Fact Sheet
(pursuant to Nevada Administrative Code [NAC] 445A.401)

Permittee Name: Scorpio Gold (U.S.) Corp./Goldwedge LLC

Project: Goldwedge Project—Rapid Infiltration Basins (RIBs)

Permit Number: NEV2008101
Review Type/Year/Revision: **Renewal 2016, Fact Sheet Revision 00**

A. Location and General Description of Facility

Location: The Goldwedge Project (Goldwedge), Rapid Infiltration Basins (RIBs) are located in the historic Manhattan Mining District within portions of Section 18, Township 8 North, Range 44 East, Mount Diablo Baseline and Meridian (MDB&M), approximately 39 miles (by air) northeast of the town of Tonopah and one half mile west (by air) of the town of Manhattan in Nye County, Nevada. An associated mine and mill facility (Water Pollution Control Permit [WPCP] NEV2002107) are located on private and public land administered by the U.S. Bureau of Land Management (BLM), Battle Mountain District—Tonopah Field Office, with a small portion administered by U.S. Forest Service Toiyabe National Forest. The RIBs are located completely on private land south of S.R.-377, via secured rights-of-way on BLM and Nevada Department of Transportation land for the conveyance pipeline.

Scorpio Gold (U.S.) Corp./Gold Wedge LLC is the Permittee for the Goldwedge mining, milling, and infiltration operations.

Site Access: To access the Goldwedge site, proceed east from Tonopah on U.S.-6, approximately 5.4 miles to the junction of S.R.-376. Proceed north on S.R.-376, approximately 37 miles to the junction of S.R.-377. Proceed east on S.R.-377, approximately 6.2 miles to the Gold Wedge Project site. The mine and mill facility (WPCP NEV2002107) are located on the north side of S.R.-377; the RIBs are located approximately 70 feet south parallel to the road.

General Description: The purpose of the Goldwedge RIBs is to manage and reintroduce up to 864,000 gallons per day (gpd) of dewatering water from the Goldwedge underground mine into the local groundwater basin. The RIBs are designed to be constructed, operated and closed without any discharge or release in excess of those standards established in the permit or in regulation except for meteorological events which exceed the design storm event.

The Permittee did not propose any changes to the existing Permit in their 2015 WPCP Renewal.

B. Synopsis

Background: The Goldwedge underground mine is estimated to contain a total of 500,000 tons of mineralized ore at depth of 285 feet below ground surface (bgs). Groundwater is first encountered at a depth of 163 feet bgs. Initially, dewatering operations were conducted using an underground collection system consisting of a sump (with an oil-water separator) and pump to convey the dewatering water to a pair of infiltration trenches (now reclaimed). With the installation of two, 8-inch diameter dewatering wells (DW-1 and DW-2), the underground dewatering water collection system is no longer necessary. Currently, only DW-1 is operational at this time.

Dewatering Impacts on Neighboring Sites: Because of the potential impacts of groundwater withdrawal on the final closure of the Round Mountain Gold Corporation (RMGC) Manhattan Mine-Manhattan Pit (WPCP NEV0088013) and the water supply well for the town of Manhattan (Manhattan Community-Pipe Springs Well), the Nevada Division of Environmental Protection-Bureau of Mining Regulation and Reclamation (the Division) requires that with each subsequent submittal for renewal of the Permit (NEV2008101) or operational or facility change that could affect the most recent Goldwedge RIB predictive modeling results, the Permittee must reevaluate the model and provide, based on the evaluation, and an update or modification of the model and its predictions. 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 update of the most likely scenario or alternative;
3. An update on potential impacts on the Manhattan Community-Pipe Springs Well; and
4. As applicable, revised conclusions and recommendations based on current NAC and best engineering and scientific principles and practices.

Rapid Infiltration Basin Design: In 2002, the Permittee constructed two infiltration trenches in attempt to manage dewatering water from the Goldwedge underground mine. Because of the poor performance of the trenches, a series of percolation studies were performed in 2006 and 2007 to identify potential RIB locations. The percolation test results indicated a suitable RIB location approximately 840 feet southwest of the facility entrance, south of SR-377. Percolation rates within the tested colluvium ranged between 2 and 10 minutes per inch (MPI), permeability ranged between 4.2×10^{-3} centimeters per second (cm/sec) and 2.1×10^{-2} cm/sec.

