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FACT SHEET

(Pursuant to Nevada Administrative Code [NAC] 445A.401)

Permittee Name:	**Solidus Resources, LLC**
Project Name:	**Spring Valley Mine**
Permit Number:	**NEV2021101**
Review Type/Year/Revision:	**New Permit 2026, Fact Sheet Revision 00**

A. Location and General Description

Location: The Spring Valley Canyon Mine is located in Pershing County on private land (approximately 10,205 acres) and public land (approximately 4,418 acres) administered by the U.S. Bureau of Land Management (BLM) Winnemucca District, Humboldt River field office. This project is in the historic Spring Valley Mining District within all or portions of Sections 24-28 and 33-36, Township 29 North (T29N), Range 34 East (R34E); Sections 19-21 and 28-32, T29N, R35E; Sections 1-4, T28N, R34E; and Sections 4-6, T29N, R35E, Mount Diablo Baseline and Meridian, approximately 25 miles northeast of the town of Lovelock, Nevada.

***Site Access*:** From Lovelock take I-80 East and use exit 119 (Oreana/Rochester). Turn right on Unionville Road. Follow Unionville Road for approximately 19 miles (past the Rochester mine) until you reach the mine site on the left side of the road.

General Description: The Spring Valley Canyon Mine is authorized to beneficiate up to 17,600,000 tons of ore annually. The facilities permitted at the Spring Valley Canyon Project are required to be designed, constructed, operated, and closed without any release or discharge from the fluid management system.

The Spring Valley Canyon Mine consists of the Spring Valley Canyon open pit, pit dewater facilities, three waste rock storage facilities (the West WRSF, East WRSF and Southeast WRSF), a heap leach pad, crushing circuit, and Carbon processing and refining facilities. The mine also has associated infrastructure which consists of heavy and light vehicle maintenance shops, explosive storage, used materials storage, refueling sites, fuel storage, mine offices, and an aggregate plant.

B. Synopsis

***Background/History*:** The Spring Valley Mining District was discovered in 1868 and produced gold, silver, lead, mercury, copper, antimony, and pinite (sericite-pyrophyllite). The Bonanza King gold mine, discovered in 1868, was the first mineral location in the district, and was active from 1868-1885, then intermittently until 1910. Placer gold was discovered in Spring Valley Canyon in 1875. The placers were extensively worked between 1880 and 1890 and are purported to have been the most productive in Nevada, with gold production estimated at around 484,000 ounces. Dredging took place at Spring Valley from 1911 to 1914 by Federal Placer Mines Company, and again from 1947 to 1949 by Spring Valley Gold Dredging Company and Southwest Dredging Company. The Wabash mine was discovered in 1935 and in operation until 1938. The mine produced gold, silver, copper, and lead. Mercury was discovered in the district in 1906 and was first mined at the Kaolinite mine, with most of the production coming from the Hillside and Cinnabar City mines. Up until 1969 a total of 500 flasks of mercury were produced. The Pinite mine was discovered in 1933 and produced up until 1948.

Modern exploration at Spring Valley Canyon began in 1996 by Kennecott Minerals Company, which searched for the source of gold in the Spring Valley placer deposits. Subsequent programs were carried out by Echo Bay, Midway, Barrick and Solidus. The current Spring Valley Canyon mine was initially developed as a joint venture between Barrick Gold North America and Midway Gold Corporation in 2010, and was bought by in 2015 by Solidus Resources, LLC, the current operator.

Physiography, Geology, and Mineralization: The project site is located in the Basin and Range physiographic province. The Basin and Range province is characterized by a series of generally north-trending mountain ranges separated by basins, a result of normal faulting which began in the Late Tertiary time. The mountains represent the uplifted structural blocks and consist generally of Cambrian to Tertiary bedrock units. The basins are generally filled with Tertiary and Quaternary lacustrine and alluvial sediments and are an expression of the intervening structural subsidence between the uplifted blocks. Project facilities are located at an elevation of approximately 5,450 feet above mean sea level (amsl).

The Koipato Group predominates in the southern Humbold Range and in the proximity of Spring Valley. The Koipato Group consist of the Limerick, Rochester, and Weaver formations; members of the Limerick and Rochester formations have been identified in drill hole logs within the project area. Intrusive rocks are also present in the project area, while limestones of the Natchez Pass formation are present in the foothills to the east of Spring Valley.

