DEQ
Montana Department of Environmental Quality

Air, Energy & Mining Division

June 21, 2023

Kristine Murphy
Barrick Golden Sunlight Mine
Barrick Golden Sunlight Mine
453 U.S. Highway 2 East
Whitehall, MT 59759

Sent via email: Kristine.murphy@barrick.com

RE: Decision for MAQP #1689-10

Dear Ms. Murphy:

DEQ has issued a Decision on the Montana Air Quality Permit (MAQP) application for Barrick Golden Sunlight Mine. The application was given permit number MAQP #1689-10.

The Decision may be appealed to the Board of Environmental Review (Board). A request for a hearing must be filed by July 6, 2023. This permit shall become final on July 7, 2023, unless the Board orders a stay on the permit.

Procedures for Appeal: Any person who is directly and adversely affected by the Decision may request a hearing before the Board. The appeal must be filed before the final date stated above. The request for a hearing must contain an affidavit setting forth the grounds for the request. The hearing will be held under the provisions of the Montana Administrative Procedures Act. Submit requests for a hearing to: Chairman, Board of Environmental Review, P.O. Box 200901, Helena, Montana 59620 or the Board Secretary: DEQBERSecretary@mt.gov.

Conditions: See attached.

For DEQ,

Bo Wilkins
Air Quality Bureau Chief
Air Quality Bureau
(406) 444-3626

Emily Hultin
Air Quality Engineering Scientist
Air Quality Bureau
(406) 444-2049

MONTANA AIR QUALITY PERMIT

Issued to: Barrick Golden Sunlight Mine
Golden Sunlight Mines Inc.
453 U.S. Highway 2 East
Whitehall, MT 59759

MAQP #1689-10
Application Complete: 04/24/2023
Preliminary Decision Issued: 05/26/2023
Department's Decision: 06/21/2023
Final Permit Issued:

A Montana Air Quality Permit (MAQP), with conditions, is hereby granted to Barrick Golden Sunlight Mine, (GSM) pursuant to Section 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

Section I: Permitted Facilities

A. Plant Location

GSM operates a gold mine including ore processing operations. The mine is located at Township 2 North, Range 3 West, Jefferson County, Montana, near the southern end of the Bull Mountains, approximately five air miles northeast of Whitehall, Montana, at an elevation of 5,200 feet mean sea level (MSL). GSM is currently processing material from a tailings storage impoundment utilizing existing equipment.

B. Current Permit Action

The Department of Environmental Quality (DEQ) received an application for the following modifications:

- Removing the primary, secondary, and tertiary crushers
- Providing an updated Best Available Control Technology Analysis (BACT) for the repulped ore which has an inherently high moisture content and allowing for moisture content sampling and testing in place of mandatory scrubber operation
- Moisture content would be increased by either water spray bars or filter press controls, and scrubber operation only as a final response
- The addition of equipment associated with a portable screening plant, with a throughput capacity up to 300 tons per hour (TPH)

Section II: Conditions and Limitations

A. Emission Limitations

GSM shall install, operate, and maintain the following emission control equipment and procedures, and all emission control equipment and procedures specified in their application for an alteration of their MAQP and subsequent revisions (ARM 17.8.749):

1. Fall distance shall be minimized during topsoil, overburden, ore and wastes removal, transfer, and dumping.

2. All topsoil stockpiles and disturbed or exposed areas shall be stabilized with chemicals, mulch, or revegetation.

3. Drilling shall be conducted with skirting and water sprays.

4. Blasting shall be conducted to prevent overshooting.

5. GSM shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).

6. GSM shall treat all unpaved portions of the haul roads, access roads, parking lots, tailings impoundments, or general plant area with water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.5 (ARM 17.8.749).

7. Fine ore stockpile discharges and coarse ore discharges (to barricaded area) shall be controlled by water sprays (ARM 17.8.752).

8. The carbon regeneration unit and the refining furnace shall be totally enclosed, and all emissions vented to a wet scrubber (ARM 17.8.752).

9. All conveyors and pick-up points in the fine crushing building shall be enclosed and vented to a wet scrubber (ARM 17.8.752).

10. The fine ore reclaim and conveyor area shall be enclosed within a building or other structure. The ore being handled shall be maintained at a minimum of 6 percent moisture level prior to processing (ARM 17.8.752).

11. The FOP unit shall be enclosed within a building or other structure. The ore being handled shall be maintained at a minimum of 6 percent moisture level prior to processing (ARM 17.8.752).

12. The repulped ore will be maintained at a minimum of 6 percent moisture content using water spray bars as well as adjusting the cycle time of the filter press that directly controls the moisture content of the ore. The wet scrubber shall be started if the spray bars and filter press controls do not return the ore moisture content to at least 6 percent.

13. Activity on all storage and waste dump piles shall be restricted to minimize agitation of fugitive dust (ARM 17.8.749).

14. GSM shall not cause or authorize to be discharged into the atmosphere from any crusher, screen, bucket, elevator, conveyor belt transfer point, dryer storage bin, storage area, refining furnace or carbon regeneration unit any stack emissions that:

    a. Contain particulate matter in excess of 0.05 grams per dry standard cubic meter (g/dscm) (ARM 17.8.752).

    b. Exhibit greater than 20% opacity (ARM 17.8.304).

15. GSM shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

16. GSM shall finalize and submit a Fugitive Dust Control Plan to DEQ within 60 days of issuance of MAQP #1689-09 based on the preliminary draft dust control plan submitted in the BACT analysis to control fugitive dust to comply with ARM 17.8.308 - Airborne

Particulate Matter (Reasonable Precautions). At a minimum this plan shall include all mine areas including tailings impoundments and roads utilized within the mine permit boundary. The plan should include four elements common with best management practices. 1) Staff titles responsible for carrying out the Fugitive Dust Control Plan. 2) Identification of dust control problems. 3) Recommended strategy for resolution. 4) Documentation of corrective action (ARM 17.8.752).

17. GSM shall comply with the applicable requirements for the Emergency Engine Generator proposed with the tailings reprocessing operation under 40 CFR 60, Subpart IIII and/or 40 CFR 63, Subpart ZZZZ. The applicable subpart depends upon the construction date of the selected engine (ARM 17.8.749 and ARM 17.8.752).

18. GSM shall not cause any stack emissions to exceed 0.05 grams of PM per dry standard cubic meter (0.05 g PM/dscm), and not cause any process fugitive emissions greater than 10 percent opacity for affected units subject to 40 CFR 60, Subpart LL (ARM 17.8.752 and 40 CFR 60, Subpart LL).

