

## NOTICE OF DECISION - Bureau of Mining Regulation and Reclamation

Web Posting: 03/16/2021

Deadline for Appeal: 03/26/2021

**Nevada Gold Mines LLC  
Rain Project  
WPC Permit NEV0087011**

The Administrator of the Nevada Division of Environmental Protection (the Division) has decided to issue renewed Water Pollution Control Permit NEV0087011 to Nevada Gold Mines LLC. This Permit authorizes the closure of approved mining facilities in Elko County, Nevada. The Division has been provided with sufficient information, in accordance with Nevada Administrative Code (NAC) 445A.350 through 445A.447, to assure that the waters of the State will not be degraded by this operation, and that public safety and health will be protected.

The Permit will become effective 31 March 2021. The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to Nevada Revised Statute (NRS) 445A.605 and NAC 445A.407. All requests for appeals must be filed by 5:00 PM, 26 March 2021, on Form 3, with the State Environmental Commission, 901 South Stewart Street, Suite 4001, Carson City, Nevada 89701-5249. For more information, contact Karl W. McCrea at (775) 687-9407 or visit the Bureau of Mining Regulation and Reclamation website at <http://ndep.nv.gov/bmrr/index.htm>.

Written comments were received during the public comment period from Mr. Kyle Tate, representing the Permittee, Nevada Gold Mines LLC (NGM), on 7 January 2021, and from Mr. John Hadder, Great Basin Resource Watch (GBRW) of Reno, Nevada, on 4 February 2021. The text of all comments, in some cases excerpted, and the Division responses (in *italics*) are included below as part of this Notice of Decision.

**NGM, Written Comment 1:** "... [T]he 189 acres was... never verified.... [Golder] calculations confirm that the 104 acre value is correct for... the tailings surface, embankment, and sloped ground area immediately adjacent to the TSF... ...[C]an the fact sheet be changed to reflect the 104 acres...[and] bring the fact sheet and reclamation permit in-line... eliminate confusion..."

### **Division Response 1:**

*The fact sheet has been revised to reflect the corrected disturbance area of 97.3 acres. This acreage represents the adjusted 104 acres minus the 6.7 acres encompassed by the new Underdrain Collection System Evaporation Pond.*

**GBRW, Written Comment 2:** North Waste Rock Dump (NWRD[F]) “The Acid Rock Drainage (ARD) from the [Northwest] Waste Rock Dump (NWRD) has been occurring for nearly 30 years and has not shown any signs of abatement.”

**Division Response 2:**

*Comment noted. Seepage of poor quality was initially observed emanating from the north side of the base of the NWRDF in May of 1990. Currently all seepage is effectively captured within the collection system and directed to the Tailing Storage Facility (TSF) where the pH is neutralized with the addition of lime prior to discharge into the facility. Final reclamation of the NWRDF was completed in 2002 through minor regrading, installation of surface-water controls, and construction of a final evapotranspiration (ET) cover. The cover design included 3 feet of soil and rock cover material with an additional 1-foot of growth media on top. While the NWRDF cover was installed in 2002, ARD seepage has been collected since March 1991. By examining the seepage trend and baseflows (lowest flows in September and October), it appears that the cover performance became dynamically stable around year 2011 after vegetation became mature, and seepage had been reduced to a level at an average annual rate of about 22 gpm.*

**GBRW, Written Comment 3:** “For several renewal cycles there have been adjustments to the cover without effectively reducing the volume and toxicity of the drainage. GBRW is skeptical that the approach outlined above will be effective as well.”

**Division Response 3:**

*The targeted cover improvements identified through collaborative efforts between the Division and the Permittee will result in a substantial change to the initial abatement efforts implemented in 2002. The Permittee has demonstrated to the Division that a reduction in meteoric infiltration is expected to occur as a result of these new efforts and the corresponding generation of ARD is expected to reduce to a level allowing for a passive closure option to be achieved. No abatement activities of this magnitude have been performed at the facility since the implementation of the initial cover efforts completed in 2002.*

**GBRW, Written Comment 4:** “However, GBRW urges the BMRR to require NGM to become more creative and bold in addressing this problem.”

**Division Response 4:**

*The NWRDF is located at a high elevation with an estimated annual average precipitation of 17.4 in/yr. The majority of the precipitation comes in the winter and spring months, from November through May. In the cold season, only a small portion of precipitation is lost to snow sublimation and ET. The targeted cover improvements represent a new approach that will incorporate an impermeable liner within areas identified as receiving heavy snowfall accumulation. Since taking over operation of the site in 2019, the Permittee has been engaged with the Division in working to re-evaluate plans and operations with a focus on addressing closure concerns at the facility. The Permittee has demonstrated to the Division that the approved cover*

*improvements are expected to reduce the seepage rate to a level which requires no active, perpetual water treatment.*

**GBRW, Written Comment 5** “It appears as though NGM plans to close the site with an ARD treatment plant to remain indefinitely as there does not seem to be any mention of how long this plant is to operate.”

