

FACT SHEET
(Pursuant to Nevada Administrative Code (NAC) 445A.401)

Permittee Name: **Ruby Hill Mining Company, LLC**

Project Name: **Ruby Hill Mine**

Permit Number: **NEV0096103**

Review Type/Year/Revision: **Renewal 2022, Fact Sheet Revision 01**

A. Location and General Description

Location: The **Ruby Hill Mine** is located in east-central Nevada in Eureka County, approximately 1 mile northwest of the town of Eureka. The facilities are situated on public lands administered by the Bureau of Land Management (BLM), Mount Lewis Field Office, and private lands within Sections 3-5, 9-11, and 14-16, Township 19 North (T19N), Range 53 East (R53E), and Sections 32, 33, and 34, T20N, R53E, Mount Diablo Baseline & Meridian. The site may be accessed by exiting U.S. Highway 50 approximately 3 miles west of Eureka and then traveling approximately 1 mile southeast along the facility access road.

General Description: The project consists of the West Archimedes Pit that was expanded eastward to create the East Archimedes Pit, two portals for the 426 Underground Expansion, one portal for the Hilltop exploration, a shotcrete plant, two waste rock facilities (the East Dump and West Dump), a mill equipped with three-stage crushing system, a ball mill, thickener, belt filters, and agglomeration drum, (mill and associated components remain in place but all are off line as of December 2007), an Adsorption-Desorption-Recovery (ADR) plant, electrowinning circuit, and precious metals refinery, (the desorption portion of the ADR plant, electrowinning, and refinery components remain in place but all are off line as of May 2011), ore conveying and stacking systems, a multi-cell heap leach pad, a process solution pond, two storm event ponds, associated interconnected pipelines, and support buildings including a truck shop, fuel storage area, warehouse, laboratory, and an administration building. A weak sodium cyanide solution is used to extract gold and associated metals from lower-grade heap leach ore and, prior to cessation of mill operation, high-grade “mill” ore. This ‘pregnant’ cyanide solution is circulated over carbon particles, which adsorb the precious metals from the solution. The ‘loaded’ carbon is shipped off site for refining to recover precious metals and regeneration (reactivation) of the carbon for reuse. The facility is designed to contain solution flows resulting from a combination of the 25-year, 24-hour storm event with a 24-hour power loss and to withstand the solution flows generated by a 100-year, 24-hour storm event.

B. Synopsis

General Facility and Production Information: Water Pollution Control Permit (WPCP) NEV0096103 was first issued to Homestake Mining Company of California (Homestake) for the Ruby Hill Mine Project, a gold mining facility, on 21 December 1996. Construction of the original facilities was completed in September 1997. The original facility design was based on a projected mine life of 7 years at an average annual ore production rate of up to 1,500,000 tons.

Until February 2002, ore and waste were mined at an average design rate of 3,500 tons per day (TPD) and 22,500 TPD, respectively, from the West Archimedes Pit. From February 2002 through October 2002, the average mining rate was approximately 21,400 TPD, and was comprised of 8,600 TPD ore and 12,800 TPD waste. Although precious metal mineralization was known to exist below the groundwater elevation, it was not economical to extract with the gold prices prevailing at the time of the original design. Therefore, no dewatering was performed and a pit lake did not form within the original West Archimedes Pit.

Active mining of the original West Archimedes Ore Body ceased in October 2002, but leaching of the heap leach pad and processing to recover residual gold and silver values continued. Approximately 7 million tons of ore and approximately 51 million tons of waste rock were mined from the West Archimedes Pit and above the groundwater elevation during the period to 2002. Of the total waste rock generated during this time, 36 million tons are classified as overburden and 15 million tons are classified as oxidized limestone. Due to improved economics, a decision was made in late 2003 to develop the East Archimedes Pit and mine additional gold reserves that lie below the ambient groundwater table.

Based on higher gold prices, a decision was made in 2005 to lay back and deepen the West Archimedes Pit toward the east to create the East Archimedes Pit and extract ore from below the ambient groundwater elevation (approximately 5,910 feet above mean sea level (AMSL)). The 2011 renewal application included a proposal to further deepen the East Archimedes Pit, which includes the original West Archimedes Pit excavation, to approximately 1,340 feet deep (5,100 feet AMSL), extending approximately 810 feet below the ambient groundwater elevation. Mining of waste and ore will occur at a rate of approximately 100,000 tons per day (TPD) and a respective strip ratio of 9 to 1. A 200-foot wide safety set-back, protected by a 30-foot wide, 14-foot high berm, will surround the final pit.

The first expansion, approved by the Division as a major modification in August 2006, included an increase in the annual leach ore production rate to 4,500,000 tons, expansions of the existing waste rock disposal facilities and heap leach pad, and construction of an additional storm event pond and a dewatering system. Dewatering water not used for consumptive mining purposes is infiltrated back to

the source hydrologic basin as permitted under the Ruby Hill Mine Infiltration Project WPCP NEV2005106.

The 2006 expansion added approximately seven years to the mine life with an additional 18 million tons of ore to be mined and placed on the existing and expanded heap leach pad. Access to the ore will require the removal of approximately 130 million tons of alluvium waste material and 60 million tons of waste rock. A further mine expansion identified in the 2011 renewal application extended the mine life to about 2018, increased the ore reserve by an additional 4.1 million tons of ore, and will generate an additional 36.6 million tons of waste rock. All waste material will be placed on the expanded existing waste rock disposal facilities.

The combined 2006 and 2011 expansions will create approximately 761 acres of new disturbance, consisting of approximately 200 acres of public land administered by the BLM and the balance on private land owned by the Permittee. The life-of-mine disturbance area will total approximately 1,625 acres of mixed public and private land.

A high wall failure, occurring in November of 2013, halted mining of the Archimedes Pit. In early 2017 the Mine Safety and Health Administration evaluated the stability of the failure and concluded that activities were permissible within the pit outside of the failure.

In November of 2015, Ruby Hill Mining Company, LLC (RHMC) purchased the Ruby Hill Mine from Homestake, a wholly owned subsidiary of Barrick Gold Corporation. This asset purchase was performed in concurrence with the purchase of the Ruby Hill Mine Infiltration Project (WPCP NEV2005106) from Homestake. RHMC was a subsidiary of Elko Mining Group LLC.

In August of 2020, notice was given to the Division that active mining operations would resume. Mining operations were completed in November of 2021 and resulted in approximately 2.6 million tons of ore being placed on the HLP. Cyanide continues to be added to solutions applied the HLP with loaded carbon being shipped off-site for processing in Kimberly, Idaho.

In October of 2021, RHMC was acquired by Premier Gold Mines USA, Inc., a subsidiary of I-80 Gold Corp. RHMC remains the owner and operator of the Ruby Hill Mine and Ruby Hill Mine Infiltration Project (NEV2005106).

In July 2025 a major modification was approved. The major modification consists of the development of an underground exploration and mining operation with three portals on the west side of the Pit, use of the existing crusher facility to support underground operations for development of both backfill aggregate and road rock, placement and leaching of ore encountered during underground operations on the

existing Heap Leach Pad, and offsite transportation of ore for metals extraction at i-80 Gold's Lone Tree Mine milling operation or via toll-milling at another permitted facility upon Division approval.

