	Dissolved	Water	FILTRATION	
280-161049-1 MSD	OUTFALL-001	Dissolved	Water	FILTRATION	
280-161049-1 DU	OUTFALL-001	Dissolved	Water	FILTRATION	

Analysis Batch: 572071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Dissolved	Water	SM 3500 CR B	572067
280-161049-1	OUTFALL-001	Total/NA	Water	SM 3500 CR B	
MB 280-572067/3-A	Method Blank	Dissolved	Water	SM 3500 CR B	572067
MB 280-572071/10	Method Blank	Total/NA	Water	SM 3500 CR B	
LCS 280-572067/1-A	Lab Control Sample	Dissolved	Water	SM 3500 CR B	572067
LCS 280-572071/8	Lab Control Sample	Total/NA	Water	SM 3500 CR B	
LCSD 280-572067/2-A	Lab Control Sample Dup	Dissolved	Water	SM 3500 CR B	572067
LCSD 280-572071/9	Lab Control Sample Dup	Total/NA	Water	SM 3500 CR B	
280-161049-1 MS	OUTFALL-001	Dissolved	Water	SM 3500 CR B	572067
280-161049-1 MS	OUTFALL-001	Total/NA	Water	SM 3500 CR B	
280-161049-1 MSD	OUTFALL-001	Dissolved	Water	SM 3500 CR B	572067
280-161049-1 MSD	OUTFALL-001	Total/NA	Water	SM 3500 CR B	
280-161049-1 DU	OUTFALL-001	Dissolved	Water	SM 3500 CR B	572067
280-161049-1 DU	OUTFALL-001	Total/NA	Water	SM 3500 CR B	

General Chemistry

Analysis Batch: 572146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total/NA	Water	SM 2510B	
MB 280-572146/5	Method Blank	Total/NA	Water	SM 2510B	
LCS 280-572146/4	Lab Control Sample	Total/NA	Water	SM 2510B	

Analysis Batch: 572346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total/NA	Water	SM 4500 S2 D	
MB 280-572346/11	Method Blank	Total/NA	Water	SM 4500 S2 D	
LCS 280-572346/9	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
LCSD 280-572346/10	Lab Control Sample Dup	Total/NA	Water	SM 4500 S2 D	

Analysis Batch: 572487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total/NA	Water	SM 2540D	
MB 280-572487/2	Method Blank	Total/NA	Water	SM 2540D	
LCS 280-572487/1	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 572977

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total/NA	Water	SM 4500 H+ B	
LCS 280-572977/6	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	

Analysis Batch: 573197

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total Recoverable	Water	SM3500 CR B	

Analysis Batch: 573198

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Potentially Dissolvec	Water	SM3500 CR B	

Analysis Batch: 573236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-161049-1	OUTFALL-001	Total/NA	Water	SM4500 S2 H	
MB 280-573236/1	Method Blank	Total/NA	Water	SM4500 S2 H	

Lab Chronicle

Client: GS Mining Company LLC
Job ID: 280-161049-1
Project/Site: Wastewater Discharge - Nederland, CO

Client Sample ID: OUTFALL-001
Lab Sample ID: 280-161049-1

Date Collected: 04/15/22 10:15
Matrix: Water

Date Received: 04/15/22 11:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	1631E			40 mL	40 mL	574810	04/19/22 16:45	VLC	TAL PEN
Total/NA	Analysis	1631E		1			574905	04/22/22 12:13	VLC	TAL PEN
Total Recoverable	Prep	200.7			50 mL	50 mL	572174	04/19/22 11:40	MB	TAL DEN
Total Recoverable	Analysis	200.7 Rev 4.4		1			572617	04/20/22 19:49	MAB	TAL DEN
Potentially Dissolvec	Filtration	Poten_Diss_Met			250 mL	250 mL	572073	04/15/22 20:30	LRD	TAL DEN
Potentially Dissolvec	Prep	200.8			50 mL	50 mL	572302	04/20/22 09:02	MB	TAL DEN
Potentially Dissolvec	Analysis	200.8		1			572514	04/21/22 02:05	LMT	TAL DEN
Total Recoverable	Prep	200.8			50 mL	50 mL	572186	04/18/22 12:10	KMS	TAL DEN
Total Recoverable	Analysis	200.8		1			572522	04/20/22 23:08	LMT	TAL DEN
Total/NA	Prep	245.1			30 mL	50 mL	572206	04/18/22 19:18	CEH	TAL DEN
Total/NA	Analysis	245.1		1			572314	04/19/22 01:49	CEH	TAL DEN
Total/NA	Analysis	SM 2510B		1			572146	04/18/22 09:36	KEG	TAL DEN
Total/NA	Analysis	SM 2540D		1	250 mL	250 mL	572487	04/20/22 16:13	SVC	TAL DEN
Dissolved	Filtration	FILTRATION			1.0 mL	1.0 mL	572067	04/15/22 18:17	SJD	TAL DEN
Dissolved	Analysis	SM 3500 CR B		1	2 mL	2 mL	572071	04/15/22 19:00	SJD	TAL DEN
Total/NA	Analysis	SM 3500 CR B		1	2 mL	2 mL	572071	04/15/22 18:56	SJD	TAL DEN
Total/NA	Analysis	SM 4500 H+ B		1			572977	04/25/22 15:12	KEG	TAL DEN
Total/NA	Analysis	SM 4500 S2 D		1	2 mL	2 mL	572346	04/19/22 15:06	LRB	TAL DEN
Potentially Dissolvec	Analysis	SM3500 CR B		1			573198	04/27/22 17:01	DNM	TAL DEN
Total Recoverable	Analysis	SM3500 CR B		1			573197	04/27/22 17:00	DNM	TAL DEN
Total/NA	Analysis	SM4500 S2 H		1			573236	04/28/22 09:15	SAH	TAL DEN

Laboratory References:

TAL DEN = Eurofins Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TAL PEN = Eurofins Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: GS Mining Company LLC
Job ID: 280-161049-1
Project/Site: Wastewater Discharge - Nederland, CO

Laboratory: Eurofins 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	10-31-23
A2LA	ISO/IEC 17025	2907.01	10-31-23
Alabama	State Program	40730	09-30-12 *
Alaska (UST)	State	18-001	02-08-23
Arizona	State	AZ0713	12-20-22
Arkansas DEQ	State	19-047-0	06-01-22
California	State	2513	01-09-23
Connecticut	State	PH-0686	09-30-22
Florida	NELAP	E87667-57	06-30-22
Georgia	State	4025-011	01-08-23
Illinois	NELAP	2000172019-1	04-30-23
Iowa	State	IA#370	12-02-22
Kansas	NELAP	E-10166	04-30-22
Kentucky (WW)	State	KY98047	12-31-22
Louisiana	NELAP	30785	06-30-14 *
Louisiana	NELAP	30785	06-30-22
Minnesota	NELAP	1788752	12-31-22
Nevada	State	CO000262020-1	07-31-22
New Hampshire	NELAP	205319	04-29-22
New Jersey	NELAP	190002	06-30-22
New York	NELAP	59923	04-01-23
North Carolina (WW/SW)	State	358	12-31-22
North Dakota	State	R-034	01-08-23
Oklahoma	NELAP	8614	08-31-22
Oregon	NELAP	4025-011	01-08-23
Pennsylvania	NELAP	013	07-31-22
South Carolina	State	72002001	01-08-23
Texas	NELAP	TX104704183-08-TX	09-30-09 *
Texas	NELAP	T104704183-21-19	10-01-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-20-00065	03-06-23
Utah	NELAP	QUAN5	06-30-13 *
Utah	NELAP	CO000262019-11	07-31-22
Virginia	NELAP	10490	06-14-22
Washington	State	C583-19	08-03-22
West Virginia DEP	State	354	11-30-22
Wisconsin	State	999615430	08-31-22
Wyoming (UST)	A2LA	2907.01	10-31-22

Laboratory: Eurofins Pensacola

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

Authority	Program	Identification Number	Expiration Date
Alabama	State	40150	06-30-22
ANAB	ISO/IEC 17025	L2471	02-23-23
Arkansas DEQ	State	88-0689	09-01-22
California	State	2510	06-30-22
Florida	NELAP	E81010	06-30-22
Georgia	State	E81010(FL)	06-30-22
Illinois	NELAP	200041	10-09-22

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GS Mining Company LLC
Job ID: 280-161049-1
Project/Site: Wastewater Discharge - Nederland, CO

Laboratory: Eurofins Pensacola (Continued)

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

Authority	Program	Identification Number	Expiration Date
Kansas	NELAP	E-10253	10-31-22
Kentucky (UST)	State	53	06-30-22
Kentucky (WW)	State	KY98030	12-31-22
Louisiana	NELAP	30976	06-30-22
Louisiana (DW)	State	LA017	12-31-22
Maryland	State	233	09-30-22
Massachusetts	State	M-FL094	06-30-22
Michigan	State	9912	06-30-22
North Carolina (WW/SW)	State	314	12-31-22
Oklahoma	NELAP	9810	08-31-22
Pennsylvania	NELAP	68-00467	01-31-23
South Carolina	State	96026	06-30-22
Tennessee	State	TN02907	06-30-22
Texas	NELAP	T104704286	09-30-22
US Fish & Wildlife	US Federal Programs	058448	07-31-22
USDA	US Federal Programs	P330-21-00056	05-17-24
Virginia	NELAP	460166	06-14-22
West Virginia DEP	State	136	05-31-22

Eurofins TestAmerica, Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Phone (303) 431-7171

Chain of Custody Record

eurofins Environment Testing America

Client Information	Sampler: P. DELANEY	Lab PM: Bieniulis, Dylan T	Carrier Tracking No(s):	COC No:
Client Contact: [redacted] PATRICK DELANEY	Phone: 315-414-6986	E-Mail: Dylan.Bieniulis@Eurofinset.com	State of Origin:	Page:
Company: Grand Island Resources	PWSID:			Job #:

Address: 12567 West Cedar Road Suite 250	Due Date Requested: RUSH	Analysis Requested
City: Lakewood	TAT Requested (days): ASAP	
State, Zip: CO, 80466	Compliance Project: Δ Yes Δ No	
Phone: [redacted] 315-414-6986	PO #: Advance Payment Required	
Email: [redacted] pdelaney@blackfoxmining.com	WO #:	
Project Name: Wastewater Discharge - Nederland, CO	Project #: 28022821	
Site: First half of the month event + quarterly LL Hg	SSOW#:	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

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)	2510B - Specific Conductance, 2540D - TSS, SM4500_H+ - pH / Temp	3500_CR_B - Total Hexavalent Cr and Trivalent Cr (calc)	3500_CR_B - Dissolved Hexavalent Cr (LAB FILTER) and Potentially Dissolved Trivalent Cr (calc)	SM4500_S2_D - Sulfide and SM3500_S2_H - Unionized Hydrogen Sulfide (calc)	1631E - Low Level Mercury (ETA Pensacola)	200.8 - Potentially Dissolved Metals (First half of the month permit list)	200.7 / 200.8 / 245.1 - Total Recoverable Metals and Mercury (First half of the month permit list)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	N	CB	N	D	D		
OUTFALL-001	4/15/2022	10:15 am	G	W	N		X	X	X	X	X	X	X		*First half of the month potentially dissolved metals permit list = 200.8 (As, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, Zn)
															*First half of the month total recoverable metals permit list = 200.7 (Fe), 200.8 (As, Cd, Cr, Cu, Pb, Zn), and 245.1 (Hg)
															pH = 7.2
															temp = 4°C

280-161049 Chain of Custody

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Bradley Mason-Moore	4/15/22 12:35pm			4/15/22 1235	ETDEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
				4/15/22 1130	Stantec
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: 5.5 IR12 CF+0.1

Ver: 01/16/2019

Eurofins Denver
4955 Yarrow Street
Arvada, CO 80002
Phone: 303-736-0100 Fax: 303-431-7171

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bieniulis, Dylan T	Carrier Tracking No(s):	COC No: 280-610861.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Dylan.Bieniulis@et.eurofinsus.com	State of Origin: Colorado	Page: Page 1 of 1
Company: Eurofins Environment Testing Southeast,		Accreditations Required (See note):		Job #: 280-161049-1
Address: 3355 McLemore Drive, ,	Due Date Requested: 5/1/2022			
City: Pensacola	TAT Requested (days):			
State, Zip: FL, 32514				
Phone: 850-474-1001(Tel) 850-478-2671(Fax)	PO #:			
Email:	WO #:			
Project Name: Wastewater Discharge - Nederland, CO	Project #: 28022821			
Site:	SSOW#:			

Analysis Requested

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)	1631E/1631E_Prep	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
OUTFALL-001 (280-161049-1)	4/15/22	10:15 Mountain		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 complicance 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: 4/18/22 1440	Company EEN	Received by:	Date/Time: 4/19/22 911	Company EETS
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: 5.0°C IR ID		

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: GS Mining Company LLC

Job Number: 280-161049-1

Login Number: 161049
List Number: 1
Creator: Roehsner, Karen P

List Source: Eurofins Denver

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.	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	

Login Sample Receipt Checklist

Client: GS Mining Company LLC

Job Number: 280-161049-1

Login Number: 161049
List Number: 2
Creator: Perez, Trina M

List Source: Eurofins Pensacola
List Creation: 04/19/22 12:37 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.	N/A	
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	5.0°C IR-10
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	

1508 Ridge Road
Nederland, CO 80466
Phone (315) 414-6986
www.blackfoxmining.com

July 12, 2022

Permits and Enforcement Section
Water Quality Control Division
CPDHE
4300 Cherry Creek Dr. South
Denver, CO 80246-1530

Subject: Discharge Monitoring Report for June 2022
Cross Gold Mine CO0032751

To whom it may concern,

During the month of June 2022 there were no exceedances at Outfall 001. This includes the test results for low-level mercury taken during the 2nd quarter and the 2nd quarter WET test taken 6/13/2022 – 6/15/2022. Every sampling event passed without issue.

