

Sent by Email

May 3, 2021

Mr. Dustin Czapla, Environmental Protection Specialist
Colorado Division of Reclamation, Mining and Safety
1313 Sherman St., Rm. 215
Denver, CO 80203

Re: PDWTP Influent Pipeline – Climax Mine Permit No. M-1977-493

Dear Mr. Czapla:

Climax is providing this 5-day follow-up written notice pursuant to Rule 8.2.3 of the DRMS Rules and Regulations for Hard Rock, Metal, and Designated Mining Operations. On Tuesday, April 27, 2020, Climax identified a small leak (approximately 10 gallons per minute (gpm)) from the Climax Property Discharge Water Treatment Plant (PDWTP) influent pipeline, which it conservatively considered as a potential failure or imminent failure of an Environmental Protection Facility (EPF) pursuant to Rule 8.1(b). Climax left a voicemail with Environmental Protection Specialist Dustin Czapla at approximately 4:30pm on April 27, 2021 and spoke to Environmental Protection Specialist Lucas West at approximately 9:30am on April 28, 2021 in accordance with Rules 8.2.1(a) and 3.1.13(1).

Climax also reported this incident to CDPHE pursuant to the Colorado Water Quality Control Act (§ 25-8-601(2), C.R.S.). Consistent with Rule 3.1.13(3), attached is a copy of the 5-day written notification to CDPHE.

Description of Incident:

The incident occurred at the Climax Mine located at Fremont Pass – Highway 91 Climax, CO 80429. At 12:30pm on April 27, 2021 an operator maintaining the road associated with the West Interceptor noticed excess water flowing on the road and into the West Interceptor. The West Interceptor is a stormwater diversion conveyance that flows to an area called the mixing zone where water from the West Interceptor, East Interceptor, and effluent from the Climax PDWTP come together. From here the water flows to Outfall 001A under Climax's Colorado Discharge Permit System (CDPS) permit (No. CO0000248) and into Tenmile Creek.

At 1:45pm Climax confirmed that the water was coming from a small leak in the PDWTP influent pipeline located adjacent to the West Interceptor. Once this determination was made, the pump that feeds the pipeline was shut down and a berm was placed on the West Interceptor road to prevent additional water from entering the West Interceptor. The flow into the West Interceptor was stopped/contained on April 27, 2021 at approximately 3:30pm. It is estimated that approximately 1,800 gallons of water flowed into the West Interceptor before the pipeline stopped discharging.

Required Information under Rule 8.2.3, paragraphs (a) through (e):

- (a) actions taken to respond to and correct the emergency situation or condition;

Climax Response: The pump that feeds the pipeline was shut down and a berm was placed on the

West Interceptor road to prevent additional process water from entering the West Interceptor. The pipeline was excavated on April 28, 2021 to identify the location of the leak and repairs will be completed by May 5, 2021.

- (b) any known or anticipated adverse impacts to human health, property or the environment;

Climax Response: There are no known impacts to human health, property or the environment because a sample taken at CDPS Outfall 001A indicated that there were no exceedances of permit effluent limitations.

- (c) name(s), address(s), telephone numbers and e-mail address of the Operator's contact person for additional information and follow-up by the Office;

Climax Response: Diana Kelts, Environmental Manager – dkelts@fmi.com, 719-486-7525

*Climax Mine
Fremont Pass-Highway 91
Climax, Co 80429*

- (d) monitoring and analyses that are necessary to evaluate the situation and corrective actions, copies of all pertinent data; and

Climax Response: See attached lab analysis for the pipeline leakage and Outfall 001A. The pH was measured in the field. The pH for the pipeline leakage, noted as Mayflower Decant in the lab report, was 7 and the pH measured at Outfall 001A was 8.08.

- (e) results of the Operator's investigation to assess the conditions or circumstances that created the emergency situation, and what corrective or protective measures will be taken to prevent a similar event from occurring in the future.

Climax Response: It was determined that the 42" steel pipe had formed a crack at a welded joint causing the leak. The pipeline will be patched on May 5, 2021. The pipeline will be taken down again in June so the section of pipeline can be replaced. Going forward the following actions will be implemented:

- Continue area inspections every shift*
- Continuation of the Cathodic Protection System and annual testing*
- Internal video inspections on 10-year frequency starting in 2021*

Please feel free to contact me at (719) 486-7525 or at dkelts@fmi.com if you need any further information regarding this matter. Thank you for your continued assistance with Climax Mine.

