



CRIPPLE CREEK & VICTOR

PO Box 191
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Victor CO 80860

December 20, 2023

ELECTRONIC DELIVERY

Mr. Elliott Russell
Environmental Protection Specialist
Colorado Department of Natural Resources
Division of Reclamation, Mining and Safety
Office of Mined Land Reclamation
1313 Sherman Street, Room 215
Denver, Colorado 80203

**Re: Permit No. M-1980-244; Cripple Creek & Victor Gold Mining Company; Cresson Project;
Technical Revision 141 – Grassy Valley Monitoring Well Installation**

Dear Mr. Russell:

Newmont Corporation's Cripple Creek and Victor Gold Mining Company (CC&V) hereby provides this Technical Revision (TR) 141 to Permit M-1980-244, for the installation of additional monitoring wells in Grassy Valley as Phase I of a short term plan for mitigating seepage of mine impacted water from the East Cresson Overburden Storage Area (ECOSA). Based on the monitoring results, it is anticipated that a subsequent TR (Phase II) will be submitted in 2024 for construction of a groundwater interception and collection system, following the completion of engineered designs.

The technical revision payment fee in the amount of \$1,006 will be made electronically via the DRMS webpage and confirmation will be submitted to your office via email.

Should you require further information, please do not hesitate to contact Antonio Matarrese at 719-851-4185 or Antonio.Matarrese@Newmont.com or myself at Katie.Blake@Newmont.com.

Sincerely,

DocuSigned by:

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Katie Blake

Sustainability & External Relations Manager
Cripple Creek & Victor Gold Mining Co

Ec: M. Cunningham – DRMS
E. Russell - DRMS
P. Lennberg - DRMS
M. Crepeau – Teller County
J. Gonzalez – CC&V
K. Blake – CC&V
N. Townley – CC&V
A. Matarrese – CC&V

Background

The ECOSA facility was approved for construction by DRMS within Amendments 9 & 10 (Mine Life Extension #2) to mining Permit M-1980-244. In August 2021, as part of the quarterly DRMS water monitoring program, CC&V collected a water sample from monitoring well GVMW-25. Upon receipt of the analytical results, CC&V provided an exceedance report to DRMS specifying parameter exceedances for beryllium, cadmium, fluoride, manganese, pH, sulfate, and zinc in the sample collected. Subsequent to this notification, DRMS requested CC&V to collect monthly water quality samples from five monitoring wells in Grassy Valley: GVMW-25, GVMW-8A, GVMW-8B, GVMW-22A, and GVMW-22B. These monitoring results were submitted monthly to DRMS from October 2021 to January 2022, when DRMS informed CC&V that starting in February 2022, only monitoring location GVMW-25 would require monthly reporting. No exceedances were observed at the other monitoring locations during this period of time.

CC&V continued monthly sampling and reporting of water quality data for monitoring well GVMW-25, and observed increases in parameter concentrations in August 2022, similar to increases observed in August 2021. Shortly after the receipt of monitoring well GVMW-25 monthly water quality information from August 2022, DRMS notified CC&V on September 30, 2022 of the requirement for the ECOSA Monitoring Plan Update, to be submitted as Technical Revision 132. TR-132 was submitted to DRMS on October 27, 2022 and was approved on March 10, 2023. In TR-132, CC&V committed to submitting a subsequent TR containing a long-term plan for investigating and mitigating seepage from ECOSA by June 30, 2023. A plan was submitted as part of TR-138 on June 29, 2023; however, it was requested that it be withdrawn as per the letter issued by DRMS dated July 31, 2023 indicating that TR-138 exceeded the scope of a Technical Revision. CC&V is proposing this TR for the installation of monitoring wells as Phase I of a short-term plan for mitigating seepage from ECOSA. The proposed wells will support additional monitoring of Grassy Valley and be constructed in a way that would allow potential conversion to interception wells in the future for extraction of seepage. CC&V is also implementing pre-feasibility level closure studies that will provide critical information for the development of a long-term plan. The following sections of this letter describe Phase I of the short-term ECOSA seepage mitigation plan for the establishment of additional monitoring wells within Grassy Valley.

CC&V continues to provide DRMS with Monthly Reports in accordance with the approved *Quality Assurance Project Plan and Field Sampling Guidance for Grassy Valley Monthly Monitoring* dated February 27, 2023. The Grassy Valley Monthly Monitoring currently includes monitoring from surface water location GV-06 and groundwater locations GVMW-25, GVMW-26A, GVMW-26B, Seep 1, and Seep 2. Since August 2022, CC&V has observed similar trends at GVMW-25 to previous years with a decrease in concentrations through the winter, spring, and early summer and then an increase in concentrations beginning in August 2023.

