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

Permittee Name: **Geo-Nevada Inc.**

Project Name: **Spring Valley Project**

Permit Number: **NEV2003112**
Review Type/Year/Revision: **Renewal 2025, Fact Sheet Revision 00**

A. Location and General Description

Location: The Spring Valley Project is a physical separation facility located approximately 8 miles northeast of Carson City and 3 miles west of Dayton, in Lyon County, within portions of Sections 20, 21, and 28, Township 16 North, Range 21 East, Mount Diablo Baseline and Meridian. The facility is located on both private and public land. The public land is managed by the Bureau of Land Management, Carson City District Office, Stillwater Field Office.

Site Access: From Carson City, proceed east on US-50, to the junction of SR-341. Continue north on SR-341 approximately 1.5 miles to the entrance of the mine site, located on the east side of the road.

General Description: The Spring Valley Project uses physical separation methods to extract gold from hard rock ore mined at the Project site at a permitted rate of 36,500 tons per year. The facility is required to be designed, constructed, operated, and closed without any discharge or release in excess of those standards established in regulation except for meteorological events which exceed the 24-hour, 25-year design storm event.

Permitting History: In 1993, Geo-Nevada Inc. (Permittee) submitted application materials for a physical separation facility, located in Spring Valley. The mine and mill facility were assigned the Water Pollution Control Permit (WPCP) number NEV0093108; however, the permit was not issued.

The Permittee updated their application materials and reapplied for a physical separation facility Permit in November 2003. To avoid confusion, the Division assigned the Spring Valley Project a new WPCP number NEV2003112, which became effective in March 2004. Since March 2004, the Permittee has submitted and the Division has approved five minor modifications and four engineering design changes (EDCs):

Minor Modifications:

1. Tailings Pond Reconfiguration, Lined Tailings Weir Construction and Phased Mining of Lund Pit, approved by the Division on 22 June 2006.
2. Mill Gravity Circuit Redesign and Upgrades, approved by the Division on 05 October 2007.
3. Tailings Water Recycle System, approved by the Division on 22 April 2008.
4. Process Upgrade – Addition of Magnetic Separator and Cyclone Clarifier,

approved by the Division on 25 September 2008.

5. Tailings Solids Co-Disposal – Deposition of Dried Tailings Solids in Cells Within Waste Rock Dump 2, approved by the Division on 12 March 2010.

EDCs:

1. Redesign and Reconfigure Ore Stockpile Pad, approved by the Division on 24 August 2006.
2. Mill Containment Area Upgrades and Expansion, approved by the Division on 01 June 2007.
3. Event Overflow Pond, approved by the Division on 29 May 2018.
4. Weir Pond outlet structure, approved by the Division on 03 December 2018

B. Synopsis

Geology: The Project is underlain by two volcanic rock units, the Hartford Hill Rhyolite and the underlying Alta Andesite. There are northerly striking and steep dipping contact type zones hosted in the felsic units of the Hartford Hill Rhyolite. The Alta Andesite unit makes up the east high wall of the Lund Pit. In a southwesterly direction the Hartford Hill Rhyolite is on the hanging wall of the structural zone on the west side of the pit. The gold occurs as coarse particles within the structural zone/contact between the Hartford and Alta units.

Mining: Conventional open pit mining methods are used to remove gold-bearing ore from two existing pits, the Lund Pit and the West Pit. Mining of the Lund Pit (minor modification approved by the Division on 22 June 2006) began with the west rim of the pit. The small lake that has formed within the Lund Pit is the result of meteoric accumulation combined with groundwater seepage. The Permittee performs confirmatory analyses for pit lake water quality and elevation quarterly.

Although the Permit allows for use of Lund Pit water in the mill process, since the installation of the well and, more recently, the water recycling system (see below), no pumping of pit water has been necessary. Dewatering of the pit by land application was carried out from August 2006 to December 2006. The Permit for this method of discharge expired on 30 January 2007.

Ore and Waste Rock Characterization: Initial acid neutralization potential/acid generating potential (ANP/AGP) testing of stockpiled ore material and waste rock indicated a very low acid generating potential and excess acid neutralization potential. ANP/AGP ratios ranged from a low of 8.83 to a high of 19.6. Samples of pit run material were analyzed for ANP/AGP in 2013 with results consistent with previous years of very low acid generating potential and excess acid neutralization potential ranging from 26.6 to 46.6.