Waste Rock Management: Two waste rock storage facilities, the East waste rock dump (WRD) and the West WRD, receive all waste material. At the end of mining in the East Archimedes Pit, the East WRD will have a footprint of 275 acres and contain 43 million tons of waste; with the expansion proposed in 2011, the West WRD will have a final footprint of approximately 612 acres and contain 230 million tons of waste. The dumps are constructed by end dumping material in lifts of 50 to 100 feet. The estimated final heights of the dumps are 120 feet and 500 feet respectively. The final dump configurations will include regrading to blend visually with pre-mining topography and will incorporate final slopes no greater than 3 Horizontal to 1 Vertical (3H:1V).

For the East Archimedes Pit development, Acid-Base-Accounting (ABA) testing was performed on 123 representative samples of waste rock. Based on this testing, 11 samples with a negative net neutralizing potential (-NNP) of <20 ton of calcium carbonate per 1000 tons (CaCO_3/KT), had follow-up 24-week humidity cell testing performed. These samples, comprised primarily of “sulfide intrusive” that will be encountered in the deeper portions of the pit, represent approximately 1.5% of the waste rock to be extracted and are classified as potentially acid generating (PAG). Characterization testing of representative samples of the balance of the waste rock, approximately 98.5% of waste rock material to be extracted, generated ratios of acid neutralizing potential to acid generating potential (ANP:AGP) with a weighted average of 539, which indicates that a significant excess of neutralizing potential is available in the vast majority of the waste rock to be mined.

The PAG material does not occur in isolated zones and segregation in the waste rock dumps is not recommended. The sulfide intrusive is intermixed with oxide material in the orebody, which results in natural blending for neutralization on the waste dumps. Therefore, acid generation is not expected to occur in either waste rock facility.

Pre-dewatering depth to groundwater, as measured in monitoring well MW-4, was approximately 425 feet beneath the East WRD. Pre-dewatering depth to groundwater, as measured in monitoring well MW-1, was approximately 505 feet beneath the West WRD.

Any potential PAG waste from the UG expansion will be handled as specified in the WRMP.

Ore Handling: In the original design, run-of-mine (ROM) ore was separated and stockpiled by gold grade, i.e., high-grade versus low-grade. Low-grade material was crushed, agglomerated with cement and mill tailings, and conveyed onto the

heap leach pad. High-grade material was crushed and filtered for processing with the addition of barren sodium cyanide solution directly through the ADR plant. The tailings material from the process was thickened, filtered, agglomerated with crushed low-grade ore, and conveyed onto the heap leach pad. Bedrock lies less than 25 feet beneath the heap leach pad, however, the pre-dewatering static groundwater table, as measured in monitoring well MW-3, was at a depth of approximately 367 feet.

The area below the heap leach pad conveyor system is lined with an 80-mil high-density polyethylene (HDPE) liner placed on top of 12 inches of liner-bedding material compacted to a permeability of less than 1×10^{-5} centimeters per second (cm/sec). The conveyor system liner is covered with 4 feet of structural fill to allow equipment to operate in the area without damage to the liner. The surface of the conveyor system HDPE liner is graded to drain to the agglomerated ore stockpile area, which is lined to the same specification as the conveyor area. The liner system is tied to the concrete reclaim tunnel structure. Solution flow from the agglomerated ore stockpile area is conveyed by gravity across lined containment to heap leach pad cells C and D.

An Engineering Design Change (EDC) was approved by the Division in December 2007 to allow removal of the agglomerator drum from the beltline conveyor system. At the time of the approval, the grade of ore being recovered from the East Archimedes pit would not support tertiary crushing and agglomeration of leach ore with mill tails and filter cake. As a result, the mill was taken out of operation and only the primary and secondary crushers remain in use. In this configuration the belt line conveyor can handle ore to allow placement of crushed ore directly on the heap leach pad at approximately 600 tons per hour. Uncrushed ROM ore is also placed directly on the leach pad in some locations. The agglomerator can be reinstalled if the ore grades warrant a re-start of the mill. However, the Permittee must provide the Division with advance notice of a re-start of the mill and reinstallation of the agglomerator. Depending on the circumstances and proposed activities, a modification fee may be assessed.

High grade ore from the UG expansion will be shipped off site as approved by the Division for processing.

Processing Plant: A building measuring 90 feet by 130 feet, in plan dimension, houses the process facilities including the ADR plant, grinding and filtration equipment, and the precious metals recovery and refining circuits. The building rests on a reinforced concrete slab foundation with a 1-foot-high concrete stem wall to provide solution containment.

The ADR plant incorporates a single carbon column train, comprised of seven columns, and can process gold-bearing process solution at the rate of 2,000 gallons per minute (gpm). The processing rate includes approximately 500 gpm from the

mill circuit, and the balance pumped from the Pregnant Solution Tank which captures draindown solution from the heap leach pad. Barren solution from the carbon columns is enriched with sodium-cyanide and then reports to a 500,000 gallon Barren Solution Tank, located on a reinforced concrete containment pad adjacent to the eastern side of the heap leach pad. The barren solution is then reused in the heap leach circuit. Any solution release from the Barren Solution Tank reports to an HDPE-lined collection ditch which drains into the Process Solution Overflow Pond.

An EDC was approved by the Division in July 2007 authorized the addition of cyanide solution at three new locations in the process circuit. A new 2-inch diameter stainless steel barren solution transmission pipeline, fed from the barren solution sump, employs flow meters and actuated valves to allow flow to be directed to the agglomerator, the lean-preg tank, or the front end of the carbon-in-column (CIC) train. The flow from the 2-inch steel pipeline can be either individually or concurrently directed to one or more of the three destinations. The stainless steel transmission pipeline and valves are located within existing concrete secondary containment inside the process building. The pipeline, which transitions to 2-inch diameter HDPE with a standard dimension ratio (SDR) of 11, exits the process building and is routed over existing geomembrane-lined ditches and conveyance channels to the agglomerator and the lean-preg tank. The maximum flow rates to all locations are below 50 gpm.

Prior to the cessation of use of the desorption portion of the ADR plant and the associated electrowinning and refinery components, the gold-loaded carbon was stripped in approximate 3-ton batches. The batches of gold loaded carbon were stripped under pressure with a hot (280° F) Sodium Hydroxide and 0.3% Sodium Cyanide solution. The hot pregnant solution was pumped at 60 gpm to two electrowinning cells where the gold was plated onto stainless steel cathodes using an electric current. The cathodes were pressure-washed to remove a gold-bearing precipitate that was de-watered in a plate and frame filter press. Recovered barren solution reported to the barren strip solution tank for re-use and the filter press residue was shipped off site for refining. The stripped carbon was de-watered and thermally re-activated in a 1,200° F horizontal carbon re-activation kiln prior to re-use in the carbon columns. Since the 2011 termination of these later stage recovery process activities on site, the process only involves recovery of the precious metals onto activated carbon and the loaded carbon is shipped off site for precious metal recovery, refining and reactivation of the stripped carbon for reuse. The components remain in place and none have entered approved final permanent closure.