19. GSM shall comply with 40 CFR 60, Subpart LL for the following equipment:

    - Repulper Plant Feed Hopper and Feed Conveyor
    - Filter Press Discharge
    - New Conveyor and Conveyors 5 and 6
    - Concentrate Stockpile
    - FOP

20. GSM shall not process more than 2,475,000 tons on a dry basis from the TSF1 on a rolling 12-month basis (ARM 17.8.749).

B. Testing Requirements

1. GSM shall conduct performance source testing on the carbon regeneration unit and the refinery furnace showing compliance with the applicable emission standards. GSM shall test the listed sources on a rotating basis so that each source is tested at a minimum of once every 4 years. All source tests shall be performed at over 90% of the maximum rated capacity of the affected facility or source. These tests shall include determination of total mass particulate and particulate matter with an aerodynamic diameter of ten microns or less (PM_{10}). The source tests shall be conducted in accordance with the applicable test methods listed in 40 CFR Part 60, General Provisions, Appendix A (Total Particulate), Part 51 Method 201 or 201A (PM_{10}). Gold refining operations have been temporarily suspended and testing requirements for those are suspended until such time as they re-start (ARM 17.8.105 and ARM 17.8.749).

2. If any equipment listed in Section A.20 is constructed, 40 CFR 60, Subpart LL becomes applicable and additional testing is required under 40 CFR 60, Subpart LL (ARM 17.8.340 and 40 CFR 60, Subpart LL).

3. GSM shall conduct an initial source test on the wet scrubber and fugitive dust emissions within 60 days of achieving maximum production rate, but not later than 180 days after initial startup of the applicable equipment (ARM 17.8.749 and 40 CFR 60 Subpart LL).

4. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).

5. The Department may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. GSM shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

   Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505). GSM shall submit the following information annually to the Department by March 1 of each year; the information may be submitted along with the annual emission inventory (ARM 17.8.505).

   a. Tons of ore removed (detailed by month)
   b. Tons of waste removed (detailed by month)
   c. Vehicle miles traveled on haul roads
   d. Vehicles miles traveled on access roads
   e. Number of holes drilled
   f. Number of blasts
   g. Current acreage of disturbed area
   h. Current acreage of tailings pond (and percent of tailings pond exposed)
   i. Tons through refinery
   j. Tons through carbon regeneration unit
   k. Tons through fine ore processor, and
   l. Gallons of diesel burned
   m. Tons of tailings removed from TSF1

2. GSM shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745, that would include ***the addition of a new emissions unit,*** a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location or fuel specifications, or would result in an increase in source capacity above its permitted operation. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change and must include the information requested in ARM 17.8.745(l)(d) (ARM 17.8.745).

3. GSM shall complete the required semiannual reporting and recordkeeping required for the wet scrubber flow rate and change in gas stream pressure (ARM 17.8.749 and 40 CFR 60 Subpart LL).

4. All records compiled in accordance with this permit must be maintained by GSM as a permanent business record for at least 5-years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

D. Ambient Monitoring

GSM shall operate an ambient air quality monitoring network as described in Attachment 1 of this permit (ARM 17.8.749).

E. Continuous Monitoring

1. GSM shall install, calibrate, maintain, and operate monitoring devices for the continuous measurement of the change in pressure of the gas stream through each wet scrubber. These monitoring devices must be certified by the manufacturer to be accurate within ±1 inch of water gauge pressure and must be calibrated on an annual basis in accordance with the manufacturer's instructions (ARM 17.8.749).

2. GSM shall install, calibrate, maintain and operate monitoring devices for the continuous measurement of the scrubbing liquid flow rate to each wet scrubber. These monitoring devices must be certified by the manufacturer to be accurate within ±5% of design liquid scrubbing flow rate and must be calibrated on at least an annual basis in accordance with the manufacturer's instructions (ARM 17.8.749).

3. GSM shall maintain a file of all measurements from the scrubber liquid flow rate and pressure differential monitoring devices, and performance testing measurements; monitoring device calibration checks and audits; adjustments and maintenance performed on these systems or devices recorded in a permanent form suitable for inspection. The file shall be retained on site for at least 3 years following the date of such measurements and reports. GSM shall supply these records to the Department upon request. Visual observation and recording of the pressure differential and scrubbing liquid flow rate shall be done twice each day (once during each 12-hour shift) by mill personnel (ARM 17.8.749).

4. If the FOP is constructed, GSM shall comply with the applicable monitoring requirements of 40 CFR 60, Subpart LL, which will be different than noted in items 1 through 3 directly above (ARM 17.8.340 and 40 CFR 60, Subpart LL).

F. Notification

1. GSM shall provide the Department with notification of the particulate source performance tests at least 30 days prior to the scheduled tests (ARM 17.8.106).

Section III: General Conditions

A. Inspection – GSM shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.

B. Waiver - The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if GSM fails to appeal as indicated below.

C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving GSM of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.740, *et seq*. (ARM 17.8.756).

D. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement action as specified in Section 75-2-401, *et seq*., MCA.

E. Appeals - Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The filing of a request for a hearing does not stay the Department's decision, unless the Board issues a stay upon receipt of a petition and a finding that a stay is appropriate under Section 75-2-211(11)(b), MCA. The issuance of a stay on a permit by the Board postpones the effective date of the Department's decision until conclusion of the hearing and issuance of a final decision by the Board. If a stay is not issued by the Board, the Department's decision on the application is final 16 days after the Department's decision is made.

F. Permit Inspection - As required by ARM 17.8.755 Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.

G. Permit Fees - Pursuant to Section 75-2-220, MCA, failure to pay the annual operation fee by GSM may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

H. Duration of Permit – Construction or installation must begin or contractual obligations entered into that would constitute substantial loss within 3 years of permit issuance and proceed with due diligence until the project is complete or the permit shall expire (ARM 17.8.762).

Attachment 1

Ambient Air Monitoring Plan
Barrick Golden Sunlight
Golden Sunlight Mines, Inc.
MAQP #1689-10

1. PM_{10} data was collected at the GSM mine from 1991-2000. During the 1991-2000 period, the annual means at both sites were less than 60% of the annual standard. For the 24-hour concentrations, three of the annual, maximum 24-hour values fell into the category of 60-80% of the 24-hour standard, with the remainder of the annual, maximum 24-hour values less than 60% of the 24-hour standard. Therefore, in accordance with the October 9, 1998, monitoring guidance statement developed by the Department, GSM discontinued operation of their ambient PM_{10} monitors.