Each RIB is designed to accommodate a maximum inflow rate of 600 gallons per minute (gpm), has a working depth of 2 feet (with freeboard of 2 feet), and an

infiltration rate of 0.004 cm/sec. Based on the above parameters and a safety factor of 2, two RIBs, approximately 225 feet by 104 feet by 4 feet deep were determined to be sufficient. In an effort to optimize infiltration operations, the two-RIB design allows for dewatering water inflow to be cycled between either cell, thereby providing "rest" periods for each cell. The amount of "rest" time is determined by the observed infiltration/percolation rate for each cell, and is typically no more than a few days.

An embankment, ranging from 2 to 8 feet in height, surrounds the RIBs. The embankment is constructed from on-site materials and have internal and external slopes of 3 horizontal:1 vertical (3H:1V). The upgradient embankment surrounding the RIB is covered with loose riprap to provide additional run-off protection from flows from the small ephemeral drainage that crosses the Goldwedge site from east to west. At the suggestion of the Nevada Division of Wildlife (NDOW), a perimeter fence has been installed around the RIBs to prohibit public access and wildlife intrusion.

Rapid Infiltration Basin Operation: The RIB system is only operated when the Settling Pond and Freshwater Pond are near capacity and either the gravity separation process is not operating or the dewatering volume exceeds process requirements. In this situation, dewatering water is pumped directly to the RIB system. Because the dewatering water temperature is a constant 50 degrees Fahrenheit (^{o}F) year round, freezing is not a concern.

During active infiltration operations, dewatering water is transported to the RIB via two 8-inch diameter high-density polyethylene (HDPE) pipes, each with a design flow capacity of 600 gpm. Flow in each pipe will be monitored by flow meters and control valves, located within the valve cluster box. Distribution from the control box/control vault is by buried 8-inch diameter polyvinyl chloride (PVC) laterals, extended to each cell. These pipes extend through the embankment and into a manifold system. From the manifold, the dewatering water is distributed to four 4-inch diameter perforated PVC pipes.

Diversion Structures: The watershed above the proposed RIB system location is 1,900 acres in size. Two diversion ditches, located on the north side, and the south and east side of the RIBs, have been designed and will be constructed to divert flows reporting to the watershed as a result of the 100-year, 24-hour storm event.

Monitoring: The RIBs are monitored for the presence and extent of mounding, volumetric inflow rate and water quality, and RIB water depth.

Groundwater Monitoring: Monitoring well locations based on the output from the two-dimensional groundwater model, *"Groundwater Modeling System 6.0, Brigham Young University"*. The monitoring well sites are located beyond the

predicted mound or phreatic surface generated as a result of the RIB operation, approximately 350 feet away from the RIB embankments.

Three monitoring wells for the RIBs were completed in August 2011, one up-gradient (RIBM-l-l l) and 2 down-gradient (RIBM-2-11 and RIBM-3-11). Monitoring wells RIBM-l-11, RIBM-2-11, and RIBM-3-11, were drilled to depths of 300 feet bgs, 152 feet bgs, and 160 feet bgs, respectively. The Permittee has recorded groundwater elevations at the RIB monitoring wells since January 2013 although the data set is not complete. Monitoring well RIBM-l-11 has an average water level of approximately 143 feet bgs, RIBM-2-11 has an average water level of approximately 30 feet bgs, and RIBM-3-11 has an average water level of approximately 62.32 feet bgs.

Three piezometers are installed within 4-inch PVC collection standpipes located north, south, and west of RIB A and RIB B. The first 2 piezometers (P-l and P-2) were installed on the north and south perimeter of the RIBs during the third quarter of 2011. The third piezometer (P-3) was installed in April 2012. Each piezometer is installed in the alluvium approximately 12 to 15 feet below the existing ground surface. The bottom 2 feet of each PVC standpipe is perforated to allow ground water to infiltrate into the lower portion of the pipe. Within each standpipe, a pressure transducer has been installed 1 foot above the bottom of the standpipe. Cables and tubing used to operate the transducers extend to the top of each standpipe to facilitate connection to a handheld digital vibrating wire reader.