Please contact me with any questions.

Sincerely,

Patrick M. Delaney
Environmental Manager
Black Fox Mining LLC
1508 Ridge Road, Nederland, CO 80466
Phone 315-414-6986
www.blackfoxmining.com | pdelaney@blackfoxmining.com

DMR Copy of Record

Permit					
Permit #:	**CO0032751**	**Permittee:**	Grand Island Resources LLC	**Facility:**	CROSS AND CARIBOU MINES
Major:	No	**Permittee Address:**	12567 W Cedar Dr Lakewood, CO 80228	**Facility Location:**	CROSS AND CARIBOU MINES BOULDER COUNTY, CO 80466
Permitted Feature:	001 External Outfall	**Discharge:**	**001-X** CHRONIC WET TESTING FOR 001A		
Report Dates & Status					
Monitoring Period:	**From 04/01/22 to 06/30/22**	**DMR Due Date:**	**07/28/22**	**Status:**	**NetDMR Validated**
Considerations for Form Completion					
See I.B.3 for details of test procedure. Report NOEC using test code "S". Report IC25 using test code "P". Report highest number between "P" and "S" at "T" for each parameter. IWC=73% (1st qtr), 52%(2nd/4th qtr) and 53% (3rd qtr).					
Principal Executive Officer					
First Name:		**Title:**		**Telephone:**	
Last Name:					
No Data Indicator (NODI)					
Form NODI:	--				

Parameter		Monitoring Location	Season #	Param. NODI		Quantity or Loading					Quality or Concentration						# of Ex.	Frequency of Analysis	Sample Type
Code	Name					Qualifier 1	Value 1	Qualifier 2	Value 2	Units	Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units			
TKP3B	**Static Renewal 7 Day Chronic Ceriodaphnia dubia**	P - See Comments	0	--	Sample						>	100.0					2G - tox chronic	0	01/90 - Quarterly	G3 - GRAB-3
					Permit Req.							Req Mon SINGSAMP					2G - tox chronic		01/90 - Quarterly	G3 - GRAB-3
					Value NODI															
TKP3B	**Static Renewal 7 Day Chronic Ceriodaphnia dubia**	S - See Comments	0	--	Sample						=	100.0					2G - tox chronic	0	01/90 - Quarterly	G3 - GRAB-3
					Permit Req.							Req Mon MN VALUE					2G - tox chronic		01/90 - Quarterly	G3 - GRAB-3
					Value NODI															
TKP3B	**Static Renewal 7 Day Chronic Ceriodaphnia dubia**	T - See Comments	2	--	Sample						>	100.0					2G - tox chronic	0	01/90 - Quarterly	G3 - GRAB-3
					Permit Req.						>=	52.0 MN VALUE					2G - tox chronic		01/90 - Quarterly	G3 - GRAB-3
					Value NODI															
TKP6C	**Static Renewal 7 Day Chronic Pimephales promelas**	P - See Comments	0	--	Sample						>	100.0					2G - tox chronic	0	01/90 - Quarterly	G3 - GRAB-3
					Permit Req.							Req Mon SINGSAMP					2G - tox chronic		01/90 - Quarterly	G3 - GRAB-3
					Value NODI															
TKP6C	**Static Renewal 7 Day Chronic Pimephales promelas**	S - See Comments	0	--	Sample						=	100.0					2G - tox chronic	0	01/90 - Quarterly	G3 - GRAB-3
					Permit Req.							Req Mon MN VALUE					2G - tox chronic		01/90 - Quarterly	G3 - GRAB-3
					Value NODI															
TKP6C	**Static Renewal 7 Day Chronic Pimephales promelas**	T - See Comments	2	--	Sample						>	100.0					2G - tox chronic	0	01/90 - Quarterly	G3 - GRAB-3
					Permit Req.						>=	52.0 MN VALUE					2G - tox chronic		01/90 - Quarterly	G3 - GRAB-3
					Value NODI															

Submission Note

If a parameter row does not contain any values for the Sample nor Effluent Trading, then none of the following fields will be submitted for that row: Units, Number of Excursions, Frequency of Analysis, and Sample Type.

Edit Check Errors

No errors.

Comments

Attachments

Name	Type	Size
2022_2ndQuarter_WET_Test_GIR.pdf	pdf	8539792.0
2022_06_CrossCaribouMine_CoverLetter.pdf	pdf	192807.0

Report Last Saved By

Grand Island Resources LLC

User:	pdelaney@alexcoresource.com
Name:	Patrick Delaney
E-Mail:	pdelaney@blackfoxmining.com
Date/Time:	2022-07-12 00:35 (Time Zone: -06:00)

Report Last Signed By

User:	pdelaney@alexcoresource.com

Name:	Patrick Delaney
E-Mail:	pdelaney@blackfoxmining.com
Date/Time:	2022-07-12 00:36 (Time Zone: -06:00)

SeaCrestGroup
AN ENVIRONMENTAL SERVICES COMPANY

June 27, 2022

Patrick Delaney
Grand Island Resources, LLC
4415 Caribou Road
Nederland, CO 80466

Dear Patrick:

Enclosed is the report for chronic biomonitoring tests performed for Grand Island Resources, LLC on effluent from the Cross and Caribou Mines 001A outfall. There was no statistically significant toxicity to either test species at any effluent concentration. The effluent passes WET (Whole Effluent Toxicity) testing requirements for this sampling period.

If you have any questions or concerns, please do not hesitate to contact me at (303) 661-9324.

Best regards,

Haley West

Haley West
Laboratory Supervisor
Enclosure(s): Invoice
Report

SeaCrestGroup
AN ENVIRONMENTAL SERVICES COMPANY

500 S Arthur Ave. Suite 450
Louisville, CO 80027-3065
(303) 661-9324 Phone
(303) 661-9325 Fax

Invoice

Invoice Number:
422292.B
Invoice Date:
June 27, 2022

BILL TO:
Grand Island Resources, LLC P.O. Box 3395 Nederland, CO 80466

Customer Contact	Customer PO#	Terms	Customer ID
Patrick Delaney		Payable Upon Receipt	Grand Island Resources, LLC

QTY	Description	Unit Price	Extended Price
1	Chronic biomonitoring tests conducted on effluent from the Cross and Caribou mines 001A discharge using *Ceriodaphnia dubia* and fathead minnow	$2,240.00	$2,240.00

Total: $2,240.00

All invoices are due and payable upon receipt.
Outstanding balances over 30-days are subject to a finance charge of 1.5% per month.

THANK YOU FOR YOUR BUSINESS!

REPORT OF CHRONIC BIOMONITORING TESTS CONDUCTED FOR GRAND ISLAND RESOURCES, LLC ON EFFLUENT FROM THE CROSS AND CARIBOU MINES 001A OUTFALL

Prepared for:

Patrick Delaney
Grand Island Resources, LLC
4415 Caribou Road
Nederland, CO 80466

Prepared by:

Haley West
SeaCrest Group
500 S Arthur Ave. Suite 450
Louisville, Colorado 80027-3065
(303) 661-9324

June 27, 2022

TABLE OF CONTENTS

LIST OF TABLES

Chronic Toxicity Test Summary

Test:	7-day static renewal using *Ceriodaphnia dubia* 7-day static renewal using fathead minnow *(Pimephales promelas)*
Client:	Grand Island Resources, LLC
Test Procedure Followed:	*Ceriodaphnia dubia*: EPA/821/R-02-013. Method 1002.0 (2002) fathead minnow: EPA/821/R-02-013. Method 1000.0 (2002)
Sample Number:	422292.B
Dilution Water:	moderately hard laboratory reconstituted water
Test Organism Source:	SeaCrest Group
Reference Toxicant:	Sodium Chloride

Sample	Time of Collection	Date of Collection	Time of Receipt	Date of Receipt
Effluent 1	1500	06-13-2022	1653	06-13-2022
Effluent 2	1500	06-14-2022	1637	06-14-2022
Effluent 3	1400	06-15-2022	1605	06-15-2022

	Ceriodaphnia dubia	fathead minnow
Test Initiation Time	1130	1350
Test Initiation Date	06-14-2022	06-14-2022
Test Completion Time	1230	1330
Test Completion Date	06-20-2022	06-21-2022

Abstract with Results

Test Concentrations:	Control (0%), 13%, 26%, 52%, 76%, 100%
Number of Organisms/Concentration:	10 for *Ceriodaphnia dubia* 40 for fathead minnow
Replicates at each Concentration:	10 for *Ceriodaphnia dubia* 4 for fathead minnow

	Ceriodaphnia dubia	**fathead minnow**
Test vessel size/Exposure volume	30ml/15ml	500ml/200ml
Sub-lethal NOEL/IC25	100%/>100%	100%/>100%
Pass/Fail Status	**PASS**	**PASS**
Temperature Range (°C)	24.1 – 25.8	24.1 – 25.9
Dissolved Oxygen Range (mg/L)	6.7 – 8.2	5.0 – 7.7
pH Range	7.2 – 8.3	7.7 – 8.3

	Control (*Cerio*/FHM)	**Effluent Sample**
Hardness (mg/L as $CaCO_3$)	82/86	81/67/88
Alkalinity (mg/L as $CaCO_3$)	59/62	60/66/70
Total residual chlorine (mg/L)	<0.01	<0.01
Total ammonia (mg/L as NH_3)	<0.03	<0.03/<0.03/0.04

INTRODUCTION

Biomonitoring provides an effective means by which the toxicity of discharges from municipal, industrial, and mining operations can be tested. Among the advantages of biomonitoring is the ability to test complex effluents containing a broad range of contaminants. Biomonitoring, when used in conjunction with chemical analyses, can generate data capable of identifying a much wider range of contaminants.

The Colorado Water Quality Control Division requires certain NPDES permittees to perform acute and/or chronic biomonitoring tests. The chronic test measures significant differences in lethality and in reproduction (*Ceriodaphnia dubia*) or growth (fathead minnow – *Pimephales promelas*) between control and effluent-exposed organisms.

The present report discusses the results of chronic biomonitoring tests conducted on effluent from the Grand Island Resources, LLC 001A discharge. These tests were conducted in accordance with EPA and State of Colorado procedures in June 2022.

MATERIALS AND METHODS

Sample Collection

Two gallons of the effluent were collected on three separate dates as specified in Permit CO-0032751. Samples were delivered chilled to the SeaCrest lab where they were held at 0-6°C. Chain of custody forms showing sample collection and laboratory arrival times are included (Appendix 1).

Dilution Water

Laboratory reconstituted water was used as both the dilution water source and the control for the tests. Reconstituted water for the *Ceriodaphnia dubia* test was produced by adding sodium bicarbonate, calcium sulfate, magnesium sulfate, potassium chloride, and sodium selenate to deionized water. Reconstituted water for the fathead minnow test was produced by adding sodium bicarbonate, calcium sulfate, magnesium sulfate, and potassium chloride to deionized water.