2. The Department may require GSM to conduct additional ambient monitoring, if necessary.

3. The area is classified as "Better than National Standards" or unclassifiable/attainment of the NAAQS for criteria pollutants. These proposed modifications are a minor change that will have a negligible impact on ambient standards, ARM Chapter 17.8, Subchapter 2.

Montana Air Quality Permit (MAQP) Analysis
Barrick Golden Sunlight
Golden Sunlight Mines Inc.
MAQP #1689-10

I. Introduction/Project Description

Barrick Golden Sunlight (GSM) operates an existing gold mine and ore processing facility for the beneficiation of gold bearing ore located at Township 2 North, Range 3 West, Jefferson County, Montana at an elevation of 5200 feet mean sea level (MSL). GSM suspended mining and milling operations in the 2nd quarter of 2019. The mine and related facilities are located approximately 5 air miles northeast of Whitehall, Montana near the southern end of the Bull Mountains. The nearest PSD Class I areas are the Anaconda Pintler Wilderness 55 miles to the west and Yellowstone National Park 80 miles to the southeast. The closest sensitive area is the Deer Lodge National Forest, 3 miles to the north and west.

A. Permitted Equipment

MAQP #1689-10 covers the operations at the GSM mine site, ore processing facility, the new Tailings Storage Reprocessing Facility, and the additional Screening Plant. Operations include blasting, drilling, crushing, screening, and conveying of material. Emissions are also generated from bulk loading, stockpiles, diesel vehicle exhaust, and haul and access roads. Equipment will also include a filter press, storage piles, delumper, repulper, numerous conveyors, and the new portable screening plant that will be moved around the site as needed and not have a permanent location.

B. Source Description

GSM operates a gold mine and ore processing facility for the beneficiation of gold bearing ore. Ore is extracted from the mine using conventional open pit mining methods involving drilling, blasting, loading and hauling. The ore is delivered to the mill crushing area where it undergoes 3 stages of crushing, using gyratory and cone crushers followed by wet grinding in rod and ball mills. The ore passes through a leaching process where ore slurry is contacted with dilute sodium cyanide solution to obtain the optimum extraction of gold. The resulting gold bearing solution is sent through a washing circuit. GSM is also authorized to operate a tailings reprocessing facility to reprocess tailings and add additional equipment as part of the modified process. The mined solids will be repulped and pumped to the repurposed plant where the pyrite/acid-generating fraction of the tailings will be separated from the bulk tailings. The sulfur-rich pyrite fraction will be concentrated, dewatered, and shipped offsite for further processing. The de-sulfured bulk tailings will be thickened and pumped into the mine pit as backfill and to assist with stabilization and acid mine drainage neutralization. GSM is also authorized to operate a portable screening plant that has a maximum throughput of 300 TPH and is powered by landline power, so no generator is necessary/required. The unit will be moved around the site and not have a permanent location.

C. Permit History

MAQP #1499 was originally issued to Placer Amex for the Golden Sunlight Mine by the Montana Department of Health and Environmental Sciences, Air Quality Bureau on November 13, 1980. Placer Dome US, successor in interest to Placer Amex, transferred the permit to Golden Sunlight Inc. (Golden Sunlight) in early 1982.

MAQP #1689 was issued on July 1, 1982, as an alteration to Golden Sunlight's existing permit. **MAQP #1689 replaced MAQP #1499.** The permit alteration consisted of the following:

- The primary crusher changed from a jaw to a gyratory. The gyratory crusher had a higher ore feed rate; however, Golden Sunlight did not propose to increase production. Therefore, potential uncontrolled emissions

for this replacement were unchanged. The gyratory crusher operated fewer hours per day to crush the same amount of ore. This allowed for less handling of stockpiled ore that reduced emissions.

- The coarse screen location was moved within the enclosed secondary crushing building that added another conveyor discharge point to the circuit.

- A coarse ore stockpile was included in the circuit. The material was pre-screened to remove fines.

- Ducon-Mikropul dust collectors were used instead of Jay Turbulaire. Configuration of some of the dust collection was changed. Manufacturer's literature indicated that the dust collection efficiency was improved.

- Natural gas was used rather than propane in the process boiler, carbon reactivation furnace and the bullion furnace. This fuel change had a negligible effect on the emission estimates.

Estimates of potential, uncontrolled particulate matter (PM) emissions increased by 3.7 tons per year (tpy), while estimates of actual, controlled PM emissions decreased by 25.7 tpy, as a result of these alterations.

MAQP #1689A was issued on May 26, 1987. Golden Sunlight applied for a permit alteration to increase ore and waste production above the previous permit limit. This alteration was based on a projected ore production and mill throughput of 2,600,000 tpy and a waste production level of 14,900,000 tpy. The previous totals were 1,750,000 tpy of ore and 2,275,000 tpy of waste. The ore production increase was primarily due to a gradual decrease in ore hardness that in turn allowed for an increase in mill throughput using the existing equipment. Waste production also increased due to increases in the overburden stripping ratio. The PM emission inventory was updated using new emission factors. The increase in production and mill throughput resulted in an increase in uncontrolled PM emissions of 378 tpy. The majority of these PM emissions were fugitives, with stack emissions only increasing from 1.6 to 2.3 tpy.

MAQP #1689A-3 was issued on July 20, 1990, for an increase in the ore and waste production limits.

MAQP #1689-04 was issued on June 11, 1993, to increase production limits from 17.5 million tons per year (waste - 14.9 million, ore - 2.6 million) to 39.2 million tons per year (waste - 36.7 million, ore - 2.5 million). The acreage of the disturbed areas also increased. The additional disturbed acres were used as sites for tailings, ore storage, and mine waste rock disposal. All other existing equipment, facilities and procedures remained the same. Also, the ambient monitoring requirement for analysis of trace metals was deleted.