Meteoric water mobility procedure (MWMP)-Profile I analyses performed have periodically shown slight exceedances of the Profile I reference values for mercury and arsenic. The Permittee performs rock characterization (MWMP-Profile I and ANP/AGP) for ore, waste rock, and tailings quarterly.

In March 2010, a minor modification was approved by the Division allowing the co-disposal of dried tailings solids in cells within Waste Rock Dump 2. The dump is engineered to provide minimum of 12 feet of setback from the tailings material to any side of the dump, with a minimum of 3 feet of cover on top. Tailings solids must be dried (unsaturated condition) prior to disposal and only Dump 2 has been approved as a tailings repository. MWMP-Profile I analysis of tailings solids samples shows that disposal of the tailings within Waste Rock Dump 2 will not degrade waters of the State.

Crusher Feed Stockpile Pad: An engineered ore stockpile pad with containment has been constructed to ensure that contaminants mobilized by meteoric water do not create a potential to degrade waters of the State. This stockpile pad consists of an 80-mil high density polyethylene (HDPE) single liner over a layer of geo-net material, installed over a prepared subbase. The subbase is comprised of two 6-inch layers of compacted subgrade material (95 percent Standard Proctor Density and within plus or minus 3 percent of the optimum moisture content) applied over the prepared subgrade. A minimum 2-foot layer of minus ¾-inch gravel covers the HDPE liner. The pad is graded to drain to an HDPE-lined collection sump in the southeast corner of the pad. Solution collected in the sump is conveyed to the lined tailings pond for storage and recycling into the process facility.

Mineral Processing and Beneficiation: Gold-bearing ore is excavated and transported to the crusher feed stockpile. The material is transferred from the stockpile and fed into a hopper/grizzly and then conveyed to a jaw crusher. Crushed material is screened with oversize reporting to a waste rock pile and undersize material reporting to a surge bin. The undersize material is discharged onto a belt conveyor and conveyed to a wet ball mill. The wet ground pulp is conveyed to a series of gravity separation devices (vibrating screen deck, magnetic separator, Knelson concentrator, cyclone classifier, and a vibrating table concentrator) for further concentration. The final concentrate is shipped off-site for refining and the tailings are conveyed via a launder to the lined tailings facility.

Gravity Circuit Modifications: On 28 September 2007, the Permittee submitted a minor modification to reconfigure the gravity circuit, followed by another minor modification on 22 September 2008. In the present circuit configuration, the ball mill product is discharged to the ball mill sump where it is wetted and fed to the vibrating screen deck. Low grade output from the screen deck is returned to the ball mill via the ball mill recirculation pump, while concentrates are passed to the magnetic separator.

Iron is extracted by the magnetic separator and saved for resale. The iron-free concentrates are conveyed to the Knelson concentrator for additional refining of the high grade material stream. This material continues to the concentrate holding tank, from which it is dispensed to the vibrating table concentrator. The gold concentrates are recovered for off-site refining.

Low grade discharge from the Knelson concentrator is fed to the cyclone feed sump where it is divided into two streams, one directed to the ball mill via the recirculation sump, and the other sent to the cyclone classifier. From the cyclone classifier it is divided once more, one stream sent to the recirculation sump, the other joining the low grade discharge from the vibrating table concentrator going to the tailings weir and conveyed to the double-lined tailings facility for disposal.

Fluids Management and Containment: NAC 445A.433 to 445A.438, inclusive, define the minimum design criteria required of each process component and the site and operating conditions which are considered to exist when these criteria are applied. These provisions establish minimum contaminant control technologies and define the site and operating conditions that must be evaluated.

Pursuant to NAC 445A.428, physical separation facilities such as the Spring Valley Project are allowed to maintain a lower level of containment, depending on ore and process water characterization results. However, with the possibility of chemical processing occurring at the Spring Valley Project site in the future, the Permittee upgraded the original gravel and concrete floor in the mill building with new, reinforced concrete pad, surrounded by a 12-inch stem wall. The concrete is coated with a chemically resistant epoxy material with waterstops installed to preclude any solution from seeping off containment. The floor is also graded to drain to a concrete-lined sump for collection and recovery. The new containment has a volumetric capacity in excess of the required 110-percent of the largest vessel. The mill containment area upgrades and expansion EDC was approved by the Division on 01 June 2007.