Test Organisms

The biomonitoring test used *Ceriodaphnia dubia,* cultured in the SeaCrest laboratory. The organisms are cultured in brood culture boards from which individual females are monitored for survival and reproduction for periods of up to two weeks. Neonates less than 24-hours old, released from third or subsequent broods of eight or more within an 8-hour period, are collected from the brood chambers and used in tests. The animals are fed daily with a mixture of Yeast, Cereal Leaves, and Trout Chow (YCT), produced in-house. This is supplemented with cultured green algae *(Selenastrum capricornutum)* provided by Aquatic Biosystems.

Less than one-day-old fathead minnow, cultured in the laboratory, were also used in the test. Adult fish are maintained in 10-gallon aquaria where females deposit their eggs on the under-surface of split PVC pipe sections. The eggs are collected daily and transferred to aerated containers where they hatch after three to four days. The larval fish are fed newly hatched brine shrimp *(Artemia* sp.) at least twice per day.

In-house organisms are tested monthly in a reference toxicant test using sodium chloride to monitor overall health and test reproducibility (Appendix 4).

Test Procedures

Upon receipt at the lab, samples were analyzed for alkalinity, ammonia, chlorine, conductivity, dissolved oxygen, hardness, and pH.

Methods used in chemical analysis

Alkalinity	EPA 310.2	Hach 8203	I-2030-85.2
Ammonia	SM4500-NH_3, C-E1997	ASTM D1426-08	
Chlorine	SM4500-Cl D	Hach 10026	
Conductivity	SM2510		
Dissolved Oxygen	SM4500-O	Electrode: G-2001	Winkler (QC): B-F-2001
Hardness	SM2340 B or C	Hach 8213	
pH	SM4500-H+ B-2000		

The test followed procedures in EPA[3] and CDPHE[4] guidelines. Exposure concentrations included control (0%), 13%, 26%, 52%, 76%, and 100% mixtures, diluted with moderately hard laboratory reconstituted water.

Individual *Ceriodaphnia dubia* were placed in 30ml plastic containers containing approximately 15ml of exposure medium. Ten replicates at each concentration were used. The animals were fed daily with the YCT mixture and an equal volume of the green algae *(Selenastrum capricornutum)*. The exposure medium was changed daily in each container and the number of young released overnight were counted and recorded. Young were removed from the containers daily and discarded. Routine measurements were made each day of temperature, dissolved oxygen, and pH before and after the water changes.

Fathead minnow were exposed in 500ml plastic cups to which 250ml of media was replaced daily. Four replicates were used at each concentration. Ten fish, less than 24-hours old, were placed in each cup. The fish were monitored daily for survival and fed live brine shrimp at least twice per day. After seven days, the fish were removed from the cups, euthanized with isopropyl alcohol, and then placed in aluminum pans and dried in an oven for a minimum of six hours at 100°C. The pans were then weighed on a five-place analytical balance to determine the average dry weight of the fish from each replicate.

Data Analysis

Data from the tests were analyzed on a personal computer using the CETIS program (developed by Tidepool Scientific Software). Statistical tests used in the analyses are shown in Table 1. Test acceptability was determined using control survival and reproduction/growth criteria, concentration-response relationships, and percent minimum significant differences (USEPA [5,6]).

Table 1. Statistical methods used in testing for significant differences in test parameters.

Variance	Distribution
Bartlett Equality of Variance Test	Shapiro-Wilk W Normality Test

Statistical Difference				
Species	Survival	Growth	Reproduction	IC_{25}
Ceriodaphnia dubia	Fisher Exact/Bonferroni-Holm Test	N/A	Steel Many-One Rank Sum Test	ICp
fathead minnow	Steel Many-One Rank Sum Test	Dunnett Multiple Comparison Test	N/A	ICp

RESULTS

Ceriodaphnia dubia Test Results

Test results for the *Ceriodaphnia dubia* are summarized in Table 2 and provided on the data sheets located in Appendix 2. Survival was 100% in the 100% effluent and ranged from 90% - 100% in the remaining effluent concentrations. Control survival was 100%. No statistically significant lethality was measured in any effluent concentrations when compared to the control. The NOEL (No Observed Effect Level) for lethality was 100% and the LC_{25} (Lethal Concentration 25) for lethality was >100%.

Average number of neonates was 25.3 in the 100% effluent concentration and ranged from 21.6 – 23.9 in the remaining effluent concentrations. Average number of neonates in the control was 21.6 for statistical analyses and test acceptability criteria. No statistically significant differences in the number of neonates were found between the control and any effluent concentrations. The NOEL for reproduction was 100% and the IC_{25} (Inhibition Concentration 25) for reproduction was >100%.

Table 2. Summary of *Ceriodaphnia dubia* test results. An asterisk (*) denotes a statistically significant difference from the control.

Concentration	Percent Survival	Mean Neonates	Min.	Max.	Significant Difference	
					Lethality	Reprod.
Control (0%)	100	21.6	17	29		
13%	100	23.9	16	32		
26%	100	23.6	17	30		
52%	100	23.0	16	34		
76%	90	21.6	0	34		
100%	100	25.3	20	31		

Fathead Minnow Test Results

Fathead minnow results are summarized in Table 3 and are provided on data sheets in Appendix 3. Survival was 100% in the 100% effluent concentration and was 100% in the remaining effluent concentrations. Control survival was 98%. No statistically significant lethality was measured in any effluent concentration when compared to the control. The NOEL for lethality was 100% and the LC_{25} for lethality was >100%.

Average weight in the 100% effluent concentration was 0.338mg and ranged from 0.316mg - 0.350mg per individual in the remaining effluent concentrations. Average weight for the control fish was 0.335mg for statistical analyses and test acceptability criteria. No statistically significant differences for growth were measured in any effluent concentrations when compared to the control. The NOEL for growth was 100% and the IC_{25} for growth was 100%.

Table 3. Summary of fathead minnow test results. An asterisk (*) denotes a statistically significant difference from the control.

Concentration	Percent Survival	Average Weight (mg)	Min.	Max.	Significant Difference	
					Lethality	Growth
Control (0%)	98	0.335	0.310	0.345		
13%	100	0.316	0.259	0.353		
26%	100	0.329	0.278	0.357		
52%	100	0.350	0.270	0.398		
76%	100	0.334	0.301	0.359		
100%	100	0.338	0.284	0.379		

Test Acceptability

Acceptable control survival (80%) was achieved in both tests. Similarly, *Ceriodaphnia dubia* reproduction (average 15 neonates/organism) and fathead minnow growth (average 0.250mg/test container) in control organisms met required levels. PMSD was within the required limits for an acceptable test (Table 4).

Table 4. PMSD for chronic test parameters.

	fathead minnow growth		*C. dubia* reproduction	
	Lower bound	Upper bound	Lower bound	Upper bound
PMSD	12	30	13	47
(% Minimum significant difference)	20.4		26.3	

DISCUSSION

A failed test for this discharge occurs when there is an NOEL or IC_{25} less than the IWC (Instream Waste Concentration) of 52%. The NOEL represents the highest effluent concentration at which no statistically significant effect is observed. The IC_{25} represents an estimate of the effluent concentration that would cause a 25 percent reduction of a non-quantal biological measurement. A violation for this discharge occurs when both the NOEL and the IC_{25} are less than the IWC. Since neither test species demonstrated statistically significant differences meeting these criteria, the discharge passes WET testing requirements for this sampling period.

REFERENCES

1. **Hach Chemical Company.** 2008. *Hach's Water Analysis Handbook.* Fifth Edition. Hach Chemical Company, Loveland, Colorado. Digital Medium.
2. **APHA/AWWA/WEF.** 1998. *Standard Methods for the Examination of Water and Wastewater.* 20th Edition. American Public Health Association, Washington, D.C.
3. **USEPA.** 2002. *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms.* EPA-821-R-02-013. 335 pp.
4. **CDPHE (Colorado Department of Public Health and Environment).** 1998. *Laboratory Guidelines for Conducting Whole Effluent Toxicity Tests.* Water Quality Control Division.
5. **USEPA.** 2000. *Method of Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing* (40 CFR Part 136). EPA/821/B-00/004.
6. **USEPA**. 2000. *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System Program.* EPA/833/R-00/003.

Appendix 1 – Chain of Custody with Sample Receipt Forms

SeaCrestGroup
AN ENVIRONMENTAL SERVICES COMPANY

CHAIN OF CUSTODY

500 S. Arthur Avenue, Unit 450 - Louisville, CO 80027
(303) 661.9324 - FAX (303) 661.9325

Client/Project Name: Grand Island Resources

P. O./Project Number:

Contact: Patrick Delaney

Address: 12567 W. Cedar Dr. Ste. 250 Lakewood, CO 80228

Phone # 315-414-6986 E-Mail:

Fax # Sampler: BM & TC

Report By: ☐ Mail ☒ PDF ☐ FAX

Analysis (Check all applicable)

Sample Location or ID	Date	Time	Grab/ Comp	Lab ID (LAB Use Only)	WET: Acute (Indicate Below)	WET: Chronic (Indicate Below)	WET: Accelerated (Indicate Below)	WET: PTI/TIE/TRE (Indicate Below)	Metals (List Below)	Solids (TS/TDS/TSS) (Circle)	Anions (List Below)	Chromium III/VI (Circle)	Oil and Grease	Coliform (Total/Fecal/E-Coli) (Circle)	BOD/COD (Circle)	Other Analysis (List Below)	Number of Containers	Total Volume
OUTFALL-001	6/13/22	3:00pm	COMP	422292.B#		X											2	2 gal

Turnaround Requirements (Analytical Testing Only)

X Standard (10 days) ____ 6-9 Day

____ 3-5 Day ____ 1-2 Day

Requested Report Date:

Test Species: ☒ Fathead Minnow ☒ Cerio daphnia ☐ Daphnia magna ☐ Daphnia pulex ☒ Other (List Below)

Special Instructions/Comments:

Other: Pimephles Promelas

Relinquished By (1)		Received By (1)		Relinquished By (2)		Received By (2)	
Signature	Date/Time	Signature	Date/Time	Signature	Date/Time	Signature	Date/Time
	6/13/22 4:53pm		6/13/22 4:53				

SeaCrest Group
Louisville, CO

Sample Receipt Form

Form #: 42
Effective: January 2022

Project # 422 292.B
Date: 06/3/22
Sample #: 1
Initials: SW

Samples Were:

1. FedEx UPS Courier (Hand Delivery) (circle one)
   Notes:

2. Chilled to Ship — Ambient (Chilled)

3. Cooler Received Broken or Leaking — Y (N) NA
   Notes:

4. Sample Received Broken or Leaking — Y (N)
   Notes:

5. Received Within 36hr Holding Time — (Y) N
   Notes:

6. Aeration necessary — Y (N)

7. pH adjustment necessary — Y (N)

8. Sample Received at Temperature between 0-6° C . — Y N (NA)
   Notes: Same day

9. Description of Sample (Color, Odor, and/or Presence of Particulate Matter):
   Effluent: Clear, no visable ppt
   Receiving: N/A
   Presence of native species: Y (N)

Lab #	Temp	D.O.	pH	Cond
292.B	8.8	8.0	7.6	131

Custody Seals:

1. Present on Outer Package — Y (N)
2. Unbroken on Outer Package — Y N (NA)
3. Present on Sample — Y (N)
4. Unbroken on Sample — Y N (NA)

Custody Documentation (Chain of Custody):

1. Present Upon Receipt of Sample — (Y) N

DT

SeaCrestGroup
AN ENVIRONMENTAL SERVICES COMPANY

CHAIN OF CUSTODY

500 S. Arthur Avenue, Unit 450 - Louisville, CO 80027
(303) 661.9324 - FAX (303) 661.9325

Client/Project Name: Grand Island Resources

P. O./Project Number:

Contact: Patrick Delaney

Address: 12567 W. Cedar Dr. Ste. 250 Lakewood, CO 80228

Phone # 315-414-6986 E-Mail: pdelaney@blackfoxmining.com

Fax # Sampler: BM

Report By: ☐ Mail ☒ PDF ☐ FAX

Analysis (Check all applicable)

Sample Location or ID	Date	Time	Grab/ Comp	Lab ID (LAB Use Only)	WET: Acute (Indicate Below)	WET: Chronic (Indicate Below)	WET: Accelerated (Indicate Below)	WET: PTI/TIE/TRE (Indicate Below)		Metals (List Below)	Solids (TS/TDS/TSS) (Circle)	Anions (List Below)	Chromium III/VI (Circle)	Oil and Grease	Coliform (Total/Fecal/E-Coli) (Circle)	BOD/COD (Circle)	Other Analysis (List Below)				Number of Containers	Total Volume
OUTFALL-001	6/14/22	3:00pm	COMP	422928 #2		X															2	2 gal