The oldest formation in the Koipato group is the Permian to early-Triassic age Limerick formation, which consists of altered intermediate to mafic volcanic flows, tuffs, and breccias varying in thickness from 1,000 to 6,000 feet. The Limerick formation grades upward into the Rochester formation. Locally, the Limerick formation is exposed in the Humboldt Range to the west of Spring Valley and extends below Buena Vista Valley at a shallow dip. The base of the Limerick formation consists of greenstone which are locally comprised of an upper greywacke, andesite flows, and an intrusive gabbro unit. The top of the Limerick formation consists of intermediate banded porphyry/andesite, which is characterized as a porphyritic tuff with feldspar phenocrysts. The Limerick formation is cross-cut by medium-grained leucogranite dike intrusions, which are associated with sericitic and propylitic alteration. To the west of the project area, the Limerick formation is heavily intruded by dikes.

The Limerick formation is overlain by up to 6,000 feet of the Early to Middle Triassic age Rochester formation. The Rochester formation is exposed in the hills to the north and south of the project area and is the predominant formation within the proposed pit area. Lithologies within the Rochester formation in the project area include rhyolite, welded rhyolitic tuff, conglomerate, and volcano-sedimentary rock types. The upper rhyolite unit contains phenocrysts of plagioclase, potassium feldspar, and quartz in a matrix of quart and potassium feldspar. The rhyolite unit shows moderate sericitic alteration and significant

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erosion. The welded tuff, which is variable in thickness, is moderately to intensely welded, has a finely laminated texture, and is characterized by flow banding. The conglomerate is volcanic derived, made up of fine-grained pyroclastic and volcano-sedimentary material, and has variable thickness. Volcano-sedimentary rock types include tuffaceous mudstones, siltstones, and sandstones.

The Natchez Pass formation of the Star Peak Group lies in the lower foothills at the base of both the eastern and western flanks of the Humboldt Range. To the east of Spring Valley, the Natchez Pass formation exists east of the Fitting Fault, a range bounding fault between Spring Valley and the Buena Vista Valley floor. The Natchez Pass formation consists of Triassic-age thick-bedded limestone with subordinate chert-pebble conglomerate and calcareous siltstone. In some locations, the limestone displays significant dissolution and karst development.

Quaternary alluvial deposits mask the bedrock units on the floor of Spring Valley. The thickness of the alluvial overburden reaches approximately 600 feet. Results of the 2019 drilling program indicate that Quaternary age surficial alluvial deposits within the project consist of interbedded clay, silt, sand, and gravel.

Mining: The Spring Valley Pit will be mined to an ultimate elevation of 3,970 feet above mean sea level (amsl), a depth of approximately 1,630 feet below ground surface (bgs) and will have ultimate dimensions of approximately 8,000 feet by 4,000 feet. Mining will occur using conventional open pit mining methods (truck and shovel/loader) to extract ore and waste rock. Rock will be drilled and blasted for excavation using an ammonium nitrate-fuel oil (ANFO) explosive mixture. Excavation of the open pit will occur over a 13-year period including an 18- to 24- month pre-stripping period during construction. After the 13-year mining period, closure activities are expected to last approximately 3 years.

Dewatering: Groundwater in the area of the proposed pit is at or near ground surface, necessitating dewatering during mining operations. The pit dewatering plan includes 15 alluvial dewatering wells and 27 bedrock dewatering wells which will be both in-pit and ex-pit. Alluvial wells are anticipated to have depths that range between 178 and 792 feet bgs, and the bedrock wells are anticipated have depths that range between 631 and 1,561 feet bgs. A 24-inch high-density polyethylene (HDPE) pipeline will convey dewatering water from the wells to the dewatering pond.

The dewatering pond is located on the southeast edge of the pit and is a single-lined non-contact pond. The pond is designed to contain a freeboard volume of 14,256,000 gallons (43.75 acre-feet), which is the maximum design pumping volume of 9,900 gallons per minute (gpm) for 24 hours, with two feet of freeboard. Designed dimensions at the crest of the pond are 680 feet in length by 120 feet wide at depth of 20 feet. The pond will be lined with a single layer of 60-mil HDPE geomembrane.

From the Dewatering Pond, dewatering water will flow through the Dewatering Pipeline to a 45-degree lateral, and from there either through the RIB Transfer Pipeline to the RIB system, or further down the Dewatering Pipeline to the process area, where it will empty into a water supply tank. (Please see WPCP NEV2024112 for additional details of the RIBs and Dewatering system).