Sincerely,



Diana Kelts
Environmental Manager

Attachments



Five day reporting form

Incident / spill / sanitary sewer overflow release

Use this form to report incidents impacting waters of the state

The Water Quality Control Division distinguishes between reporting requirements for incidents that occur at entities operating under a Colorado Discharge Permit System (CDPS) permit and those resulting from non-permitted activities.

Permitted activities - Reporting and management of non-compliance incidents and spills that occur as a result of permitted activities should be performed in accordance with the specific requirements in the notifications section of your permit. You may use this form to submit the information requested in the permit.

Non-permitted activities - In the case of an activity where a permit does not address reporting of, or response to, a given spill please submit a written summary of the event, your response, and clean up efforts to the division within five working days of the date of the event. This form is provided for your convenience. If you have any questions please contact the division's field services staff person assigned to your spill case.

Prior to the five working day deadline you may request an extension to submit the report if needed for sampling analysis or other reasons. To request an extension please send an email to the division's field services staff person assigned to your spill case or to the spill administrator. The field services contact list is available at: www.colorado.gov/cdphe/wq-inspection-services-contact-us.

Please send the completed form or report with signature to the division's field services spill administrator:


Michelle Thiebaud
222 S. Sixth Street, 232
Grand Junction, CO 81501

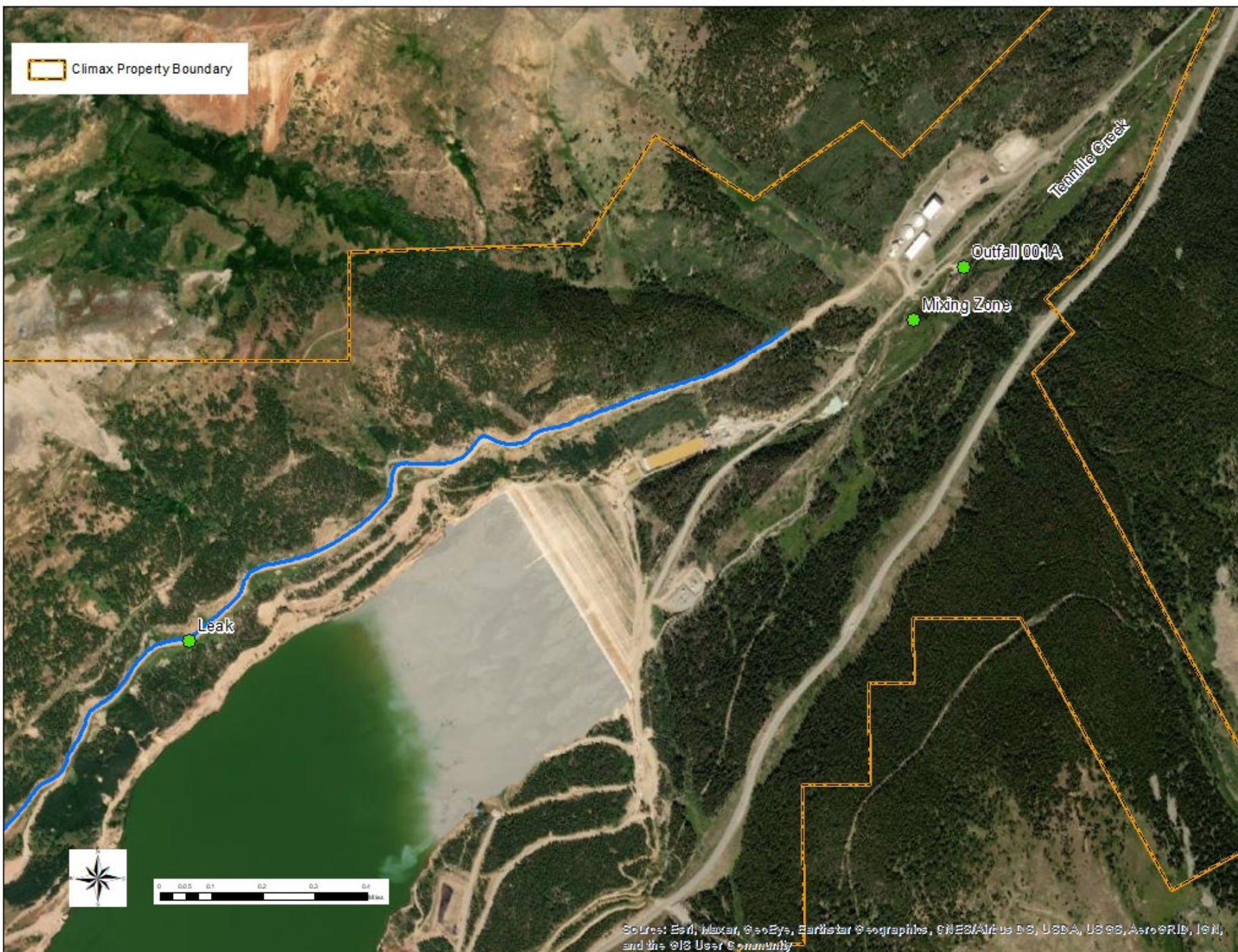
Telephone: 970-248-7150
Fax: 970-248-7198
Email: michelle.thiebaud@state.co.us