Workplan

CC&V hypothesizes that the seasonally influenced concentrations of constituents observed at monitoring well GVMW-25 are caused by stored porewater within the ECOSA facility being flushed into shallow groundwater in Grassy Valley during the monsoon rain events.

Shortly after the identification of elevated concentrations in GVMW-25 in August 2021, WSP (formerly Golder Associates) was retained to assist CC&V with the evaluation of ECOSA toe seepage and shallow

groundwater impacted by potential seepage from the ECOSA facility into groundwater within Grassy Valley. They submitted an evaluation of the shallow groundwater investigation in April 2022. From this assessment, CC&V identified the following gaps:

- Range of ECOSA toe seepage quality and quantity flow rates
- ECOSA water balance (i.e. runoff, seepage, retention)
- Shallow groundwater quality, including spatial distribution
- Grassy Valley hydrogeology
- Effects of seepage disposal at VLFs

These identified gaps facilitated follow-up actions, including sampling of seepage and groundwater, ECOSA toe seepage volume tracking, development of an initial water balance for the ECOSA, and geophysical surveys of shallow groundwater to determine possible seepage flow paths, which CC&V has completed and is still in the process of evaluating.

The geophysical work completed by WSP used an electromagnetic method that achieved only relatively shallow penetration into the subsurface (i.e. <16 ft). However, it did not provide the necessary information to determine the potential subsurface flow paths for water infiltrating through the ECOSA facility and entering Grassy Valley. Thus in Q3 2023, Collier Geophysics was retained to conduct an Electrical Resistivity Imaging (ERI) geophysical survey in Grassy Valley to address gaps in the previous study and they were able to delineate potential seepage pathways from ECOSA. The Geo-Electric Model developed from this survey indicated that several low resistivity (less than 50 Ohm-m) zones appear along the toe of ECOSA. Two primary shallow low resistivity zones appear (~30 - 70 ft-bgs) that could indicate potential seepage pathways for groundwater within the ECOSA facility to migrate downgradient. The first zone extends from about 600 to 800 meters along the transect and the second zone extends from 1,650 to 1,850 meters along the transect. Two deep and large low resistivity zones also appear at about 460 to 690 meters and 1,100 to 1,460 meters along the transect. The top of these deep low resistivity zones are about 180 – 200 ft-bgs. Figure 1 shows the Geo-Electric Model from the Collier Geophysical survey.

To increase CC&V's ability to monitor, characterize groundwater flow paths, and potentially intercept and collect impacted shallow groundwater as necessary, CC&V proposes beginning with the installation of 11 monitoring wells within Grassy Valley. This first phase of CC&V's proposed approach is focused on the installation of monitoring wells at the low resistivity zones identified by the Collier Geophysical Survey. The identified low resistivity zones indicate potential pathways for ECOSA seepage to migrate downgradient. It is anticipated that subsequent phases of this mitigation plan could include the conversion of selected monitoring wells into interception wells as part of a groundwater interception and collection system.

CC&V is proposing the installation of 11 monitoring wells within Grassy Valley that correspond to the low resistivity zones identified by the geophysical survey. Table 1 below presents the approximate location of the proposed wells, the anticipated depth, and completion interval. Proposed monitoring wells (GVMW-27 and GVMW-28) will be installed closer to the thalweg of Grassy Valley to better characterize potential groundwater flow paths of the potential migration of ECOSA seepage downgradient. Five monitoring wells (GVMW-29, GVMW-30, GVMW-31, GVMW-32, GVMW-33) are proposed within the observed shallow low resistivity zone in the southeastern portion of ECOSA located about 1,650 to 1,850 meters along the transect shown in the Collier Geo-Electric model (Figure 1).

Monitoring well GVMW-10 is already located at the observed deep low resistivity zone in the central portion of ECOSA located about 1,160 meters along the transect at a total depth of 270 feet; therefore, no new monitoring well is proposed at that location. Three monitoring wells (GVMW-34, GVMW-35A, GVMW-35B) are proposed within the observed shallow low resistivity zone in the northwestern portion of ECOSA located at 600 to 850 meters along the transect. It is anticipated that two monitoring wells will be drilled adjacent to one another at the (GVMW-35) location to intersect the shallow and deep low resistivity zones at that location. The northernmost well (GVMW-36) is proposed at a small shallow resistivity zone observed at 150 meters along the transect. All proposed monitoring wells will be constructed in a manner as to allow for the installation of a pump to convert them from monitoring wells to interception wells, if necessary. Data collected during installation, development, and monitoring, of the Phase I wells be used to inform subsequent phases of ECOSA seepage management.

