



Technical Review 11

1 message

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Wed, Feb 22, 2023 at 9:15 AM

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

Cc: Sergio Rivera <sergio.rivera@novametallix.com>, Je'an-Paul Brewer <jpbrewer@nedmining.com>

Patrick,

Enclosed is Grand Island Resources Request for Technical Review 11. Please let me know if you have any questions throughout the review process and we will be happy to assist or answer any questions. Have a great day.

Respectfully,

Daniel J. Takami

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President, Nederland Mining Consultants Inc.

President, Grand Island Resources, LLC

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M-1977-410_TR11.pdf

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COLORADO DIVISION OF RECLAMATION, MINING AND SAFETY

1313 Sherman Street, Room 215, Denver, Colorado 80203 ph(303) 866-3567

REQUEST FOR TECHNICAL REVISION (TR) COVER SHEET

File No.: M- _____ Site Name: _____

County _____ TR# 11 (DRMS Use only)

Permittee: _____

Operator (If Other than Permittee): _____

Permittee Representative: _____

Please provide a brief description of the proposed revision: _____

As defined by the Minerals Rules, a Technical Revision (TR) is: “a change in the permit or application which does not have more than a minor effect upon the approved or proposed Reclamation or Environmental Protection Plan.” The Division is charged with determining if the revision as submitted meets this definition. If the Division determines that the proposed revision is beyond the scope of a TR, the Division may require the submittal of a permit amendment to make the required or desired changes to the permit.

The request for a TR is not considered “filed for review” until the appropriate fee is received by the Division (as listed below by permit type). Please submit the appropriate fee with your request to expedite the review process. After the TR is submitted with the appropriate fee, the Division will determine if it is approvable within 30 days. If the Division requires additional information to approve a TR, you will be notified of specific deficiencies that will need to be addressed. If at the end of the 30 day review period there are still outstanding deficiencies, the Division must deny the TR unless the permittee requests additional time, in writing, to provide the required information.

There is no pre-defined format for the submittal of a TR; however, it is up to the permittee to provide sufficient information to the Division to approve the TR request, including updated mining and reclamation plan maps that accurately depict the changes proposed in the requested TR.

Required Fees for Technical Revision by Permit Type - Please mark the correct fee and submit it with your request for a Technical Revision.

<u>Permit Type</u>	<u>Required TR Fee</u>	<u>Submitted</u> (mark only one)
110c, 111, 112 construction materials, and 112 quarries	\$216	☐
112 hard rock (not DMO)	\$175	☐
110d, 112d(1, 2 or 3)	\$1006	☐



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Section 1: Introduction and Site Description

Technical Revision #11 (TR11) is presented by Grand Island Resources, LLC (GIR) to request the removal of certain Water Quality Testing Parameters associated with the DRMS Approved Technical Revision #10 (TR-10) as required by the NOV/C&D Order and the Preliminary Adequacy letter by DRMS. Specifically, GIR refers to Table 4.1 of the revised Ground Water Monitoring Plan (GWMP) included as Appendix G in TR-10.

Location

The Cross-Caribou mine site is located approximately 4 miles northwest of Nederland, Colorado adjacent to Roosevelt National Forest, at an elevation of ~9,700 ft above mean sea level (MSL). The general location of the property is in Section 9, Township 1 South, Range 73 West of the 6th Principal Meridian, County of Boulder, State of Colorado. The current property is an existing hard rock mining operation owned by GIR and at present, no active mining is being conducted. The mine permit M-1977-410 was last revised through Amendment No. 2 (AM-2) and approved in February 2022.



Table 4.1 Ground Water and Effluent Testing Parameters

Parameter	Standard	Unit
2-Chlorophenol	0.0002	mg/l
Aluminum (Al)	5	mg/l
Antimony (Sb)	0.006	mg/l
Arsenic (As)	0.01	mg/l
Asbestos	7,000,000	fibers/liter
Barium (Ba)	2	mg/l
Beryllium (Be)	0.004	mg/l
Beta and Photon Emitters	4	mrem/year
Boron (B)	0.75	mg/l
Cadmium (Cd)	0.005	mg/l
Chloride (Cl)	250	mg/l
Chromium (Cr)	0.1	mg/l
Cobalt (Co)	0.05	mg/l
Coliform (Max Total)	23	org/100 ml
Coliform 30-day avg. Total	2.2	org/100 ml
Color	15	color units
Copper (Cu)	0.2	mg/l
Corrosivity	Non Corrosive	Langelier Units
Cyanide [Free] (Cn)	0.2	mg/l
Fluoride (F)	2	mg/l
Foaming Agents	0.5	mg/l
Gross Alpha Particle Activity	15	pCi/l
Iron (Fe)	0.3	mg/l
Lead (Pb)	0.05	mg/l
Lithium (Li)	2.5	mg/l
Manganese (Mn)	0.05	mg/l
Mercury (inorganic) (Hg)	0.002	mg/l
Molybdenum (Mo)	0.21	mg/l
Nickel (Ni)	0.1	mg/l
Nitrate (NO3)	10	mg/l as N
Nitrate-NitriteTotal	10	mg/l as N
Nitrite (NO2)	1	mg/l as N
Odor	3	threshold odor numbers
pH (field)	6.5 - 8.5	pH units
Phenol	0.3	mg/l
Selenium (Se)	0.02	mg/l
Silver (Ag)	0.05	mg/l
Silver Total		mg/l
Sulfate (SO4)	250	mg/l
TDS	400	mg/l
Thallium (Tl)	0.002	mg/l
Uranium (U)	0.0168 -0.03	mg/l
Vanadium (V)	0.1	mg/l
Zinc (Zn)	2	mg/l