1. Incident background information					
Incident/spill number (division provided)	2021-0165	Date of event	April 27, 20212	County	Summit
Type of incident / spill / SSO (check one)					
<input type="checkbox"/> Sanitary sewer overflow	<input type="checkbox"/> Potable water/reuse water/ reclaimed water		<input type="checkbox"/> Biosolids		
<input type="checkbox"/> Wastewater treatment plant bypass or upset (authorized outfall point)	<input type="checkbox"/> Petroleum product		<input type="checkbox"/> Oil or gas field production spill		
<input type="checkbox"/> Wastewater treatment plant spill or overflow (other than outfall)	<input type="checkbox"/> Chemical		<input checked="" type="checkbox"/> Other		
Estimated volume released	1,800 gallons				
Size and depth of area affected	Not applicable				
Contact information					
Potentially responsible party contact name	Diana Kelts, Environmental Manager				
Potentially responsible party company/agency name	Climax Mine				
CDPHE Permit number and facility name (if applicable)	Incident occurred up-gradient from Outfall 001A identified in the Climax Mine CDPS Permit No. CO0000248				
Email address	dkelts@fmi.com		Phone	719-486-7525	
2. Incident information: Please provide the following information.					
A. Describe incident including source, cause, and location (e.g. address, latitude/longitude).					
At 12:30pm on April 27, 2021 an operator maintaining the West Interceptor Ditch road noticed excess water flowing on the road and into the West Interceptor. At 1:45pm Climax confirmed that the water was coming from the Climax Property Discharge Water Treatment Plant (PDWTP) influent pipeline located adjacent to the West Interceptor. Site supervision was contacted and the pump feeding the line was shutdown. Operators at the leak location indicated that flow stopped from the leak at 3:30pm. After the pipeline was excavated the following day on April 28, 2021, it was determined that the 42" steel pipe had formed a crack at a welded joint causing the leak. The incident occurred at the Climax Mine located at Fremont Pass - Highway 91 Climax, CO 80429. The attached map shows the location of the leak.					
B. Material released, e.g. untreated wastewater, specific chemical or product, biosolids. Please attach the OSHA Material Safety Data Sheets for any and all chemicals or products in spill or release.					
pH neutral water from the Mayflower Tailing Storage Facility					

