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

Permittee Name: **Zephyr Minerals, Inc.**

Project Name: **Parker Brothers Mine**

Permit Number: **NEV2012112 (New 2013)**

A. Location and General Description

Location: The facility is located on private land in Pershing County, within Section 31, Township 26 N, Range 34 E, MDB&M, approximately 16 air miles southeast of the town of Lovelock. The site can be accessed by taking the Coal Canyon Road exit off of Interstate 80 just north of Lovelock. Continue east on Coal Canyon Road for approximately 15 miles and turn south on Iron Mine Road. Continue south for approximately 3 miles and turn right on the unnamed dirt road leading to the Parker Brothers Mine, approximately ¾-mile on the right.

General Description: The Parker Brothers Mine is a mining and physical separation facility intended to recover iron from existing stockpiles from historic mining activity in the area. The Parker Brothers Mine is permitted as a physical separation facility and, as such, no chemicals are permitted to be used or stored at the facility. Ore processing is limited by the Permit to 36,500 tons of ore per year. The facility is required to be designed, constructed, and must be operated and closed without any discharge or release in excess of those standards established in regulation, except for meteorological events which exceed the design storm event.

B. Synopsis

History

The Parker Brothers Mine is located within the Buena Vista Hills, an area of historic iron mining activity dating back to the 1880s when approximately 500 tons of ore was shipped to the Union Iron Works in San Francisco. Mining resumed during World War II and continued during the postwar years to supply ore to industrial centers on the west coast and in Japan, continuing through the late 1960s. The specific mine at the Parker Brothers site operated from 1954 until 1960, leaving several ore stockpiles and three open pits, all of which are approximately 60 feet deep and remain dry.

Geology

The Buena Vista Hills are underlain by a gabbroic complex of Jurassic age, the host rock for the iron deposits. Remnants of overlying silicic to intermediate volcanic rocks of Tertiary age are found in the southern part of the northern Buena Vista Hills. Basalt of Pliocene or Pleistocene age caps Chocolate Butte and several of the low hills in the saddle between the Buena Vista Hills and the Humboldt Range. Pleistocene Lake Lahontan silt deposits cover much of Buena Vista Valley in the vicinity of the Buena Vista Hills and cover some of the iron deposits to depths of a few tens of feet.

The gabbro host rock is a complex of mafic intrusive and extrusive phases which, in the Buena Vista Hills, has been hydrothermally altered. Only in a few places in the Buena Vista Hills and surrounding area is relatively unaltered rock found. It is now recognized that all the iron deposits occur within the gabbroic complex and are genetically related to deuteric alteration of the complex.

The deposit geology as it pertains to the Parker Brothers Mine consists of waste piles generated by previous operators and in-situ magnetite remaining in the highwalls of the existing pits. The in-situ ore consists of tabular vein-like deposits containing lenticular masses and pods of magnetite in northwest-trending faults. Ore bodies range from 10 to 50 feet in width and from 50 to 300 feet in length. Magnetite occurs as veins and replacement deposits. The iron ore ranges from nearly pure magnetite in veins to a mixture of magnetite and intensely chloritized host rock with an iron content of 50 to 60 percent.

Mining

Ore material from the existing stockpiles and exposed magnetite on the vertical highwalls of the existing pits will be removed using loaders and excavators and transferred to the grizzly feeder. Occasional blasting will be required in the pits but the depth of each pit will remain the same.

Material Characterization

Material samples, two (2) from the existing stockpiles and two (2) from the pit highwalls were characterized using Meteoric Water Mobility Procedure (MWMP) – Profile I and Acid Neutralizing Potential to Acid Generating Potential (ANP:AGP) methods. The results of ANP:AGP analyses show the material to be strongly acid neutralizing, with Net Neutralizing Potential (NNP) ranging from 18 to 93 equivalent tons of calcium carbonate per 1000 tons of material and all sample values for acid generating potential below laboratory detection limits. Based on these results, acid generation in the ore and tails is not expected.