Turnaround Requirements (Analytical Testing Only)

X Standard (10 days) ____ 6-9 Day

____ 3-5 Day ____ 1-2 Day

Requested Report Date:

Test Species: ☒ Fathead Minnow ☒ Cerio daphnia ☐ Daphnia magna ☐ Daphnia pulex ☐ Other (List Below)

Special Instructions/Comments:

Other: Pimephles Promelas

Relinquished By (1)		Received By (1)		Relinquished By (2)		Received By (2)	
Signature	Date/Time	Signature	Date/Time	Signature	Date/Time	Signature	Date/Time
	6/14/22 4:37pm		061422 1637				

SeaCrest Group
Louisville, CO

Sample Receipt Form

Form #: 42
Effective: January 2022

Project # 422 292.B
Date: 06/14/22
Sample #: 2
Initials: HW

Samples Were:

1. FedEx UPS Courier Hand Delivery (circle one)
   Notes:

2. Chilled to Ship — Ambient Chilled

3. Cooler Received Broken or Leaking — Y N NA
   Notes:

4. Sample Received Broken or Leaking — Y N
   Notes:

5. Received Within 36hr Holding Time — Y N
   Notes:

6. Aeration necessary — Y N

7. pH adjustment necessary — Y N

8. Sample Received at Temperature between 0-6° C . — Y N NA
   Notes: Same day

9. Description of Sample (Color, Odor, and/or Presence of Particulate Matter):
   Effluent: clear, no PM
   Receiving: N/A
   Presence of native species: Y N

Lab #	Temp	D.O.	pH	Cond
292#2	8.0°C	8.2	7.4	130

Custody Seals:

1. Present on Outer Package — Y N
2. Unbroken on Outer Package — Y N NA
3. Present on Sample — Y N
4. Unbroken on Sample — Y N NA

Custody Documentation (Chain of Custody):

1. Present Upon Receipt of Sample — Y N

DT

SeaCrestGroup
AN ENVIRONMENTAL SERVICES COMPANY

CHAIN OF CUSTODY

500 S. Arthur Avenue, Unit 450 - Louisville, CO 80027
(303) 661.9324 - FAX (303) 661.9325

Client/Project Name: Grand Island Resources

P. O./Project Number:

Contact: Patrick Delaney

Address: 12567 W. Cedar Dr. Ste 250 Lakewood, CO 80228

Phone #315-414-6986 E-Mail: pdelaney@blackfoxmining.com

Fax # Sampler: BM

Report By: ☐ Mail ☒ PDF ☐ FAX

Analysis (Check all applicable)

Sample Location or ID	Date	Time	Grab/ Comp	Lab ID (LAB Use Only)	WET: Acute (Indicate Below)	WET: Chronic (Indicate Below)	WET: Accelerated (Indicate Below)	WET: PTI/TIE/TRE (Indicate Below)		Metals (List Below)	Solids (TS/TDS/TSS) (Circle)	Anions (List Below)	Chromium III/VI (Circle)	Oil and Grease	Coliform (Total/Fecal/E-Coli) (Circle)	BOD/COD (Circle)	Other Analysis (List Below)				Number of Containers	Total Volume
OUTFALL-001	6/15/22	2:00pm	Comp	422292883		X															2	2 gal

Turnaround Requirements (Analytical Testing Only)

X Standard (10 days) ____ 6-9 Day

____ 3-5 Day ____ 1-2 Day

Requested Report Date:

Test Species: ☒ Fathead Minnow ☒ Cerio daphnia ☐ Daphnia magna ☐ Daphnia pulex ☐ Other (List Below)

Special Instructions/Comments:

Other: Pimephles Promelas

Relinquished By (1)		Received By (1)		Relinquished By (2)		Received By (2)	
Signature	Date/Time	Signature	Date/Time	Signature	Date/Time	Signature	Date/Time
Brooke Mozan	6/15/22 4:05pm		6/15/22 4:05				

SeaCrest Group
Louisville, CO

Sample Receipt Form

Form #: 42
Effective: January 2022

Project # 422 292.B
Date: 061522
Sample #: 3
Initials: SW

Samples Were:

1. FedEx UPS Courier (Hand Delivery) (circle one)
   Notes:

2. Chilled to Ship — Ambient (Chilled)

3. Cooler Received Broken or Leaking — Y (N) NA
   Notes:

4. Sample Received Broken or Leaking — Y (N)
   Notes:

5. Received Within 36hr Holding Time — (Y) N
   Notes:

6. Aeration necessary — Y (N)

7. pH adjustment necessary — Y (N)

8. Sample Received at Temperature between 0-6° C . — Y N (NA)
   Notes: same day

9. Description of Sample (Color, Odor, and/or Presence of Particulate Matter):
   Effluent: clear, no visable pm
   Receiving: N/A
   Presence of native species: Y (N)

Lab #	Temp	D.O.	pH	Cond
292.B	9.7	7.6	~~8.0~~ 7.7	146

Custody Seals:

1. Present on Outer Package — Y (N)
2. Unbroken on Outer Package — Y N (NA)
3. Present on Sample — Y (N)
4. Unbroken on Sample — Y N (NA)

Custody Documentation (Chain of Custody):

1. Present Upon Receipt of Sample — (Y) N

DT

Appendix 2 – Data Sheets for the *Ceriodaphnia dubia* Test

WET TEST REPORT FORM – CHRONIC

Permittee: Grand Island Resources, LLC

Permit No.: CO-0032751

Outfall: 001A – IWC: 52%

Test Type: Routine ☒ Accelerated ☐ Screen ☐

Test Species: *Ceriodaphnia dubia*

Test Start Time	Test Start Date	Test End Time	Test End Date
1130	06-14-2022	1230	06-20-2022

Test Results	Lethality/TCP3B	Reproduction/TKP3B
S code: NOEL	100%	100%
	PASS	**PASS**
P code: LC_{25}/IC_{25}	>100%	>100%
	PASS	**PASS**
T code:	>100%	>100%

Test Summary

Measurements	Control (0%)	13%	26%	52%	76%	100%
Exposed organisms	10	10	10	10	10	10
Survival for day 1	10	10	10	10	10	10
Survival for day 2	10	10	10	10	10	10
Survival for day 3	10	10	10	10	9	10
Survival for day 4	10	10	10	10	9	10
Survival for day 5	10	10	10	10	9	10
Survival for day 6	10	10	10	10	9	10
Mean 3 Brood Total	21.6	23.9	23.6	23.0	21.6	25.3

Hardness (mg/L) – Receiving Water: N/A Effluent: 81/67/88 Recon Water: 82
Alkalinity (mg/L) – Receiving Water: N/A Effluent: 60/66/70 Recon Water: 59
Chlorine (mg/L) – Effluent: <0.01 pH (initial/final) – Control: 8.3/8.3 100%: 7.6/8.2
Total Ammonia as NH_3 (mg/L) - Effluent: <0.03/<0.03/0.04

Were all Test Conditions in Conformance with Division Guidelines? YES ☒ NO ☐
If **NO**, list deviations from test specifications: N/A
Laboratory: SeaCrest Group
Comments:

Analyst's Name: Julie McKenney, Daniela Thornton, Haley West, and Lindsay Rutherford

Signature Haley West *Date* June 27, 2022

SeaCrest Group
Louisville, CO

Ceriodaphnia Chronic Benchsheet

Form #: 101a
Effective: March 2022

Permittee: Grand Island **Lab #:** 422292-B **Site:** 001A

IWC %: 52 **Template #:** 5 **Dilution Water:** MH22-012 **Sample Date:** 061322

Age & Source: cerio 061422 7118 **Test Start:** 061422 1130 **Test End:** 062022 12:30

Test Conditions:

	0	1	2	3	4	5	6	7	Total
(C)	0	0	0	0	4	8	9		21
	0	0	0	0	4	9	4		17
	0	0	0	0	4	6	8		18
	0	0	0	0	4	6	8		18
	0	0	0	0	0	10	14		24
0	0	0	0	0	4	5	11		20
	0	0	0	0	5	11	6		22
	0	0	0	4	7	0	12		23
	0	0	0	0	4	9	11		24
	0	0	0	5	0	10	14		29
DO	7.0	6.9 | 7.3	7.4 | 6.9	7.2 | 7.0	6.8 | 7.0	7.0 | 7.0	6.7		21.6
Temp	24.1	25.1 | 24.1	25.5 | 24.1	25.4 | 24.1	25.6 | 25.4	25.5 | 25.4	25.8		
pH	8.3	8.0 | 8.3	8.1 | 8.3	8.2 | 8.3	8.0 | 8.3	8.0 | 8.3	8.3		
Cond	356	357	355	356	328	326			
(1)	0	0	0	4	0	11	9		24
	0	0	0	0	4	9	10		23
	0	0	0	0	4	10	10		24
	0	0	0	0	5	7	10		22
	0	0	0	0	1	9	18		28
13	0	0	0	0	4	8	8		20
	0	0	0	0	5	11	0		16
	0	0	0	5	5	0	~~8~~ 17		27
	0	0	0	0	4	5	~~17~~ 14		23
	0	0	0	4	0	11	17		32
DO	7.2	6.9 | 7.4	7.4 | 7.1	7.2 | 7.2	6.8 | 7.1	7.0 | 7.2	6.7		23.9
Temp	24.4	25.1 | 24.1	25.5 | 24.1	25.4 | 24.4	25.6 | 25.4	25.5 | 25.4	25.8		
pH	8.2	8.0 | 8.1	8.1 | 8.2	8.2 | 8.2	8.0 | 8.1	8.0 | 8.2	8.3		
Cond	336	333	327	331	303	297			
(2)	0	0	0	4 +1	0	10	12		27
	0	0	0	0	4	8	10		22
	0	0	0	0	4	8	11		23
	0	0	0	0	5	9	10		24
26	0	0	0	0	4	6	7		17
	0	0	0	0	4	7	7		18
	0	0	0	0	4	8	11		23
	0	0	0	5	6	0	19		30
	0	0	0	0	2	9	11		22
	0	0	0	4	0	9	17		30
DO	7.4	6.9 | 7.6	7.4 | 7.3	7.2 | 7.4	6.8 | 7.3	6.9 | 7.4	6.7		23.6
Temp	24.7	25.1 | 24.1	25.5 | 24.1	25.4 | 24.1	25.6 | 25.4	25.5 | 25.4	25.8		
pH	8.1	7.9 | 8.0	8.1 | 8.1	8.2 | 8.1	8.0 | 7.9	8.0 | 8.0	8.3		
Cond	312	308	276	308	280	278			
(3)	0	0	0	0	4	10	12		26
	0	0	0	0	4	11	11		26
	0	0	0	0	6	12	8		26
	0	0	0	0	4	7	10		21
52	0	0	0	4	0	8	9		21
	0	0	0	0	4	6	9		19
	0	0	0	0	6	0	10		16
	0	0	0	5	4	9	11		18
	0	0	0	0	4	8	11		23
	0	0	0	4	0	12	18		34
DO	7.6	6.9 | 7.8	7.4 | 7.5	7.1 | 7.6	6.7 | 7.6	6.9 | 7.6	6.8		23.0
Temp	25.0	25.1 | 24.1	25.5 | 24.2	25.4 | 25.0	25.6 | 25.5	25.5 | 25.4	25.8		
pH	7.9	7.9 | 7.7	8.1 | 7.9	8.2 | 7.9	7.9 | 7.6	7.9 | 7.8	8.2		
Cond	263	257	210	213	235	234			