A non-fee modification was approved by the Division in March of 2016 for the installation of a 12-inch diameter HDPE SDR11 pipeline to convey barren fluid by gravity from the Barren Box to the Barren Tank. The existing 8-inch HDPE pipeline required barren fluid to be pumped downhill to the Barren Tank because of the

headloss produced from conveying large volumes of solution through the pipeline. The installation of the 12-inch HDPE pipeline allows barren solution to flow by gravity, decreasing the overall power costs and improving the efficiency of the facility. The Barren line is piped through the Mill Building, from the Barren Box, and leaves the Mill Building onto an existing HDPE lined channel where the pipeline terminates at the Barren Tank. The lined channel is routed around the Barren Tank and reports to the Process Solution Overflow Pond where any fugitive process solution will be transported.

Within the process facilities building, solution spills or releases report to epoxy-lined concrete sumps to be pumped back into the process circuit. Large process spills flow to an overflow pipe that drains into the lined collection ditch located near the Barren Solution Tank and reports to the Process Solution Overflow Pond.

All interconnecting process solution pipelines are of double-wall or pipe-in-pipe construction to maintain secondary containment. All single wall process solution pipelines run in lined ditches or on epoxy-sealed concrete containment.

Nitric Acid Reagent Storage: Prior to cessation of refinery activities on site, nitric acid was used as a reagent in the process circuit and was stored within dedicated secondary containment outside the process facilities building. Although the originally approved secondary containment design was adequate, the inspections performed as part of the International Cyanide Code certification process identified the potential, in the event of a spill in the nitric acid reagent storage area, for mixing of low- and high-pH solution that could report to the process facilities building. Consequently, an EDC modification proposal was submitted and approved by the Division in July 2007, to modify the secondary containment system to ensure that, in the event of an upset condition or tank failure, no low-pH (<8 Standard Units (SU)) solution in the nitric acid reagent containment area would inadvertently come into contact with high-pH (≥ 8 SU) reagents or solutions in the process facilities building.

The approved secondary containment modification included: 1) increasing the existing 8-inch-thick reinforced concrete containment wall height, adjacent to the process facilities building, to 26 inches to match the height of the other existing containment walls; 2) increasing the access ramp height by 8 inches to complement the containment wall height increase; 3) installing a 4-inch-high angle-iron on the top of the concrete containment wall to provide in excess of the required regulatory minimum 110% fluid containment for the existing 12-foot diameter by 14-foot, 9-inch high, nominal 8,660-gallon storage tank; and 4) equipping the existing 8 cubic-foot floor sump with a pH probe to activate the sump pump to direct fluid of pH 8 or above to the CIC circuit within the process building and retain fluid with less than pH 8 within the nitric acid reagent storage containment for appropriate removal. The nitric acid storage facility remains in place and has not entered approved final permanent closure.

Heap Leach Pad, Phase 1 & 2 (1997-2001 construction): Ore is placed onto the heap leach pad in 30-foot lifts to a maximum approved height of 200 feet, based on testing performed as part of the 2006 major modification application. As originally designed and constructed, solution was pumped at a rate of 1,000 gpm and applied to the leach area at an average rate of 0.0025 gpm per foot squared (gpm/ft²) and at a maximum rate of 0.0045 gpm/ft². Each lift was leached on a single 30- to 90-day leach cycle. Following the leach cycle, the spent ore is leveled and scarified before the next lift is loaded.

The Heap Leach Lean Recycle System, an EDC approved by the Division 23 March 2001, consists of a pipeline modification that allows the effective volume of solution applied to the heap leach pad to be doubled to 2,000 gpm. With this system, an additional 1,000 gpm of solution is pumped from the Barren Solution Tank and applied to “old ore”, i.e., ore that has already been leached during the initial leach cycle. The recovered solution is pumped to an internal enrichment tank located within the Pregnant Solution Tank. The enriched solution is then applied to “new ore” and reports to the Pregnant Solution Tank before processing. Due to the extra barren solution “rinsing” cycle, this secondary recovery system should also decrease the time required to achieve final permanent closure.

The original single heap leach pad was constructed in two phases with a design total of six cells. The divider cells are intended to separate flows during concurrent leach cycles. Phase 1 is comprised of cells 1A and 1B and construction was completed in September 1997. Completed Phase 2 cells include Cell 2C, completed in December 1998; Cell 2D, completed in July 1999; and Cell 2E, completed in August 2001. The cell A through E facility, as constructed during 1997-2001, covers approximately 2.5 million square feet (about 57 acres) and can accommodate approximately 11 million tons of ore. The 1997-approved design expansion included Cell F (approximately 520,000 square feet). However, Cell F was not constructed until 2006, during construction of the Phase 3 and Phase 4 expansions.

The heap leach pad design incorporates a composite liner system with leak detection. The composite liner system is comprised of a smooth 80-mil thick HDPE geomembrane liner placed over compacted liner bedding. The heap leach pad liner bedding is constructed of 12-inches of fine-grained soil, compacted in two 6-inch lifts, to 95% maximum dry density (Modified Procter compaction test American Society of Testing and Materials (ASTM) Method D 1557) to obtain a permeability (as confirmed by laboratory tests) of no greater than 1×10^{-5} cm/sec. The cells of each Phase are separated by a 24-inch-high berm constructed beneath the heap leach pad composite liner system on the downgradient edge of the cell.

The HDPE liner is protected from puncture during the heap stacking operations by a minimum of 24 inches of liner cover material. The material is a combination of

crushed low-grade ore and waste rock from the West Archimedes Pit. The liner cover material, as specified and tested, contains <5% minus-200 mesh material and no particles larger than 1-inch in diameter in order to protect the HDPE liner and promote solution flow.

The heap leach pad is graded to direct solution flow from the southeast side to the northwest side of the heap leach pad. The maximum base grade, from southeast to northwest, is 4% with a grade break, to a maximum of 2%, located 200 feet upgradient of the terminal berm located along the northwest side of the heap leach pad.

Leach solution is collected by a solution collection system comprised of 4-inch diameter perforated corrugated polyethylene (CPE) pipes placed on top of the HDPE liner and beneath the liner cover material. The solution collection pipes are spaced about 50 feet apart and at approximately a 45-degree angle, transverse to the solution flow direction. The 4-inch diameter perforated CPE pipes discharge into an 8-inch diameter perforated CPE collection pipe placed along the downgradient berm of each cell. The 8-inch diameter perforated CPE pipes connect with 10-inch diameter perforated CPE placed at the grade break located 200 feet from the west edge berm of the heap leach pad. An additional 10-inch diameter perforated CPE pipe is located along the west edge berm to capture any solution not reporting to the 4-inch diameter perforated CPE pipeline collection network. The two 10-inch diameter CPE pipes from each cell discharge into a 12-inch diameter non-perforated HDPE solution pipe placed within the single-lined solution collection channel located on the west side of the heap leach pad. The 12-inch diameter pipe is fitted with a gate valve and a 90-degree elbow fitting, which allowed expansion to two 12-inch diameter solution pipelines. All pipe sizes and layout spacings have been designed not to exceed the maximum allowable two feet of fluid head on the HDPE liner at the maximum 0.0045 gpm/ft² leach solution application rate and 3,000 gpm design application volume.