Diversion Channels: Three engineered V-shaped diversion channels 2 feet deep by 6 feet wide are constructed around the perimeter of the process area and tie in to the existing artificial or natural drainage channels. The diversion channel on the west side of the process area is V-shaped, 2.6 feet deep by 8 feet wide. Because of the steep gradient, the southernmost portion of the diversion channel is lined with a minimum of 12 inches of riprap, consisting of native boulders greater than 6 inches diameter and free of organic material as specified in the design drawings.

Two V-shaped diversion channels, 2 feet deep by 6 feet wide, are constructed around the perimeter of the sedimentation pond and the Lund Pit and drain into the sedimentation pond (refer to *Sedimentation Pond* subsection for additional details). A third V-shaped diversion channel is constructed near the west and north faces of the West Pit and drains into the portion of the diversion channel without rip-rap that will run on the west side of the process area. The channels are constructed from native soils or structural fill, compacted to a minimum 92 percent of maximum dry density. The artificial channels tie into existing natural or artificial drainage channels or the sedimentation pond (refer to *Sedimentation Pond* subsection for additional design details).

Tailings Launder: The tailings launder rests on wood beam supports and is surrounded by a berm comprised of compacted native soils and/or structural fill, 1.5 feet in height and lined with 60-mil HDPE. A 60-mil HDPE wear sheet is placed on top of the liner with the tailings launder and support structure installed on top of the wear sheet.

Lined Tailings Weir: A lined tailings weir (minor modification approved by the Division on 22 June 2006), is located on the east side of the mill building. The lined weir conveys tailings into a free-draining area and directs any fluids into the tailings pond. The tailings weir is comprised of a layer of 60-mil HDPE, overlying a layer of geonet, anchored to a 3-foot high berm surrounding the weir. The geonet overlies a layer of 12 inches of compacted soil, overlying compacted structural fill. A 2.5-foot layer of drain gravel is placed over the HDPE liner prior to the placement of the gravity tailings. Operating plans indicate that

gravity circuit tailings are to be placed in a series of four lifts, approximately 10 feet in height with a 3 Horizontal to 1 Vertical (3H:1V) gradient. A 6-inch diameter Acrylonitrile butadiene styrene (ABS) drain pipe is spaced at regular intervals on each lift to facilitate drainage.

Tailings Pond: The tailings pond design has been revised since it was first proposed in the November 2003 New Permit Application. The pond was reconfigured and rotated to avoid a mineralized zone discovered during condemnation drilling. The pond structure occupies a footprint of 300 feet by 178 feet and the pond floor is graded to drain to a leak detection collection sump located in the east corner of the pond. The pond lining system consists of (from bottom to top) two 6-inch layers of compacted subgrade material (95 percent Standard Proctor Density and within plus or minus 3 percent of the optimum moisture content) applied over the prepared subgrade, a 60-mil HDPE secondary liner, a layer of HDPE geonet, and a 60-mil HDPE primary liner, with all synthetic liners secured in an anchor trench. The leak detection sump between the primary and secondary liners is 6-foot by 6-foot by 4-foot deep and is filled with ¾-inch cobbles as fill material (net capacity approximately 700 gallons). A 6-inch diameter Polyvinyl chloride **(**PVC) pipe serves as a leak detection port. The revised tailings impoundment minor modification was approved by the Division on 22 June 2006.

A minor modification to add water recycling capability to the tailings pond was approved by the Division on 22 April 2008. This system consists of a pontoon mounted pump with associated conveyance piping to the water tank; 60-mil HDPE lined ditch, in which the piping and electrical service is routed for the pump. Water is delivered from the tailings pond to the holding tank at the mill site, reducing the amount of make-up water needed from the well. The water discharges above the maximum level of the tank, preventing backflow through the delivery pipe.

Sedimentation Pond: A sedimentation pond 95 feet by 95 feet by 12 feet deep was originally constructed to collect water from two diversion channels. The pond was constructed from native soil or structural fill as specified in the design drawings, compacted to a minimum 92 percent of maximum dry density. Three 15-inch diameter Corrugated Polyethylene (CPE) discharge pipes exit the south wall of the pond. The need for this pond has now been negated by the construction of the tailings weir and tailings pond; it is now considered to be in temporary closure.