HW

SeaCrest Group
Louisville, CO

Ceriodaphnia Chronic Benchsheet

Form #: 101a
Effective: March 2022

	0	1	2	3	4	5	6	7	Total
(4)	0	0	0	4	0	11	15		30
	0	0	0	0	5	9	10		24
	0	0	0	0	4	10	10		~~24~~ 23
	0	0	0	0	5	7	0		12
	0	0	0	4	0	7	14		25
76	0	0	0	0 D					0 D
	0	0	0	0	4	8	11		23
	0	0	0	5	0	11	18		34
	0	0	0	0	4	8	12		24
	0	0	0	0	7	0	13		20
DO	7.8	6.9 | 8.0	7.4 | 7.7	7.1 | 7.8	6.7 | 7.9	6.8 | 7.8	6.8		21.6
Temp	25.3	25.1 | 24.1	25.5 | 24.2	25.4 | 25.3	25.6 | 25.5	25.5 | 25.4	25.8		
pH	7.8	7.8 | 7.6	8.1 | 7.9	8.2 | 7.7	7.9 | 7.4	7.9 | 7.7	8.2		
Cond	175	172	160	171	178	179			
(5)	0	0	0	0	4	12	14		30
	0	0	0	0	4	8	8		20
	0	0	0	0	4	12	13		~~19~~ 29
	0	0	0	0	5	9	11		25
	0	0	0	0	0	8	13		21
100	0	0	0	0	4	8	10		22
	0	0	0	0	4	11	10		25
	0	0	0	4	6	0	16		26
	0	0	0	0	4	10	10		24
	0	0	0	4	0	12	15		31
DO	8.0	6.9 | 8.2	7.4 | 7.9	7.1 | 8.0	6.7 | 8.1	6.8 | 8.0	6.8		23.3
Temp	25.6	25.1 | 24.1	25.5 | 24.2	25.4 | 25.6	25.6 | 25.5	25.5 | 25.4	25.8		
pH	7.6	7.7 | 7.4	8.1 | 7.9	8.2 | 7.6	7.9 | 7.2	7.9 | 7.5	8.2		
Cond	131	130	129	129	136	135			
Algae	ABS	ABS	ABS	ABS	ABS	ABS			
YCT	2204	2204	2204	2204	2204	2204			
H_2O	1	2	3	1	2	3			
Initials	JM	JT	JM	JM	JT	HW	LL		

	Eff #1	Eff #2	Eff #3	Recon
Hardness	81	67	88	82
Alkalinity	60	66	70	59
Chlorine	<0.01	<0.01	<0.01	<0.01
Ammonia	<0.03	<0.03	0.04	<0.03

Exposure Chamber:
Total Capacity: 30mL
Total Solution Volume: 15mL

Feeding Schedule:
Fed daily
Food used: YCT, Algae

Units:
DO: mg/L
Temp: °C
pH: N/A
Cond: µS/cm³
Hardness: mg/L
Alkalinity: mg/L
Chlorine: mg/L
Ammonia: mg/L

Comments: Active and mobile

x:y:z = board #:row:column

1	2	3	4	5	6	7	8	9	10
A8	B2	B7	B8	C10	D1	D3	D5	D10	~~B9~~ B7

HW

CETIS Analytical Report

Ceriodaphnia 7-d Survival and Reproduction Test — **SeaCrest Group**

Analysis ID:	13-1044-3894	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.6
Analyzed:	22 Jun-22 13:18	**Analysis:**	STP 2xK Contingency Tables	**Status Level:**	1
Batch ID:	00-9776-7416	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	Lab Tech
Start Date:	14 Jun-22	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Reconstituted Water
Ending Date:	20 Jun-22	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Test Length:	6d 0h	**Taxon:**	Branchiopoda	**Source:**	In-House Culture **Age:**
Sample ID:	01-7506-9093	**Code:**	422292.B	**Project:**	WET Quarterly Compliance Test (2Q)
Sample Date:	13 Jun-22	**Material:**	POTW Effluent	**Source:**	NPDES Permit # (XX99999999)
Receipt Date:	13 Jun-22	**CAS (PC):**		**Station:**	001A
Sample Age:	24h	**Client:**	Grand Island Resources		

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU
Untransformed	C > T	100	>100	n/a	1

Fisher Exact/Bonferroni-Holm Test

Control	vs	Group	Test Stat	P-Type	P-Value	Decision(α:5%)
Dilution Water		13	1.0000	Exact	1.0000	Non-Significant Effect
		26	1.0000	Exact	1.0000	Non-Significant Effect
		52	1.0000	Exact	1.0000	Non-Significant Effect
		76	0.5000	Exact	1.0000	Non-Significant Effect
		100	1.0000	Exact	1.0000	Non-Significant Effect

Data Summary

Conc-%	Code	NR	R	NR + R	Prop NR	Prop R	%Effect
0	D	10	0	10	1	0	0.0%
13		10	0	10	1	0	0.0%
26		10	0	10	1	0	0.0%
52		10	0	10	1	0	0.0%
76		9	1	10	0.9	0.1	10.0%
100		10	0	10	1	0	0.0%

Ceriodaphnia 7-d Survival and Reproduction Test

SeaCrest Group

Analysis ID:	01-3283-8555	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.6
Analyzed:	22 Jun-22 13:18	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1
Batch ID:	00-9776-7416	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	Lab Tech
Start Date:	14 Jun-22	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Reconstituted Water
Ending Date:	20 Jun-22	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Test Length:	6d 0h	**Taxon:**	Branchiopoda	**Source:**	In-House Culture **Age:**
Sample ID:	01-7506-9093	**Code:**	422292.B	**Project:**	WET Quarterly Compliance Test (2Q)
Sample Date:	13 Jun-22	**Material:**	POTW Effluent	**Source:**	NPDES Permit # (XX99999999)
Receipt Date:	13 Jun-22	**CAS (PC):**		**Station:**	001A
Sample Age:	24h	**Client:**	Grand Island Resources		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1989272	1000	Yes	Two-Point Interpolation

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC5	100	60	n/a	1	n/a	1.667
LC10	>100	n/a	n/a	<1	n/a	n/a
LC15	>100	n/a	n/a	<1	n/a	n/a
LC20	>100	n/a	n/a	<1	n/a	n/a
LC25	>100	n/a	n/a	<1	n/a	n/a
LC40	>100	n/a	n/a	<1	n/a	n/a
LC50	>100	n/a	n/a	<1	n/a	n/a

7d Survival Rate Summary

			Calculated Variate(A/B)							Isotonic Variate	
Conc-%	Code	Count	Mean	Min	Max	Std Dev	CV%	%Effect	A/B	Mean	%Effect
0	D	10	1.0000	1.0000	1.0000	0.0000	0.00%	0.0%	10/10	1	0.0%
13		10	1.0000	1.0000	1.0000	0.0000	0.00%	0.0%	10/10	1	0.0%
26		10	1.0000	1.0000	1.0000	0.0000	0.00%	0.0%	10/10	1	0.0%
52		10	1.0000	1.0000	1.0000	0.0000	0.00%	0.0%	10/10	1	0.0%
76		10	0.9000	0.0000	1.0000	0.3162	35.14%	10.0%	9/10	0.95	5.0%
100		10	1.0000	1.0000	1.0000	0.0000	0.00%	0.0%	10/10	0.95	5.0%

CETIS Analytical Report

Ceriodaphnia 7-d Survival and Reproduction Test — **SeaCrest Group**

Analysis ID:	13-6607-0525	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.9.6
Analyzed:	22 Jun-22 13:18	**Analysis:**	Nonparametric-Control vs Treatments	**Status Level:**	1
Batch ID:	00-9776-7416	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	Lab Tech
Start Date:	14 Jun-22	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Reconstituted Water
Ending Date:	20 Jun-22	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Test Length:	6d 0h	**Taxon:**	Branchiopoda	**Source:**	In-House Culture **Age:**
Sample ID:	01-7506-9093	**Code:**	422292.B	**Project:**	WET Quarterly Compliance Test (2Q)
Sample Date:	13 Jun-22	**Material:**	POTW Effluent	**Source:**	NPDES Permit # (XX99999999)
Receipt Date:	13 Jun-22	**CAS (PC):**		**Station:**	001A
Sample Age:	24h	**Client:**	Grand Island Resources		

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	100	>100	n/a	1	26.26%

Steel Many-One Rank Sum Test

Control vs	Conc-%	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water	13	121	75	4	18	CDF	0.9924	Non-Significant Effect
	26	118.5	75	5	18	CDF	0.9860	Non-Significant Effect
	52	112.5	75	3	18	CDF	0.9503	Non-Significant Effect
	76	118	75	3	18	CDF	0.9843	Non-Significant Effect
	100	133	75	5	18	CDF	0.9998	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	102.133	20.4267	5	0.6652	0.6514	Non-Significant Effect
Error	1658.2	30.7074	54			
Total	1760.33		59			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	13.52	15.09	0.0189	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9417	0.9459	0.0064	Non-Normal Distribution

Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	10	21.6	19.01	24.19	21.5	17	29	1.147	16.79%	0.00%
13		10	23.9	20.75	27.05	23.5	16	32	1.394	18.44%	-10.65%
26		10	23.6	20.45	26.75	23	17	30	1.392	18.65%	-9.26%
52		10	23	19.26	26.74	22	16	34	1.653	22.73%	-6.48%
76		10	21.6	14.79	28.41	24	0	34	3.012	44.09%	0.00%
100		10	25.3	22.6	28	25	20	31	1.193	14.91%	-17.13%

Ceriodaphnia 7-d Survival and Reproduction Test — **SeaCrest Group**

Analysis ID:	08-1391-0818	**Endpoint:**	Reproduction	**CETIS Version:**	CETISv1.9.6
Analyzed:	22 Jun-22 13:18	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1
Batch ID:	00-9776-7416	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	Lab Tech
Start Date:	14 Jun-22	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Reconstituted Water
Ending Date:	20 Jun-22	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Test Length:	6d 0h	**Taxon:**	Branchiopoda	**Source:**	In-House Culture **Age:**
Sample ID:	01-7506-9093	**Code:**	422292.B	**Project:**	WET Quarterly Compliance Test (2Q)
Sample Date:	13 Jun-22	**Material:**	POTW Effluent	**Source:**	NPDES Permit # (XX99999999)
Receipt Date:	13 Jun-22	**CAS (PC):**		**Station:**	001A
Sample Age:	24h	**Client:**	Grand Island Resources		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1613151	1000	Yes	Two-Point Interpolation

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC5	>100	n/a	n/a	<1	n/a	n/a
IC10	>100	n/a	n/a	<1	n/a	n/a
IC15	>100	n/a	n/a	<1	n/a	n/a
IC20	>100	n/a	n/a	<1	n/a	n/a
IC25	>100	n/a	n/a	<1	n/a	n/a
IC40	>100	n/a	n/a	<1	n/a	n/a
IC50	>100	n/a	n/a	<1	n/a	n/a

Reproduction Summary

			Calculated Variate						Isotonic Variate	
Conc-%	Code	Count	Mean	Min	Max	Std Dev	CV%	%Effect	Mean	%Effect
0	D	10	21.6	17	29	3.627	16.79%	0.0%	23.17	0.0%
13		10	23.9	16	32	4.408	18.44%	-10.65%	23.17	0.0%
26		10	23.6	17	30	4.402	18.65%	-9.26%	23.17	0.0%
52		10	23	16	34	5.228	22.73%	-6.48%	23.17	0.0%
76		10	21.6	0	34	9.524	44.09%	0.0%	23.17	0.0%
100		10	25.3	20	31	3.773	14.91%	-17.13%	23.17	0.0%

Appendix 3 – Data Sheets for the Fathead Minnow Test

WET TEST REPORT FORM – CHRONIC

Permittee: Grand Island Resources, LLC

Permit No.: CO-0032751

Outfall: 001A – IWC: 52%

Test Type: Routine ☒ Accelerated ☐ Screen ☐

Test Species: fathead minnow

Test Start Time	Test Start Date	Test End Time	Test End Date
1350	06-14-2022	1330	06-21-2022

Test Results	Lethality/TCP6C	Growth/TKP6C
S code: NOEL	100%	100%
	PASS	**PASS**
P code: LC_{25}/IC_{25}	>100%	>100%
	PASS	**PASS**
T code:	>100%	>100%

Test Summary

Measurements	Control (0%)	13%	26%	52%	76%	100%
Exposed organisms	40	40	40	40	40	40
Survival for day 1	40	40	40	40	40	40
Survival for day 2	39	40	40	40	40	40
Survival for day 3	39	40	40	40	40	40
Survival for day 4	39	40	40	40	40	40
Survival for day 5	39	40	40	40	40	40
Survival for day 6	39	40	40	40	40	40
Survival for day 7	39	40	40	40	40	40
Mean Dry Wt. (mg)	0.335	0.316	0.329	0.350	0.334	0.338

Hardness (mg/L) – Receiving Water: N/A Effluent: 81/67/88 Recon Water: 86
Alkalinity (mg/L) – Receiving Water: N/A Effluent: 60/66/70 Recon Water: 62
Chlorine (mg/L) – Effluent: <0.01 pH (initial/final) – Control: 8.3/8.2 100%: 7.9/7.9
Total Ammonia as NH_3 (mg/L) - Effluent: <0.03/<0.03/0.04