MAQP #1689-05 was issued on June 21, 1998. Golden Sunlight, in a letter dated April 27, 1998, requested a determination on the need for a permit alteration for the installation and operation of an INCO SO_2/AIR Cyanide Destruction System. Golden Sunlight identified minimal emissions from the INCO system. The INCO system is a single stage, slurry treatment that uses ammonium bisulfide (NH_4HSO_3) to destroy cyanide during a retention cycle of approximately 3 hours. The INCO system emits approximately 2.6 ton/day of ammonium (NH_3). However, NH_3 is not a regulated air pollutant. The INCO system was designed to destroy 223 lb/hour of weak-acid, dissociable cyanide in the mine's tailings slurry stream (at a discharge rate of 1,897 gallons/minute with 50% solids by weight). The INCO system removes over 99% of the cyanide from the gold plant's tailings slurry leaving a final cyanide concentration in the treated effluent of about 2 ppm.

On May 6, 1998, the Department of Environmental Quality (Department) determined that the INCO Cyanide Destruction System would not require an alteration to MAQP #1689-04 because the proposed changes would not cause any increase in regulated air pollutants. However, the Department modified MAQP #1689-04 and included a description of the INCO system so that the permit would include a complete and accurate account of the mine operations. Also, the Department updated the rule references in the permit. **MAQP #1689-05** replaced MAQP #1689-

04.

The Department received a letter, dated December 28, 2000, from Golden Sunlight requesting termination of the ambient air monitoring network. The Department reviewed the ambient air monitoring data following the October 9, 1998, permitting guidance statement. In a letter dated February 28, 2001, the Department agreed to Golden Sunlight's request to terminate the ambient monitoring program, effective April 1, 2001. The permit action updated the monitoring requirements to reflect the termination of the ambient air monitoring network. Also, the permit was updated to reflect the latest organizational format. **MAQP #1689-06** replaced MAQP #1689-05.

MAQP #1689-07 was issued on June 30, 2010. The permit action addressed the following items:

1. Included the construction and operation of a Fine Ore Processing (FOP) unit. The Department received a letter, dated February 25, 2010, from GSM requesting that MAQP #1689-06 be updated to include the construction and operation of a FOP unit.

2. Changed the permittee name from Golden Sunlight Mines, Inc. to Barrick Golden Sunlight. The Department received a letter on March 12, 2010, to change the permittee name from Golden Sunlight Mines, Inc. to Barrick Golden Sunlight.

3. Increased the ore process rate at GSM. On November 9, 2005, the Department received additional information regarding a proposed increase in the ore process rate at GSM. On November 17, 2005, the Department approved the change as a de minims action. This permit included the increase in the ore process rate from 2.5 million tons per year (mty) to 3.0 mty.

4. Included changes to the crushing circuit that will eliminate or minimize emissions from the coarse ore stockpile. The Department received a letter dated April 2, 2010, from GSM requesting that MAQP #1689-06 be updated to include changes to the crushing circuit that will eliminate or minimize emissions from the coarse ore stockpile.

The Department received an application on June 9, 2014, from GSM requesting that MAQP #1689-07 be modified to include the addition of a diesel- powered stacker to handle periods whenever the tertiary crusher would be bypassed. In 2007 a tertiary crusher de minimis bypass was approved, however, this request for modification also included an increased capacity higher than the earlier de minimis approval. The permit action added an additional stacker, modified the description of the crushing circuit, provided a minor administrative correction to Section II.A.14, and updated the permit to reflect the current permit language and rule references used by the Department. Language was also added to address the possible future construction of a fine ore processing unit (FOP) which would trigger 40 CFR 60, Subpart LL. **MAQP #1689-08** replaced MAQP #1689-07.

The Department of Environmental Quality (Department) received an application on March 1, 2021, from GSM requesting that MAQP #1689-08 be modified to allow the installation and operation of a new reprocessing plant at the Tailings Storage Facility 1 (TSF1) within the existing Golden Sunlight mine boundary. The proposed tailings reprocessing project will involve mining about 26 million tons of tailings solids previously deposited in TSF1 at the Golden Sunlight site. The tailings solids will be repulped and pumped to the repurposed plant where the pyrite/acid-generating fraction of the tailings will be separated from the bulk tailings. The sulfur-rich pyrite fraction will be concentrated, dewatered, and shipped off-site for further processing. The de-sulfured bulk tailings will be thickened and pumped into the existing open pit as backfill as well as assist with stabilization and acid mine drainage neutralization.

To the extent practical, existing infrastructure and equipment in the gold recovery plant will be utilized for the project. The existing Secondary Crusher Building (SCB) will be used for concentrate storage, and the Fine Ore Storage Transfer Tower Building (FOS) will be modified for a new filter press and other ancillary equipment. New equipment will also be added to the site to allow the reprocessing including additional storage piles, delumper, repulper, and numerous conveyors. A new diesel-fired emergency generator is also proposed for the thickener facility. Previous permit conditions in MAQP #1689-08 remain in the permit which maintain the permit conditions to allow blasting and handling of ore. The Department also confirmed on June 25, 2021, via email communication with GSM, that the Fine Ore Processing (FOP) project had commenced based on continuing capital expenditures to develop the project. Therefore, conditions in MAQP #1689-08 related to the FOP were reinstated back into the Decision for MAQP #1689-09. **MAQP#1689-09** replaced MAQP#1689-08

D. Current Permit Action

The Department of Environmental Quality (DEQ) received an application for the following modifications:

- Removing the primary, secondary, and tertiary crushers
- Providing an updated Best Available Control Technology Analysis (BACT) for the repulped ore which has an inherently high moisture content and allowing for moisture content sampling and testing in place of mandatory scrubber operation
- Moisture content would be increased by either water spray bars or filter press controls, and scrubber operation only as a final response
- The addition of equipment associated with a portable screening plant, with a throughput capacity up to 300 tons per hour (TPH)

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial quotations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the Administrative Rules of Montana (ARM) and are available upon request from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 - General Provisions, including, but not limited to:

1. ARM 17.8.101 Definitions: This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq*., Montana Code Annotated (MCA).

   GSM shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available online or from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.

5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant which would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner that a public nuisance is created.

B. ARM 17.8, Subchapter 2 - Ambient Air Quality, including, but not limited to:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead, and
10. ARM 17.8.223 Ambient Air Quality Standard for PM_{10}.

GSM must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 - Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

2. ARM 17.8.308, Particulate Matter Airborne. (1) This rule requires an opacity limitation of 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, GSM shall not cause or authorize the use of any street, road or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter Fuel Burning Equipment. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this rule.

4. ARM 17.8.310 Particulate Matter Industrial Processes. This rule requires that no person shall cause, suffer, allow, or permit to be discharged into the outdoor atmosphere from any operation, process or activity, particulate matter in excess of the amount shown in this rule.

