



CRIPPLE CREEK & VICTOR newmont.com
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March 28, 2024

ELECTRONIC DELIVERY

Mr. Patrick Lennberg
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: Division Adequacy Review No. 3; Technical Revision 141 (TR-141) Grassy Valley Monitoring Well Installation – Phase 1, Permit No. M-1980-244

Dear Mr. Lennberg:

On March 13, 2024, Newmont Corporation's Cripple Creek and Victor Gold Mining Company (CC&V) received the Division of Reclamation, Mining and Safety (DRMS) Adequacy Review No. 3 of Technical Revision (TR) 141 to Permit M-1980-244, regarding Grassy Valley Monitoring Well Installation – Phase I. Below are DRMS comments in **bold** and CC&V's responses in *italics*.

- 1. In response to item 1 the Operator states the results of the Golder report (Report on East Cresson Overburden Storage Area Acid Rock Drainage Sustainable Solutions Evaluations; Cripple Creek & Victor Mine, January 2023) on the field investigations, performed in August 2022, do not conclusively indicate a preferred flow path of seepage between the ECOSA and GVMW-25 or other Grassy Valley monitoring wells. However, the report does indicate several low resistivity features that could be an unmapped utility or could represent preferential flow path(s) for high TDS groundwater. High TDS groundwater is linked to contaminated groundwater. The report goes on to recommend the installation of three nested groundwater monitoring well pairs to better characterize the subsurface conditions and possibly intercept degraded quality water.**

CC&V will plan to install a pair of monitoring wells at the PB23-01 location, a shallow well with the screened interval in the colluvium, and a deeper well installed in the bedrock. The intention is that these wells will be used for monitoring rather than future groundwater interception and extraction. There are limitations associated with the locations of wells PB23-02 and PB23-03 that are addressed in response to later comments.

The wells proposed by CC&V for the purpose of potentially intercepting impacted shallow groundwater are located immediately adjacent to the toe of ECOSA, close to the source, before downgradient migration is possible. The well locations recommended by Golder are all downgradient of the wells proposed by CC&V; therefore, the well

locations proposed by CC&V would be more effective at detecting and intercepting potentially impacted groundwater.

One well pair, PB23-03, is located ~1,700 feet NW of GVMW-25 and ~700 feet NW of the proposed GVMW-28 location. PB23-03 would be in an area where there is a gap in the current groundwater monitoring network.

The recommended PB23-03 location is located in the thalweg of the valley in an area that is a delineated wetland. The wetland conditions at this location would make it very difficult to safely access with a drill rig and to maintain access for ongoing monitoring. The proposed GVMW-28 well was selected to cover the monitoring gap identified at the PB23-03 location recommended by Golder at an area located adjacent to the wetland as construction of an access road, working platform, and monitoring well, within the wetland would require additional permitting and would delay the installation. The existing Grassy Valley Monitoring Well Network also includes GVMW-10 that is located approximately 570' NW of the PB23-03 location.

The two other well pairs, PB23-01 and PB23-02, are located downgradient of GVMW-25 between it and the point of compliance wells GVMW-26A/B. This area is also a gap in the current groundwater monitoring network.

The PB23-01 & PB23-02 locations that are downgradient of GVMW-25 are not anticipated to be optimal locations for intercepting impacted groundwater and thus CC&V will install a well pair at PB23-01 as monitoring wells, but not interception wells, during this phase of the project. CC&V will install a pair of wells (GVMW-37A & GVMW-37B) at the PB23-01 location; a shallow well with the screened interval in the colluvium, and a deeper well installed in the bedrock. However, the recommended PB23-02 location is in the thalweg of the valley in an area that is a delineated wetland. Installation of wells at the PB23-02 location would require construction of an access road, working platform, and monitoring well, within the wetland that would require additional permitting and would delay the installation. The wetland conditions at this location would also make it very difficult to safely access with a drill rig and to maintain access for monitoring.

The Division agrees with the Golder report that the installation of these three nested groundwater monitoring well pairs to better characterize the subsurface conditions are needed. Please provide design details and an installation schedule for these additional wells to be included as a part of TR- 141.

CC&V is proposing to install a pair of wells (GVMW-37A & GVMW-37B) at the PB23-01 location; a shallow well with the screened interval in the colluvium, and a deeper well installed in the bedrock. These wells will be constructed in the same manner as the other proposed wells in TR-141, as shown on the monitoring well diagram in Figure 3 of the TR-141 submission. The well locations proposed by Golder, CC&V's proposed well locations, existing monitoring wells, and delineated wetlands are displayed in Attachment 1.

The Division notes the Operator received the Golder report in January 2023 and the report was not voluntarily shared with the Division at that time. The Division first received a copy in February 2024 in response to its TR-141 adequacy review questions.

