

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

Permittee Name: **Gold Standard Ventures (US) Inc.**

Project Name: **South Railroad Mine Project**

Permit Number: **NEV2020120**

Review Type/Year/Revision: New Permit 2026, Revision 00

A. Location and General Description

Location: The South Railroad Mine Project (Project) is located on public lands administered by the Bureau of Land Management (BLM), Tuscarora Field Office, and private lands controlled by Gold Standard Ventures (US) Inc. (GSV). The Project consists of the Mine Operations Area and the Access Road Area.

The Mine Operations Area is located in all or portions of Sections 13 through 16 and 20 through 28, Township 30 North (T30N), Range 53 East (R53E), Mount Diablo Base and Meridian (MDB&M), in Elko County, Nevada.

The Project is located approximately 25 miles south-southwest of Elko, Nevada. Access from Elko is via State Highway 227 (Lamoille Highway) to State Highway 228 (Jiggs Highway), followed by a series of county and BLM roads. The Access Road Area coincides with BLM Road 1119, County Road 720 (Bullion Road), and BLM Road 1053.

General Description: The South Railroad Mine Project consists of open pit mining with associated waste rock disposal facilities and ore processing using conventional cyanide heap leach technology. Ore and waste rock will be mined using standard drilling, blasting, loading, and hauling methods. Ore will be crushed as needed and placed on a heap leach facility where precious metals will be recovered using carbon adsorption/desorption and electrowinning. Project facilities are required to be designed and constructed, and must be operated and closed in such manner to prevent discharge or release of process fluids in excess of those standards established in regulation except for meteorological events which exceed the design storm event.

B. Synopsis

The Project site is located in the Basin and Range Province, which typically has isolated, and roughly parallel mountain ranges separated by desert basins. The Project facilities straddle a topographic and hydrological divide between Pine Valley to the west and Dixie Creek-Tenmile Creek to the east. This divide is the southern end of the north-south trending Piñon Mountain Range which reaches an elevation of 8,756 feet amsl approximately three miles south of the Project at Elliot Dome.

History: Gold mineralization within the Project area is part of the Carlin Trend, a region that has been the focus of extensive mineral exploration since the mid-20th century. Exploration in the Dark Star and Pinion areas began in the late 1970s and early 1980s following identification of Carlin-style gold mineralization hosted in Paleozoic carbonate rocks exposed in structural windows.

Since initial discovery, the Project area has been explored by multiple mining and exploration companies. Exploration activities have included geologic mapping, surface geochemical sampling, geophysical surveys, trenching, reverse circulation and core drilling, metallurgical testing, and geotechnical and hydrogeologic investigations. These programs delineated multiple zones of Carlin-style gold mineralization within the Piñon Range.

The Project is currently controlled by GSV, the present Permittee, which has advanced the Project through additional technical studies and preparation of mine plans, engineering designs, and environmental documentation in support of permitting under Nevada regulations.

Geology: The Project is located along the Carlin Trend in the Piñon Range of northeastern Nevada, within the Great Basin section of the Basin and Range Physiographic Province. The region is characterized by north- to northwest- trending mountain ranges and intervening basins formed by Late Tertiary extensional faulting.

The Project area is underlain by a structurally complex sequence of Ordovician through Mississippian marine sedimentary rocks consisting of carbonate-rich autochthonous units and siliciclastic allochthonous units juxtaposed along the Roberts Mountain Thrust. Gold mineralization is characteristic of Carlin-style systems and is preferentially hosted in Devonian to Mississippian carbonate units, including the Devils Gate Limestone.

Mining: Mining will be conducted using conventional open pit mining methods, including drilling, blasting, loading, and hauling, to extract ore and waste rock from two mining areas (Dark Star and Pinion) with two pits in each area for a total of four open pits: Dark Star North; Dark Star Main; Pinion North; and Pinion Main.

Ore and waste rock will be excavated using conventional open pit mining (truck-and-shovel) operations. Ore will be hauled by truck to the heap leach facility (HLF) as run-of-mine ore or to the primary crushing facility prior to placement on the HLF. Waste rock will be transported to the waste rock disposal facilities (WRDFs) for permanent placement.

Open pit development will occur in phases or push-backs designed to maintain pit wall stability, appropriate working geometries, and safe equipment access. During the initial mining in each open pit a six-foot high safety berm will be constructed around the edge of the open pit.