The inversion results of the Collier Geophysical Survey are shown in Figure 1 along with the approximate locations of the proposed monitoring wells. Figure 2 shows a map of the approximate locations of the proposed monitoring wells, existing Point of Compliance Wells, other monitored wells, and the ECOSA seep locations, which represent surface expressions of seepage that are currently being captured by localized collection sump systems.

Table 1: Proposed Monitoring Well Approximate Locations

Site	Longitude (Dec. Deg)	Latitude (Dec. Deg)	Anticipated Depth (ft bgs)	Completion Interval
GVMW-27	-105.1214	38.7404	40 - 50	Colluvium
GVMW-28	-105.1228	38.7419	40 - 50	Colluvium
GVMW-29	-105.1215	38.7389	25 - 35	Colluvium
GVMW-30	-105.1219	38.7394	25 - 35	Colluvium
GVMW-31	-105.1222	38.7400	25 - 35	Colluvium
GVMW-32	-105.1225	38.7405	25 - 35	Colluvium
GVMW-33	-105.1229	38.7411	25 - 35	Colluvium
GVMW-34	-105.1291	38.7471	25 - 35	Colluvium
GVMW-35A	-105.1301	38.7474	320 - 340	Fractured Bedrock
GVMW-35B	-105.1301	38.7474	25 - 35	Colluvium
GVMW-36	-105.1337	38.7486	25 - 35	Colluvium