5. ARM 17.8.322, Sulfur Oxide Emissions-Sulfur in Fuel. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this rule.

6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.

7. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 CFR 60, Standards of Performance for New Stationary Sources (NSPS). GSM is not considered an NSPS affected facility under 40 CFR 60 and is not subject to the requirements of the following subparts.

   a. 40 CFR Part 60, Subpart A, General Provisions. This subpart applies to all equipment or facilities subject to any part of Part 60 subpart. Subpart A is applicable to these proposed changes.

   b. 40 CFR Part 60, Subpart LL, Metallic Mineral Processing Plants. This subpart requires affected facilities with any stack emissions containing particulate matter to not exceed 0.05 grams per dry standard cubic meter nor to exhibit greater than 7 % opacity, unless the stack emissions are discharged from an affected facility using a wet scrubbing emission control device. Also, any process fugitive emissions are limited to not greater than 10 % opacity. Even though the modifications to the facility permitted under MAQP #1689-04 (in 1993) did increase emissions, they were exempted because the production rate increase at the existing facility occurred without a capital expenditure by Golden Sunlight. The discovery of softer ore reserves allowed for a production increase (and associated air emissions increase) using the existing equipment. GSM did not yet construct and operate the Fine Ore Processing Unit and therefore the FOP did not trigger Subpart LL. However, new equipment associated with MAQP #1689-09 triggered Subpart LL. This equipment includes the Repulper Plant Feed Hopper and feed conveyor, filter press discharge, new conveyor, and existing conveyors 5 and 6, as well as the concentrate stockpile. MAQP #1689-10 triggers Subpart LL as well. This includes the change in control strategy that moves the concentrate units from point sources (with the wet scrubber as the point of release) to fugitive sources subject to the 10% opacity standard. The screening plant will also be subject to Subpart LL and fall under the 10% opacity standard.

8. ARM 17.8.341, Emissions Standards for Hazardous Air Pollutants. This source shall comply with the standards and provisions of 40 CFR Part 61, as appropriate.

   a. Subpart A- General Provisions. This subpart applies to all equipment or facilities subject o a specific Part 63 subpart. Subpart A is not applicable to this permit action.

   b. Subpart EEEEEEE: National Emission Standards for Hazardous Air Pollutants: Gold Mine Ore Processing and Production Area Source Category. GSM is an affected facility under Subpart EEEEEEE because of other processes; however, the proposed BACT modification and portable screening plant are not affected units under this subpart. Therefore, no additional requirements apply for this permit change.

D. ARM 17.8, Subchapter 5 - Air Quality Permit Application, Operation, and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is

incomplete until the proper application fee is paid to the Department. GSM submitted the appropriate permit application fee for the current permit action.

2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar-year.

   An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that prorate the required fee amount.

E. ARM 17.8, Subchapter 7 - Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit modification to construct, modify, or use any air contaminant sources that have the potential to emit (PTE) greater than 25 tons per year of any pollutant. GSM has a PTE greater than 25 tons per year of PM; therefore, an air quality permit is required.

3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.

4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.

5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, modification, or use of a source. GSM submitted the required permit application for the current permit action. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. GSM submitted an affidavit of publication of public notice for the March 23, 2023, issue of *The Butte Montana Standard* , a newspaper of general circulation in the town of Butte, Montana, Silver Bow County.

6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The required BACT analysis is included in Section III of this permit analysis.

8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving GSM of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq*.

10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.

11. ARM 17.8.760 Additional Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those applications that require an environmental impact statement.

12. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or modified source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.

13. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).

14. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.

15. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of intent to transfer, including the names of the transferor and the transferee, is sent to the Department.

F. ARM 17.8, Subchapter 8 - Prevention of Significant Deterioration of Air Quality (PSD), including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to the Federal Clean Air Act (FCAA) that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source since this facility is not a listed source and the source's PTE is below 250 tons per year of any pollutant (excluding fugitive emissions).

G. ARM 17.8. Subchapter 12 - Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:

a. Potential to emit (PTE) > 10 ton/year of any one Hazardous Air Pollutant (HAP), PTE > 25 ton/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule;

b. PTE > 100 ton/year of any pollutant; or

c. Sources with the PTE > 70 ton/year of PM_{10} in a serious PM_{10} non-attainment area.

2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing MAQP #1689-10 for GSM, the following conclusions were made:

   a. The facility's PTE is less than 100 ton/year for any pollutant, excluding fugitives.

   b. The facility's PTE is less than 10 ton/year for any one HAP and less than 25 ton/year of all HAPs.

   c. This source is not located in a serious PM_{10} non-attainment area.

   d. This facility will become subject to NSPS, 40 CFR 60 Subpart LL and Subpart IIII once new equipment part of MAQP #1689-09 is constructed.

   e. This facility will become subject to NESHAP, 40 CFR 63 Subpart ZZZZ once new equipment part of MAQP #1689-09 is constructed. GSM was already subject to Subpart EEEEEEE.

   f. This source is not a Title IV affected source, nor a solid waste combustion unit.

   g. This source is not an EPA designated Title V source.

   GSM was required to obtain a Title V Operating Permit as required by 40 CFR 63, Subpart EEEEEEE - National Emission Standards for Hazardous Air Pollutants: Gold Mine Ore Processing and Production Area Source Category. New changes authorized under MAQP #1689-10, will require an update to OP #1689-01.

III. BACT Determination

A BACT determination is required for each new or modified source. GSM shall install on the new or modified source the maximum air pollution control, which is technically practicable and economically feasible, except that best available control technology shall be utilized.

The following sections identify BACT for the project's primary activities and associated pollutants. BACT is considered for the tailings reprocessing facility, the generator engine, and for fugitive dust.

BACT for Fine Ore Reclaim/FOP Units:

The BACT for the fine ore reclaim and FOP units was the use of a wet scrubber. Going forward, for all material transfer and processing activities, the moisture content of the fine ore reclaim will inherently control particulate emissions as the material is non-dust-producing while maintained at a high moisture content. High moisture ore for metallic minerals process is defined as having a 4% moisture content or greater by the EPA. The high moisture ore has an average moisture content of 13% and will be maintained at a minimum of 6% moisture content using water spray bars as well as adjusting the cycle time of the filter press that directly controls the moisture content of the ore. Water spray bars will be added to the filer press on the side of the belt. As a last means of control, the wet scrubber will be turned back on as it is still functional and is not being removed from the area.
This process is also fully enclosed within a building/structure. This enclosure is subject to the 10% opacity standard in 40 CFR 60, Subpart LL.