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Waste Rock Storage Facilities: Three waste rock storage facilities (WRSF) are planned at this time. Geochemistry in the area does not indicate any potentially acid generating (PAG) material is present. Please see the Waste Rock Management Plan for further details.

West WRSF: The West WRSF is located immediately to the west and adjacent to the Spring Valley Pit. In its proposed configuration the West WRSF has a design tonnage capacity of 365,205 thousand short tons, with a maximum height above prepared surface of 450 feet. The WRSF will be stacked in 50-foot lifts at angle-of-repose, with setbacks between lifts to maintain overall slopes 3 horizontal to 1 vertical (3H:1V). Waste rock facilities will receive a mixture of rock and alluvium, with no specific handling planned. Depth to groundwater below the West WRSF averages approximately 20 feet below ground surface.

East WRSF: The East WRSF is located to the east of the open pit, west and adjacent to the proposed Heap Leach Pad (See ***Heap Leach Pad & Associated Facilities*** below). In its proposed configuration the East WRSF has a design tonnage of 632,079 thousand short tons, with a maximum height above prepared surface of 600 feet. The East WRSF will be stacked in 50-foot lifts at angle-of-repose, with setbacks between lifts to maintain overall slopes 3 horizontal to 1 vertical (3H:1V). It will receive a mixture of rock and alluvium, with no specific handling planned. Depth to groundwater below the East WRSF is predicted to remain greater than 450 feet bgs.

Southeast WRSF: The Southeast WRSF is located south of the Heap Leach Pad, across the main haul road but still north of the re-aligned Lovelock-Unionville Road. In its proposed configuration the Southeast WRSF has a design tonnage of 225,065 thousand short tons, with a maximum height above prepared surface of 400 feet. Like the West and East WRSF, the Southeast WRSF will be stacked in 50-foot lifts at angle-of-repose, with setbacks between lifts to maintain overall slopes 3 horizontal to 1 vertical (3H:1V). It will receive a mixture of rock and alluvium, with no specific handling planned. Depth to groundwater below the Southeast WRSF is currently about 200 feet bgs, but the Southeast WRSF is the closest to the location of the Rapid Infiltration Basins (RIB's) (See WPCP NEV2024112 for details on RIB design). Because of this, groundwater mounding under the RIB's may elevate groundwater to about 150 feet bgs underneath the Southeast WRSF.

Crushing Circuit:

Ore from the pit area will either be transported as run-of-mine ore directly to the run-of-mine cells of the heap leach pad or will be moved to the crushing circuit prior to being placed in the crushed ore cells of the HLP. The crushing circuit will consist of a 600-ton ore bin, a vibrating grizzly, and a jaw crusher. From this primary circuit, ore will be sent to a surge stockpile, intended to provide two-hours of feet capacity to the secondary and tertiary crushing circuits, allowing the primary and downstream crushing circuits to be independent of each other. From the surge stockpile, ore will move to the secondary crushing circuit. This will include a vibrating screen and a cone crusher. From the secondary circuit, ore will proceed directly to the tertiary crushing circuit, which will consist of two parallel vibrating screens, each feeding a cone crusher. The final product from the crushing circuits will have a P_{80} of approximately 0.5 inches. From the crushing circuit, ore will be transported via conveyor belt to the heap leach pad. Lime for pH control will be added to the overland conveyor belt on the way to the crushed ore cells of the HLP.

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Heap Leach Pad & Associated Facilities:

The proposed heap leach facility will be constructed in three phases, beginning with the westernmost footprint of the facility and moving eastward. Phase 1 will be approximately 12.8 million square feet and will include the construction of two ponds, the process pond and the storm/event pond. Phase 2 is a pad-only expansion of 7.8 million square feet, and Phase 3 is another pad-only expansion of an additional 7 million square feet. Ore will be stacked to a maximum height of 350 feet above the liner, which should result in total pad loading of approximately 323 million short tons (Mt) of ore, split between run-of-mine ore (235 Mt) and crushed ore (88Mt).

The heap leach pad will be composite lined, with the liner system consisting of, from bottom to top, a 12-inch layer of low permeability soil with a maximum hydraulic conductivity of 1 x 10^{-6} cm/sec; an 80-mil HDPE double-sided, textured liner; and a minimum of 24 inches of overliner material. A thickened layer of 40 inches of overliner will be constructed on the downgradient edge of the HLP. A minimum of 16 inches of overliner is required over any pipes of 12-inch diameter or greater.

