3.0 EXHIBIT B – SITE DESCRIPTION (SEC 6.3.2)

The mill site ~~occupies an area of 9.9ac~~ area is approximately. 20.7 acres (ac.), located in Lake County, about 1.5mi west of Leadville, Colorado. The site is located on the Leadville South Quadrangle USGS 7.5 quadrangle map. Maps describing features associated with the mill and reclamation plans are provided in this Exhibit. These maps are:

- Figure 6-1: General Site Location
- Figure 6-2: Leadville Mill Site Location
- Figure 6-3: TSF Post Mill Reclamation Plan
- Figure 6-4: TSF Post Mill Reclamation Cross Sections

The mill is accessed by Highway 24 where the property boundary is approximately 500ft from the highway entrance. Located within the permit boundary are:

- Mill buildings,
- Scales, roads,
- Monitoring wells,
- Tailing Storage Facility (TSF),
- ~~Designated~~ Ore storage areas,
- Ore and topsoil stockpiles,
- Culverts, fence, and power lines, and
- Gas and sewer pipelines.

~~Gas and sewer pipelines also exist within the property but are not within the permit boundary.~~ The site's permanent man-made structures are illustrated in Figure 6-2.

3.1 CLIMATE

Average annual precipitation in the high mountainous regions generally exceeds 40 inches per year Leadville average rainfall precipitation is approximately 12 inches whereas snow fall averages over 140 inches. Average annual lake evaporation for Leadville ranges between 35 and 45 inches per year.

Leadville has an alpine subarctic climate with cold winters and mild summers, bordering on a cold semi-arid climate (See Table 3-1). The average January temperatures are a maximum of maximum of 72.2 °F (22.3 °C) and a minimum of 37.8 °F (3.2 °C). There are averages of 278 days annually with freezing temperatures, which can occur in any month. The record high temperature was ~~86~~85°F (30 °C) on June 23, 1954. The record low temperature was −38 °F (−39 °C) on February 21, 1995.

Average annual precipitation is 12.19 inches (310 mm). The wettest year was 1957 with 22.14 inches (562 mm) and the driest year was 1994 with 8.81 inches (224 mm). The most precipitation in one month was 4.~~9~~83 inches (123 mm) in January 1996. The most precipitation in 24 hours was 2.10 inches (53 mm) on December 24, 1983. Average annual snowfall is ~~143~~ 142.7 inches (3,620 mm). The most snowfall in one year was ~~248~~ 247.9 inches (6,300 mm) in 1996. The most snowfall in one month was 63.2 inches (1,610 mm) in February 1995.

TABLE 3-1: CLIMATE DATA FOR LEADVILLE

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °F (°C)	56 (13)	54 (12)	61 (16)	65 (18)	80 (27)	82 (28)	85 (29)	83 (28)	80 (27)	72 (22)	66 (19)	56 (13)	85 (29)
Average high °F (°C)	31.1 (−0.5)	33.6 (0.9)	38.9 (3.8)	45.9 (7.7)	56.7 (13.7)	67.5 (19.7)	72.2 (22.3)	69.5 (20.8)	62.7 (17.1)	51.7 (10.9)	38.4 (3.6)	31.1 (−0.5)	50.0 (10.0)
Daily mean °F (°C)	17.1 (−8.3)	19.0 (−7.2)	24.9 (−3.9)	32.2 (0.1)	41.7 (5.4)	50.2 (10.1)	55.0 (12.8)	53.4 (11.9)	46.8 (8.2)	37.3 (2.9)	25.2 (−3.8)	17.4 (−8.1)	35.0 (1.7)
Average low °F (°C)	3.1 (−16.1)	4.5 (−15.3)	10.7 (−11.8)	18.6 (−7.4)	26.7 (−2.9)	32.9 (0.5)	37.8 (3.2)	37.3 (2.9)	30.9 (−0.6)	22.8 (−5.1)	12.1 (−11.1)	3.8 (−15.7)	20.1 (−6.6)
Record low °F (°C)	−27 (−33)	−38 (−39)	−30 (−34)	−17 (−27)	7 (−14)	19 (−7)	26 (−3)	23 (−5)	8 (−13)	−7 (−22)	−24 (−31)	−31 (−35)	−38 (−39)
Precipitation inches (mm)	0.66 (16.8)	0.84 (21.3)	0.94 (23.9)	1.06 (26.9)	0.68 (17.3)	0.89 (22.6)	1.75 (44.5)	1.98 (50.3)	1.07 (27.2)	0.74 (18.8)	0.80 (20.3)	0.76 (19.3)	12.17 (309.1)
Snowfall inches (cm)	18.0 (45.7)	18.2 (46.2)	21.5 (54.6)	23.8 (60.5)	8.2 (20.8)	1.8 (4.6)	0.1 (0.3)	0.0 (0)	2.1 (5.3)	10.1 (25.7)	19.5 (49.5)	19.5 (49.5)	142.8 (362.7)
Avg. precipitation days (≥ 0.01 inch)	9	8	10	10	7	6	12	14	9	6	9	9	109