Results of MWMP-Profile I analyses show all constituent concentrations below the Profile I reference values except for aluminum (one [1] sample at 0.80

milligrams per liter [mg/L]), arsenic (two [2] samples at 0.068 mg/L and 0.022 mg/L), iron (one [1] sample at 1.6 mg/L), and pH (one [1] sample at 9.22 standard units). Also noted were detectable quantities of WAD cyanide in all four (4) samples ranging from 0.032 mg/L to 0.039 mg/L. The reason for this is not clear as there is no known historic mining activity at this site involving the use of cyanide. Based on these results, the Permittee resampled the material from the same locations and repeated the MWMP procedure, testing only for WAD cyanide. The results showed no detectable concentration, suggesting the previous results were due to laboratory error.

Processing

The 10-inch minus material passing the grizzly will be conveyed to the portable impact crusher. After crushing, the material is screened, with ¾-inch plus material going back to the crusher for further size reduction, and the ¾-inch minus material moving on to the dry magnetic separator. The entire crusher and magnetic separator circuit is trailer mounted and does not use water.

Concentrate from the magnetic separator will be stockpiled on the ore stockpile until sufficient quantity has accumulated to be loaded on trucks and shipped off-site. Due to the potential for the ore to release some Profile I constituents, as demonstrated by the results of MWMP-Profile I analyses, the ore stockpile pad will be constructed with a compacted soil base. The base area measures 50 feet by 200 feet, within which the native soil will be scarified to a depth of six (6) inches and compacted to 95% of maximum dry density (ASTM D1557). Over this an additional six (6) inches of base material will be placed and compacted to 85% of maximum dry density to achieve a maximum permeability of $1x10^{-5}$ centimeters per second. The base will be graded to impound direct precipitation for evaporation, and four (4)-foot perimeter berms will prevent run-on of stormwater from adjacent areas.

Ancillary Facilities

A fueling facility will be constructed at the site to provide diesel for mine equipment and generators. The fueling area will measure 15 feet by 40 feet between the two (2)-foot high perimeter berms. 60-mil high density polyethylene (HDPE) geomembrane will be placed above a prepared subbase to provide secondary containment for the 2,000 gallon single-walled diesel tank. A minimum of 24 inches of overliner material will be placed on the 60-mil HDPE liner to protect it from vehicle traffic. All fueling and filling of the tank takes place over the HDPE liner.

Stormwater Controls

The ore stockpile and fueling area are protected by berms to redirect any surface flow around each area, and general best management practices will be used to prevent stormwater from impacting the mine areas and process equipment.

C. Receiving Water Characteristics

Two historic mines near the Parker Brothers facility have pits with lakes. The Thomas Pit, approximately 1¼ miles northeast, and the Ford Pit, approximately ¼-mile south, were surveyed to estimate the elevation of groundwater in the area. Based on the elevations measured, groundwater below the Parker Brothers Mine is estimated to be approximately 238 feet below ground surface (ft bgs). In addition, a test bore (log #21923) approximately 3½ miles south of the facility was advanced to 200 ft bgs and did not encounter groundwater. The maximum depth of any of the three pits is approximately 60 feet, and will not be advanced further; therefore no pit lakes are expected to form.

Groundwater flow based on the pit lake elevations and measurements of water table elevation in a stock well 4 miles from the mine suggest that the direction of groundwater flow is from north to south toward the Carson Sink. Production wells for process water are not required since it is a dry system and are therefore not planned. However, the Permittee may install a small water well to provide water for dust suppression and equipment clean-up. If constructed, the well will be added to the permit for quarterly sampling and measurement of water table elevation.

No surface streams or springs are found within ½-mile of the mine, the nearest being Antelope Spring approximately 5½ miles northeast (upgradient) of the site. In addition, no drinking water wells are found within five (5) miles of the site.

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 sent to the **Lovelock Review-Miner** for publication. 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 of 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, 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 Permit.

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

See Section I of the Permit.

G. Rationale for Permit Requirements

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

The primary method for identification of escaping process solution will be placed on required routine inspection of stockpile berms and stormwater diversion structures. 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.C. 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 CFR 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: Paul Eckert

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Revision: New Permit