C. Actual or estimated duration of the event and time spill was fully controlled/stopped. If release is still occurring, the date and time the release is expected to be stopped.		
It is estimated that the leak started at 12:30pm on April 27, 2021 and was fully controlled/stopped at 3:30pm on April 27, 2021.		
D. Describe measures taken or planned to contain, reduce, and clean up spill or release.		
On the day of the incident, and as soon as Climax confirmed the source of the water flowing into the West Interceptor, the pump feeding the pipeline was stopped and flow was ceased. A berm was placed between the leaking pipeline and the West Interceptor to prevent any remaining water on the road from entering the West Interceptor. The pipeline repair is expected to be completed on May 5, 2021 and the pipeline will not be charged/repressurized until the repair occurs.		
E. Describe steps taken or planned to prevent reoccurrence.		
As already noted, the pipeline will be repaired on May 5, 2021. The pipeline will be taken down again in June 2021 so the section of pipeline can be replaced. Going forward the following actions will be implemented:		
<ul style="list-style-type: none"> • Continue area inspections every shift • Continuation of the Cathodic Protection System and annual testing • Internal video inspections on 10-year frequency starting in 2021 		
3. Incident impact to state waters (As defined in § 25-8-103(19), C.R.S.).		
Examples of state waters include: stormwater conveyances (when they discharge to surface water), perennial streams, intermittent or ephemeral gulches, ditches, ponds, lakes, reservoirs, irrigation canals, wetlands and groundwater.		
A. Did flow or materials reach surface water of the state? If so, identify the water body or bodies and describe the path of flow. What quantity of material reached the surface waters and what was the resulting impact?		
The process water leaked from the pipeline at a rate of 10 gallons per minute into Climax's stormwater diversion conveyance called the West Interceptor. The West Interceptor then reports to an area called the mixing zone where water from the West Interceptor, East Interceptor, and effluent from the Climax PDWTP come together. From here the water flows to Outfall 001A under Climax's CDPS permit (No. CO0000248) and into Tenmile Creek. It is estimated that approximately 1,800 gallons of process water flowed into the West Interceptor before the pipeline stopped discharging. There were no impacts to Tenmile Creek since samples taken at 3:17pm during the incident at Outfall 001A indicated that permit effluent limitations were not exceeded. See attached sample analysis for the leakage and Outfall 001A.		
B. Did flow or materials reach groundwater of the state? If so, identify the water body or bodies and describe the path of flow. If yes, what quantity of material reached the ground or groundwater and what was the resulting impact?		
No		
C. Did the incident include any of the following? If so, please include additional details below.		
<input type="checkbox"/> Chemical release	<input type="checkbox"/> Fish kill	<input type="checkbox"/> Sheen on water
Not applicable		
D. Were any water quality samples or other samples taken? If so, please describe sampling process, sampling location(s) in relationship to the incident, i.e. up/down stream and attach results.		
Yes, Samples were obtained of the leak and at Outfall 001A. The pH was measured in the field. The pH for the pipeline leakage, noted as Mayflower Decant in the lab report, was 7 and the pH measured at Outfall 001A was 8.08. See attached map and sample analysis.		
4. Incident impact to areas or water users		
A. Describe the potential impact of the incident/spill/SSO to public use areas or downstream water users. This includes parks and swim beaches or public water system sources and irrigation diversions.		
There were no potential impacts to public use areas or downstream water users.		
B. Were the impacted area users and downstream water users notified and describe the method of notification, e.g. signs posted, via phone.		
No downstream users were notified		
C. List any downstream users who were notified.		
Not applicable		

I hereby certify that the information presented above is accurate and complete.

Signature	Name and title	Company, organization	Date
	Diana Kelts Environmental Manager	Climax Molybdenum Company Climax Mine	5/3/2021



May 03, 2021

Report to:
Paul Weber
FMI- Climax Mine Company
Highway 91 Fremont Pass
Climax, CO 80429

cc: Elaine Dubois

Bill to:
Accounts Payable
FMI- Climax Mine Company
P.O. Box 13407
Phoenix, AZ 85002

Project ID: ZH0000076W
ACZ Project ID: L65529

Paul Weber:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on April 28, 2021. This project has been assigned to ACZ's project number, L65529. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan. The enclosed results relate only to the samples received under L65529. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after October 30, 2021. If the samples are determined to be hazardous, additional charges apply for disposal (typically \$11/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical raw data reports for ten years.

If you have any questions or other needs, please contact your Project Manager.



Scott Habermehl has reviewed
and approved this report.



FMI- Climax Mine Company

Project ID: ZH0000076W

Sample ID: OUTFALL 001A

ACZ Sample ID: **L65529-01**

Date Sampled: 04/27/21 15:17

Date Received: 04/28/21

Sample Matrix: Surface Water

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acidify and filter (Potentially Dissolved)	Colorado 5 CCR 1002- 31.5.31 (2009)								04/29/21 15:34	mfm
Total Hot Plate Digestion	M200.2 ICP-MS								04/29/21 12:30	mfm
Total Recoverable Digestion	M200.2 ICP-MS								04/30/21 14:05	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, total	M200.8 ICP-MS	1	0.0114		*	mg/L	0.001	0.005	04/30/21 12:18	mfm
Cadmium, potentially dissolved	M200.8 ICP-MS	1	0.000273			mg/L	0.00005	0.00025	04/30/21 15:16	mfm
Chromium, potentially dissolved	M200.8 ICP-MS	1	<0.0005	U		mg/L	0.0005	0.002	04/29/21 17:18	mfm
Iron, total recoverable	M200.8 ICP-MS	1	0.0407		*	mg/L	0.007	0.02	05/03/21 10:26	mfm
Manganese, potentially dissolved	M200.8 ICP-MS	1	0.879			mg/L	0.0004	0.002	04/29/21 17:18	mfm
Molybdenum, total recoverable	M200.8 ICP-MS	1	0.635			mg/L	0.0002	0.0005	05/03/21 10:26	mfm
Nickel, potentially dissolved	M200.8 ICP-MS	1	0.00288			mg/L	0.0004	0.001	04/29/21 17:18	mfm
Selenium, potentially dissolved	M200.8 ICP-MS	1	0.00025			mg/L	0.0001	0.00025	04/29/21 17:18	mfm
Zinc, potentially dissolved	M200.8 ICP-MS	1	0.0228			mg/L	0.006	0.015	04/29/21 17:18	mfm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfide as S	SM4500S2-D	1	0.099	B		mg/L	0.02	0.1	04/30/21 17:35	jck