3.2 REGIONAL GEOLOGIC SETTING

The Mosquito Range, the study of whose geological structure formed a necessary basis for that of the ore deposits of the Leadville region, is the western boundary of the South Park, and has thus been considered from a topographical standpoint to form part of the Park Range. ~~Geology shows, however, that in~~. During Paleozoic times the boundaries of the depressions now known as the Parks were formed by the Archean land masses of the Colorado Range on the east and of the Sawatch and its continuation to the north, the Park Range on the west, and that the uplift of the Mosquito Range did not occur until the close of the Cretaceous.

Prior to this uplift the various porphyry bodies, which now form a prominent feature among the rock formations of the region, were intruded into the sedimentary beds deposited during Paleozoic and Mesozoic times, spreading out between the beds and sometimes crossing them, but being most uniformly distributed at the top of the Lower Carboniferous or Blue Limestone. It was in this limestone that the greater part of the ores (gold, silver, lead) ~~was~~ were deposited, and the original deposition must have taken place after the intrusion of the porphyry and before the uplift of the range. In the uplift of the range both eruptive sheets and sedimentary beds, with the included ore deposits, were placated and faulted, and by subsequent erosion an immense thickness of rocks has been carried away, laying bare the very lowest rocks in the conformable series; the outcrops are, however, frequently buried beneath what is locally called "wash," a detrital formation of glacial origin. In the Leadville region, owing to the reduplication overturned fold caused by faulting, a series of outcrops of easterly dipping beds of the Blue Limestone are exposed beneath the wash, of which all are metalliferous and a considerable proportion carry pay mineralized ore.

The district is a highly faulted area; intruded with Tertiary quartz monzonite porphyries, on the east side of the Arkansas River graben, part of the Rio Grande Rift system.

The silver occurs associated with manganese and lead in veins, stock works, and manto-type deposits in the Mississippian Leadville Limestone (here a dolomite), the Devonian Dyer Dolomite, and the Ordovician Manitou Dolomite. Ore minerals are pyrite, sphalerite, and galena, in jasperoid and manganosiderite gangue. In upper levels, the ore minerals are oxidized to cerussite, anglesite, and smithsonite.

The site is located between the Mosquito Range to the east and the Sawatch Range to the west in Southern Rocky Mountain province. The province elevation ranges from

6,000ft to over 14,000ft. The rocks range in age from the Precambrian (950 to 1,800 million years old) consisting of igneous and metasediments largely granites, gneiss, and schist; and geologically recent Tertiary volcanic and intrusive rocks. The units are fractured crystalline aquifers that supply most of the domestic needs in the mountainous portion of the state. (Groundwater Atlas of Colorado, 2003).

3.3 ORE DEPOSITS

The principal ore deposits of Leadville occur, as ~~above indicated~~ summarized, in the Blue Limestone and at or near its contact with the overlying bodies of porphyry. The ores consist mainly of carbonate of lead, chloride of silver and argentiferous galena, in a gangue of silica and clay, with oxides of iron and manganese and some barite. These materials are mainly of secondary origin, and result from the alteration by surface waters of metallic sulfides. The study of these deposits has shown:

- Deposits were originally deposited as sulfides, and probably as a mixture, in varying proportions, of galena, and pyrite,
- Deposits were deposited from aqueous solutions,
- The process of deposition was a metasomatic interchanging between the materials brought in by the solutions and those forming the country rocks, consequently they do not fill pre-existing cavities,
- Ore currents from which they were deposited did not come directly from below, but were more probably descending currents, and
- Currents probably derived the material of which the ore deposits are formed mainly from the porphyry bodies, which occur at horizons above the Blue Limestone.

The geology is described in greater detail in USGS Professional Paper 148 by Emmons, Irving & Laughlin, 1927.