A leak detection and collection system (LDCS) has been constructed for each cell beneath the HDPE liner and under the 8-inch and 10-inch diameter perforated CPE solution collection pipes. To optimize the LDCS function, each cell is divided into three sub-cells with dedicated leak detection piping for each sub-cell. The LDCS consists of 2-inch diameter perforated polyvinyl chloride (PVC) pipes placed in a sand-filled trench beneath the HDPE liner, directly below the 8-inch diameter CPE solution collection pipe located along the downgradient berm of each cell. The perforated portion of the 2-inch diameter PVC pipe extends only under the sub-cell portion being leak detected and transitions to a solid 2-inch diameter PVC pipe. The three non-perforated PVC leak detection pipes from each cell are booted through the HDPE liner and drain by gravity into the lined solution collection channel. The leak detection pipes are labeled with a Cell letter and a sub-cell number 1 through 3, e.g., A-1, A-2, and A-3, from the downgradient sub-cell to the final upgradient cell.

Solution collection channels are single-lined with a smooth 80-mil HDPE liner placed over a 6-inch minimum thickness bedding-liner material. The bedding-liner material is moisture conditioned to no less than 2% below or no more than 3% above optimum moisture content and compacted to 95% maximum dry density over a scarified and compacted subgrade.

Heap Leach Pad Phase 3 & 4 Expansion (Major Modification 2006): An expansion to the heap leach pad was approved by the Division as part of 2006 major modification to resume and expand mining operations. The 2-phase expansion is hydraulically separated from the original Phase 1 & 2 facility (1997-2001) and increases the final design leach pad footprint by approximately 2.85 million square feet.

Each new phase of the approved 2006 design includes three new cells identified as cells G, H, and L for Phase 3 and cells I, J, and K for Phase 4. The construction of Phase 4 Cell I and Cell J, with a combined footprint of approximately 953,000 square feet, was completed in late 2006, along with construction of the previously approved Phase 2, Cell F. Construction of the two Phase 4 cells was completed out of sequence to accommodate operational considerations.

An EDC was approved by the Division in March 2008 to allow minor changes to the approved 2006 design for the remaining Phase 3 and Phase 4 construction. The changes included the deletion of Cell L, reconfiguration of the pad solution collection system to accommodate the new grading plan, use of a 14-inch diameter non-perforated HDPE primary solution collection and conveyance pipeline in place of the original design 12-inch diameter for cells F through H, and use of 12-inch diameter perforated CPE pipeline in place of the original 10-inch diameter perforated CPE for solution collection on the downgradient limit of cells G and H. No other changes were made to the original approved 2006 design.

The composite liner system, leak detection system, and solution collection system for Phase 3 & 4 are constructed to the same specification as Phase 1 & 2. Each cell is internally divided into three bermed areas, each with a dedicated leak detection system identified with the same letter and number designation system as Phase 1 and 2. The Phase 3/Phase 4 design, as modified with the 2008 EDC and including the constructed cells I and J, increased the heap leach pad final pad footprint by approximately 2.8 million square feet to a total of approximately 5.29 million square feet (about 121 acres) as constructed.

Heap Leach Pad Cell L Expansion and Cell L Solution Collection Pond: Construction of a revised Cell L design was approved by the Division as part of the 2011 Permit renewal. The revised Cell L was constructed along the southeast side of the existing heap leach pad, adjacent to the upgradient limits of Cells C through G. Cell L adds approximately 446,000 square feet (about 10 acres) of liner and

brings the combined Phase 1 through 4 pad lined area total footprint up to about 6 million square feet (approximately 137 acres). The expansion Cell L design is similar to the earlier design with the exception of minor changes to the liner system construction materials and the addition of a dedicated Cell L Solution Collection Pond with upset overflow to the Phase 3 and 4 cells as described below. The solution collection and conveyance pipeline system, drainage layer, internal sub-cell and perimeter divider berms, and the solution pipeline system leak detection design, except for the use of leakage collection ports rather than outflow pipes, is unchanged.

The Cell L pad base and containment berm liner system design substitutes a geosynthetic clay layer (GCL) with a maximum hydraulic conductivity of 5×10^{-9} cm/sec beneath the synthetic liner, in lieu of the earlier design, 12-inch thick, compacted low permeability soil layer (maximum hydraulic conductivity of 1×10^{-5} cm/sec) beneath the synthetic liner. In addition, the Cell L design includes an 80-mil textured HDPE liner, placed textured side down, in lieu of the earlier design 80-mil smooth HDPE liner in the pad area, and 80-mil double-textured HDPE liner on the pad perimeter berm.

The Cell L solution collection and conveyance pipeline system, comprised of 8-, 10-, 12-, and 15-inch diameter CPE pipelines, drains the pad in a general southeast to northwest direction to an 18-inch diameter solid HDPE solution conveyance pipeline. Each pipeline, placed along the upgradient side of the sub-cell divider berm, incorporates the original leakage collection system design except for the use of a vertical riser port to collect, quantify, and evacuate leakage rather than the use of the original design discharge pipe that reports to the lined solution collection ditch. Also, Cell L is divided into four sub-cells, whereas cells A through K are only divided into three sub-cells each. The four Cell L leakage collection ports are constructed on the berm between the northwest downgradient Cell L toe and the Cell L Solution Collection Pond. The port construction consists of a vertical 10-inch diameter SDR 17 pipe, capped at the bottom and connected with a tee fitting to the 2-inch diameter leakage conveyance pipeline. Both the port riser and the conveyance pipeline are constructed as pipe-in-pipe for all runs outside other secondary containment.

The revised Cell L design incorporates the dedicated, double-lined and leak detected, Cell L Solution Collection Pond located at the northwest corner of Cell L, outside the north toe berm and adjacent to Cell C on the west. The pond liner system design, from the bottom up, is a prepared subgrade (smooth graded and rolled native material or imported fill material, no protrusions or ruts $> \frac{1}{2}$ -inch diameter or rocks > 1 -inch diameter), a layer of GCL, a secondary 80-mil textured HDPE liner placed textured side down, a layer of HDPE geonet for leakage conveyance, and a primary 80-mil textured HDPE liner placed textured side up. Any solution escaping primary containment is conveyed to a leakage collection sump, measuring approximately 22 feet square at the base and 2-feet deep and filled

with coarse leak detection sand, located in the northeast corner of the pond base. The sump can be evacuated through a 10-inch diameter PVC inclined riser placed below the primary liner and geonet layer on an 80-mil HDPE rub sheet to protect the underlying secondary liner. The riser daylights on the north side pond crest.

Solution collected in the Cell L Solution Collection Pond is pumped using a pair of barge-mounted pumps capable of pumping a maximum 1,650 gpm directly to the ADR plant carbon columns located approximately 450 feet to the northeast. The two minimum 12-inch diameter HDPE solution conveyance pipelines are routed over existing secondary containment and beneath the access road through a pair of 18-inch diameter culverts to the plant.