FMI- Climax Mine Company

Project ID: ZH0000076W

Sample ID: MAYFLOWER DECANT

ACZ Sample ID: **L65529-02**

Date Sampled: 04/27/21 13:00

Date Received: 04/28/21

Sample Matrix: Surface Water

Inorganic Prep

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Acidify and filter (Potentially Dissolved)	Colorado 5 CCR 1002- 31.5.31 (2009)								04/29/21 15:38	mfm
Total Hot Plate Digestion	M200.2 ICP-MS				*				04/29/21 12:30	mfm
Total Recoverable Digestion	M200.2 ICP-MS				*				04/30/21 14:05	mfm

Metals Analysis

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Boron, total	M200.8 ICP-MS	1	0.0127		*	mg/L	0.001	0.005	04/30/21 12:19	mfm
Cadmium, potentially dissolved	M200.8 ICP-MS	100	<0.005	U	*	mg/L	0.005	0.025	04/30/21 15:18	mfm
Chromium, potentially dissolved	M200.8 ICP-MS	1	<0.0005	U		mg/L	0.0005	0.002	04/29/21 17:20	mfm
Iron, total recoverable	M200.8 ICP-MS	1	6.11		*	mg/L	0.007	0.02	05/03/21 10:32	mfm
Manganese, potentially dissolved	M200.8 ICP-MS	100	12.6			mg/L	0.04	0.2	04/30/21 15:18	mfm
Molybdenum, total recoverable	M200.8 ICP-MS	1	0.836			mg/L	0.0002	0.0005	05/03/21 10:32	mfm
Nickel, potentially dissolved	M200.8 ICP-MS	1	0.0253			mg/L	0.0004	0.001	04/29/21 17:20	mfm
Selenium, potentially dissolved	M200.8 ICP-MS	1	0.00046			mg/L	0.0001	0.00025	04/29/21 17:20	mfm
Zinc, potentially dissolved	M200.8 ICP-MS	1	0.0524			mg/L	0.006	0.015	04/29/21 17:20	mfm

Wet Chemistry

Parameter	EPA Method	Dilution	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfide as S	SM4500S2-D	1	0.131		*	mg/L	0.02	0.1	04/30/21 18:09	jck


Report Header Explanations

<i>Batch</i>	A distinct set of samples analyzed at a specific time
<i>Found</i>	Value of the QC Type of interest
<i>Limit</i>	Upper limit for RPD, in %.
<i>Lower</i>	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
<i>MDL</i>	Method Detection Limit. Same as Minimum Reporting Limit unless omitted or equal to the PQL (see comment #5). Allows for instrument and annual fluctuations.
<i>PCN/SCN</i>	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
<i>PQL</i>	Practical Quantitation Limit. Synonymous with the EPA term "minimum level".
<i>QC</i>	True Value of the Control Sample or the amount added to the Spike
<i>Rec</i>	Recovered amount of the true value or spike added, in % (except for LCSS, mg/Kg)
<i>RPD</i>	Relative Percent Difference, calculation used for Duplicate QC Types
<i>Upper</i>	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
<i>Sample</i>	Value of the Sample of interest

QC Sample Types

<i>AS</i>	Analytical Spike (Post Digestion)	<i>LCSWD</i>	Laboratory Control Sample - Water Duplicate
<i>ASD</i>	Analytical Spike (Post Digestion) Duplicate	<i>LFB</i>	Laboratory Fortified Blank
<i>CCB</i>	Continuing Calibration Blank	<i>LFM</i>	Laboratory Fortified Matrix
<i>CCV</i>	Continuing Calibration Verification standard	<i>LFMD</i>	Laboratory Fortified Matrix Duplicate
<i>DUP</i>	Sample Duplicate	<i>LRB</i>	Laboratory Reagent Blank
<i>ICB</i>	Initial Calibration Blank	<i>MS</i>	Matrix Spike
<i>ICV</i>	Initial Calibration Verification standard	<i>MSD</i>	Matrix Spike Duplicate
<i>ICSAB</i>	Inter-element Correction Standard - A plus B solutions	<i>PBS</i>	Prep Blank - Soil
<i>LCSS</i>	Laboratory Control Sample - Soil	<i>PBW</i>	Prep Blank - Water
<i>LCSSD</i>	Laboratory Control Sample - Soil Duplicate	<i>PQV</i>	Practical Quantitation Verification standard
<i>LCSW</i>	Laboratory Control Sample - Water	<i>SDL</i>	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL. The associated value is an estimated quantity.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
L	Target analyte response was below the laboratory defined negative threshold.
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(4)	EPA SW-846. Test Methods for Evaluating Solid Waste.
(5)	Standard Methods for the Examination of Water and Wastewater.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.
(4)	An asterisk in the "XQ" column indicates there is an extended qualifier and/or certification qualifier associated with the result.
(5)	If the MDL equals the PQL or the MDL column is omitted, the PQL is the reporting limit.