Section 2: Ground Water Monitoring Plan

Overview

In addition to water sampling and testing from three existing on site wells (namely Caribou Well, Cross Well and Cabin (compliance) Well), two mine effluent locations are included as part of the TR-10 Plan (namely the Caribou Portal (Idaho Tunnel Cofferdam) and the Cross Winze in the Cross Mine). This resulted from DRMS adequacy comments to TR10 on March 25, 2022.

Sampling Frequency

All wells and mine effluent are being sampled monthly since May 2022.

Reporting

GIR will report sampling results Quarterly and will be issued to DRMS on August 1, 2022, November 1, 2022, February 1, 2023, May 1, 2023, and August 1, 2023.

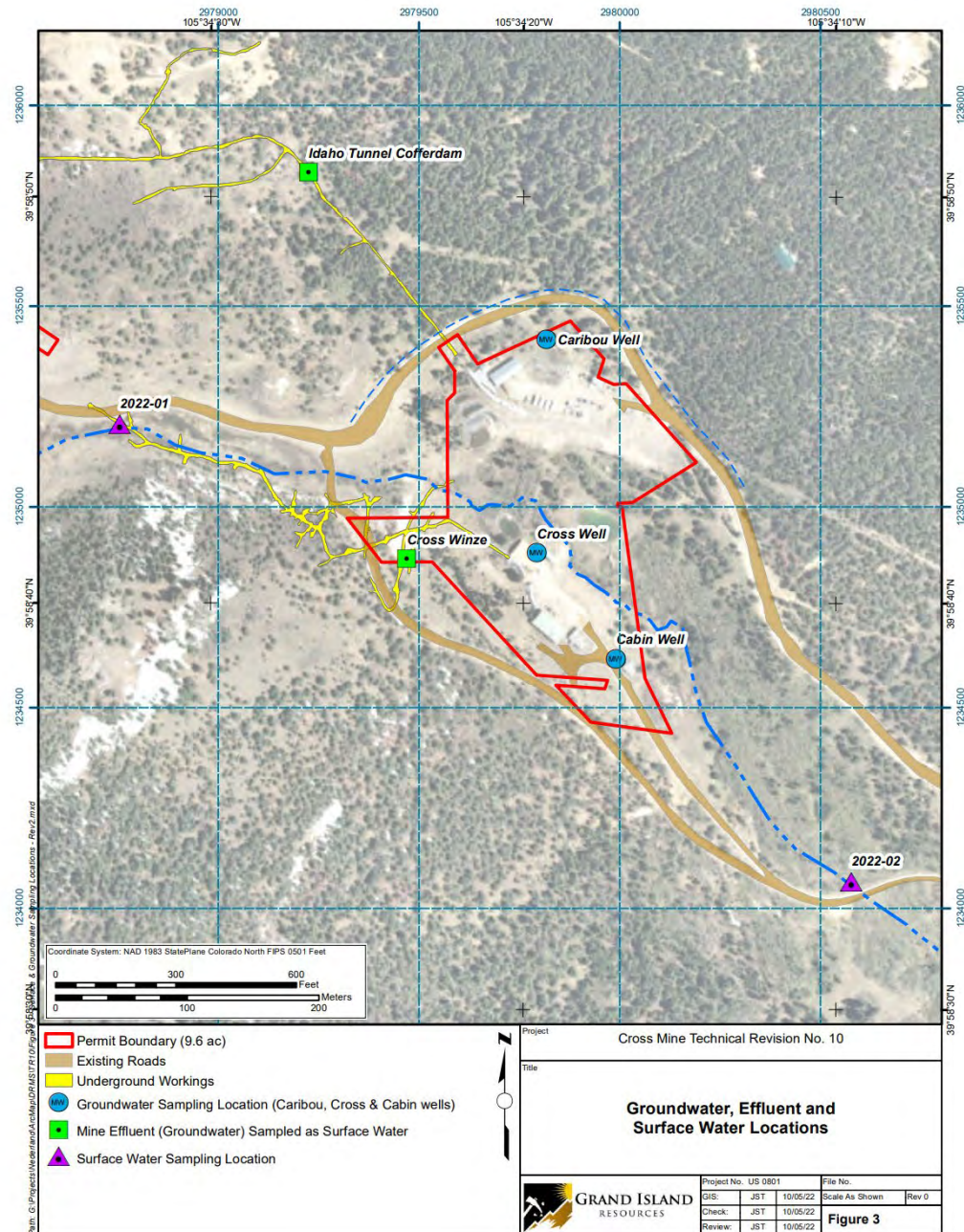
Analytical Parameters

The Caribou-Cross mine is not classified yet and therefore DRMS requested that the most stringent Standards must be used for comparison with test results.