The Cell L Solution Collection Pond is designed with a minimum depth of 10 feet below the west side crest, which is equipped with two overflow outlet weirs. In the event of upset conditions or pump failure, solution will flow by gravity through a primary overflow weir directly to the adjacent Cell C solution collection system and through a secondary overflow weir to the adjacent Cell D solution collection system. The primary weir is located at the northwest corner of the pond, measures 20 feet wide at the base, and is constructed across the pond crest as an extension of the pond liner system. The double-lined and leak detected liner system is sealed off and welded to the single liner of Cell C. A 15-inch diameter perforated CPE pipeline will convey solution into the Cell C collection pipeline system. The secondary weir is constructed to the same specification as the primary except the 15-inch diameter perforated CPE pipeline is connected directly to the 18-inch diameter solid HDPE solution conveyance pipeline located on the west side of Cell L. Due to this design, no minimum pond freeboard limit is applied.

Under normal conditions, approximately 85% of all Cell L solution flow reports to the Cell L Solution Collection Pond and the remainder reports to Cells C through G. However, an evaluation of the existing solution pond system indicates those ponds alone can accommodate all applied solution flow draindown and the additional volume from the 25-year, 24-hour storm event reporting to the entire pad including the Cell L expansion footprint.

Heap Leach Pad Solution Application Limitations: An EDC modification, prepared by Golder Associates, was submitted and approved by the Division in July of 2007, allowing an increase in the maximum solution volume pumped to the heap leach pad of 3,000 gpm. The original approved design application rate per unit area remains unchanged at 0.0045 gpm/ft².

Golder Associates also concluded in their supporting evaluation that, in order to increase the volume of solutions applied to combined phases 1 and 2, above 1,380 gpm, the primary solution collection pipe conveying solutions to the Pregnant Solution Tank would need to be replaced with larger diameter pipe, such as 14-inch diameter solid SDR-21 HDPE pipe with a capacity of approximately 1,670 gpm, or

plumbed with a parallel primary pipe. Accordingly, a second HDPE conveyance pipeline, measuring 12 inches in diameter at the toe of the upper cells and transitioning to 14-inch diameter approximately midway along the toe, was added during the 2008 construction. This modification eliminated the solution conveyance bottleneck.

Calculations were provided with the 2011 renewal documentation to support an additional solution volume increase to 3,300 gpm with the Cell L expansion. However, the increase can only be implemented after Cell L is loaded with the first complete 20- to 30-foot high lift of ore. The application rate restrictions are included in the Permit as Permit Limitations.

An EDC was approved by the Division in December 2010, for modification of pump capacities and pipeline routing. The design included larger pumps to convey leach solution but did not increase the volumetric flow of solution to the heap leach pad beyond the previously established cumulative 3,000 gpm design limit. However, the installed pumps have excess capacity to achieve the 3,300 gpm approved in 2011. The pipeline routing change involved replacing the original barren solution pipeline from its location over the top of the heap leach pad at the north-south centerline with a new 10-inch diameter HDPE SDR 11 barren solution pipeline placed along the northwest, north, and northeast sides of the heap leach pad within the existing synthetic-lined toe of the pad.

Heap Leach Pad Gravity Injection Boreholes: The Ruby Hill HLP, as discussed above, consists of twelve cells, A through J. The Division approved of an EDC in May of 2019 that permitted the drilling and construction of gravity injection wells on the HLP, with the target for gravity leaching being cells D, E, F, and G. Twenty-one 6-inch diameter angled Rotosonic boreholes were permitted and subsequently developed. These wells were drilled and developed in two separate drilling campaigns consisting of 8 and 13 wells and were completed in January of 2020. Due to the success of these wells, the Permittee submitted another EDC for an additional drilling campaign (Drill Campaign 3) which proposes the installation of another 53 vertical and angled gravity injection wells in addition to 3 exploratory boreholes within HLP cell A. Drill Campaign 3 proposed that 18 (BH-F022 through BH-F039) of the gravity injection wells and 3 exploratory wells (BH-F075 through BH-F077) be approved for drilling with the remaining wells being permitted at a later date as a non-fee modification to the Permit.

Development of the boreholes into gravity injection wells required the installation of varying lengths of 4-inch Schedule-80 PVC 50 slot and solid 4-inch Schedule-80 PVC casing in the borehole. To avoid potential impacts to the heap stability and synthetic liner, boreholes were drilled to a depth not less than 50 feet from the liner surface. The head of the wells were secured with a grommet and 5 feet of bentonite chips and are connected to the existing heap leach solution distribution network by utilizing a combination of tees, 4-inch piping, valves, and reducers.

Flowmeters/totalizers were installed on the feeder pipe to ensure that application rates are not exceeded.

During leaching, adjacent wells will be monitored on a daily basis to detect evidence of the development of a phreatic surface within the heap. If water levels are observed in adjacent wells, the application rate will be reduced until water levels are no longer observed in adjacent wells. The remaining wells in Drill Campaign 3 will be incorporated into future campaigns as are directed by metallurgical results.

Process Solution Containment – Tank and Ponds: Leach solution drains from the heap leach pad, by gravity, to a 500,000 gallon (70-foot diameter) steel Pregnant Solution Tank located on concrete containment. The concrete containment is hydraulically linked and slopes at a 1% grade to an HDPE double-lined and leak detected Process Solution Overflow Pond. Excess solution from the heap leach pad, the Pregnant Solution Tank, and the Barren Solution Tank reports to the Process Solution Overflow Pond.

The Process Solution Overflow Pond, measuring approximately 210 feet on a side and 12 feet deep, has a total as-built capacity, including the 2-foot freeboard, of 2.61 million gallons (1.98 million gallons below freeboard). At the minimum working depth of 4 feet (about 675,000 gallons), sufficient volume remains in the pond to contain the 24-hour heap leach pad draindown volume, in the event of a power loss, and maintain 2 feet of freeboard.

The double-lined Process Solution Overflow Pond is constructed with a primary smooth 80-mil HDPE liner placed over a secondary smooth 60-mil HDPE liner. An HDPE geonet layer between the two liners collects and transports any solution leakage to a sand-filled, 106-gallon leak detection sump. Solution reporting to the sump is conveyed via a 4-inch diameter HDPE pipeline to a 3-foot diameter HDPE manhole and evacuated to containment with an automated pump. Construction beneath the secondary liner, in accordance with NAC 445A.435, included scarification and compaction, with a smooth drum roller, of the subgrade, which was then covered with a 6-inch minimum thickness of bedding-liner material, moisture conditioned to no less than 2% below or no more than 3% above optimum moisture content, and compacted to 95% maximum dry density. The Process Solution Overflow Pond is linked to the HDPE single-lined Storm Event Pond 1 by an HDPE single-lined overflow channel.

The facility has two single-lined storm event ponds: Storm Event Pond 1, constructed in 1997, and Storm Event Pond 2, constructed in 2007. The ponds are hydraulically linked and each has a 20-day limit for storage of process solution from any single storm event.

The original single-lined Storm Event Pond 1 measures 210 feet by 350 feet, is 12 feet deep, and has a total as-built capacity of approximately 5.56 million gallons.

The storm event pond has sufficient capacity, with 2 feet of available freeboard storage capacity (about 1.23 million gallons) remaining, to provide emergency storage of solution reporting to it from the 25-year, 24-hour storm event plus 110% of the solution from a failure of the Pregnant Solution Tank.