For a complete list of ACZ's Extended Qualifiers, please click:

<https://acz.com/wp-content/uploads/2019/04/Ext-Qual-List.pdf>

FMI- Climax Mine Company

ACZ Project ID: **L65529**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Boron, total

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG518419													
WG518419ICV	ICV	04/30/21 12:10	MS210426-2	.02		.0191	mg/L	96	90	110			
WG518419ICB	ICB	04/30/21 12:12				U	mg/L		-0.003	0.003			
WG518332LRB	LRB	04/30/21 12:14				U	mg/L		-0.0022	0.0022			
WG518332LFB	LFB	04/30/21 12:16	MS210420-3	.01001		.0094	mg/L	94	85	115			
L65494-01LFM	LFM	04/30/21 12:55	MS210420-3	.01001	.0044	.0127	mg/L	83	70	130			
L65494-01LFMD	LFMD	04/30/21 12:57	MS210420-3	.01001	.0044	.0125	mg/L	81	70	130	2	20	

Cadmium, potentially dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG518432													
WG518432ICV	ICV	04/30/21 15:09	MS210426-2	.05		.051098	mg/L	102	90	110			
WG518432ICB	ICB	04/30/21 15:11				U	mg/L		-0.00011	0.00011			
WG518432LFB	LFB	04/30/21 15:12	MS210420-3	.05005		.050581	mg/L	101	85	115			
WG518382PBW	PBW	04/30/21 15:14				U	mg/L		-0.00015	0.00015			
L65524-02AS	AS	04/30/21 15:30	MS210420-3	.05005	U	.051565	mg/L	103	70	130			
L65524-02ASD	ASD	04/30/21 15:32	MS210420-3	.05005	U	.046556	mg/L	93	70	130	10	20	

Chromium, potentially dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG518383													
WG518383ICV	ICV	04/29/21 17:00	MS210426-2	.05		.05062	mg/L	101	90	110			
WG518383ICB	ICB	04/29/21 17:02				U	mg/L		-0.0011	0.0011			
WG518383LFB	LFB	04/29/21 17:04	MS210420-3	.05		.04797	mg/L	96	85	115			
WG518382PBW	PBW	04/29/21 17:05				U	mg/L		-0.0015	0.0015			
L65524-01AS	AS	04/29/21 17:13	MS210420-3	.05	U	.04596	mg/L	92	70	130			
L65524-01ASD	ASD	04/29/21 17:14	MS210420-3	.05	U	.04576	mg/L	92	70	130	0	20	

Iron, total recoverable

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG518482													
WG518482ICV	ICV	05/03/21 10:19	MS210503-1	.10016		.0934	mg/L	93	90	110			
WG518482ICB	ICB	05/03/21 10:21				U	mg/L		-0.021	0.021			
WG518428LRB	LRB	05/03/21 10:23				U	mg/L		-0.0154	0.0154			
WG518428LFB	LFB	05/03/21 10:25	MS210420-3	.0501		.0467	mg/L	93	85	115			
L65529-01LFM	LFM	05/03/21 10:28	MS210420-3	.0501	.0407	.0888	mg/L	96	70	130			
L65529-01LFMD	LFMD	05/03/21 10:30	MS210420-3	.0501	.0407	.0889	mg/L	96	70	130	0	20	