Were all Test Conditions in Conformance with Division Guidelines? YES ☒ NO ☐
If **NO**, list deviations from test specifications: N/A
Laboratory: SeaCrest Group
Comments:
Analyst's Name: Shanna Wepman and Catherine McDonald

Signature Hally West *Date* June 27, 2022

SeaCrest Group
Louisville, CO

Fathead Minnow Chronic Benchsheet

Form #: 103a
Effective: March 2022

Client: Grand Island Site: 001A Lab #: 422892 Sample Date: 061322 IWC: 52 Dilution H_2O: MH22-019

Test Start: 061422-1350 Test End: 062122-1330 Species Info: FHM 061322 Template: Test Conditions:

Conc	Read	0	1		2		3		4		5		6		7
0	DO	6.9	5.9	6.9	5.7	6.8	5.0	6.8	5.0	6.8	6.0	7.0	5.4	6.8	5.3
	Temp	25.4	24.9	25.0	24.1	25.6	25.9	25.9	25.9	24.5	24.1	24.4	24.2	24.5	25.9
	pH	8.3	8.2	8.2	8.1	8.3	8.1	8.3	8.1	8.3	8.2	8.3	8.2	8.3	8.2
	Cond	352	355		357		357		343		343		346		
13	DO	7.0	6.0	7.0	5.7	6.9	5.2	7.1	5.1	7.0	5.9	6.4	5.3	6.8	5.3
	Temp	25.3	24.8	24.8	24.1	25.4	25.7	25.9	25.7	24.7	24.1	24.6	24.2	24.8	25.4
	pH	8.2	8.2	8.2	8.1	8.1	8.1	8.2	8.1	8.2	8.2	8.2	8.2	8.2	8.2
	Cond	325	333		328		331		318		305		283 305		
26	DO	7.1	6.2	7.2	5.7	7.0	5.4	7.3	5.2	7.1	5.9	6.8	5.3	6.8	5.3
	Temp	25.2	24.6	24.6	24.1	25.2	25.5	25.8	25.6	24.9	24.2	24.8	24.2	25.1	24.9
	pH	8.2	8.1	8.1	8.1	8.0	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.2	8.1
	Cond	301	317		304		307		293		298		283		
52	DO	7.2	6.4	7.4	5.6	7.2	5.0	7.5	5.3	7.2	5.8	6.8	5.2	6.7	5.4
	Temp	25.1	24.4	24.4	24.1	24.9	25.3	25.7	25.5	25.1	24.2	25.0	24.2	25.3	24.6
	pH	8.0	8.1	8.0	8.0	7.9	8.2	8.0	8.1	8.1	8.1	8.0	8.1	8.1	8.0
	Cond	249	266		252		271		255		238		253		
70	DO	7.3	6.6	7.6	5.6	7.4	5.7	7.6	5.4	7.3	5.8	6.7	5.2	6.7	5.4
	Temp	25.0	24.2	24.2	24.1	24.6	25.2	25.6	25.4	25.3	24.3	25.2	24.2	25.6	24.3
	pH	7.9	8.0	8.0	8.0	7.8	8.2	8.0	8.1	7.9	8.0	7.8	8.0	7.9	7.9
	Cond	204	189		193		205		201		180		182.7		
100	DO	7.5	6.7	7.7	5.6	7.6	5.8	7.7	5.5	7.5	5.7	6.6	5.1	6.7	5.4
	Temp	25.0	24.1	24.0	24.1	24.3	25.1	25.6	25.3	25.5	24.3	25.4	24.2	25.9	24.1
	pH	7.9	8.0	7.9	8.0	8.0	8.2	7.9	8.1	7.8	8.0	7.8	8.0	7.8	7.9
	Cond	142.1	144		146.7.7		143.0		161.9		135.2		137.9		
	DO														
	Temp														
	pH														
	Cond														
Initials		CM	CM		SW		CM		CM		SW		SW		CM
Water #		1	2		3		1		2		3		3		

#	Conc 0	1	2	3	4	5	6	7	Fish & Tare	Tare	Fish Wt mg	Ave wt
#1	10	10	10	10	10	10	10	10	1.16540	1.16199	0.341	0.335
#2	10	10	9	9	9	9	9	9	1.16652	1.16342	0.31	
#3	10	10	10	10	10	10	10	10	1.14239	1.13897	0.342	
#4	10	10	10	10	10	10	10	10	1.16006	1.15661	0.345	
#5	10	10	10	10	10	10	10	10	1.15332	1.14999	0.333	0.316
#6	10	10	10	10	10	10	10	10	1.12881	1.12622	0.259	
#7	10	10	10	10	10	10	10	10	1.13644	1.13291	0.353	
#8	10	10	10	10	10	10	10	10	1.16609	1.16292	0.317	
#9	10	10	10	10	10	10	10	10	1.17242	1.16885	0.357	0.329
#10	10	10	10	10	10	10	10	10	1.12904	1.12626	0.278	
#11	10	10	10	10	10	10	10	10	1.17961	1.17607	0.354	
#12	10	10	10	10	10	10	10	10	1.14650	1.14322	0.328	
#13	10	10	10	10	10	10	10	10	1.14870	1.14600	~~0.398~~ *	0.350
#14	10	10	10	10	10	10	10	10	1.15282	1.14884	0.398	
#15	10	10	10	10	10	10	10	10	1.13742	1.13351	0.391	
#16	10	10	10	10	10	10	10	10	1.16182	1.15841	0.341	
#17	10	10	10	10	10	10	10	10	1.14248	1.13947	0.301	0.334
#18	10	10	10	10	10	10	10	10	1.15629	1.15270	0.359	
#19	10	10	10	10	10	10	10	10	1.14233	1.13889	0.344	
#20	10	10	10	10	10	10	10	10	1.13649	1.13318	0.331	
#21	10	10	10	10	10	10	10	10	1.13238	1.12954	0.284	0.338
#22	10	10	10	10	10	10	10	10	1.14848	1.14468	0.379	
#23	10	10	10	10	10	10	10	10	1.13505	1.13193	0.312	
#24	10	10	10	10	10	10	10	10	1.17947	1.17571	0.377	
#	10											
#	10											
#	10											
#	10											
pretest	#								1.16368	1.16366		

	Eff 1	Eff 2	Eff 3	Recon	Rcv 1	Rcv 2	Rcv 3	MR
Hard	81	67	88	86				
Alk	60	66	70	62				
Chlor	<0.01	<0.01	<0.01	<0.01				
NH_3	<0.03	<0.03	0.04	<0.03				

Feeding	0	1	2	3	4	5	6	7
AM		✓	✓	✓	✓	✓	✓	✓
Initials		CM	SW	CM	CM	SW	SW	CM
PM	✓	✓	✓	✓	✓	✓	✓	
Initials	CM	CM	SW	CM	CM	SW	SW	

Exposure Chamber

Total Capacity:	500 mL
Test Solution Volume:	250 mL
Test Solution Surface Area:	50.2 cm
Water Depth (constant):	6.5 cm

Feeding Schedule

Fed:	2x per day
Food Used:	<24hr artemia

Units:

DO: mg/L	Hard: mg/L
Temp: °C	Alk: mg/L
pH: N/A	Chlor: mg/L
Cond: µS/cm³	NH_3: mg/L

Comments: active + mobile
* 0.270

CETIS Analytical Report

Fathead Minnow 7-d Larval Survival and Growth Test — SeaCrest Group

Analysis ID:	13-3766-8804	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.6
Analyzed:	22 Jun-22 13:04	**Analysis:**	Nonparametric-Control vs Treatments	**Status Level:**	1
Batch ID:	08-5353-4090	**Test Type:**	Growth-Survival (7d)	**Analyst:**	Lab Tech
Start Date:	14 Jun-22	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Reconstituted Water
Ending Date:	21 Jun-22	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Test Length:	7d 0h	**Taxon:**	Actinopterygii	**Source:**	In-House Culture **Age:**
Sample ID:	13-5785-5620	**Code:**	422292.B	**Project:**	WET Quarterly Compliance Test (2Q)
Sample Date:	13 Jun-22	**Material:**	POTW Effluent	**Source:**	NPDES Permit # (XX99999999)
Receipt Date:	13 Jun-22	**CAS (PC):**		**Station:**	001A
Sample Age:	24h	**Client:**	Grand Island Resources		

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Angular (Corrected)	C > T	100	>100	n/a	1	4.02%

Steel Many-One Rank Sum Test

Control	vs	Conc-%	Test Stat	Critical	Ties	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water		13	20	10	1	6	CDF	0.9516	Non-Significant Effect
		26	20	10	1	6	CDF	0.9516	Non-Significant Effect
		52	20	10	1	6	CDF	0.9516	Non-Significant Effect
		76	20	10	1	6	CDF	0.9516	Non-Significant Effect
		100	20	10	1	6	CDF	0.9516	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0055332	0.0011066	5	1	0.4457	Non-Significant Effect
Error	0.0199195	0.0011066	18			
Total	0.0254527		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test				Indeterminate
Distribution	Shapiro-Wilk W Normality Test	0.4634	0.884	2.5E-08	Non-Normal Distribution

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	0.9750	0.8954	1.0000	1.0000	0.9000	1.0000	0.0250	5.13%	0.00%
13		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%
26		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%
52		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%
76		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%
100		4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%

Angular (Corrected) Transformed Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	1.371	1.242	1.501	1.412	1.249	1.412	0.04074	5.94%	0.00%
13		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	-2.97%
26		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	-2.97%
52		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	-2.97%
76		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	-2.97%
100		4	1.412	1.412	1.412	1.412	1.412	1.412	0	0.00%	-2.97%

CETIS Analytical Report

Fathead Minnow 7-d Larval Survival and Growth Test — **SeaCrest Group**

Analysis ID:	19-2441-0856	**Endpoint:**	7d Survival Rate	**CETIS Version:**	CETISv1.9.6
Analyzed:	22 Jun-22 13:06	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1
Batch ID:	08-5353-4090	**Test Type:**	Growth-Survival (7d)	**Analyst:**	Lab Tech
Start Date:	14 Jun-22	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Reconstituted Water
Ending Date:	21 Jun-22	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Test Length:	7d 0h	**Taxon:**	Actinopterygii	**Source:**	In-House Culture **Age:**
Sample ID:	13-5785-5620	**Code:**	422292.B	**Project:**	WET Quarterly Compliance Test (2Q)
Sample Date:	13 Jun-22	**Material:**	POTW Effluent	**Source:**	NPDES Permit # (XX99999999)
Receipt Date:	13 Jun-22	**CAS (PC):**		**Station:**	001A
Sample Age:	24h	**Client:**	Grand Island Resources		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1497436	1000	Yes	Two-Point Interpolation

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
LC5	>100	n/a	n/a	<1	n/a	n/a
LC10	>100	n/a	n/a	<1	n/a	n/a
LC15	>100	n/a	n/a	<1	n/a	n/a
LC20	>100	n/a	n/a	<1	n/a	n/a
LC25	>100	n/a	n/a	<1	n/a	n/a
LC40	>100	n/a	n/a	<1	n/a	n/a
LC50	>100	n/a	n/a	<1	n/a	n/a

7d Survival Rate Summary

			Calculated Variate(A/B)							Isotonic Variate	
Conc-%	Code	Count	Mean	Min	Max	Std Dev	CV%	%Effect	A/B	Mean	%Effect
0	D	4	0.9750	0.9000	1.0000	0.0500	5.13%	0.0%	39/40	0.9958	0.0%
13		4	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%	40/40	0.9958	0.0%
26		4	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%	40/40	0.9958	0.0%
52		4	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%	40/40	0.9958	0.0%
76		4	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%	40/40	0.9958	0.0%
100		4	1.0000	1.0000	1.0000	0.0000	0.00%	-2.56%	40/40	0.9958	0.0%

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	0.9000	1.0000	1.0000
13		1.0000	1.0000	1.0000	1.0000
26		1.0000	1.0000	1.0000	1.0000
52		1.0000	1.0000	1.0000	1.0000
76		1.0000	1.0000	1.0000	1.0000
100		1.0000	1.0000	1.0000	1.0000

