Newmont
NORTH AMERICA

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SENT VIA EMAIL

April 2, 2020

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: Review Response Notification of Water Quality Analysis Parameter Exceedance February 27, 2020, M-1980-244

Dear Mr. Lennberg,

On March 3, 2020, Cripple Creek & Victor (CC&V) received the Division of Reclamation, Mining, and Safety (DRMS) response to a water quality parameter exceedance submitted on February 27, 2020, and request to respond to four questions regarding the exceedance submission. CC&V hereby submits the following response to submitted questions. Below are DRMS' comments in italics followed by CC&V's responses in bold.

1. *Please provide a detailed explanation as to why there is a sudden and extreme spike in Fluoride concentration at CRMW-3B. Include in the explanation of any additional sampling that may have occurred down gradient of the monitoring well.*

   Observed fluoride concentrations at monitoring well CRMW-3B are hypothesized to be the result of groundwater elevation increase and stagnation within the CRMW-3B monitoring well and surrounding area. In 2019 CC&V experienced a failure of the pumping system installed within the monitoring well CRMW-3B, and are in the process of completing repairs. The reduction in pumping volume has increased the groundwater elevation at the location, and as a result, fluoride concentrations observed at the monitoring well are returning to concentrations recorded closer to the time of monitoring well construction. It is anticipated that fluoride concentrations will decline again as monitor well pumping continues. Please see the attached graph of CRMW-3B fluoride concentrations over time.

   CC&V has sampled monitoring wells CRMW-5A, CRMW-5B, CRMW-5C, & CRMW-5D for fluoride and has not recorded constituent concentrations outside of previously observed concentrations.

2. *Please provide and explanation as to why manganese concentrations have increased, greater than 6 fold in cases, at CRMW-3B since May 2019 and remain elevated. Include in the explanation any additional sampling that may have occurred down gradient of the monitoring well.*

   Increased manganese concentrations recorded at CRMW-3B are hypothesized to be the result of manganese fixing bacteria within the wellbore. Bacterial growth in well CRMW-3B was reported in September 2019, and in November 2019 the well was treated to kill the bacteria. Subsequent water samples have varied greatly in concentration, with the most recent sample recording a

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concentration of 6.26 mg/L. Please see the attached graph of CRMW-3B manganese concentrations over time.

CC&V has sampled monitoring wells CRMW-5A, CRMW-5B, CRMW-5C, & CRMW-5D for manganese and has not recorded constituent concentrations outside of previously observed concentrations.

3. *Has the Operator performed any confirmation sampling at the well or data validation that indicates the exceedances are verifiable exceedances?*

CC&V has collected subsequent samples and analyzed them for fluoride and manganese, please see the table below for the most recent data. CC&V and our contracted laboratories continue to participate in the Environmental Protection Agencies (EPA) Discharge Monitoring Report Quality Assurance (DMRQA) program. This program is in place to ensure that sample analyses are accurate and meet all requirements.

Sample Point	Date	Fluoride - Total F (mg/L)	Manganese - Dissolved (mg/L)
CRMW 3B-63	3/4/2019	2.17	0.644
CRMW 3B-63	4/30/2019	2.17	0.955
CRMW 3B-63	8/28/2019	2.09	15.9
CRMW 3B-63	9/17/2019	2.14	30.3
CRMW 3B-63	12/9/2019	1.94	13.3
CRMW 3B-63	1/14/2020	2.8	37.4
CRMW 3B-63	2/11/2020	5.07	11.3
CRMW 3B-63	3/17/2020	5.02	6.26

4. *Please provide possible corrective actions that may take place to ensure that any further impacts to the hydrologic balance are prevented or minimized.*

With the completed repairs, CC&V will ensure that monitoring well CRMW-3B will be returned to its previous operation, whereby the well automatically pumps water to the vault at the base of VLF1. Samples will be collected and analyzed monthly for the second quarter of 2020. Data from this additional sampling will be used to determine if the concentrations of fluoride and manganese have returned to historical mean values.

Sincerely,

Justin Raglin
S&ER Manager

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