Event Overflow Pond: The permittee submitted an EDC on 25 May 2018 for the construction of a double synthetic lined event and overflow pond. The EDC proposed the construction of a double 80-mil, HDPE lined with leak detection, 17,564-square foot overflow pond located on the east side of the existing tailings storage pond. A geonet placed between the two layers of 80-mil HDPE provides conveyance to the evacuation sump for any fugitive solution collecting between the liners. The overflow pond will share its west embankment with the tailings storage pond. The overflow pond will be used for storage of process solution while maintenance is being performed on the tails storage pond and for long term storage of excess solution from the process plant. The overflow pond, 100 feet by 120 feet by 10 feet deep, was constructed with a working volume with 2 feet of freeboard of 340,000 gallons. Total volume at the crest is 500,000 gallons. The leak detection and

solution recovery sump capacity is approximately 3,200 gallons. The pond was constructed from native soil or structural fill as specified in the design drawings, compacted to 95 percent of maximum dry density. The EDC was approved by the Division on 29 May 2018.

On 21 November 2018 the Division received an EDC proposing the construction of an outlet structure between the existing Weir Pond and the newly completed Event Overflow Pond at the Spring Valley Mine facility and to construct a small earthen berm at the south end of the weir so that the Weir Pond can function as a primary settling pond for tailings from the gravity circuit. The EDC was approved by the Division on 03 December 2018.

C. Receiving Water Characteristics

The closest surface water source within one-half mile of the Spring Valley Project is the Lund Pit Lake, located at the southeast corner of the property. The pit is approximately 45 feet deep and water depth in the pit fluctuates between 18 and 20 feet. The persistence of the pit lake throughout the summer months and the ability of the lake to recover from dewatering without meteoric input indicate that there is a strong groundwater contribution to the lake.

In 1999, the Lund Pit water was analyzed throughout the entire depth profile at depths of 0, 10, 15 and 18 feet. All water samples met the NDEP Profile I reference values for all constituents, with the exception of the sample collected at the 15-foot interval. A slight exceedance of the lead reference value was observed at this interval; however, lead concentrations were below detection limit for the remaining samples. Analytical results to date show the water accumulating in the Lund Pit Lake does not pose a threat to groundwater quality or any plant and animal life in the vicinity.

In accordance with Permit Part I.N, the Permittee is required to submit to the Division an updated pit lake water quality study that will address the requirements of NAC 445A.429 for the existing Lund Pit Lake at each subsequent application for renewal. Any modification of this Permit or change in operation that could affect the Lund Pit Lake Study must be accompanied by an updated version of, or modification to, the study and its conclusions. Any update or modification shall include, but not be limited to, 1) all new data developed during the period elapsed since the date of the previous submittal; 2) an updated study of the most likely scenario or alternative; and 3) as applicable, revised conclusions and recommendations based on current regulations and best engineering and scientific principles and practices. Profile III requirements for pit lake monitoring were incorporated into the 2014 Permit update.

The Pit Lake Study submitted as part of the renewal application in 2009 showed that acid neutralization potential in the pit exceeds acid generating potential by 27.4:1 or more, and that the water continues to meet the Profile I reference values with the exception of slight exceedances of arsenic (0.063 milligrams / liter [mg/L]). The Pit Lake Study submitted as part of the renewal application in 2014 shows that the water continues to meet the Profile I reference values with the exception of slight exceedances of arsenic (0.030 mg/L), aluminum (0.27 mg/L), and manganese (0.11 mg/L). The Pit Lake analysis submitted as part of the 2019 Fourth Quarter Monitoring Report shows that the water meets the Profile III reference values at the surface. There are slight exceedances in Profile I reference values

at the 5 foot depth of arsenic (0.049 mg/L), aluminum (0.75 mg/L), iron (0.86 mg/L), and manganese (1.2 mg/L) and slight exceedances at the 10 foot depth of arsenic (0.050 mg/L), aluminum (0.42 mg/L), iron (0.78 mg/L), and manganese (0.91 mg/L).

One permitted well (Nevada Division of Water Resources #22237) is located on the Project site, approximately 150 feet west of the mill and provides make-up water. The well driller's report indicates that this well has a depth of 200 feet and a static water level 100 feet below ground surface. In the 2014 renewal application, the water well had a minor exceedance for arsenic of 0.012 mg/L. The 2019 Fourth Quarter Monitoring Report indicated that the water well met all Profile I reference values. However, it had a concentration for arsenic at the reference value of 0.010 mg/L.

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 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, any affected 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 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 the

downgradient pit lake 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 (the 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 2800 Cottage Way, Room W-2606, Sacramento, California 95825, (916) 414-6464, for additional information.

Prepared by: Allie Thibault
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