Great Basin Resource Watch

Working with Communities to Protect Their Land, Air, and Water

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May 26, 2020

Matthew Schulenberg
Division of Environmental Protection
Bureau of Mining Regulation and Reclamation
901 South Stewart Street, Room 4001
Carson City, Nevada 90701-5249

Re: renewal and major modification of a Water Pollution Control Permit (WPCP) for the Rochester Mine Project

Dear Mr. Schulenberg,

Great Basin Resource Watch thanks the Bureau of Mining Regulation and Reclamation for extending the comment period for this renewal and major modification. This allowed time for GBRW to prepare these brief comments and communication any concerns.

GBRW also appreciates the effort made by Coeur Rochester, Inc. to meet with GBRW in the fall of 2019 to discuss the expansion plan proposed for the Rochester operation.

Stage VI Heap Leach Pad

GBRW is concerned that there are no alluvial or bedrock monitoring wells downgradient of the Stage VI Heap Leach Pad. We note that the springs in Limerick Canyon west of the leach pad are part of the monitoring plan and that they may to some extent provide information on the groundwater systems as stated in the POA 11 Water Quantity and Quality Assessment Report[1], "The springs west of CRP16-1 in Limerick Canyon consist of a mixture of bedrock and alluvial water (WSP, 2018). However, given the fact that the alluvial levels in this area are beneath the level of the springs, the alluvial source is probably shallow ephemeral runoff, while the bedrock source is groundwater." It may be difficult to determine the source of contamination from the spring monitoring. Alluvial and bedrock groundwater wells should be installed downgradient of the leach pad to ensure that any contamination of the groundwater system is identified and addressed promptly. Furthermore, monitoring is needed until it is identified that no drainage reaching the liner system could degrade groundwater once the liner is no longer viable.

We have received some comments from residents in the Lovelock community regarding the potential for eventual contamination of the municipal water wells at the base of Limerick Canyon labeled 4205, 4151, and 4161 (Figure - NDWR well locations in and around project CESA).[1] One of the wells, application number 37989, indicates a depth of 336 feet, but it is not clear at what level

the water is drawn. Given that there exists community concern as a *schedule of compliance GBRW requests that NDEP require Coeur Rochester INC. to either judiciously place groundwater monitoring wells downgradient of the Stage VI Heap Leach Pad for long-tern monitoring, or provide a detailed technical report as to why these monitoring wells will not be needed and fully address concerns of contamination of then municipal water supply.*

West and South Waste Rock Dumps - Expansion

The waste rock management plan attached to the WPCP application for POA 11^2 plans to place potentially acid generating rock (PAG) into both of these waste rock dumps to be surrounded by non-PAG material. The non-PAG material is expected to have poor neutralizing capacity and the total amount of PAG rock is estimated at about 30,408,577 including the portion from the Packard pit. The overall capacity of the combined waste rock dump expansions is about 297 million, so the amount of PAG material in these expanded sections will be on the order of about 10.2 % not including any PAG from the existing in-pit PAG backfill. Thus, these expanded areas are going to contain a significant proportion of PAG that is not expected to be well pH buffered as mentioned on page 14 of the Waste Rock Management Plan; "Due to the limited buffering capacity within the system, the acid-generation potential is controlled by the sulfide sulfur content of the material." Thus, GBRW expects there to be long-term acid generation in these waste rock dumps.

GBRW views the expanded areas of the west and south waste rock dumps as a source of long-term toxic drainage. However, the waste rock management plan only describes briefly how the PAG material will be incorporated into the waster rock dumps. It is not clear what is to be the fate of the acidic drainage occurring with the waste rock dumps. Given the low neutralizing capacity of the non-PAG material we expect there to be acidic drainage within and potentially into the groundwater system. The waste rock management plan contains is no contingency for long-term management of acidic drainage which will most likely occur even if not for 100 years. Coeur Rochester needs to be honest in its assessment of the long-term consequences of the current plan for addressing the PAG material, and to expect acid drainage. *NDEP needs to require additional documentation on the fate of drainage through the waste rock dumps and need for long-term management, and update bonding requirement for mining impacted waters.*

Rochester Pit Lake – water quality

GBRW views the water quality estimation of the Rochester pit lake in error. We expect the Rochester pit lake will require some treatment in the short term and probably in the longer-term. We have identified the same problem that occurred in the pit lake water quality estimation for Mt Hope project. Section 5.12 Laboratory Test Data Scaling of POA 11 Water Quantity and Quality Impacts Assessment Report discusses the procedure; just as with Mt Hope the lab humidity cell results are not tied to how long the rock will be exposed to oxidation in the field. *NDEP needs to require Coeur Rochester to clarify and justify the scaling of lab data to field realization. NDEP should also adjust bonding requirement to account for pit lake treatment based on a more realistic water quality estimation.*