** Locations and anticipated depths are approximate and may be subject to change based on field conditions*

Figure 1: Collier Geophysics Geo-Electric Model

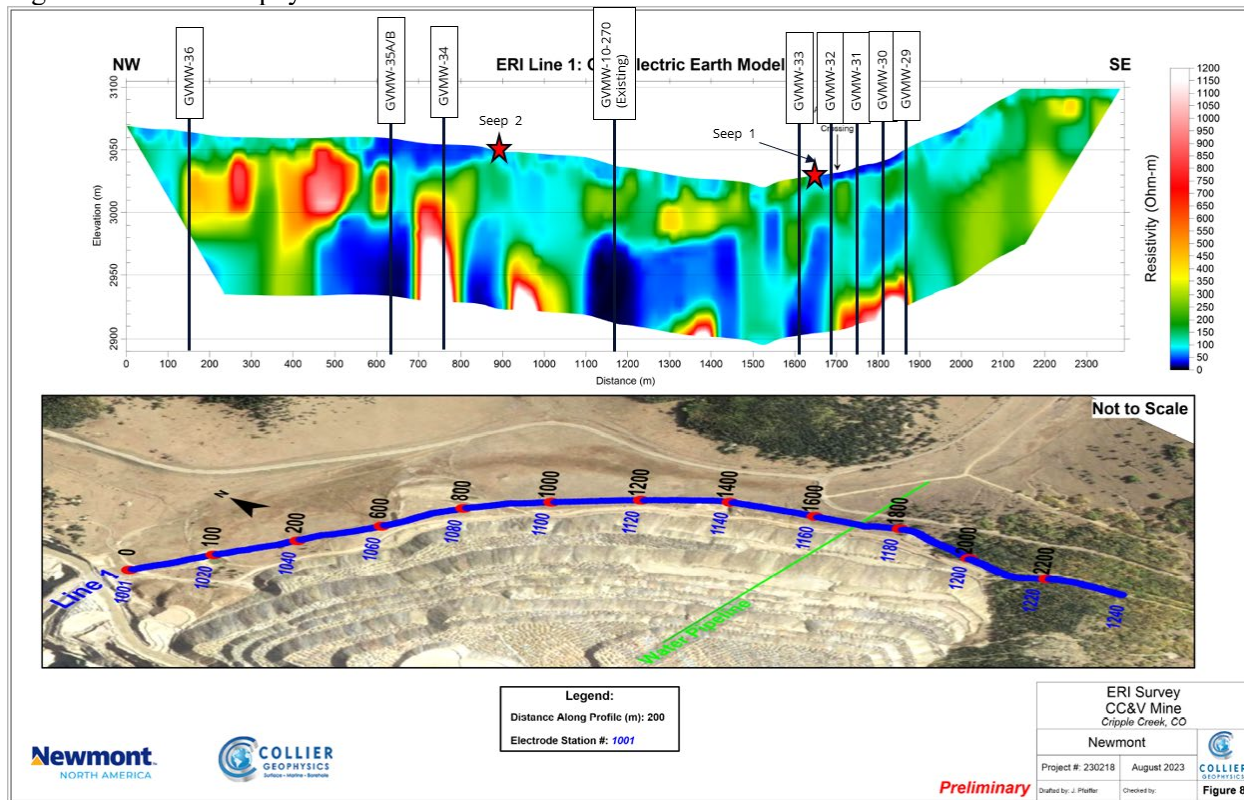
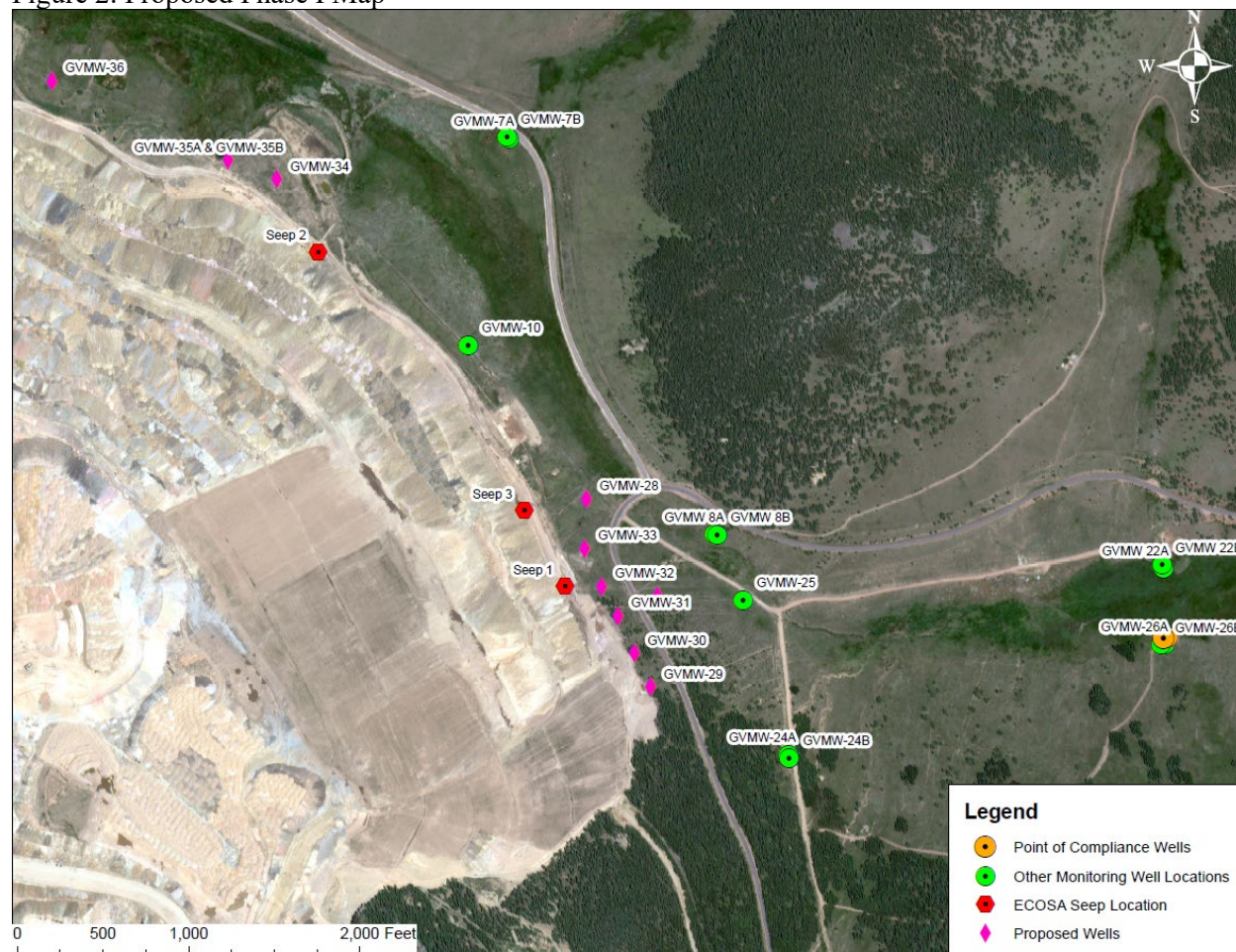