Groundwater elevations have been collected weekly from the piezometers P-l and P-2 since the beginning of January 2012 and from piezometer P-3 since April 2012.

Two other groundwater monitoring wells MW-08-l and MW-08-2, were drilled and installed along the north and south sides of SR-377 in anticipation of constructing the RIBs on the north side of SR 377. However, the final decision was to place the RIBs on the south side of the highway, which facilitated the need for RIB-l-11, RIB-2-11, and RIB-3-l l. Both MW-08-1 and MW-08-2 have since been removed from service since they do not provide any relevant groundwater quality data with respect to the RIBs.

C. Receiving Water Characteristics

Site Hydrology/Hydrogeology and Groundwater Quality: The RIBs are located within the Central Region (Hydrographic Region 10) and within the Big Smoky Valley hydrographic sub-basin (sub-basin l37A: Tonopah Flat). There are no active perennial streams within five miles down gradient of the Goldwedge Mine; although, an ephemeral drainage crosses from east to west through the Goldwedge Mine. No springs have been identified within one mile of the Goldwedge RIBs. There are three springs within 5 miles of the Goldwedge RIBs. Two of the springs are at a higher elevation. The third and largest spring, which is Barrel Spring, is

at lower elevation, but it is located cross-gradient from the RIBs. There are no jurisdictional waters of the U.S. (as defined by 40 Code of Federal Regulations [CFR] § 230.3) in or down gradient of the existing operations.

There is one surface water body (i.e. pit lake) within one mile of the site. This pit lake is located at the now closed Manhattan Mine, located southeast of the Goldwedge site. The pit lake is believed to be cross-gradient from the Goldwedge Project.

Groundwater in the area of the Goldwedge Mine primarily occurs within fractures and faults in the bedrock deposits. Groundwater discharge occurs as flow from springs, evapotranspiration, and seepage to the creeks and their tributaries. Groundwater occurs throughout the historic Manhattan Mining District area at depths ranging from the ground surface in areas of springs to several hundreds of feet in upland areas. Studies indicate that the hydrologic gradient within the vicinity of the Goldwedge Mine is from east to west towards the Big Smoky Valley landform of the Tonopah Basin between the Toiyabe and Toquima mountain ranges.

The consolidated sedimentary and igneous rocks of the Toiyabe and Toquima mountain ranges generally exhibit low permeability, but transmit water regionally through fractures and limestone karst cavities. Regional groundwater barriers formed by west-northwest trending faults and north-northeast trending (range-front or escarpment) faults, as well as by low-permeability rocks, have created a complex pattern of perched and semi-perched groundwater lenses.

An analysis of historic groundwater quality data beneath the Goldwedge and Goldwedge RIB sites indicates a maximum arsenic concentration of 0.05 milligrams per liter (mg/L) and a maximum manganese concentration of 2.5 mg/l. The Profile I reference values for arsenic and manganese are 0.01 mg/L and 0.10 mg/L, respectively.

Groundwater samples are collected quarterly from dewatering well, DW-l. Sample esults indicate exceedance of the Profile I reference value for arsenic, but less than the maximum background concentration. RIB-l-11 monitoring results show occasional exceedences of the Profile I reference values for aluminum, arsenic, iron, and manganese but below background concentrations. RIB-2-11 monitoring results showed occasional exceedences of the Profile I reference values for aluminum, antimony, and iron, and consistently exceeded the reference values for arsenic and manganese, however these concentrations were still less than background. RIB-3-11 monitoring results have exceeded the Profile I reference values for arsenic and nitrate + nitrite (as total nitrogen) only once.

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 contained within the permit is being sent to the **Tonopah Times – Bonanza and Goldfield News** in Tonopah for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing within a period of 30 days following the date of the public notice. 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, the regional administrator, 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 facility 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 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 up gradient and downgradient monitoring wells, piezometers, and RIBs. 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.

Prepared By:	*Rob Kuczynski, P.E.*
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