FMI- Climax Mine Company

ACZ Project ID: **L65529**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Manganese, potentially dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG518383													
WG518383ICV	ICV	04/29/21 17:00	MS210426-2	.05		.05002	mg/L	100	90	110			
WG518383ICB	ICB	04/29/21 17:02				U	mg/L		-0.00088	0.00088			
WG518383LFB	LFB	04/29/21 17:04	MS210420-3	.0499		.04785	mg/L	96	85	115			
WG518382PBW	PBW	04/29/21 17:05				U	mg/L		-0.0012	0.0012			
L65524-01AS	AS	04/29/21 17:13	MS210420-3	.0499	.0582	.10528	mg/L	94	70	130			
L65524-01ASD	ASD	04/29/21 17:14	MS210420-3	.0499	.0582	.10621	mg/L	96	70	130	1	20	

WG518432

WG518432ICV	ICV	04/30/21 15:09	MS210426-2	.05		.05092	mg/L	102	90	110			
WG518432ICB	ICB	04/30/21 15:11				U	mg/L		-0.00088	0.00088			
WG518432LFB	LFB	04/30/21 15:12	MS210420-3	.0499		.05083	mg/L	102	85	115			
WG518382PBW	PBW	04/30/21 15:14				U	mg/L		-0.0012	0.0012			
L65524-02AS	AS	04/30/21 15:30	MS210420-3	.0499	.105	.1522	mg/L	95	70	130			
L65524-02ASD	ASD	04/30/21 15:32	MS210420-3	.0499	.105	.14705	mg/L	84	70	130	3	20	

Molybdenum, total recoverable

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG518482													
WG518482ICV	ICV	05/03/21 10:19	MS210503-1	.01992		.01799	mg/L	90	90	110			
WG518482ICB	ICB	05/03/21 10:21				U	mg/L		-0.0006	0.0006			
WG518428LRB	LRB	05/03/21 10:23				U	mg/L		-0.00044	0.00044			
WG518428LFB	LFB	05/03/21 10:25	MS210420-3	.0501		.04487	mg/L	90	85	115			
L65529-01LFM	LFM	05/03/21 10:28	MS210420-3	.0501	.635	.6895	mg/L	109	70	130			
L65529-01LFMD	LFMD	05/03/21 10:30	MS210420-3	.0501	.635	.68375	mg/L	97	70	130	1	20	

Nickel, potentially dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG518383													
WG518383ICV	ICV	04/29/21 17:00	MS210426-2	.05		.05122	mg/L	102	90	110			
WG518383ICB	ICB	04/29/21 17:02				.00043	mg/L		-0.00088	0.00088			
WG518383LFB	LFB	04/29/21 17:04	MS210420-3	.05		.04809	mg/L	96	85	115			
WG518382PBW	PBW	04/29/21 17:05				U	mg/L		-0.0012	0.0012			
L65524-01AS	AS	04/29/21 17:13	MS210420-3	.05	.00127	.04616	mg/L	90	70	130			
L65524-01ASD	ASD	04/29/21 17:14	MS210420-3	.05	.00127	.04574	mg/L	89	70	130	1	20	

Selenium, potentially dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG518383													
WG518383ICV	ICV	04/29/21 17:00	MS210426-2	.05		.04877	mg/L	98	90	110			
WG518383ICB	ICB	04/29/21 17:02				U	mg/L		-0.00022	0.00022			
WG518383LFB	LFB	04/29/21 17:04	MS210420-3	.05		.04828	mg/L	97	85	115			
WG518382PBW	PBW	04/29/21 17:05				U	mg/L		-0.0003	0.0003			
L65524-01AS	AS	04/29/21 17:13	MS210420-3	.05	.00069	.05408	mg/L	107	70	130			
L65524-01ASD	ASD	04/29/21 17:14	MS210420-3	.05	.00069	.05345	mg/L	106	70	130	1	20	

FMI- Climax Mine Company

ACZ Project ID: **L65529**

NOTE: If the Rec% column is null, the high/low limits are in the same units as the result. If the Rec% column is not null, then the high/low limits are in % Rec.

Sulfide as S

SM4500S2-D

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG518435													
WG518435ICV	ICV	04/30/21 16:20	WC210430-3	.348		.35	mg/L	101	90	110			
WG518435ICB	ICB	04/30/21 16:26				U	mg/L		-0.05	0.05			
WG518435LFB1	LFB	04/30/21 16:33	WC210430-6	.21956		.253	mg/L	115	80	120			
L65526-01AS	AS	04/30/21 16:47	WC210430-6	.21956	U	.248	mg/L	113	75	125			
L65526-01ASD	ASD	04/30/21 16:54	WC210430-6	.21956	U	.247	mg/L	112	75	125	0	20	
L65529-01AS	AS	04/30/21 17:55	WC210430-6	.21956	.099	.35	mg/L	114	75	125			
L65529-01ASD	ASD	04/30/21 18:02	WC210430-6	.21956	.099	.35	mg/L	114	75	125	0	20	
WG518435LFB2	LFB	04/30/21 20:06	WC210430-6	.21956		.248	mg/L	113	80	120			