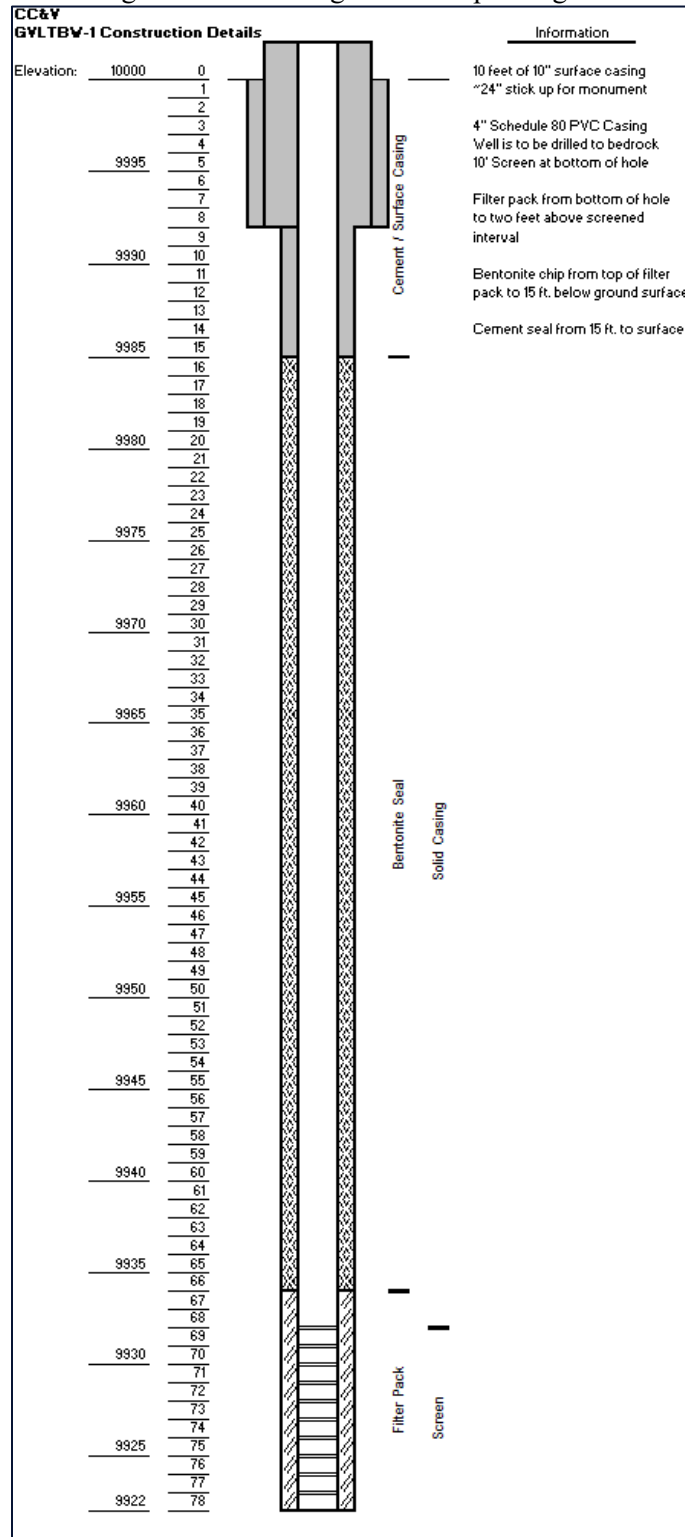
Figure 2: Proposed Phase I Map



As shown in Table 1 above, the majority of the proposed monitoring wells will be constructed and installed through the colluvium stopping at the top of observable bedrock, as completed for monitoring well GVMW-25 and GVMW-26B. Monitoring well GVMW-35A will be a deeper well installed within the bedrock to intersect the observable deep low resistivity zone to better characterize the subsurface conditions.

Locations adjacent to ECOSA (GVMW-29 – GVMW-36) are anticipated to be shallower in construction compared to wells installed closer to the thalweg of Grassy Valley (GVMW-27 & GVMW-28) due to the expectation that colluvial material will be thicker in the thalweg of Grassy Valley than on the slopes of the Valley. These wells will be constructed using 4-inch Schedule 80 PVC well casing and appropriate gravel pack, as shown in monitoring well example diagram presented in Figure 3 below.

Figure 3: Monitoring well example diagram



Monitoring

During mining operations, wells will be monitored on a monthly basis in accordance with the approved *Quality Assurance Project Plan and Field Sampling Guidance for Grassy Valley Monthly Monitoring* dated February 27, 2023. CC&V will update the Grassy Valley Monthly Monitoring QAPP to include the additional monitoring locations upon installation of the new wells.

Conclusion

The scope of work that CC&V is proposing with this TR is intended to provide additional information on groundwater quality and hydrogeology in Grassy Valley. Installation of the proposed monitoring wells can be implemented in a relatively short period of time. Based on the monitoring results, it is anticipated that a subsequent TR (Phase II) will be submitted in 2024 for construction of a groundwater interception and collection system, following the completion of engineered designs.