Ore will be stacked on the heap leach pad in two distinct sections. Run-of-mine ore which has not been crushed will be placed in sixteen run-of-mine ore cells (ROMP), situated on the southern end of the HLP, while crushed ore will be placed in six crushed ore cells (COP) situated to the north of the HLP. ROMP cells will be approximately 250 feet wide and run from east to west along the entire length of the pad. COP cells will be approximately 300 feet wide and will also run along the entire length of the pad. Cells will be separated using internal cell divider berms. Header pipes will be placed along the cell divider berms, and all cells will be sloped toward the collection headers. Header pipes will move solution to the east side of the pad, where solution will flow into the primary collection pipes. Primary collection pipes will be separated by ore type, with piping moving along the collection channel on the east side of the HLP. The collection channel will be lined with a single layer of 80-mil HDPE textured liner, with the primary collection pipes providing the primary containment. Solution will move from the collection pipes to one of three tanks, situated on a tank shelf inside the process pond.

<u>Solution Tank Shelf</u>: Three tanks will be installed on a shelf on the west side of the process pond. The tank shelf will be lined, from bottom to top, with a 60-mil smooth HDPE liner, a geonet drainage layer, and an 80-mil double sided textured HDPE liner. The three tanks are the Crush pregnant leach solution (PLS) tank, the ROM PLS tank, and the ROM intermediate leach solution (ILS) tank. This is because each of the types of ore placed on the HLP will be irrigated differently. COP areas will be irrigated with just barren leach solution (BLS) and will be collected in the Crush PLS tank. ROMP areas will be irrigated with either BLS, which will be collected in the ROM BLS tank, or with intermediate leach solution, which will be collected in the ROM ILS tank. The tank shelf is designed below the level of the process pond and angled in such a way that overflow from any of the tanks will drain into the process pond. The solution tank shelf also has a 311-gallon sump on the southwest side of the shelf.

<u>Process Ponds:</u> Two ponds are associated with the HLP facility- the process pond and the storm/event pond. The liner system of both ponds will consist, from bottom to top, of a 60-

mil smooth HDPE liner, a geonet drainage layer, and an 80-mil double sided textured HDPE liner. A solution tank shelf is situated on the west side of the process pond. The process pond is designed to contain overflow from the tank shelf, the process facility, eight hours of operating inventory, and drain down from a 16-hour power outage. The process pond has a crest capacity of 50.1 million gallons (153.7 acre-feet) and a freeboard capacity of 43.9 million gallons (134.7 acre-feet) at a one-foot freeboard. The storm/event pond is connected to the process pond via a lined spillway, which is two feet below the crest on the process pond side, and three feet below the crest on the storm/event pond side. The storm/event pond is designed to contain runoff from the lined pad area and direct precipitation on the ponds for the 100-year, 24-hour storm event. The storm/event pond has a crest capacity of 36.7 million gallons (112.6 acre-feet) and a capacity of 44.4 million gallons (136.2 acre-feet) at the spillway crest, which is two feet below the ultimate crest. Freeboard for the storm/event pond is two feet below the spillway crest.

ADR Plant and Refinery:

The process facilities will consist of vertical carbon-in-column units, an adsorption, desorption and recovery plant, and a refinery. Pregnant solution from the tanks on the tank shelf in the process ponds will flow to three vertical carbon-in-columns (VCICs), located outside the ADR plant building on a concrete containment. Spillover from this containment will gravity drain through buried pipe-in-pipe containment from the sumps to the process pond. Loaded carbon from the VCICs inside to the stripping, acid wash, and regeneration area. The containment of the stripping, acid wash, and regeneration area is hydraulically separate, with the largest tank being the Fine Carbon Water tank which has an expected volume of 3,714 cubic feet. The next area is the Refinery Gold room, which is also within the process building. The largest tank in that area is anticipated to be the Stripping Solution tank with a volume of 3,356 cubic feet.

<u>*Reagent Storage Area:*</u> The reagent storage area is anticipated to be located south of the main process building. It will consist of a storage tank for caustic solution, a storage tank for cyanide solution, and a mixing tank for dissolution of solid cyanide. The cyanide and caustic tank containments are hydraulically separate from each other.

Stormwater Diversion Channels:

To adequately address surface water diversions at the site, nine stormwater diversion channels and seven detention basins are proposed. The stormwater diversion system is designed to contain the 100-year, 24-hour storm event with a minimum of one foot of freeboard.