Analytical Parameters were therefore selected by GIR from Regulation 41, 5 CCR 1002-41 Tables 1 (domestic water supply – human health standards), 2 (domestic water supply – drinking water standards), 3 (agricultural standards) and 4 (TDS water quality standards); as shown on Table 4.1 above.



Figure 2.1 – Permit Boundary and Baseline Sample Locations





Section 3: Parameters Modification Request

This stringent selection resulted in the inclusion of parameters associated with drinking water supply Standards (Regulation 41, 5 CCR 1002-41, Tables 1 and 2) and presented below on Table 3.1.

GIR respectfully requests that DRMS considers the removal of those parameters from the monitoring program.

Table 3.1 Requested Removal Parameters

Samples Collected in: May, June, July, August, September, October and November of 2022			
Parameter	Standard	Unit	Reg. 5 CCR 1002-41 Standards Table
Silver Total	NO STANDARD	mg/l	NA
Asbestos	7,000,000	fibers/liter	Table 1 Domestic Water - Human Health
Coliform (Max Total)	23	org/100 ml	Table 1 Domestic Water - Human Health
Coliform 30-day avg. Total	2.2	org/100 ml	Table 1 Domestic Water - Human Health
2-Chlorophenol	0.0002	mg/l	Table 2 Domestic Water Supply - Drinking Water
Color	15	color units	Table 2 Domestic Water Supply - Drinking Water
Corrosivity	Non Corrosive	Langelier Units	Table 2 Domestic Water Supply - Drinking Water
Foaming Agents	0.5	mg/l	Table 2 Domestic Water Supply - Drinking Water
Odor	3	threshold odor numbers	Table 2 Domestic Water Supply - Drinking Water
Phenol	0.3	mg/l	Table 2 Domestic Water Supply - Drinking Water

Justification

- a. Test Results for all parameters on Table 3.1 correspond to domestic water supply and all have been reported as **non-Detect** for seven consecutive months;
- b. Additional justification for specific parameters:
 - a. SILVER: There is no reference standard concentration and Dissolved Silver tests are being performed;
 - b. ASBESTOS: No asbestos materials are found or installed on site;
 - c. COLIFORM: No sources of coliform exist on site;
 - d. 2-CHLOROPHENOL and PHENOL: The standard for these phenols is associated with Odor and Taste for drinking water (from 5 CCR 1002-41, page 55: “*The organic chemicals chlorophenol and phenol were moved from Table 1 (Human Health Standards) to Table 2 (Secondary Drinking Water Standards), and the proposed standards were set equal to the Ambient Water Quality Criteria for the chemicals. The reason for the change is that although the two chemicals pose a significant health risk at much higher*”).



concentrations, taste and odor considerations are a concern at lower concentrations”).

Given the low standard concentration for 2-Chlorophenol, the recommended test method is EPA 528; however, the method has not been evaluated for raw water which is the case at GIR (From EPA Method 528, page 528-1: *“This method provides procedures for the determination of phenols in finished drinking water. The method may be applicable to untreated source waters and other types of water samples, but it has not been evaluated for these uses”*).

- c. CORROSIVITY: The *Langelier Index Method (LI)* has been used to approximate the degree of saturation of calcium carbonate in monthly groundwater and effluent samples for the Cross/Caribou site.

LI Results for 7 months of sampling in 2022 are presented on Table 3.2. Results consistency is observed within sample points and globally the results are within an *LI* range.

Table 3.2 Langelier Index Results 2022

	Laboratory Reported Langelier Index - (month 2022)						
Sample Location	May	June	July	August	September	October	November
Cross Well	-1.55	-2.29	-1.41	-1.84	-1.94	-2.33	-2.10
Caribou Well	-3.75	-4.04	-3.48	-3.28	-3.28	-3.52	-3.96
Cabin Well (compliance)	-2.37	-2.36	-1.53	-1.72	-1.57	-2.04	-2.02
Caribou Cofferdam (portal)	-0.18	0.03	-0.53	0.28	-0.63	-0.61	-0.31
Cross Winze (portal)	0.52	0.84	-0.87	-0.89	-1.31	-1.16	-1.11