Storm Event Pond 1 is constructed in accordance with NAC 445A.435. A single layer of smooth 80-mil HDPE was placed over a 6-inch minimum thickness of bedding-liner material, moisture conditioned to no less than 2% below or no more than 3% above optimum moisture content, and compacted to 95% maximum dry density over a scarified and compacted subgrade. Storm Event Pond 1 is for limited emergency use and is, therefore, not leak detected.

Construction of the Storm Event Pond 2 was completed in late 2006, as part of the 2006 major modification expansion, to the same liner system design specification as Storm Event Pond 1. The single-layer, 80-mil HDPE-lined pond measures approximately 210 feet by 245 feet, crest-to-crest, and 12 feet deep. The pond has a total design capacity of approximately 3.24million gallons (2.5 million gallons below 2-foot freeboard). Storm Event Pond 2 is sufficiently sized to provide emergency storage of excess solution volume resulting from the 25-year, 24-hour storm event that could report to the expanded heap leach pad (Phase 3 & 4) footprint and associated additional channel and pond liner surfaces. Storm Event Pond 2 is hydraulically linked to Storm Event Pond 1 by an 80-mil HDPE-lined, trapezoidal-shaped overflow spillway measuring 6-feet across at the base.

The total combined capacity of the three ponds, including freeboard, is approximately 11.40 million gallons. The ponds have a total combined storage capacity to contain the normal working volume of solution, the fluid resulting from a 25-year, 24-hour storm event, and the solution buildup from a 24-hour cessation of pumping due to a power outage, while maintaining two feet of freeboard in each pond. The stormwater ponds have a combined total capacity of approximately 8.8 million gallons.

An EDC was approved by the Division in November 2013 to modify the leach pad fluid management system by adding two Carbon Tanks and associated piping and pumps on the existing Pregnant Solution Tank secondary containment structure. The purpose of the EDC is to allow gold recovery from carbon loaded directly from the ROM pregnant solution (previously termed 'lean pregnant solution'), rather than pumping it back to the crushed ore areas of the leach pad for further leaching and pregnant solution enrichment. Solution application rates to the leach pad remain unchanged.

The ROM pregnant solution is conveyed from areas of the leach pad loaded with uncrushed ROM ore via a 12-inch diameter SDR 11 HDPE pipe, and then through two 2,700-gallon, rectangular Carbon Tanks with steel construction, which are arranged in series near the southwest corner of the Pregnant Solution Tank

containment. Spent solution outflow from the Carbon Tanks is pumped to a small Barren Tank (formerly the Lean-Preg Tank) mounted just inside the rim of the Pregnant Solution Tank, where the solution is mixed with cyanide- and lime-rich fresh barren solution fed via pipeline from the barren solution sump in the process building. From the Barren Tank the solution is pumped to the leach pad to continue the heap leaching process.

Counter-current carbon handling is performed by pumps mounted in each Carbon Tank. Periodically, 2-3 tons of loaded carbon is pumped from Carbon Tank 1 into a mobile carbon transport trailer via a 2.5-inch polyethylene pipeline for offsite transport and precious metal recovery. The carbon transport trailer is driven onto the Pregnant Solution Tank secondary containment pad via a removable steel ramp, such that any solution spilled during loading of the transport trailer will be collected in the existing concrete secondary containment and drain into the Process Solution Overflow Pond for recycling into the process circuit.

Stormwater Requirements and Design: The upgradient watershed catchment area, comprised of two basins, totals approximately 969 acres. The 100-year, 24-hour design storm event will generate total flow of approximately 435 cubic feet per second (cfs). A network of open trapezoidal diversion ditches, designed to accommodate the 100-year, 24-hour storm event, will transport storm runoff around the facility.

The facility is designed to contain solution flows resulting from a combination of the 25-year, 24-hour storm event with a 24-hour power loss and to withstand the solution flows generated by a 100-year, 24-hour storm event.

In August of 2016, the Division gave non-fee approval for the construction and repair of the East Archimedes Pit Stormwater Diversion. In November of 2013, a pit wall failure caused a portion of the existing storm water diversion to collapse into the pit, leaving a portion of the pit exposed to upgradient stormwater. The design consisted of a diversion channel that would intercept the existing diversion channel and route collect meteoric water into a stormwater basin that will allow for the transfer of water around the pit. The basin has the ability to contain 1.2 acre-feet of meteoric water and contains a vertical riser that transfers flows to a 12-inch diameter HDPE SDR17 pipeline that routs stormwater through the diversion channel and sheds the water downstream of the pit. In the event that the 12-inch HDPE pipeline is overwhelmed, water can travel on the outskirts of the diversion channel and be shed downgradient of the pit. Construction consisted of the placement of structural, common, and granular fill along with the placement of riprap and trench backfill. Granular and common fill were compacted to a minimum of 92% of the maximum dry density as determined by ASTM D 1557. Structural fill and pipe bedding and trench backfill were compacted to a minimum of 90% of the maximum dry density as determined by ASTM D 1557. Geotextile was utilized

to minimize soil erosion in areas where riprap was used to dissipate hydraulic energy.

East Archimedes Pit Lake: Following the completion of mining and cessation of pit dewatering, the East Archimedes Pit will have a pit lake. The original pit lake study titled *Final East Archimedes Pit Lake Water Quality, Homestake Ruby Hill Mine* was completed by Schafer Limited LLC in May 2005. Pit lake modeling was completed using geochemical tests on batches of representative source water that contribute to filling of the pit lake and the USGS geochemical modeling code PHREEQC (1999).

Based on the model, it was anticipated that, over a period of approximately 40 years, the water level in the pit would rise to approximately 5,835 feet AMSL and reach a steady-state level of 5,861 feet AMSL, approximately 50 feet below the pre-dewatering groundwater elevation, after 100 years. At that time the pit lake surface area would be approximately 60 acres. In addition, groundwater inflow would be approximately 92 gpm and evaporation from the pit lake surface would be approximately 142 gpm, resulting in a terminal pit lake or 'sink'.

The resulting pit lake water was predicted to be alkaline in pH and to have low levels of TDS (total dissolved solids). Concentrations of most common ions, with the exception of calcium and bicarbonate, would increase from year 5 to year 99 due to the cumulative effects of evapo-concentration. Calcium and bicarbonate levels were predicted to remain more constant due to precipitation of aragonite, a form of CaCO_3 . Most trace metals were predicted to be present at concentrations below standard laboratory detection limits. Only arsenic, barium, nickel, and zinc were expected to occur in measurable concentrations. However, the predicted water quality in the East Archimedes Pit Lake was good and met all Division Profile I water quality standards regardless of the modeling parameters used.

In support of the 2016 and 2022 Permit renewals, there were updated pit lake studies submitted in 2017 and 2021, respectively. The 2017 report re-evaluated the groundwater flow model based on observed dewatering rates and was reviewed and approved by the Division in June of 2020 with comments. The 2021 model re-evaluated the pit water balances and chemistry based on two scenarios, the first (Scenario 1) being an evaluation of the permitted pit (Phase 8) and the second (Scenario 2) being the current pit configuration with slide material. The overall conclusions of the 2017 study was consistent with the previous modeling efforts which predicted the pit lake water to meet all Profile I and III reference values, but differs from the 2021 model which predicts that there will be Profile I and III reference value exceedances.