The Dark Star North open pit will be excavated to an elevation of 6,520 feet above mean sea level (amsl) which is approximately 50 feet above the groundwater elevation.

The Dark Star Main open pit will be excavated to an elevation of 6,580 feet amsl which is approximately 60 feet above the groundwater elevation.

The Pinion North open pit will be excavated to an approximate depth of 550 feet, with a pit bottom elevation of approximately 6,940 feet amsl, and the Pinion Main open pit will be excavated to an approximate depth of 810 feet, with a pit bottom elevation of approximately 6,610 feet amsl.

Since the proposed permitting action only authorizes mining above the water table, no Pit Lakes are predicted to form in any of the proposed pits. A major modification will be

required to permit mining below the groundwater table. Pit lakes are not predicted for the Pinion pits as pre-mining groundwater elevation is below the bottom elevations of the pits, and no dewatering activity is planned for the Pinion area.

Waste Rock Management Plan: Waste rock generated by mining will consist primarily of altered and unaltered Paleozoic sedimentary rocks typical of Carlin Trend deposits and will be managed in accordance with approved waste rock characterization and placement criteria detailed in the Waste Rock Management Plan. The Waste Rock Management Plan classifies material with an acid neutralization potential to acid generation potential ratio of less than 1.2 and a sulfide sulfur percentage greater than or equal to 0.15 percent by weight as potentially acid generating.

The proposed mining above the water table has the estimated amount for material for each pit showing the potential acid generation (PAG) to non-potentially acid generating (Non-PAG):

Pit	PAG	Non-PAG
Dark Star North	0.35%	99.65%
Dark Star Main	26.48%	73.52%
Pinion North	0.90%	99.10%
Pinion Main	1.50%	98.50%

Waste rock will be managed based on material characterization and placed in accordance with the approved Waste Rock Management Plan to ensure protection of waters of the State. Stormwater controls will be implemented and monitored during operations.

Waste Rock Disposal Facilities: Waste rock generated by mining will consist primarily of altered and unaltered Paleozoic sedimentary rocks typical of Carlin Trend deposits and will be managed in accordance with approved waste rock characterization and placement criteria, as discussed above.

Waste rock generated by mining will be placed in three WRDFs constructed over the life of the Project. The Pinion WRDF will accept waste from the Pinion North and Pinion Main Pits. The Dark Star North Pit and Dark Star Main Pit will have two associated WRDF; the Dark Star West WRDF, which will receive only Non-PAG materials, and the Dark Star East WRDF, which will receive both PAG and NPAG materials. All the proposed WRDFs will have a prepared subgrade that will consist of 12-inch layer of soils that have a maximum permeability of 1×10^{-5} cm/sec. The prepared subgrade materials will be constructed with in-situ material meeting the permeability specification or imported materials meeting the permeability requirements.

Pinion WRDF: The Pinion WRDF will contain 53 million tons of material and cover 141 acres. The native surface will be cleared and grubbed. The base of the facility will have a minimum of 8 feet of non-PAG material, then be filled with the waste rock material from the Pinion Pits. The upper-most portion of the facility will have a minimum of 8 feet of non-PAG material. Concurrent reclamation is proposed and will consist of regrading the

slope to a minimum of 3 horizontal to 1 vertical (3H:1V) and placement of up to 3 feet of soil cover.

Dark Star East WRDF: The Dark Star East WRDF will contain 62.3 million tons of material and cover 214 acres. All material classified as potentially acid generating will be placed in the Dark Star East WRDF. The native surface will be cleared, grubbed, and compacted. A prepared subbase consisting of a 1-foot thick soil layer with a maximum permeability of 1×10^{-5} cm/sec will be placed below the WRDF. The facility will be constructed with an initial 50-foot non-PAG waste rock lift and will be constructed to have an 8-foot non-PAG material on the exterior of the facility.

The Dark Star East WRDF's collection pond will be sized to contain the runoff produced during a 100-year, 24-hour storm for the operational configuration. The pond is proposed to have a capacity of 23.0 million gallons at freeboard and 24.1 million gallons at the crest. Pumps will be installed in the pond to evacuate collected seepage during operations. During operations seepage from the pond will be sampled and tested, and either pumped to the plant for process use or used on site for dust control if water quality permits. The pond will be constructed with a double geomembrane liner with a leak detection system.