**Division Response 5:**

*As explained in Division Response 3, the Permittee has demonstrated to the Division that a passive closure option is expected to be achievable following the successful implementation of the targeted cover improvements. As identified in the Order, the targeted improvement efforts are anticipated to require two construction seasons for activities to be completed. Following completion, the Permittee will conduct two consecutive years of monitoring to evaluate effectiveness and develop a capable passive closure option.*

**GBRW, Written Comment 6:** “GBRW concludes that the preferred closure plan calls for treatment in perpetuity of the ARD, and this is not acceptable.”

**Division Response 6:**

*Comment noted. The Permittee has expressed to the Division that their goal is to eliminate the need for active, perpetual water treatment. A passive closure option is the preferred closure approach for long term solution management at the Rain Mine Project for all interested parties.*

*The Division agrees that, although not a preferred or ideal option, perpetual water treatment is an acceptable option. The Division views perpetual treatment as a necessity if all other reasonable options have been exhausted.*

**GBRW, Written Comment 7:** “Has BMRR discussed a reconfiguration of the waste rock dump to isolate the PAG material.”

**Division Response 7:**

*It is unclear as to how a reconfiguration of the existing waste rock dump and the attempt to isolate PAG material would be technically feasible or effective. Given the presence of ARD with similar chemical properties being captured within each of the ancestral drainages located beneath the WRDF, the Division has collaborated with the Permittee to focus on cover improvements to address the generation of ARD at the source and greatly reduce the currently observed meteoric infiltration. As stated in comment 5, the Division approved the plans and, following completion, will require 2 years of monitoring to determine the effectiveness of the cover improvements.*

**GBRW, Written Comment 8:** “In addition, the bond for Rain should be reviewed to cover the very long-term treatment, the possibility of in perpetuity treatment, or the need for reconfiguration of the NWRDs.”

**Division Response 8:**

*Comment noted. Determination of financial assurance for the facility is not within the scope of this decision.*

**GBRW, Written Comment 9:** Heap Leach Pad (HLP) “We also saw a suggestion that the Closure Plan will recommend that the HLP will be moved to the Emigrant Mine HLP.”

**Division Response 9:**

*As detailed in the most recently revised Order (10 December 2020), by 1 January 2024, or cessation of leaching at the Emigrant Mine if later than 1 January 2024, the Permittee shall begin relocation of the Rain HLP to the Emigrant Mine for placement on the Emigrant HLP.*

**GBRW, Written Comment 10:** “The paragraph below is a bit confusing, but seems to state that the HLP will be relocated to the Emigrant Mine.”

“The 2020 Permit renewal includes an SOC item that requires the submittal of an FPPC for the relocation of the Rain HLP to the Emigrant Mine HLP which includes anticipated mitigation plans/protocols for remediation of contaminated soil and/or groundwater that may be located beneath the Rain HLP. If the Rain HLP is not relocated beginning in 2024, or cessation of leaching at the Emigrant Mine if later than 1 January 2024, the Permittee is required to close the HLP per the approved 2019 FPPC.” (Page 9 of 36 of the renewal fact sheet)

**Division Response 10:**

*The HLP is planned to be relocated in accordance with item 13 from the most recent revised Order (10 December 2020). Item 13 is stated below for reference:*

*“By 01 January 2024, or cessation of leaching at the Emigrant Mine if later than 1 January 2024, the Permittee shall begin relocation of the Rain HLP to the Emigrant Mine for placement on the Emigrant HLP”*

*As included in GBRW Comment 10, “If the Rain HLP is not relocated beginning in 2024, or cessation of leaching at the Emigrant Mine if later than 1 January 2024, the Permittee is required to close the HLP per the approved 2019 FPPC.”*

**GBRW, Written Comment 11:** “Under any circumstances, understanding the extent of acid generating rock in the heap is important for future management of the site.”

**Division Response 11:**

*In accordance with the Engineering Design Change (EDC) approval for the 50-foot lift at the Emigrant HLP under WPCP NEV2005107 dated 21 January 2021 and also captured within SOC items I.B.1 and I.B.2 of the Permit renewal dated 21 January 2021, the Permittee will routinely monitor the quality and tons of material received from the Rain HLP as required under Part I.D.16 of the renewed WPCP NEV2005107 Permit. Additionally, an updated tentative plan for permanent closure will be submitted to evaluate whether additional cover is necessary to stabilize the HLP considering the geochemical character of the Rain HLP material as stated in the EDC approval. Alternatively, if the HLP were to remain in place, a full encapsulation closure approach would be implemented as detailed in the 2019 FPPC Revision 04.*

**GBRW, Written Comment 12:** “But, if it is not moved, then understanding the source and extent of acidification is required for the existing heap.”

