



October 25, 2021

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 September 3, 2021 for the Henderson Mine, Permit No. M-1977-342. A copy of the review follow-up memo from Patrick Lennberg dated October 25, 2021 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





Date: October 25, 2021

To: Peter Hays, DRMS

From: Patrick Lennberg, DRMS

RE: Henderson Mine POC Well MNGW-1 Low pH Status Update Follow-Up Memo, Climax Molybdenum, Henderson Mine, File no. M-1977-342

On September 3, 2021, Henderson Mine responded to the Division's comments date June 30, 2021 on the report *Henderson Mine Point of Compliance Well MNGW-1 Low pH Status Update*. Below are additional questions that should be addressed.

MNGW-1 is a point-of compliance well for the mine to measure potential impacts to groundwater from affected areas. The operator states low pH values in MNGW-1 is due to acidic drainage from No Name Gulch and other drainage gulches along the side of Red Mountain that have been diverted or realigned to facilitate the mine. Monthly groundwater quality measurements have been ongoing for the past five years and have routinely shown exceedances of the pH NPL of 6.5 (s.u.). The operator is recommending that sampling return to 3 times a year and any additional pH exceedance will not require confirmation sampling.

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?
2. A review of aerial imagery, Google Earth Pro, the Division noted in 1999 the glory hole had not fully developed and by 2009 it appears the hole had developed and by 2011 there were visible subsidence fractures along the No Name Gulch, as the glory hole expanded, and the other drainages leading to MNGW-1. Please comment on the subsidence of the glory hole leading to an increase in preferential weathering of material that drains down Red Mountain to MNGW-1 causing a decrease in measured pH.
3. In section 5.3 #3 of TR-16 it states "Henderson will notify DRMS and initiate timely discussions with DRMS on the appropriate actions to be implemented." The Division does not agree, at this time, that returning to tri-annual monitoring is appropriate without discussing possible mitigation alternatives. Please provide a discussion of possible mitigation alternatives.

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



Peter Hays
Henderson Mine (M1977-342)
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Sincerely,

A handwritten signature in blue ink, appearing to read "Patrick Lennberg". The signature is fluid and cursive, with the first name "Patrick" and the last name "Lennberg" clearly distinguishable.

Patrick Lennberg
Environmental Protection Specialist

cc: Jared Ebert, DRMS