Zinc, potentially dissolved

M200.8 ICP-MS

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec%	Lower	Upper	RPD	Limit	Qual
WG518383													
WG518383ICV	ICV	04/29/21 17:00	MS210426-2	.05		.0488	mg/L	98	90	110			
WG518383ICB	ICB	04/29/21 17:02				U	mg/L		-0.0132	0.0132			
WG518383LFB	LFB	04/29/21 17:04	MS210420-3	.050075		.0496	mg/L	99	85	115			
WG518382PBW	PBW	04/29/21 17:05				U	mg/L		-0.018	0.018			
L65524-01AS	AS	04/29/21 17:13	MS210420-3	.050075	.0606	.1095	mg/L	98	70	130			
L65524-01ASD	ASD	04/29/21 17:14	MS210420-3	.050075	.0606	.1095	mg/L	98	70	130	0	20	

FMI- Climax Mine Company

ACZ Project ID: **L65529**

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L65529-02	WG518432	Cadmium, potentially dissolved	M200.8 ICP-MS	DC	Sample required dilution. Non-target analyte exceeded calibration range.
	WG518435	Sulfide as S	SM4500S2-D	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG518332	Total Hot Plate Digestion	M200.2 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.
	WG518428	Total Recoverable Digestion	M200.2 ICP-MS	Q5	Sample received with inadequate chemical preservation. Additional preservation performed by the laboratory.

FMI- Climax Mine Company

ACZ Project ID: **L65529**

Metals Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

Boron, total	M200.8 ICP-MS
Iron, total recoverable	M200.8 ICP-MS

FMI- Climax Mine Company
ZH0000076W

ACZ Project ID: L65529
Date Received: 04/28/2021 11:35
Received By:
Date Printed: 4/29/2021

Receipt Verification

	YES	NO	NA
1) Is a foreign soil permit included for applicable samples?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2) Is the Chain of Custody form or other directive shipping papers present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Does this project require special handling procedures such as CLP protocol?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4) Are any samples NRC licensable material?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5) If samples are received past hold time, proceed with requested short hold time analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Is the Chain of Custody form complete and accurate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7) Were any changes made to the Chain of Custody form prior to ACZ receiving the samples?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Samples/Containers

	YES	NO	NA
8) Are all containers intact and with no leaks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Are all labels on containers and are they intact and legible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Do the sample labels and Chain of Custody form match for Sample ID, Date, and Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) For preserved bottle types, was the pH checked and within limits? ¹	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

L65529-02 Container B2397428 (RED PC): Added 1 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.

L65529-02 Container B2397430 (GREEN PD PC): Added 0.5 mls nitric acid to the sub-sample to adjust the pH to the appropriate range.

L65529-02 Container B2397431 (TAN): Added 0.25 mls 5N sodium hydroxide and 0.25 mls zinc acetate to the sub-sample to adjust the pH to the appropriate range.

12) Is there sufficient sample volume to perform all requested work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Is the custody seal intact on all containers?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14) Are samples that require zero headspace acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15) Are all sample containers appropriate for analytical requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
L65529-02 : A red, green, and tan container not received and a new container created from the raw .			
16) Is there an Hg-1631 trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17) Is there a VOA trip blank present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18) Were all samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NA indicates Not Applicable

Chain of Custody Related Remarks

Client Contact Remarks

Shipping Containers

FMI- Climax Mine Company
ZH0000076W

ACZ Project ID: L65529

Date Received: 04/28/2021 11:35

Received By:

Date Printed: 4/29/2021

Cooler Id	Temp (°C)	Temp Criteria (°C)	Rad (µR/Hr)	Custody Seal Intact?
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NA34994	-0.3	<=6.0	15	Yes

Was ice present in the shipment container(s)?

Yes - Wet ice was present in the shipment container(s).

Client must contact an ACZ Project Manager if analysis should not proceed for samples received outside of their thermal preservation acceptance criteria.

¹ The preservation of the following bottle types is not checked at sample receipt: Orange (oil and grease), Purple (total cyanide), Pink (dissolved cyanide), Brown (arsenic speciation), Sterile (fecal coliform), EDTA (sulfite), HCl preserved vial (organics), Na₂S₂O₃ preserved vial (organics), and HG-1631 (total/dissolved mercury by method 1631).



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