No seeps or springs have been identified within the Dark Star East WRDF footprint, though the Permittee has incorporated a groundwater collection drain as an additional measure to protect the liner system should the conditions change.

The major drainage in the area will have a groundwater conveyance collection drain as an additional contingency to protect the prepared subbase(s) from groundwater. The groundwater collection drains consist of a trench with a 4-inch CPe pipe encapsulated in gravel. The drains will be placed in all major low regions in the Phase 1 HLP footprint. The groundwater drains will convey any water collected into concrete tanks to allow for water quality testing and flow monitoring.

Dark Star West WRDF: The Dark Star West Facility will contain 34.8 million tons of non-PAG waste rock material and cover 131 acres. The native surface will be cleared, grubbed, and compacted. A prepared subbase consisting of a 1-foot thick soil layer with a maximum permeability of 1×10^{-5} cm/sec will be placed below the WRDF. Where groundwater is within 50 feet of the prepared subgrade, an 80-mil LLDPE geomembrane liner will be installed. The transition from LLDPE liner to only the low permeable subgrade will happen with an anchor trench for the LLDPE liner and then placement of 1-foot thickness of prepared subgrade material with a minimum of 2 feet of overlap. A 24-inch-thick layer of Select Mine Waste will be placed over the geomembrane to prevent damage from larger rocks during waste placement by the mine. The Select Mine Waste will consist of non-PAG material with a maximum particle size of 6-inches.

The Dark Star West WRDF's single collection pond will be sized to contain the runoff produced during a 100-year, 24-hour storm for the operation configuration. The pond is proposed to have a capacity of 7.19 million gallons at freeboard and 7.86 million gallons at the crest. Pumps will be installed in the pond to evacuate collected seepage during operations. During operations seepage from the pond will be sampled and tested, and either pumped to the plant for process use or used on site for dust control if water quality permits.

The pond will be constructed with a double geomembrane liner with a leak detection system.

No seeps or springs have been identified within the Dark Star West WRDF footprint, though the Permittee has incorporated a groundwater collection drain as an additional measure to protect the liner system should the conditions change. The one spring in the area, PG1, will not be constructed over and will be monitored as part of the Permit.

The major drainage in the area will have a groundwater conveyance collection drain as an additional contingency to protect the prepared subbase from groundwater. The groundwater collection drains consist of a trench with a 4-inch CPe pipe encapsulated in gravel. The drains will be placed in all major low regions in the Phase 1 HLP footprint. The groundwater drains will convey any water collected into concrete tanks to allow for water quality testing and flow monitoring

Heap Leach Pad: The Project heap leach pad (HLP) consists of a conventional lined leach pad to support a multi-lift, free-draining heap which will be stacked to a maximum height of 300 feet. The heap leach pad will be constructed in four phases and will have a total capacity of approximately 52 million tons.

The HLP will be graded to promote collection of process solution at the base of the pad and direct drainage of the process solution to the collection piping. All fill materials will be non-acid generating material. The HLP will be constructed with either a double liner or composite liner system, specified as follows:

- The double liner system will be installed in areas where groundwater is less than 50 feet from the ground surface and will comprise of the following layers from bottom to top: 12-inches of Prepared Subgrade with coefficient of permeability equal to or less than 1×10^{-5} centimeters per second (cm/sec), 80-mil LLDPE secondary geomembrane, 24-inches of Leak Detection Media, and 80-mil LLDPE primary geomembrane.

The leak detection system for the double liner area of the HLP will be constructed with well graded gravel and will have six leak detection recovery system (LCRS). Each LCRS will consist of a 2-foot-deep sump and a 12-inch diameter DR21 HDPE pipe to allow for pumping solution out of the sump.

- The composite liner system will be installed in areas where groundwater is over 50 feet from the ground surface and will be composed of a 12-inch thick, compacted low hydraulic conductivity soil layer with a coefficient of permeability of 1×10^{-6} cm/sec overlain by a high-density polyethylene (HDPE) geomembrane.

In both lining cases, collection piping will be installed above the primary liner as a drainage system over the geomembrane of highly permeable drainage layer (e.g. overliner) inlayed with a network of drainage pipes to direct solution flows to the process ponds while minimizing the hydrostatic head on the liner.