The seven detention basins are all upgradient of the site, to retain and direct flows from north of the site into the stormwater diversion channels. These basins are labeled numerically, 1-7, and have capacities of 43.9 acre-feet, 19.3 acre-feet, 87.6 acre-feet, 32.8 acre-feet, 5.0 acre-feet, 31.6 acre-feet, and 17.6 acre-feet, respectively. Of the seven detention basins, four are large enough to be evaluated as jurisdictional dams. All are designed with spillways to prevent overtopping.

The Spring Valley Mine is in an alluvial valley, with mountainous terrain to both the north and south of the site. The stormwater diversion system is designed to collect run-on from

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the northern and southern regions and move it east around the site to ultimately discharge to the Buena Vista Valley region.

Of particular note is the West Pit stormwater diversion channel, which runs between the West Waste Rock Facility and the pit and moves water south and east, where it meets the South Pit stormwater diversion channel. It is important to note that meteoric waters that move onto and through the West Waste Rock Facility are considered non-contact water in this channel design. This is supported by the oxide, non-metal leaching nature of the waste rock intended for that facility but requires monitoring to ensure this water does not become contact water. To that end two monitoring points have been added to the permit, one in the South Pit stormwater diversion channel and one in the West WRSF stormwater diversion channel, to monitor water quality as it moves through the West WRSF and ensure the waste rock is not degrading waters of the state.

C. <u>Receiving Water Characteristics</u>

The project is located within the Buena Vista Valley, Hydrographic Basin 126. The five sub-watersheds within the Buena Vista Valley hydrographic basin that are relevant to the project are the Spring Valley, Indian Creek, East Rochester Canyon, Dry Gulch, and South American Canyon watersheds. The project is primarily located within the Spring Valley sub-watershed, but the other four have the potential to be hydraulicly connected to Spring Valley through the Black Ridge Fault Zone.

Spring Valley is an intra-montane subbasin of Buena Vista Valley, situated on the eastern slope of the north-south trending Humbolt Range, which drains into the Humbold River Basin to the west and north, the Carson Desert to the south and Buena Vista Valley to the east. Spring Valley drains to the east toward the low-lying Buena Vista Valley playa. Topographic divides separate the Spring Valley watershed from the Indian Creek watershed to the north, and from the Rochester Canyon watershed to the south. A range-front pediment defines the eastern portion of the Spring Valley watershed, which consists of transitional rolling highlands from the high mountains to the low-lying basin area of Buena Vista Valley.

Groundwater levels within and adjacent to these watersheds indicate that the groundwater generally moves parallel to the land surface topographic slope, with regional easterly groundwater flow though the project area. On the watershed-scale, groundwater flow is more variable, with a downward vertical hydraulic gradient document in some parts of spring valley, as well as some areas of substantial upward gradients, evidenced by artesian conditions.

The modeled potentiometric surface of groundwater elevations in the vicinity of the Spring Valley pit range from 5,560 feet above mean sea level (ft amsl), and 5,240 ft amsl. This is expressed as very shallow groundwater in the area of the Spring Valley pit and West WRSF, as shallow as 20 feet below ground surface, and much deeper groundwater to the east side of the site, with average depth to groundwater under the East WRSF up to 450 feet below ground surface.

Groundwater chemistry in the project area generally conforms to Profile I requirements. A few monitoring wells demonstrate alkaline conditions (pH between 8.5 and 11.68), and

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exceedances of manganese, silver, iron, and vanadium. In addition, several well tested as having enriched oxygenation, which is believed to be the result water-rock interactions.

Surface water runoff from the project area flows east, through Spring Valley Canyon and into the Buena Vista Valley, which is a closed basin/playa lake with no outflow. There are three surface water drainages near the project area; the ephemeral drainage known as Spring Valley Creek, the intermittent Indian Creek north of the project, and an unnamed ephemeral creek south of the project area in the South American Canyon sub-watershed. Surface water discharge in the project area tends to be greatest during the winter and spring due to increased runoff from seasonal precipitation and snowmelt. Flows generally infiltrate into the alluvium prior to moving to reaching the floor of Buena Vista Valley. There are forty-one recorded seeps and springs within a one-mile radius of the project area.

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 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

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downgradient monitoring wells. 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 1340 Financial Boulevard, Suite 234, Reno, Nevada 89502-7147, (775) 861-6300, for additional information.

Prepared by: Allie Thibault
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