Rochester Pit Lake – potential for flow-through

GBRW agrees at this point in time that the final pit lake is not likely to be a flow through system because the Black Ridge Fault (BRF) which provides most of the groundwater flow will have sufficient drawdown in it at the pit to pull water from both north and south. The pre-mine flow direction is to the south, but the pit have a flow capture zone that pulls some flow from the south. That will prevent flow from the pit lake from heading south along the BRF. This is of course based on the hydrogeology for each formation.

Most groundwater inflow to the forming pit lake, and for production wells, is from the BRF. Based on the hydrogeology, the BRF has a conductivity several orders of magnitude greater than other surrounding bedrock. It has been the source of operating water for a long time. Pumping the BRF causes very little drawdown even a short distance east or west from the pit. That is because to generate flow through the low-K bedrock requires a steep gradient. Drawdowns under the existing pit are mostly due to the excavation for the pit. Figures 4.31 and 4.32 show the potentiometric surface barely below the pit bottom and the drawdown under the west side of the pit as being very low.[1] The potentiometric surface map shows a slope to the southwest of the pit which suggests a pathway, but the southwest portion of the pit bottom would be above the predicted pit full southwest elevation of 5900. The southwest portion would be dry and not a source of flow into the groundwater. Figure 4.52 shows flow arrow under the southwest pit flowing away from the pit, but it would not include any pit lake water because there is a groundwater divide between the southwest portion and the deeper portions of the pit.

Figures 4.31 and 4.32 show the effect of pumping along the BRF on the potentiometric surface and drawdown. The substantial drawdown along the BRF mostly extends north-south along the BRF. Because it provides more than 90% of the groundwater inflow even in the distant future (49.8 gallons per minute (gpm) from BRF vesus 6 gpm from other bedrock at 300 years, lake at 5900 ft, Table 5.19) the potentiometric surface along the BRF would be toward the pit from both north-south. The flow arrows on Figure 4.52 show flow along the BRF toward the pit from the south, but the divide appears to be only about a thousand feet south of the pit. The location of the divide is probably sensitive to parameter values, but as long as the pit lake surface remains below the groundwater level in the BRF, it would be very hard to show that the pit lake would discharge into the BRF for flow to the south. Pit lake evaporation would cause some flow to the pit from the south thereby creating a groundwater divide that prevents flow-through. If the pit lake rose substantially higher or faster than expected, it would likely be due to there being more flow on the BRF than expected. *To prove there is no through-flow, there should be sufficient water level monitoring wells south along the BRF to demonstrate the existence of a groundwater divide.*

Conclusion

There are a number of items summarized below that GBRW believes should be in the permit and can be added as schedule of compliance items. We do want to underscore the need for mining companies to produce clear and to the best science available accurate estimates of any needs for long-term management. The state of Nevada needs to lean on mining companies to be more forthcoming on the fate of toxin producing aspects of the mine plan and how contamination is to be addressed. Communities that host mining operations need full disclosure of the consequences of the mining operations.

In summary, GBRW strongly urges NDEP to require at the very least the following schedule of compliance items:

1. downgradient groundwater monitoring of the Stage VI Heap Lead Pad or provide a lucid report that contains supportable and verifiable technical analysis and discusses why such monitoring wells are not needed that is also understandable to the community.
2. update the waste rock management plan to discuss fully the fate of drainage through the south and west waste rock facilities especially in regards to the acid generating aspects of the waste rock.
3. update the pit lake analysis to properly take into account the long-term oxidation in the field extrapolated from lab data, and address any pit lake treatment needs

4. provide an updated plan for addressing treatment of acidic drainage from the waste rock dumps and long-term management of any mine facility

GBRW is open to further discussion on the Rochester mine and the WPCP.

Sincerely,

John Hadder

[1] Piteau Associates, "POA 11 Water Quantity and Quality Impacts Assessment Report," Prepared for: Coeur Rochester, INC., March 2019.

[2] Nevada Division of Environmental Protection, Bureau of Mining Regulation and Reclamation, "Water Pollution Control Permit Application, Major Modification, NEV0050037, Coeur Rochester Mine," Revision 0, November 2018.