No seeps or springs have been identified within the HLP footprint, however the Permittee has incorporated groundwater collection drains as an additional measure to protect the HLP liner system should the conditions change. The groundwater collection drains consist of a trench with a 4-inch CPe pipe encapsulated in gravel; The gravel is specified to be non-acid generating and have no leaching of constituents above NDEP Profile I. The drains

will be placed in all major low regions in the Phase 1 HLP footprint. The groundwater drains will convey any water collected into concrete tanks to allow for water quality testing and flow monitoring.

An overliner layer will be provided to protect the drainage collection pipes and underlying geomembrane and to transmit solution flowing through the heap along the base of the pad to the process ponds. The overliner material will be a minimum of 18 inches thick.

The heap leach pad will be surrounded by containment berms to prevent surface waters from entering the facilities. In addition, culverts and diversion channels will be placed in and around the facilities for stormwater control.

Process Ponds: The Project includes a pregnant solution pond and an events pond constructed adjacent to the heap leach pad as part of the solution management system. The ponds are situated approximately 600 feet to the east of the heap leach facility and will be connected by a solution collection channel. Gravity drainage from the heap can be directed to either the pregnant solution pond or the pregnant solution tank. The pregnant solution pond will overflow via a spillway into the events pond if the solution levels in the pregnant solution pond rise above the spillway elevation. Solution will be pumped from the pregnant solution pond to the pregnant solution tank and then to the plant site for processing. The solution conveyance pipelines, and valves will be located in a HDPE geomembrane lined channel that provides secondary containment for the solution conveyance pipelines.

The pregnant solution tank has a capacity of 110,000 gallons and is cylindrical in shape. The tank is situated adjacent to the crest of the pregnant solution pond on a reinforced concrete containment slab. The containment slab is hydraulically tied to the Process Pond system. In the event of a power or equipment failure or large precipitation event, solution will overflow the tank and flow into the pregnant solution pond, which overflows to the event pond. Pumps will be installed in the pregnant solution tank and in the pregnant solution pond such that solution from either the tank or pond can be pumped to the process plant.

The pregnant solution pond and event pond will be double lined with 80-mil HDPE geomembrane with an interlayer of geonet for leak detection. The ponds will slope toward the east corners of the respective pond such that any leaks through the primary geomembrane can gravity-drain to the Leak Collection Recovery System (LCRS) sumps. The sumps consist of a gravel filled depression situated between the two HDPE geomembranes in the pond excavation low spots. A twelve-inch-diameter HDPE pipe will be installed on the pond slope and extend from the sump to the pond crest. This pipe will allow for the installation of LCRS pumps and discharge piping.

The pregnant solution pond will be rectangular in shape with a maximum depth of 31 feet. The storage capacity at the elevation of the overflow to the event pond is 10.09 million gallons (Mgal), which will provide a total freeboard of two feet.

The event pond will be rectangular in shape with a maximum depth of 39 feet. It will have a storage capacity of 31.98 Mgal at the two feet of freeboard elevation of 6,481 feet. The storage capacity at the emergency spillway elevation of 6483 feet will be 35.13 Mgal. The event pond has been sized to store runoff from significant storm events that result in flows above the operating flow rate up to the 100-year, 24-hour event and drain down from the

heap in the event of a power outage or a pump or plant stoppage due to maintenance or repairs for a maximum of 24 hours. The total combined storage volume of the pregnant solution and event ponds with two feet of freeboard below the emergency spillway will be 42.07 Mgal.

The heap leach facility is surrounded by a perimeter containment berm to prevent stormwater run-on from entering the pad. In addition, culverts and diversion channels are proposed around the facilities for further storm water control.

Process Building: The adsorption-desorption-recovery (ADR) plant is located adjacent to the heap leach facility and houses all tanks, piping, columns, and vessels required for processing pregnant leach solution from the heap leach pad. Each part of the process plant will be contained with sealed concrete floor slabs and six-inch high curbs to prevent leakage or spillage outside of the containment footprints for each process unit. The combined containment areas exceed 110 percent of the maximum volume of the largest tank in the area.