Scenario 1 predicted that the lake will reach equilibrium approximately 140 years after the start of pit filling, reach an elevation of 5,793 ft amsl, and have a surface area of approximately 54 acres. Scenario 2 predicted that the lake will reach

equilibrium approximately 106 years after the start of pit filling, equilibrate at an elevation of 5,800 ft amsl, and have a surface area of approximate 49 acres. The differences in the equilibrium elevations, surface areas, and filling times are due to the differences in the pit configurations that directly affect the water balance components of each lake.

Scenario 1 predicted that pH and thallium would exceed their respective Profile III reference values. Thallium would begin exceeding 50-years after the cessation of dewatering and pH was anticipated to be elevated throughout the modeled period. Scenario 2 predicted that arsenic, fluoride, pH, thallium, and vanadium would all exceeded their respective reference values at varying times throughout the modeling period. Fluoride, pH, and thallium would consistently exceed their reference values over the 200-year modeling period. Due to these predicted exceedances, the Permittee was required to prepare an Ecological Risk Assessment (ERA) to determine the possible risk to human, terrestrial, or avian life from contact or ingestion of the water.

Pursuant to NAC 445A.429, bodies of water that are a result of mine pits penetrating the water table must not create and impoundment which has the potential to degrade waters of the State or that has the potential to affect adversely the health of human, terrestrial, or avian life. The Divisions Profile III reference values act as a Screening Level Ecological Risk Assessment that, if exceeded, provides cause for further evaluation of the pit lake conditions. The ERA evaluated wildlife receptors in the area of the lake, the body weights and water intake of these receptors, and the predicted chemistry and known toxicity reference values to determine risk.

The ERA results indicated that the harmful effects from pit lake constituents were not likely. The assumption that receptors will utilize 100% of the water for their entire lives coupled with utilization of the no-mineral precipitation chemistry analysis provided for a conservative estimation on risk to terrestrial and avian wildlife.

In support of a Major Modification submitted approved in July 2025, an updated pit lake study and ERA were submitted. The modification proposed an underground mine in the Archimedes pit area to access two deposits: 426 and Blackjack. The 2023 study utilized the previous groundwater modeling completed in 2021 for Scenario 2 following an assessment of its suitability. Scenario 2 predicts that the underground workings not backfilled with cemented rock fill will flood, and groundwater will rebound to the base of the pit within a year. Scenario 2 predicts that the lake will reach equilibrium approximately 106 years after the start of pit filling, equilibrate at an elevation of 5,800 ft amsl, have a surface area of approximate 49 acres, and remain a terminal sink. Scenario 2 predicts that within a year the small amount of underground workings not backfilled with cemented rock fill will flood, and groundwater will rebound to the base of the pit. The pit lake's

future limnological behavior was also evaluated and stratification within the Archimedes pit lake is unlikely.

Additional constituents are predicted to be elevated above NDEP Profile III reference values for the model scenario incorporating the underground workings compared to the 2021 pit lake model. In addition to arsenic, fluoride, pH, thallium, and vanadium; the 2023 pit lake model predicts cadmium, mercury, and selenium to be elevated above NDEP Profile III reference values. Arsenic, fluoride, and thallium are predicted to exceed their reference values over most of the 200-modeling period. The Permittee prepared and submitted an ERA with the major modification.

The ERA results indicate that the harmful effects from pit lake constituents cannot be ruled out, but the harmful effects are not likely. The assumption that receptors will utilize 100% of the water for their entire lives coupled with utilization of the no-mineral precipitation chemistry analysis provides for a conservative estimation on risk to terrestrial and avian wildlife. Additionally, the potential impacts from exposure to aluminum and thallium assessed by the ERA are overestimated as the model likely overestimated the predicted concentration of these constituents.

Groundwater Arsenic Reduction and Treatment Plant: In order to meet new water quality standards for arsenic in mine dewatering water discharged to rapid infiltration basins (RIBs) permitted as part of the Ruby Hill Mine Infiltration Project, WPCP NEV2005106, construction of an arsenic reduction and treatment plant was approved by the Division as an EDC in March 2011. Arsenic in dewatering groundwater does not typically exceed the previous 50 part per billion (ppb) standard but may exceed the new 10 ppb limit. The treatment plant is located within the existing ADR plant and mill building containment and utilizes existing tanks and pipelines for the majority of the process. Secondary containment capacity exceeds regulatory requirements and spills can be evacuated to the process stream.

Mine dewatering groundwater may be conveyed for treatment at approximately 100 to 1,000 gpm through an 8-inch diameter HDPE pipeline, previously constructed to convey dewatering water directly to the RIBs. From the dewatering wells, the groundwater conveyance pipeline is routed along the surface. This single-wall pipeline is routed through culverts for sections that pass beneath access and haul roads.

At a location approximately ¼ mile west and downgradient of the mill building, the groundwater conveyance pipeline connects to a tee and valve that connect it to a 1,550-foot long, 8-inch diameter HDPE groundwater supply inlet pipeline, located within a 12-inch diameter HDPE secondary containment pipeline buried in a trench at a minimum 1-foot depth below light vehicle access roads and at least 4 feet beneath haul roads.

The groundwater supply inlet pipeline discharges to the oxidation tank at the mill building. The oxidation tank is a 210,000 gallon capacity steel tank formerly used as the process leach tank and is located external to the mill building on an existing concrete secondary containment pad with a 14-inch high stemwall. Sodium hypochlorite (NaOCl) is metered into the oxidation tank and mixed with the groundwater to oxidize the arsenic trioxide (As_2O_3) to penta-valent arsenate (AsO_4^{3-}) to enhance adsorption and co-precipitation efficiency.

The oxidized groundwater is then conveyed by gravity through a rapid mix tank (stand pipe) where ferric sulfate ($\text{Fe}_2(\text{SO}_4)_3$), a coagulant, and an approved flocculent are added prior to discharge into the adjacent settling tank/clarifier. The settling tank/clarifier is an elevated, 143,000 gallon capacity steel tank formerly used as the process thickener tank and is located within the same containment area as the oxidation tank.

Within the settling tank/clarifier, arsenic is adsorbed onto and co-precipitated with the hydrous ferric oxide precipitate. The treated water overflow from the settling tank/clarifier, which must not exceed the 10 ppb arsenic maximum Profile I reference value, is pumped through a 1,550-foot long, single-wall, 8-inch diameter HDPE treated groundwater discharge pipeline to a tee and valve in the RIBs conveyance pipeline for discharge to the RIBs. Sections of this single-wall pipeline may be buried beneath light vehicle and haul roads and therefore may only be used to convey treated dewatering water that meets all Profile I reference values.

The arsenic concentrated iron slurry underflow from the settling tank/clarifier is conveyed through a 2-inch diameter HDPE pipeline for discharge onto the heap leach pad. The pipeline is located within either existing mill building secondary containment or a shallow, 60-mil HDPE lined vee-ditch. The discharge solids are sampled for MWMP-Profile I analysis.