**Division Response 12:**

*Please reference Division Responses 9, 10, and 11.*

**GBRW, Written Comment 13:** Tailing Storage Facility (TSF) “With precipitation from 14-17 inches per year, it is probably that this amount of yearly water on the TSF will mobilize contaminants that will rinse through the leaks and continue to contaminate downgradient ground and surface water. It is vital that the current plume is fully characterized and will continue to be captured and managed.”

**Division Response 13:**

*Mitigation efforts as detailed in the Rain Mine Project WPCP NEV0087011 Fact Sheet (pages 21-25) have resulted in the following conclusions under existing conditions:*

- “1) The Parallel Trench Drain (PTD), Upper Trench Drain (UTD), and Downstream Trench Drain (DTD) are capturing and removing tailings seepage as designed;*
- 2) Trench Drain Spring (TDSP), Ferdelford Spring 2 (FSPR-2), and Ferdelford Spring 3 (FSPR-3) water quality data do not indicate contamination from process solution; and*
- 3) Downgradient surface waters, as monitored at Ferdelford Creek Headwaters (FF-HW1-A), upstream of Ferdelford Spring 2, downstream of the confluence of the unnamed ephemeral drainage and Ferdelford Creek (FF-D1-A), and Confluence of Ferdelford Creek and Pine Creek (PC-D1-A), do not show impacts from the Rain Mine Project.*

*Monitoring data continues to demonstrate the successful implementation of the mitigation efforts and the effectiveness of the incorporated changes in capturing and managing the full extent of the plume associated with the Rain TSF seepage.”*

**GBRW, Written Comment 14:** “A long term funding source must be established to continue treatment of these sources of contamination “in perpetuity”.”

**Division Response 14:**

*Comment noted. As mentioned above, determination of financial assurance for the facility is not within the scope of this decision.*

**GBRW, Written Comment 15:** “We note that membrane processes (e.g. reverse osmosis) are now being considered for water treatment, and this is a positive development, since use of these processes will produce clean water, although disposal of the now highly contaminated reject water needs to be considered.”

**Division Response 15:**

*Pilot testing programs performed in late 2019 yielded unfavorable results with the use of a reverse osmosis (RO) system. Due to the frequent fouling of the membranes an RO unit was rendered to be inoperable and not effective in treating the NWRDF ARD*

*solution. In addition to the initial RO pilot system, a second pilot water treatment system utilizing a mechanical vapor recompression technology was implemented during a 4-week demonstration occurring in August and September of 2020. This technology was capable of producing a clean distillate solution meeting the Profile I discharge standards while achieving nearly a 93% clear water recovery rate. Importantly, however, this technology would still require significant pre-treatment through high density sludge (HDS) implementation prior to reporting through the mechanical vapor recompression technology. The Permittee continues to work collectively with the Division to evaluate additional closure technologies as applicable for use and potential implementation at the site. Even with the significant efforts put forth with demonstrating potential active water treatment technologies, active water treatment is not in line with the closure objective the Permittee intends to implement with the Rain Mine Project.*

**GBRW, Written Comment 16:** “However, it is also apparent that other treatment processes are not doing the job.”

**Division Response 16:**

*Outside of the addition of lime used for pH neutralization with the NWRDF ARD solution, The Division is not aware of additional treatment processes being implemented at the Rain Mine Project. Routine monitoring has shown lime addition to the ARD stream as being successful in achieving the intent of the design to neutralize pH prior to discharge into the TSF.*

**GBRW, Written Comment 17:** Conclusion “In closing, GBRW is very concerned about the long-term closure of this site and NGM’s unstated plan to “treat in perpetuity” the ARD from the NWRD.”

**Division Response 17:**

*As explained in Division Responses 3 and 16, the Permittee has demonstrated to the Division that a passive closure option is expected to be achievable following the successful implementation of the targeted cover improvements. As stated in comment 5, the Division will require 2 years of monitoring to determine the effectiveness of the cover improvements.*

**GBRW, Written Comment 18:** “GBRW will continue to review background materials and would very much like to meet with NDEP and NGM staff to explore other options than perpetuity treatment. We do not support the closure plan.”

**Division Response 18:** *Comment noted.*

**GBRW, Written Comment 19:** “Finally, the Rain Mine has clearly contaminated ground water, perhaps at many sites. We note that a Finding and Order of Alleged Violation (FOAV) has been issued and respectfully ask that the NDEP begin penalty actions to hold NGM responsible for these violations. We realize that NGM is working actively to limit future contamination, but it is clear that groundwater contamination has occurred, and penalties should be assessed. If NGM, the largest mining company in Nevada, is not fined for contaminating groundwater, other mining companies are likely



to also assume that no punishment will result for violating the requirement for prevention of groundwater contamination.”

**Division Response 19:**

*The Division is unable to comment on ongoing enforcement activities but GBRW’s concern regarding appropriate actions being taken to address the alleged violations is noted.*