3.4 SOILS (SEC 6.3.2(a))

~~The mill site soils, as described by USDA Salida, Colorado District office, were formed on glacial outwash sedimentary rock with slopes ranging from 3% to 35%. The soils have stony characteristics which predominate throughout the soils profile. Soil is generally less than 6in thick. Areas that have been historically cleared (roads, benches) show very good re-growth without fertilizer or other amendments.~~

The mill sites soils, as described USDA-Salida, Colorado District office, were formed on glacial outwash sedimentary rock with slopes ranging from 3% to 35%. Leadville soil is very deep and well drained. If formed in glacial outwash. Typically, the surface layer consisted of dark grayish brown sandy loam ~~1in~~ is generally less than 8 inches thick. The subsurface layer is pink stony sandy loam 7in thick. The subsoil is extremely stony clay loam 32in thick. The substratum is extremely stony loam to a depth of 60in or more. The soil is medium acidic to a depth of 8in and slightly acidic and neutral below that depth. Permeability is moderately slow, and available water capacity is moderate. Surface runoff is medium to very rapid, and the hazard of erosion of unprotected soil by water is moderate to very high.

Areas that have been historically cleared (roads, benches) show very good re-growth without fertilizer or other amendments. Soils are described in greater detail in Section 5. [2]

3.5 VEGETATION (SEC 6.3.2(B))

Coniferous trees cover the site, except the area where the Leadville Mill building, access roads and TSF are located. Lodgepole Pine is the predominant tree species. Approximately 1.7ac of trees and underlying vegetation were removed during construction of the new TSF.

3.6 WILDLIFE (SEC 6.3.2(D))

~~UMC~~ Union Milling Contractors personnel contacted the Colorado Department of Wildlife ~~(CDOW)~~ (CDOPW) to ~~determine an effective mitigation plan to prevent impacts from milling operations on local wildlife, which includes deer and elk. CDOW recommended modification to~~ implement a plan to mitigate potential wildlife (deer and elk) milling impact Leadville Mill installed a 4-strand animal-friendly wire fence (Appendix 7-9, Colorado Division of Wildlife Consultation). ~~The perimeter fence modifications were completed in 2012.~~

3.7 WATER RESOURCES & HYDROLOGY (SEC 6.3.2(C))

~~Communication with the Colorado State Engineers, Ground Water Section, in 1990, indicates the shallowest known aquifer in this area to be 80ft to 100ft below surface.~~

[2] A1AR1Q4

~~These data are based on well logs of the nearest water wells to the mill site. Groundwater including storm water management during operation is discussed in Section 14, Exhibit U~~.

Ground water on-site characterization is based on two monitoring wells, the shallowest aquifer within the Leadville mill permit area ranges from 40-60ft below ground surface. A more detailed description of area water resources is discussed in Section 14.

The ~~Mill is located~~ Permit area is in the Arkansas River Basin flowing south-southeast before it turns east near Pueblo, Colorado. The Arkansas River Basin defines the Colorado Division of Water Resources Management Division 2 with its division office located in Pueblo.

A thin veneer of soil with a moderate to high permeability generally 8-9ft thick overlies the bedrock. However, substratum stony loam material in excess of 25ft was encountered during construction of the TSF. ~~A thin veneer of soil with moderate to high permeability generally less than 5ft thick overlies the bedrock~~.[3] The surficial materials are generally not extensive enough to yield suitable quantities of water but are an important unit for recharge and shallow, seasonal groundwater. Recent studies suggest approximately 84% of the available precipitation is evaporated and only a fraction of the remaining 16% recharges the aquifer systems.

The porosity of the Precambrian crystalline rocks is very low (<1%). Transmissivities are less than 10gal/day-ft (Apodaca and others, 1996). Groundwater discharge and storage in crystalline rocks occurs in fractures. Predominant recharge is from snowmelt between the middle of May and the first part of July. Water levels can vary as much as 10ft depending on the season and amount of precipitation. Depths to water in crystalline rocks generally are less than 150ft deep and depend on the topography and the fracture system. Water well yields from the majority of domestic wells are generally less than 5gpm.

The alluvium and alluvial terrace deposits are the primary groundwater sources for domestic uses with well yields ranging from a few gallons a minute to over 50gpm with a mean production rate of 25gpm. Alluvial well depths range from less than 10ft to over 100ft with the mean depth of 53ft. Many of the upper basin wells record strong

[3] A1AR1Q4

seasonal fluctuations with the highest water levels correlating to snow melt and spring runoff events.

~~Prior to closure, the Black Cloud mine was the highest producer of pumped groundwater in Lake County. Today, groundwater provides water for Lake County domestic uses.~~

Water quality in the upper Arkansas River basin alluvium is generally potable with a few exceptions of elevated metals ~~produced by effluent natural acid rock~~ drainage and septic system effluent contamination. (Groundwater Atlas of Colorado, 2003)

3.8 REFERENCES

Apodaca, L.E., et al., 1996 Environmental Setting and implications on water quality upper Colorado River Basin, Colorado and Utah: U.S. Geological Survey Water Resources Investigation Report 95-4263, 33p.

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