C. Receiving Water Characteristics

The facilities are located at the northern terminus of the Fish Creek Mountain Range at elevations ranging from 6,200 to 6,600 feet above mean sea level (amsl). The site is situated at the southern end of the Diamond Valley Hydrographic Basin with groundwater flows generally from south to north toward the center of Diamond Valley. The site surface water hydrology is characterized by ephemeral drainages with flow northward into Diamond Valley, primarily due to snowmelt and runoff from isolated seasonal rainstorms.

Springs or seeps have not been identified in the immediate project area. Seven upgradient springs have been identified and all are in excess of 2.5 miles from the project site and do not contribute to any perennial surface flow. Spring water chemistry is generally good with constituent levels meeting drinking water

standards except for one spring with elevated selenium and another with elevated iron.

Groundwater chemistry transitions from a calcium-magnesium-bicarbonate dominant suite in the mountainous recharge areas, to a downgradient sodium-potassium-bicarbonate dominant suite, to a sodium-potassium-chloride-sulfate dominant suite in the center of the valley. Natural discharge areas in the center of the valley report increased dissolved solids concentrations due to evapotranspiration and evaporation.

Several domestic wells, located either upgradient of or in a separate hydrographic basin to the south of the project area, were sampled prior to project construction in 1997 and reported constituent levels above the drinking water standards for total dissolved solids, arsenic, iron, manganese, and nitrate. Nitrate values with individual well averages ranging from 10.9 milligrams per liter (mg/L) to 179.2 mg/L, are thought to be related to the proximity of sample locations to septic leach fields and/or livestock grazing areas.

Three municipal wells located approximately 2 miles north and downgradient of the project area were sampled prior to construction of the original facilities in 1997. Well #2 exhibits good water quality with no constituents above the drinking water standards. However, nitrate was measured at 24.4 mg/L in Well #1 and manganese was measured at 0.07 mg/L in Well #3.

Groundwater hydrology in the immediate vicinity is characterized by a relatively deep water table, exhibiting depths of 250 to 600 feet below ground surface (bgs). Analyses suggest a calcium-sodium-bicarbonate dominant suite. Generally, water quality is good. Of the seven monitoring wells constructed within the project area prior to mining operations, only MW-1 and MW-5 report background arsenic values in excess of the drinking water standard (up to 0.75 mg/L) and only MW-2 exhibits slightly elevated aluminum values. Since their pre-mining placement, all monitoring wells, have exhibited pH values in the range of 7.5 to 8.6 standard units.

In August of 2022, the Division approved of an EDC for the replacement of monitoring wells for MW-3 and MW-5, which had been dry since 2017. Based on the depth to groundwater, the ongoing dewatering, and the lack of solution reporting to any heap leak detection ports, the Division only requested that one well be replaced at this time (MW-3R). The Division may require that a well be installed in the future if site conditions change. Monitoring wells MW-3 and MW-5 will remain in the Permit due to their ability to be valuable monitoring points once dewatering of the pit ceases.

Monitoring well MW-3R will be drilled and constructed so that the screened interval of the well is at the first encountered groundwater, as defined by NAC 445A.361. It is currently planned that the screen interval will be up to 100-feet

instead of the standard 20-30 feet to improve the chance that the well to remain functional while dewatering of the Archimedes Pit continues. The well will be constructed in accordance with NAC Chapter 534 regulations and an as-built report documenting the well construction details will be submitted with 30-days of the completion of drilling.

D. Procedures for Public Comment

The Notice of the Division's intent to issue a Permit authorizing the facility to construct, operate and close, subject to the conditions within the Permit, is being published on the Division website: <https://ndep.nv.gov/posts/category/land>. The Notice is being mailed to interested persons on the Bureau of Mining Regulation and Reclamation mailing list. Anyone wishing to comment on the proposed Permit can do so in writing within a period of 30 days following the the public notice is posted to the Division website. The comment period can be extended at the discretion of the Administrator. All written comments received during the comment period will be retained and considered in the final determination.

A public hearing on the proposed determination can be requested by the applicant, any affected State or intrastate agency, or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted.

Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings must be conducted in accordance with NAC 445A.403 through NAC 445A.406.

E. Proposed Determination

The Division has made the tentative determination to issue the renewed Permit.

F. Proposed Effluent Limitations, Schedule of Compliance, Special Conditions

See Section I of the Permit.

G. Rationale for Permit Requirements

The facility is located in an area where annual evaporation is greater than annual precipitation. Therefore, it must operate under a standard of performance which authorizes no discharge(s) except for those accumulations resulting from a storm event beyond that required by design for containment.

Groundwater within the immediate project area occurs in bedrock and valley-fill alluvium at 250 to 600 feet bgs. The project area water quality is generally good except for naturally elevated arsenic values in two monitoring wells. However, some outlying domestic and municipal wells have elevated nitrate concentrations, possibly due to close proximity to septic leach fields and/or livestock sources. Pre-dewatering depth to groundwater beneath the heap leach pad was 367 feet and between 425 feet and 505 feet beneath the waste rock facilities. The East Archimedes Pit will intercept groundwater and a terminal pit lake is expected to form following the end of mining. Modeling demonstrates that the evolving and final pit lake water quality is good.

The primary method for identification of escaping process solution will be placed on required routine monitoring of leak detection systems as well as routinely sampling downgradient monitoring well(s). A minimum of seven downgradient groundwater monitoring wells, which encircle the facilities, are sampled quarterly. Specific monitoring requirements can be found in the Water Pollution Control Permit.

H. Federal Migratory Bird Treaty Act

In order to prevent migratory bird mortality, Ruby Hill Mine has installed nets over all ponds and tank that contain process solution.

Under the Federal Migratory Bird Treaty Act, 16 U.S. Code 701-718, it is unlawful to kill migratory birds without license or permit, and no permits are issued to take migratory birds using toxic ponds. The Federal list of migratory birds (50 Code of Federal Regulations 10, 15 April 1985) includes nearly every bird species found in the State of Nevada. The U.S. Fish and Wildlife Service is authorized to enforce the prevention of migratory bird mortalities at ponds and tailings impoundments. Compliance with State permits may not be adequate to ensure protection of migratory birds for compliance with provisions of Federal statutes to protect wildlife.

Open waters attract migratory waterfowl and other avian species. High mortality rates of birds have resulted from contact with toxic ponds at operations utilizing toxic substances. The Service is aware of two approaches that are available to prevent migratory bird mortality: 1) physical isolation of toxic water bodies through barriers (e.g., covering with netting), and 2) chemical detoxification. These approaches may be facilitated by minimizing the extent of the toxic water. Methods which attempt to make uncovered ponds unattractive to wildlife are not always effective. Contact the U.S. Fish and Wildlife Service at 1340 Financial Boulevard, Suite 234, Reno, Nevada 89502-7147, (775) 861-6300, for additional information.

Prepared by: Keith Johnson, P.E.
Date: **June 25, 2025**

- Revision 00: Renewal 2022, effective **27 August 2022**; Added details regarding the acquisition of Ruby Hill Mining Company LLC by I-80 Gold Corp. (Page 3), gravity injection well EDCs (Page 13), and the update to the predicative pit lake model (Page 17). Added discussion of replacement monitoring well MW-3R (Page 20).
- Revision 01: 426 UG Expansion & Boiler Plate Update

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