Fathead Minnow 7-d Larval Survival and Growth Test — **SeaCrest Group**

Analysis ID:	17-8206-3880	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.6
Analyzed:	22 Jun-22 13:04	**Analysis:**	Parametric-Control vs Treatments	**Status Level:**	1
Batch ID:	08-5353-4090	**Test Type:**	Growth-Survival (7d)	**Analyst:**	Lab Tech
Start Date:	14 Jun-22	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Reconstituted Water
Ending Date:	21 Jun-22	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Test Length:	7d 0h	**Taxon:**	Actinopterygii	**Source:**	In-House Culture **Age:**
Sample ID:	13-5785-5620	**Code:**	422292.B	**Project:**	WET Quarterly Compliance Test (2Q)
Sample Date:	13 Jun-22	**Material:**	POTW Effluent	**Source:**	NPDES Permit # (XX99999999)
Receipt Date:	13 Jun-22	**CAS (PC):**		**Station:**	001A
Sample Age:	24h	**Client:**	Grand Island Resources		

Data Transform	Alt Hyp	NOEL	LOEL	TOEL	TU	PMSD
Untransformed	C > T	100	>100	n/a	1	20.36%

Dunnett Multiple Comparison Test

Control vs	Conc-%	Test Stat	Critical	MSD	DF	P-Type	P-Value	Decision(α:5%)
Dilution Water	13	0.6717	2.407	0.068	6	CDF	0.5709	Non-Significant Effect
	26	0.1855	2.407	0.068	6	CDF	0.7729	Non-Significant Effect
	52	-0.5476	2.407	0.068	6	CDF	0.9459	Non-Significant Effect
	76	0.02664	2.407	0.068	6	CDF	0.8254	Non-Significant Effect
	100	-0.1246	2.407	0.068	6	CDF	0.8674	Non-Significant Effect

ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.0025435	0.0005087	5	0.3177	0.8958	Non-Significant Effect
Error	0.0288195	0.0016011	18			
Total	0.0313629		23			

ANOVA Assumptions Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variance	Bartlett Equality of Variance Test	4.732	15.09	0.4495	Equal Variances
Distribution	Shapiro-Wilk W Normality Test	0.9361	0.884	0.1332	Normal Distribution

Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	D	4	0.3345	0.3084	0.3606	0.3415	0.31	0.345	0.008213	4.91%	0.00%
13		4	0.3155	0.2512	0.3798	0.325	0.259	0.353	0.02022	12.82%	5.68%
26		4	0.3293	0.2711	0.3874	0.341	0.278	0.357	0.01828	11.11%	1.57%
52		4	0.35	0.256	0.444	0.366	0.27	0.398	0.02953	16.88%	-4.63%
76		4	0.3337	0.2945	0.373	0.3375	0.301	0.359	0.01233	7.39%	0.23%
100		4	0.338	0.2622	0.4138	0.3445	0.284	0.3791	0.02381	14.09%	-1.05%

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	0.341	0.31	0.342	0.345
13		0.333	0.259	0.353	0.317
26		0.357	0.278	0.354	0.328
52		0.27	0.398	0.391	0.341
76		0.301	0.359	0.344	0.331
100		0.284	0.3791	0.312	0.377

Fathead Minnow 7-d Larval Survival and Growth Test

SeaCrest Group

Analysis ID:	00-4808-4509	**Endpoint:**	Mean Dry Biomass-mg	**CETIS Version:**	CETISv1.9.6
Analyzed:	22 Jun-22 13:06	**Analysis:**	Linear Interpolation (ICPIN)	**Status Level:**	1
Batch ID:	08-5353-4090	**Test Type:**	Growth-Survival (7d)	**Analyst:**	Lab Tech
Start Date:	14 Jun-22	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Reconstituted Water
Ending Date:	21 Jun-22	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Test Length:	7d 0h	**Taxon:**	Actinopterygii	**Source:**	In-House Culture **Age:**
Sample ID:	13-5785-5620	**Code:**	422292.B	**Project:**	WET Quarterly Compliance Test (2Q)
Sample Date:	13 Jun-22	**Material:**	POTW Effluent	**Source:**	NPDES Permit # (XX99999999)
Receipt Date:	13 Jun-22	**CAS (PC):**		**Station:**	001A
Sample Age:	24h	**Client:**	Grand Island Resources		

Linear Interpolation Options

X Transform	Y Transform	Seed	Resamples	Exp 95% CL	Method
Linear	Linear	1901970	1000	Yes	Two-Point Interpolation

Point Estimates

Level	%	95% LCL	95% UCL	TU	95% LCL	95% UCL
IC5	>100	n/a	n/a	<1	n/a	n/a
IC10	>100	n/a	n/a	<1	n/a	n/a
IC15	>100	n/a	n/a	<1	n/a	n/a
IC20	>100	n/a	n/a	<1	n/a	n/a
IC25	>100	n/a	n/a	<1	n/a	n/a
IC40	>100	n/a	n/a	<1	n/a	n/a
IC50	>100	n/a	n/a	<1	n/a	n/a

Mean Dry Biomass-mg Summary

			Calculated Variate						Isotonic Variate	
Conc-%	Code	Count	Mean	Min	Max	Std Dev	CV%	%Effect	Mean	%Effect
0	D	4	0.3345	0.31	0.345	0.01643	4.91%	0.0%	0.3345	0.0%
13		4	0.3155	0.259	0.353	0.04044	12.82%	5.68%	0.3333	0.36%
26		4	0.3293	0.278	0.357	0.03657	11.11%	1.57%	0.3333	0.36%
52		4	0.35	0.27	0.398	0.05907	16.88%	-4.63%	0.3333	0.36%
76		4	0.3337	0.301	0.359	0.02465	7.39%	0.23%	0.3333	0.36%
100		4	0.338	0.284	0.3791	0.04762	14.09%	-1.05%	0.3333	0.36%

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	0.341	0.31	0.342	0.345
13		0.333	0.259	0.353	0.317
26		0.357	0.278	0.354	0.328
52		0.27	0.398	0.391	0.341
76		0.301	0.359	0.344	0.331
100		0.284	0.3791	0.312	0.377

Appendix 4 – QA/QC and Reference Toxicant Test Chart

Quality Assurance Check List – Chronic Whole Effluent Toxicity Test

Client:	Grand Island Resources, LLC
SeaCrest Sample No:	422292.B
Species Tested:	*Ceriodaphnia dubia* and fathead minnow

Sample Dates	**Start Date of Test (*Ceriodaphnia dubia*)**	**Start Date of Test (fathead minnow)**
06-13-2022		
06-14-2022		
06-15-2022	06-14-2022	06-14-2022

Sample received in lab properly preserved (0-6°C)?	**N***
Sample received at laboratory within 36 hours of collection?	**Y**
Sample delivered on ice or equivalent?	**Y**
Test initiated within 36-hours of collection?	**Y**
Test protocol conforms to CDPHE guidelines (*Ceriodaphnia dubia)*?	**Y**
Test protocol conforms to CDPHE guidelines (fathead minnow)?	**Y**
Average test temp. ±1°C (*Ceriodaphnia dubia*)?	**Y**
Average test temp. ±1°C (fathead minnow)?	**Y**
DO level ≥4.0mg/L; no super-saturation (*Ceriodaphnia dubia*)?	**Y**
DO level ≥4.0mg/L; no super-saturation (fathead minnow)?	**Y**
Survival in control ≥80% (*Ceriodaphnia dubia*)?	**Y**
Survival in control ≥80% (fathead minnow)?	**Y**
Ceriodaphnia dubia neonates <24-hours old?	**Y**
Fathead minnow larvae <24-hours old?	**Y**
Appropriate reference toxicity test conducted?	**Y**
Reference toxicity test results within the confidence limits for the lab?	**Y**

*The samples were received at 8.8°C, 8.0°C, and 9.7°C on the same day as sampling.

Author Haley Nett *Date* June 27, 2022
Position: Laboratory Supervisor

Quality Control [signature] *Date* 27 June 2022

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METHOD QC

Method	Analyte	Date	LCS (rec)	%REC	%RPD	QC LIMITS
2320 B	Alkalinity - Total	5/5/2022	104.00%	95.65%	0.00%	± 5.00%
2320 B	Alkalinity - Total	5/15/2022	103.20%	98.48%	0.00%	± 5.00%
2320 B	Alkalinity - Total	5/19/2022	103.20%	99.26%	2.41%	± 5.00%
2320 B	Alkalinity - Total	5/25/2022	104.80%	97.98%	-2.79%	± 5.00%
4500 NH_3 D	Ammonia	5/5/2022	96.00%	100.60%	2.51%	± 10.00%
4500 NH_3 D	Ammonia	5/13/2022	95.60%	96.15%	-4.10%	± 10.00%
4500 NH_3 D	Ammonia	5/19/2022	96.20%	96.30%	-3.45%	± 10.00%
4500 NH_3 D	Ammonia	5/26/2022	99.40%	95.48%	-3.80%	± 10.00%
4500 Cl D	Chlorine	5/26/2022	103.03%	102.94%	0.00%	± 5.00, ± 20.00%
2340 B	Hardness - Total	5/5/2022	103.51%	100.28%	-1.01%	± 5.00%
2340 B	Hardness - Total	5/11/2022	103.51%	98.29%	1.39%	± 5.00%
2340 B	Hardness - Total	5/19/2022	100.00%	99.70%	-1.12%	± 5.00%
2340 B	Hardness - Total	5/24/2022	102.00%	102.00%	2.70%	± 5.00%

			LCS (rec)	%REC M1	%REC M2	QC Limits
4500 O	DO - Winkler	5/5/2022	N/A	98.36%	95.24%	± 5.00%
4500 O	DO - Winkler	5/12/2022	N/A	98.57%	98.57%	± 5.00%
4500 O	DO - Winkler	5/19/2022	N/A	100.00%	100.00%	± 5.00%
4500 O	DO - Winkler	5/25/2022	N/A	98.55%	98.55%	± 5.00%

			Blank	%REC MR S	%RPD	QC Limits
2540 D	Suspended Solids (TTL)	5/26/2022	100.00%	90.92%	0.00%	± 15%
2540 C	Dissolved Solids (TTL)	5/26/2022	100.00%	92.25%	0.00%	± 15%

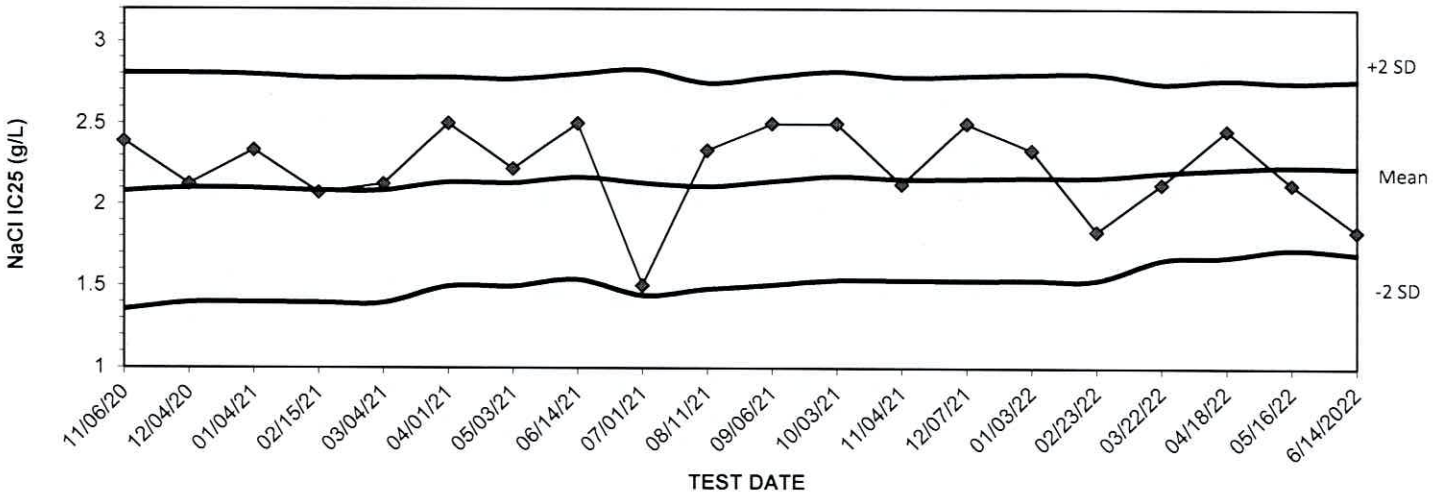
Signature: Haley West

Date: June 1, 2022

Signature:

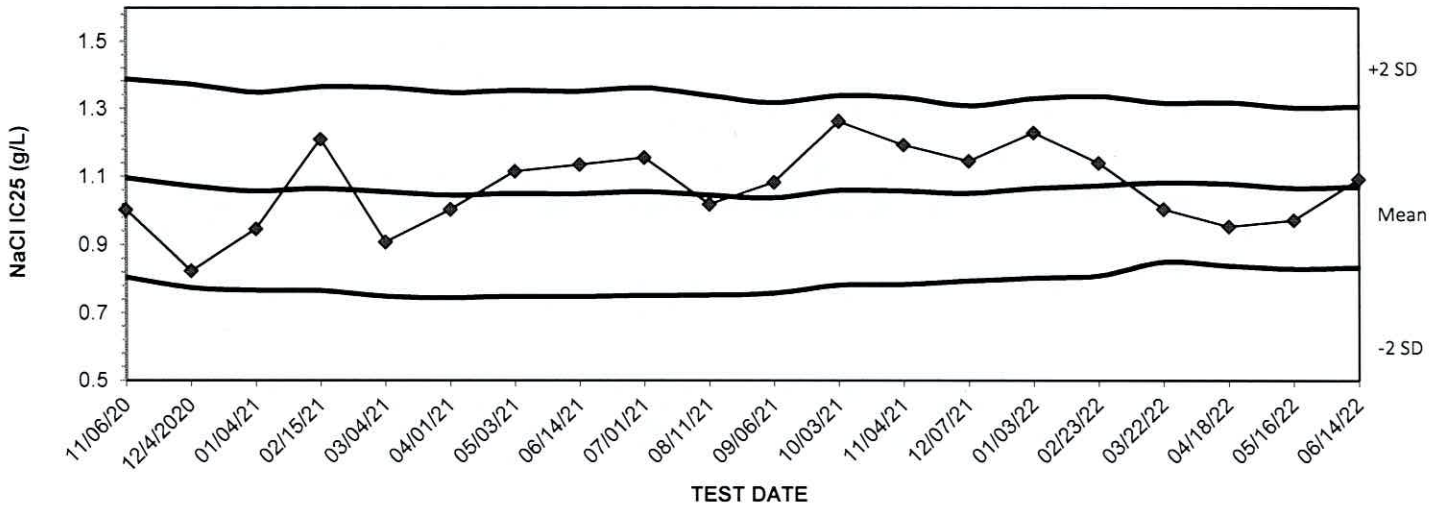
Date: 1 June 2022

CERIODAPHNIA SURVIVAL LC25 NaCl REFTOX



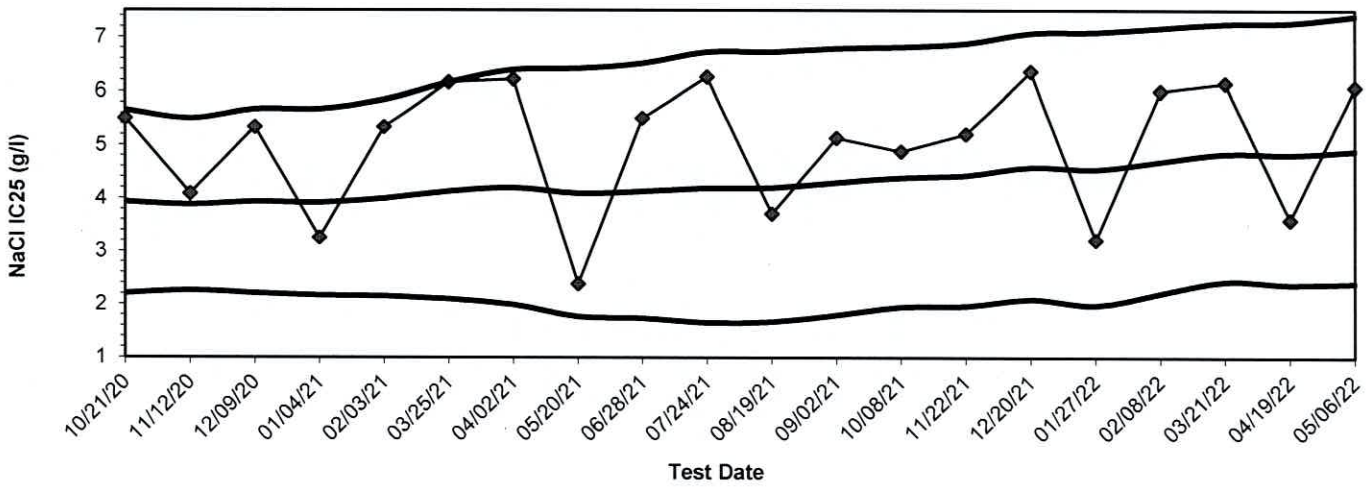
Date	IC25	Mean	-2 SD	+2 SD
11/06/20	2.3890	2.0785	1.3517	2.8053
12/04/20	2.1250	2.0997	1.3962	2.8032
01/04/21	2.3330	2.0968	1.3979	2.7956
02/15/21	2.0710	2.0843	1.3939	2.7747
03/04/21	2.1250	2.0843	1.3939	2.7747
04/01/21	2.5000	2.1359	1.4948	2.7769
05/03/21	2.2190	2.1304	1.4945	2.7664
06/14/21	2.5000	2.1661	1.5357	2.7966
07/01/21	1.5000	2.1319	1.4386	2.8252
08/11/21	2.3330	2.1101	1.4777	2.7425
09/06/21	2.5000	2.1429	1.5041	2.7816
10/03/21	2.5000	2.1746	1.5342	2.8150
11/04/21	2.1250	2.1568	1.5338	2.7797
12/07/21	2.5000	2.1592	1.5310	2.7874
01/03/22	2.3330	2.1656	1.5330	2.7982
02/23/22	1.8330	2.1656	1.5330	2.7982
03/22/22	2.1250	2.1982	1.6590	2.7374
04/18/22	2.4580	2.2200	1.6774	2.7626
05/16/22	2.1250	2.2355	1.7257	2.7453
6/14/2022	1.8330	2.2267	1.6951	2.7582

CERIODAPHNIA REPRODUCTION IC25 NaCl REFTOX



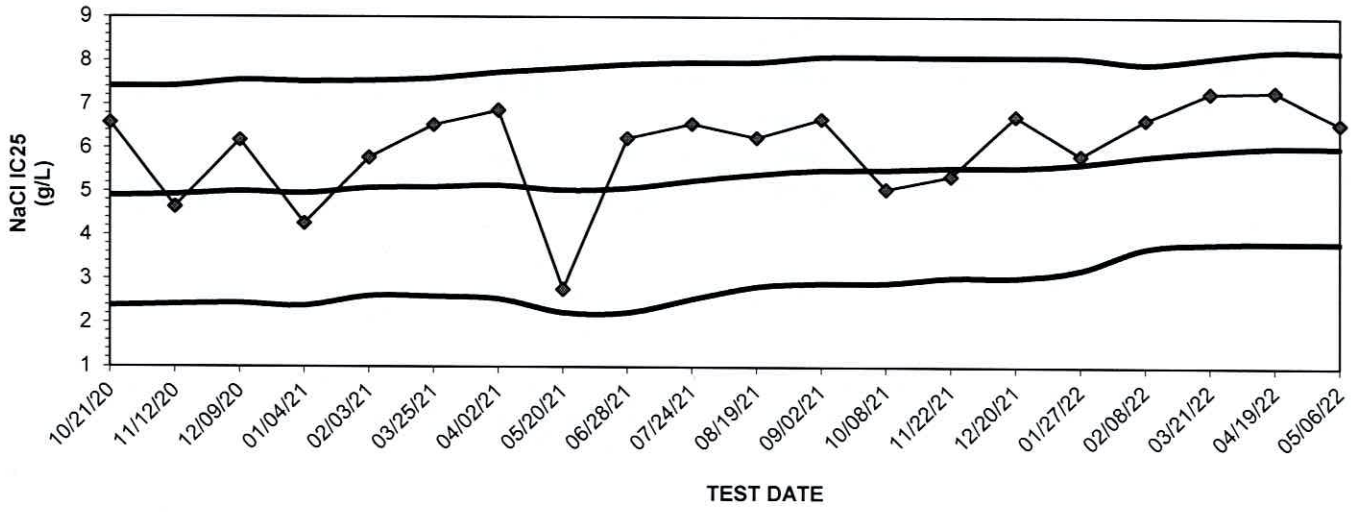
Date	IC25	Mean	-2 SD	+2 SD
11/06/20	1.0020	1.0951	0.8049	1.3853
12/4/2020	0.8229	1.07151	0.772964255	1.370055745
01/04/21	0.9453	1.0562	0.7653	1.3470
02/15/21	1.2100	1.0635	0.7646	1.3625
03/04/21	0.9062	1.0540	0.7475	1.3605
04/01/21	1.0030	1.0450	0.7439	1.3461
05/03/21	1.1140	1.0496	0.7472	1.3521
06/14/21	1.1340	1.0487	0.7475	1.3499
07/01/21	1.1550	1.0553	0.7508	1.3599
08/11/21	1.0180	1.0445	0.7516	1.3375
09/06/21	1.0820	1.0368	0.7574	1.3162
10/03/21	1.2630	1.0587	0.7807	1.3367
11/04/21	1.1930	1.0570	0.7830	1.3311
12/07/21	1.1450	1.0503	0.7931	1.3076
01/03/22	1.2300	1.0650	0.8016	1.3284
02/23/22	1.1390	1.0719	0.8084	1.3354
03/22/22	1.0040	1.0821	0.8489	1.3154
04/18/22	0.9527	1.0775	0.8376	1.3174
05/16/22	0.9716	1.0659	0.8293	1.3025
06/14/22	1.0920	1.0691	0.8330	1.3053

FHM SURVIVAL LC25 NaCl REFTOX



Date	IC25	Mean	-2 SD	+2 SD
10/21/20	5.5000	3.9318	2.2040	5.6597
11/12/20	4.0770	3.8762	2.2576	5.4949
12/09/20	5.3330	3.9351	2.2017	5.6685
01/04/21	3.2500	3.9146	2.1591	5.6702
02/03/21	5.3330	3.9947	2.1464	5.8429
03/25/21	6.1583	4.1258	2.0920	6.1596
04/02/21	6.2160	4.1887	1.9849	6.3925
05/20/21	2.3750	4.0888	1.7621	6.4155
06/28/21	5.5000	4.1223	1.7345	6.5101
07/24/21	6.2580	4.1844	1.6465	6.7224
08/19/21	3.7000	4.1935	1.6644	6.7226
09/02/21	5.1250	4.2901	1.7899	6.7904
10/08/21	4.8750	4.3788	1.9442	6.8135
11/22/21	5.2000	4.4210	1.9620	6.8799
12/20/21	6.3570	4.5781	2.0849	7.0713
01/27/22	3.2000	4.5318	1.9736	7.0900
02/08/22	6.0000	4.6848	2.2009	7.1688
03/21/22	6.1400	4.8361	2.4258	7.2464
04/19/22	3.5870	4.8140	2.3657	7.2622
05/06/22	6.0670	4.8914	2.3955	7.3872

FHM GROWTH IC25 NaCl REFTOX



Date	IC25	Mean	-2 SD	+2 SD
10/21/20	6.5770	4.8979	2.3802	7.4156
11/12/20	4.6370	4.9183	2.4172	7.4194
12/09/20	6.1720	4.9941	2.4402	7.5481
01/04/21	4.2580	4.9508	2.3784	7.5231
02/03/21	5.7680	5.0732	2.6088	7.5375
03/25/21	6.5280	5.0905	2.5891	7.5919
04/02/21	6.8650	5.1345	2.5395	7.7295
05/20/21	2.7590	5.0217	2.2272	7.8162
06/28/21	6.2200	5.0690	2.2267	7.9113
07/24/21	6.5530	5.2483	2.5384	7.9582
08/19/21	6.2310	5.3933	2.8247	7.9619
09/02/21	6.6650	5.4939	2.8982	8.0895
10/08/21	5.0481	5.4990	2.9074	8.0905
11/22/21	5.3520	5.5543	3.0315	8.0771
12/20/21	6.7310	5.5549	3.0309	8.0788
01/27/22	5.8200	5.6387	3.2082	8.0692
02/08/22	6.6580	5.8193	3.7120	7.9266
03/21/22	7.2690	5.9425	3.8121	8.0729
04/19/22	7.2990	6.0314	3.8358	8.2271
05/06/22	6.5630	6.0225	3.8376	8.2074