Golder's project team experienced a series of project delays, staff departures, and data management challenges during 2022 which impacted their project schedule and delayed delivery of their final report. Upon reviewing the findings in January 2023, CC&V concluded that the limited depth penetration of the electromagnetic geophysical methods used (<16 feet below ground surface) were sufficient to confirm a shallow trench would be inadequate to intercept seepage from the ECOSA, but not deep enough to detect all likely seepage flow paths. Due to the shallow depth penetration and lack of clear seepage pathways identified near the toe of the ECOSA, CC&V considered Golder's recommendations for additional monitoring wells or mitigation activities to be more heavily weighted towards areas where water occurred very close to the surface (e.g., wetland areas in lower Grassy Valley) than areas where seepage may be present. In March 2023, CC&V requested bids from contractors to conduct a second geophysical survey using electrical resistivity imaging equipment to penetrate a greater depth (at least 100 ft below ground surface). This work was awarded to Collier Geophysics, who conducted transects along the toe of the ECOSA and further downgradient in lower Grassy Valley. The results of this work identified areas of low resistivity that were not detected by Golder and informed the current well design. The primary transect of the Collier geophysics survey along the toe of ECOSA was shared with DRMS in the TR-141 submission in December 2023.

2. **In the Golder report, dated April 2022 (East Cresson Overburden Storage Area Acid Rock Drainage Sustainable Solutions Evaluations; Cripple Creek & Victor Mine Shallow Groundwater Investigation Work Plan), it is stated that it was submitted along with the design drawings for a seep collection trench along the toe of the ECOSA to help mitigate ARD drainage. The Operator states the primary reason for not installing the seep collection trench was the lack of groundwater encountered during the waterline replacement. The waterline replacement, along the toe of the ECOSA, was underway in November 2023. The Operator waited over a year to evaluate if the seep collection trench was feasible or not and only then because a waterline failed and had to be replaced. In the intervening time contamination within GVMW-25 has increased and impacts to the Grassy Valley hydrologic balance have continued unabated. A seep collection trench to mitigate ARD drainage from the toe of the ECOSA will be addressed through additional permitting actions, expected in mid-2024, and not through TR-141.**

CC&V included multiple reasons in TR-141 Adequacy Review #2 Response to state why the trench was not pursued as a mitigation option to prevent the migration of ECOSA seepage to shallow groundwater. The shallow seepage collection trench conceptual design was completed, but not advanced further after the Golder geophysical survey (August 2022) did not identify zones of high conductivity within 16 ft of the surface that would be intercepted by a deep trench. This decision was further supported by the Collier Geophysics survey (July 2023), which showed high conductivity zones deeper than a feasible trench depth. It is unlikely that installation of the collection trench designed conceptually by Golder would have had any impact on water quality at GVMW-25. The screened interval at GVMW-25 is located at the colluvium bedrock interface (69-79 feet) which is well below a feasible trench depth. This conclusion was then confirmed later by observations made during the Grassy

Valley pipeline replacement (November 2023) when no water was observed at a feasible trench depth.

In April 2022, CC&V received the Golder Shallow Groundwater Investigation Work Plan and conceptual designs for a seepage collection trench. In August 2022, CC&V continued the investigation with a geophysical survey as recommended in the work plan that was performed by Golder. The shallow seepage collection trench conceptual design was completed, but not advanced further after reviewing the Golder geophysical survey report (January 2023) that did not identify zones of high conductivity within 16 ft of the surface that would be intercepted by a deep trench. In June 2023, CC&V developed a proposal (TR-138) to install interception wells along the southern portion of ECOSA to mitigate potentially impacted shallow groundwater. TR-138 was later withdrawn (July 2023), after discussions with the Division that it exceeded the scope of a technical revision and did not meet the criteria of a long-term mitigation plan. In July 2023, CC&V contracted Collier Geophysics to perform another geophysical survey to collect additional information regarding potential subsurface flow paths. In November 2023, CC&V met with the Division to discuss a path forward and it was determined that taking a phased approach to the ECOSA mitigation was more appropriate. The phased approach began with a TR for the installation of monitoring wells in Grassy Valley that could later be converted to interception wells, if necessary, which was submitted to the Division through this TR (TR-141) in December 2023.

- 3. Please commit to providing an Addendum to TR-141, along with the requested Monitoring Well Drilling and Installation Report due 45 days after the last well is installed, updating any relevant sections (e.g., tables, figures) of the Grassy Valley QAPP.**

CC&V will commit to providing an updated Grassy Valley QAPP within 45 days after the last well is installed as part of an Addendum to TR-141.



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We trust that the additional information described above and provided in the attachments addresses the comments provided by DRMS regarding the Adequacy Review No. 3 of Technical Revision (TR) 141 to Permit M-1980-244 for the Grassy Valley Monitoring Well Installation dated March 13, 2024. CC&V would like to proceed with the installation of the proposed groundwater monitoring wells as soon as possible to further understand the groundwater quality near ECOSA as well as propose additional mitigation measures if needed. Should you require further information, please do not hesitate to contact Antonio Matarrese at (719) 851-4185, Antonio.Matarrese@Newmont.com, or myself at (719) 237-3442 or 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
T. Cazier - DRMS
E. Russell - DRMS
A. Matarrese – CC&V
J. Gonzalez – CC&V
K. Blake – CC&V



Attachment 1

