COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

May 27, 2022

Miguel Hamarat
Climax Molybdenum Company
P.O. Box 68
Empire, CO 80436

Re: Climax Molybdenum Company; Henderson Mine; File No. M-1977-342
MNGW-1 Low pH Status Update Review Follow-up Memo

Mr. Hamarat:

The Division of Reclamation, Mining and Safety (Division/DRMS) reviewed the contents of the Henderson Mine Point of Compliance Well MNGW-1 Low pH Status Update review memo response dated May 11, 2022 for the Henderson Mine, Permit No. M-1977-342. A copy of the review follow-up memo from Patrick Lennberg dated May 27, 2022 is attached for review.

If you have any questions, please contact me at peter.hays@state.co.us or (303) 866-3567 Ext. 8124.

Sincerely,

Peter S. Hays
Environmental Protection Specialist

Enclosure – Review Follow-up Memo

Ec: Jared Ebert; Division of Reclamation, Mining & Safety

COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

Date: May 27, 2022

To: Peter Hays, DRMS

From: Patrick Lennberg, DRMS

RE: Henderson Mine POC Well MNGW-1 Low pH Status Update Third (3rd) Adequacy Review, Climax Molybdenum, Henderson Mine, File no. M-1977-342

On May 11, 2022, Henderson Mine responded to the Division's comments date October 25, 2021 on the report *Henderson Mine Point of Compliance Well MNGW-1 Low pH Status Update*. Below are additional questions that should be addressed.

1. Please provide an explanation why there were so few (8 in total) pH exceedances between June 1995 and June 2011 compared to June 2011 to present (Figure 7, Ajax and Clear Creek Associates 2021). The Division recognizes the increase sampling frequency however there is trend of rarely exceeding the standard to consistently exceeding the standard. What can account for this change at the site?

   Henderson Response: In response to this question, Henderson conducted additional graphical analyses of MNGW-1 and No Name Gulch (NNG) sampling results. Attachment A.1 shows the period of record for MNGW-1 and NNG. The NNG water chemistry data set is limited to sporadic measurements prior to 2013. Henderson conducted pH surveys at multiple locations in the upper and lower reaches of NNG in 2013 and 2017. Attachment A.2 is a graph that plots pH measurements in NNG with distance from the top of the drainage. The graph shows that the pH in all locations along NNG in 2017 was lower than in 2013; however, with only two periods of data, it is not possible to determine a potential trend or cause. Henderson believes that additional data, such as supplemental sampling surveys along NNG, are needed to better evaluate any trends and understand the factor(s) causing the pH levels measured in NNG and MNGW-1. The two datasets between 2013 and 2017 support the idea that ambient acidic conditions have exhausted an existing alkaline buffer capacity supplied by surrounding rock and soil. Henderson's analysis of NNG and MNGW-1 will continue with additional evaluations that are planned for summer 2022. The results and our analysis will be presented in a future submittal.

   DRMS Response: Please provide a detailed description of the additional evaluations that are planned for summer 2022.

2. The Operator needs to provide a timeline for when the data from the summer evaluation and possible mitigation alternatives are to be submitted to the Division for review.

Responses to this third adequacy review letter are due by July 26, 2022.

If you need additional information or have any questions, please let me know.

Sincerely,

Patrick Lennberg
Environmental Protection Specialist

cc: Jared Ebert, DRMS