The high moisture content and the act of enclosing the high moisture ore constitute as BACT.

BACT for Portable Screening Unit:

GSM will employ dust suppression control that is installed, maintained, and operated to ensure that GSM complies with both reasonable precautions in ARM 17.8.308 as well as fugitive emission opacity requirements in 40 CFR 60, Subpart LL.
Dust suppression control for screening, material transfer, conveyor transfer points, and pile forming consisting of water spray bars and/or chemical dust suppression will be used to meet these requirements.

Water sprays and general dust suppression are consistent with other BACT determinations for similar units.

IV. Emission Inventory

Basis: 8,760 hours per year

Fugitive Emissions			Tons Per year						
Emission Unit Description	**Emission Unit #**	**T/hr**	**PM**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**NO_x**	**SO_2**	**VOC**
Stockpiles									
Topsoil	10	6	1.59	0.75	0.11				
Overburden	11	8	2.13	1.01	0.15				
N repulping plant feed	12	135	0.82	0.39	0.06				
S repulping plant feed	13	135							
Repulping plant rejects	14	30	0.05	0.02	0.003				
Material Transfers									
Repulping plant feed - truck dump to hopper & hopper drop to conveyor (2 drops)	15	300	13.14	5.26					
Roads		**VMT/yr**							
Roads – concentrate and TSF1 trucks	22-24	32,120	22.31	5.75	0.58				
Total Controlled Fugitive Emissions			**40.03**	**13.18**	**0.90**	**0.00**	**0.00**	**0.00**	**0.00**

Point Source Emissions			Tons Per Year						
Emission Unit Description	**Emission Unit #**	**hr/yr**	**PM**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**NO_x**	**SO_2**	**VOC**
Emergency engine generator, 400 hp/250 kW	25	500	0.22	0.22	0.22	0.67	3.10	0.21	0.25
Controlled by the existing wet scrubber and enclosed	**Emission Unit #**	**T/hr**	**PM**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**NO_x**	**SO_2**	**VOC**
Concentrate - filter press	16	50	0.09	0.04					
Concentrate - conveyor 5	17	50							
Concentrate - conveyor 6	18	50							
Concentrate - new conveyor	19	50							
Concentrate	20	60	0.0050	0.0024	0.0004				
Concentrate truck loading	21	60							
Total Controlled Point Source Emissions			**0.31**	**0.26**	**0.22**	**0.67**	**3.10**	**0.21**	**0.25**

	PM	**PM_{10}**	**$PM_{2.5}$**	**CO**	**NO_x**	**SO_2**	**VOC**
Total Project Controlled Emissions	**40.35**	**13.44**	**1.12**	**0.67**	**3.10**	**0.21**	**0.25**

Existing Permitted Mine Equipment Total Controlled Potential Emissions (fugitive + point source)*. Includes Emitting Units 1-7 and 9.	**1,743**	**92.4**	**0.37**	**1.40**	**1.79**	**0.43**	**0.53**

*The fine ore processing (FOP) unit (Emission Unit #8) is not included in the emissions total because the facility has not yet been constructed. The FOP emissions should be added in a future update to the summary to reflect the actual operations.

Total Facility Controlled Emissions Including the Proposed Tailings Reprocessing Plant (fugitive +point source)	**1,784**	**106**	**1.49**	**2.07**	**4.89**	**0.44**	**0.78**

Total Facility Controlled Emissions Including the Proposed Tailings Reprocessing Plant (point sources only)	**10.54**	**4.01**	**0.59**	**2.07**	**4.89**	**0.44**	**0.78**

300 TPH Screening Plant:

Emissions Units	PM (TPY)	PM10(TPY)	PM2.5 (TPY)
Material Transfer - Stockpile to Screening Plant Hopper	6.57	2.63	0.53
Screening	2.89	0.97	0.07
Conveyor Transfer Points	0.74	0.24	0.07
Pile Forming	1.32	0.62	0.09
Total	11.52	4.47	0.75

Material Handling Emissions (transfer from pile to screening unit)

Operating Time = 8760 hrs/yr
Process Rate = 300 tons/hr
Process Rate = 7200 tons/day
Process Rate = 2628000 tons/day

Pollutant	Emission Factor	Units	Emission Factor Reference	Enforceable Control Limit	Water Spray, as Necessary, Control	Potential Emissions	
						(lb/hr)	(ton/yr)
PM	0.01	lb/ton	AP-42, Table 11.24-2 (High Moisture Ore-Material Handling & Transfer)	10% Opacity (40 CFR 60, Subpart LL)	50%	1.50	6.57
PM_{10}	4.00E-03	lb/ton	AP-42, Table 11.24-2 (High Moisture Ore-Material Handling & Transfer)		50%	0.60	2.63
$PM_{2.5}$[a]	8.00E-04	lb/ton	AP-42, Table 11.24-2 (High Moisture Ore-Material Handling & Transfer) assume PM2.5 = 20% PM10		50%	0.12	0.53

Notes:
a. No emission factor for $PM_{2.5}$ is available in AP-42. Assume $PM_{2.5}$ = 20% of PM10.

Sample Calculations:

$$PM\ Emissions\ \left(\frac{lb}{hr}\right) = \left[(Emission\ Factor, \frac{lb}{ton} * \left(Process\ Rate, \frac{tons}{hr}\right) * (1 - Control\%)\right]$$

$$PM\ Emissions\ \left(\frac{lb}{hr}\right) = \left[\left(0.01\frac{lb}{ton}\right) * \left(300\frac{tons}{hr}\right) * (1 - 0.5)\right] = 1.5\frac{lb}{hr}$$

$$PM\ Emissions\ \left(\frac{ton}{yr}\right) = \frac{\left[\left(Emission\ Factor, \frac{lb}{ton}\right) * \left(Process\ Rate, \frac{tons}{yr}\right) * (1 - Control\ \%)\right]}{2000\frac{lbs}{ton}}$$

$$PM\ Emissions\ \left(\frac{ton}{yr}\right) = \frac{\left[\left(0.01\frac{lb}{ton}\right) * \left(2628000\frac{tons}{yr}\right) * (1 - 0.5)\right]}{2000\frac{lbs}{ton}} = 6.57\frac{ton}{yr}$$

Screening Emissions:

Operating Time = 8760 hrs/yr
Processing Rate = 300 tons/hr
Process Rate = 7200 tons/day
Process Rate = 2628000 tons/yr

Pollutant	Emission Factor	Units	Emission Factor Reference	Potential Emissions	
				(lb/hr)	(ton/yr)
PM	0.0022	lb/ton	AP-42, Table 11.19.2-2 (Screening Controlled)	0.66	2.89
PM_{10}	7.40E-04	lb/ton	AP-42, Table 11.19.2-2 (Screening Controlled)	0.22	0.97
$PM_{2.5}$	5.00E-05	lb/ton	AP-42, Table 11.19.2-2 (Screening Controlled)	0.02	0.07

Sample Calculations:

$$PM\ Emissions\ \left(\frac{lb}{hr}\right) = \left(Emission\ Factor, \frac{lb}{ton}\right) * \left(Process\ Rate, \frac{tons}{hr}\right)$$

$$PM\ Emissions\ \left(\frac{lb}{hr}\right) = \left(0.0022\frac{lb}{ton}\right) * \left(300\frac{tons}{hr}\right) = \frac{0.66lb}{hr}$$

$$PM\ Emissions\ \left(\frac{ton}{yr}\right) = \frac{\left(Emission\ Factor, \frac{lb}{ton}\right) * (Process\ Rate, \frac{tons}{yr})}{2000\frac{lbs}{ton}}$$

$$PM\ Emissions\ \left(\frac{ton}{yr}\right) = \frac{(0.0022\ lb.ton) * (2628000\frac{tons}{yr})}{2000\frac{ton}{yr}} = 2.891\frac{ton}{yr}$$

Conveyor Transfer Emissions:

Operating Time = 8760 hrs/yr
Process Rate = 300 tons/hr
Process Rate = 7200 tons/day
Process Rate = 2628000 tons/yr
Number of Transfer Points = 4

Pollutant	Emission Factor	Units	Emission Factor Reference	Potential Emissions	
				(lb/hr)	(ton/yr)
PM	0.00014	lb/ton	AP-42, Table 11.19.2-2 (Conveyor Transfer Point Controlled)	0.17	0.74
PM_{10}	4.60E-05	lb/ton	AP-42, Table 11.19.2-2 (Conveyor Transfer Point Controlled)	0.06	0.24
$PM_{2.5}$	1.30E-05	lb/ton	AP-42, Table 11.19.2-2 (Conveyor Transfer Point Controlled)	0.02	0.07

Sample Calculations:

$$PM\ Emissions\ \left(\frac{lb}{yr}\right) = \left(Emission\ Factor, \frac{lb}{ton}\right) * \left(Process\ Rate, \frac{tons}{hr}\right) * (\#\ Transfer\ Points)$$

$$PM\ Emissions\ \left(\frac{lb}{yr}\right) = \frac{\left(\frac{0.00014lb}{ton}\right) * \left(\ 2628000\frac{tons}{yr}\right) * (4\ transfers)}{2000\frac{lbs}{ton}}$$

$$PM\ Emissions\ \left(\frac{ton}{yr}\right) = \left(Emission\ Factor, \frac{lb}{ton}\right) * \left(Process\ Rate, \frac{tons}{yr}\right) * (\#\ of\ Transfer\ Points)$$

Pile Forming:

Number of Piles	1
Process Rate	300 ton/hr
Process Rate	2628000 ton/yr
Operating Hours	8760 hr/yr
Control Efficiency	50%

$Equation\ 1$:

$$E = k * 0.0032 * \frac{(\frac{U}{5})^{1.3}}{(\frac{M}{2})^{1.4}}$$

Note: Equation 1 taken from AP-42 Section 13.2.4-3, Equation 1

Equation Factor	Value	Unit
U	9.3	Wind Speed (MPH)[a]
k	0.74	PM – Particle Size
k	0.35	PM10 – Particle Size
k	0.053	PM2.5 – Particle Size
M	4	Moisture Content %

Note: a. https//www.nceinoaa.gov/monitoring-content/societal-impacts/wind/docs/wind1996.pdf, calculation based on the average wind speeds for the Montana areas included for 1930-1996. Western MT generally has lower wind speeds, so this calculation is conservatively high

Pollutant	E (from Equation)	Potential Emissions	
		(lb/hr)	(ton/yr)
PM	0.002010511	0.30	1.32
PM10	0.000950918	0.14	0.62
PM2.5	0.000143996	0.02	0.09

Sample Calculations:

$$PM\ Emissions\ \left(\frac{lb}{hr}\right) = \left(Emission\ Factor, \frac{lb}{ton}\right) * \left(\ Process\ Rate, \frac{tons}{hr}\right) * (1 - Control\ \%)$$

$$PM\ Emissions\ \left(\frac{lb}{hr}\right) = \left(0.002\frac{lb}{ton}\right) * \left(300\frac{tons}{hr}\right) * (1 - 0.5) = 0.302\frac{lb}{hr}$$

$$PM\ Emissions\ \left(\frac{tons}{yr}\right) = \frac{\left(Emission\ Factor, \frac{lb}{tons}\right) * \left(Process\ Rate, \frac{tons}{yr}\right) * (1 - Control\ \%)}{2000\frac{lbs}{ton}}$$

$$PM\ Emissions\ \left(\frac{ton}{yr}\right) = \frac{\left(0.002\frac{lb}{ton}\right) * \left(2628000\frac{tons}{yr}\right) * (1 - 0.5)}{2000\frac{lbs}{ton}} = 1.321\frac{tons}{yr}$$

V. Existing Air Quality

MAQP #1689A required ambient monitoring for total suspended particulate matter (TSP) and metals (lead, cadmium, arsenic, zinc). However, one TSP sample exceeded the 24-hour PM_{10} standard (150 $\mu g/m^3$). Based on Department policy, sampling changed from TSP to PM_{10} samplers in 1991 under the conditions of MAQP #1689A-3. The metals concentrations were below the Department's guideline values and the metals analysis requirement was deleted in MAQP #1689-04.

The Department reviewed GSM's request, dated December 28, 2000, to terminate the ambient PM_{10} monitoring program. The review followed the Department's October 1998 Monitoring Requirements Guidance Statement and covered the PM_{10} data collected since the TSP sampler changeover in 1991 through the third quarter of 2000.