Pregnant leach solution from the heap leach will be pumped to the ADR Plant and into the carbon-in-column circuit and adsorbed onto activated carbon (adsorption). Loaded carbon from the carbon-in-column circuit will be desorbed in a high-temperature elution process coupled to an electrowinning circuit (desorption), followed by retorting to remove mercury and smelting of the resulting sludge to produce doré bullion (recovery). Before elution, each batch of carbon may be acid washed to remove any scale and other inorganic contaminants that might inhibit gold adsorption on carbon. Carbon will be thermally reactivated using a rotary kiln.

Stormwater Diversion System: Stormwater from the site will be managed as contact and non-contact stormwater. Stormwater that lands on the permitted facility will be managed as contact water that will be managed within the proposed facility containments. Non-contact flows will be diverted around the site and directly discharged to existing drainages. The Project Area crosses a topographic divide in the Pinion area and therefore there are two primary drainage directions. West of the topographic divide, surface water drains west via Trout Creek and its tributaries, eventually flowing to Pine Creek, which flows north to the Humboldt River. East of the topographic divide, surface water drains northeast via Dixie Creek and its tributaries, eventually flowing to South Fork Humboldt River, which flows north to the Humboldt River..

Surface water diversion channels will be constructed as necessary around surface facilities, the open pits, and WRDFs to control stormwater run-off to these sites. These collection and conveyance systems will be stable and will require a series of channels, culverts, and energy dissipation structures to manage stormwater runoff from the site. Surface water control channels and sediment retention ponds will be constructed to reduce erosion. Culverts, sediment ponds, and operational diversion channels and all conveyance structures have been designed and are sized to contain a 100-year, 24-hour storm event. Permanent run-on diversion channels are designed and will be constructed for a 500-year, 24-hour storm event and remain as permanent features after final reclamation and mine closure.

Ancillary Facilities: Ancillary facilities will include a ready line, maintenance area, reagent and fuel storage locations, storage and laydown yards, explosive magazines,

meteorological station, warehouse, truck maintenance shop, truck wash, offices, warehouse and workshop, change/lunch facilities; administration/security building; and solid and hazardous waste management facilities. Ancillary facility will be constructed with appropriate secondary containment to capture spills or releases.

Used oil and coolant will also be stored at the maintenance building and truck shop in secondary containment. These will be either recycled or disposed in accordance with state and federal regulations. Used containers will be disposed of or recycled according to federal, state, and local regulations.

C. Receiving Water Characteristics

The project straddles a topographic divide between the Pine Creek watershed and the South Fork Humboldt watershed. These watersheds are delineated by hydrogeologic area and classified by typical flow system characteristics. The South Fork Humboldt watershed consists of the Huntington Valley hydrogeologic area, the South Fork hydrogeologic area, and the Dixie Creek-Tenmile Creek Basin hydrogeologic area. The Pine Valley, Huntington Valley, and South Fork hydrogeologic areas are classified as lacking inflow, but having outflow through both the soils, streams, and the basin-fill material; while the Dixie Creek-Tenmile Creek hydrogeologic area was classified as having inflow and outflow through both the soils, streams, and the basin-fill material. The predominant surface-drainage feature in the above-mentioned hydrogeologic areas is classified as a perennial stream that is directly hydraulically connected to the regional aquifer. These watersheds discharge into the Humboldt River Watershed.

The Pinion Pit area encountered groundwater at an elevation of 6,570 ft amsl which is about 40 ft below the total deepest pit in Pinion. The water quality in the Pinion Pits have exceedances of arsenic from 0.027 to 0.4 mg/L while the unmineralized zones meet Profile I reference values

Water in the Dark Star area is dominated by a fracture network. The Dark Star area encountered groundwater at elevations between about 6,400 to 6,600 feet amsl. The water quality in the Dark Star Pits have exceedances of arsenic from 0.013 to 0.1 mg/L while the unmineralized groundwater zones meet Profile I reference values.

Within the project area there are many surface water expressions, generally the springs and seeps meet Profile I reference values with a few exceedances in arsenic.

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 in 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 date 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 new Permit.

F. Proposed Limitations, Schedule of Compliance, Monitoring, 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.

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) and surface water. Specific monitoring requirements can be found in the Water Pollution Control Permit.

H. Federal Migratory Bird Treaty Act

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., by 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.

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Date: October 1, 2026

Revision 00: New Permit

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