During the 1991-2000 period, the annual means at both sites were less than 60% of the annual standard (50 $\mu g/m^3$). For the 24-hour concentrations, three of the annual, maximum 24-hour values fell into the category of 60-80% of the 24-hour standard, with the remainder of the annual, maximum 24-hour values less than 60% of the 24-hour standard. For the three 24-hour maximum concentrations that fell into the 60-80% category, two of them were measured during the forest fires of 2000. Data collected at PM-2.5 monitoring sites in the region on the same date (8/7/00) as the two elevated PM_{10} samples from GSM revealed very high concentrations of fine particles. This strongly indicates that there were substantial effects from forest fire smoke on the GSM PM_{10} samples on August 7, 2000. Therefore, these two samples could not reasonably be attributed to emission sources at GSM. The third, maximum 24-hour sample in the 60-80% category was collected in 1991. Given the lack of historical records and the length of time that elapsed since this sample was collected, the Department could not positively identify the emission sources that contributed to this elevated sample. Therefore, due to the relatively low concentrations of PM_{10} in the ambient air around the mine, the Department agreed to GSM's request to terminate the ambient air-monitoring network.

VI. Air Quality Impact Analysis

GSM previously submitted dispersion modeling analyses of the impacts from the changes proposed for MAQP #1689-04 and discussed the results from their ambient monitoring network. These analyses showed compliance with the applicable ambient air quality standard.

The Department believes the increase in emissions for the proposed reduction in use of the wet scrubber and addition of the portable screening unit will not adversely impact the ambient air quality in the area, as the majority of new material handling is conducted using materials with high moisture, materials wetted with water or conducted inside buildings as well as through the use of an existing scrubber for particulate control.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted the following private property taking and damaging assessment.

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

VIII. Environmental Assessment

The impact analysis will identify and evaluate direct and secondary impacts. Direct impacts are those that occur at the same time and place as the action that triggers the effect. Secondary impacts mean "a further impact to the human environment that may be stimulated or induced by or otherwise result from a direct impact of the action." ARM 17.4.603(18). Where impacts are expected to occur, the impacts analysis estimates the duration and intensity of the impact.

The duration of an impact is quantified as follows:

- **Short-term**: Short-term impacts are defined as those impacts that would not last longer than the proposed operation of the site.
- **Long-term**: Long-term impacts are defined as impacts that would remain or occur following shutdown of the proposed facility.

The severity of an impact is measured using the following:

- **No Impact**: There would be no change from current conditions.
- **Negligible Impact**: An adverse or beneficial effect would occur but would be at the lowest levels of detection.
- **Minor Impact**: The effect would be noticeable but would be relatively small and would not affect the function or integrity of the resource.
- **Moderate Impact**: The effect would be easily identifiable and would change the function or integrity of the resource.
- **Major Impact**: The effect would alter the resource.

Barrick Golden Sunlight Mine

Draft Environmental Assessment for

Montana Air Quality Permit #1689-10

Air Quality Bureau

APPLICANT: Barrick Golden Sunlight Mine (GSM)		
SITE NAME: Golden Sunlight Mine		
PROPOSED PERMIT NUMBER: Montana Air Quality Permit (MAQP) #1689-10		
APPLICATION RECEIVED: 03/22/2023		
APPLICATION DEEMED COMPLETE: 04/24/2023		
LOCATION: Township 2 North, Range 3 West, Jefferson County, Montana		**COUNTY: Jefferson**
PROPERTY OWNERSHIP:	**FEDERAL____ STATE __X__ PRIVATE _X___**	
EA PREPARER:	E. Hultin	
EA Draft Date	**EA Final Date**	**Permit Final Date**
05/26/2023	**06/21/2023**	

COMPLIANCE WITH THE MONTANA ENVIRONMENTAL POLICY ACT

The Montana Department of Environmental Quality (DEQ) prepared this Environmental Assessment (EA) in accordance with requirements of the Montana Environmental Policy Act (MEPA). An EA functions to determine the need to prepare an Environmental Impact Statement (EIS) through an initial evaluation and determination of the significance of impacts associated with the proposed action. However, an agency is required to prepare an EA whenever, as here, statutory requirements do not allow sufficient time for the agency to prepare an EIS (ARM 17.4.607(3)(c)). This document may disclose impacts over which DEQ has no regulatory authority.

COMPLIANCE WITH THE CLEAN AIR ACT OF MONTANA

The state law that regulates air quality permitting in Montana is the Clean Air Act of Montana (CAA), §§ 75-2-101, *et seq*., Montana Code Annotated (MCA). DEQ may not approve a proposed action contained in an application for an air quality permit unless the project complies with the requirements set forth in the CAA and the administrative rules adopted thereunder, ARMs 17.8.101 *et. seq*. The project is subject to approval by the DEQ Air Quality Bureau (AQB) as the potential project emissions exceed the 5 tons per year threshold of regulated pollutants for modifications of permitted facilities (ARM 17.8.743). DEQ's approval of an air quality permit application does not relieve GSM from complying with any other applicable federal, state, or county laws, regulations, or ordinances. GSM is responsible for obtaining any other permits, licenses, or approvals (from DEQ or otherwise) that are required for any part of the proposed action. Any action DEQ takes at this time is limited to the pending air quality permit application currently before DEQ's AQB and the authority granted to DEQ under the Clean Air Act of Montana. This

action is not indicative of any other action DEQ may take on any future (unsubmitted) applications made pursuant to any other authority (*e.g.* Montana's Water Protection Act). DEQ will decide whether to issue the pending air quality permit pursuant to the requirements of the CAA alone. DEQ may not withhold, deny, or impose conditions on the permit based on the information contained in this Environmental Assessment. § 75-1-201(4), MCA.

SUMMARY OF THE PROPOSED ACTION

GSM has applied for an MAQP modification under the CAA to request an increase in emissions at the Golden Sunlight Mine in Whitehall, Montana, by adding a portable screening unit. GSM is also removing the primary, secondary, and tertiary crushers. An earlier BACT determination is also being modified to allow for the high moisture ore to serve as the control for fugitive emissions in place of an existing wet scrubber.

This GSM permit action has been assigned MAQP #1689-10 and will allow for the continued operation of the mine as in permit version MAQP #1689-09. The changes in equipment and operation at GSM associated with these proposed changes are detailed below in Table 1.

GSM's estimated emissions increase from these current permitting actions is less than 24 tons per year (tpy) for each regulated pollutant, which keeps this GSM permit action as a minor permit modification. GSM has conservatively estimated all project emission increases and not estimated the emission reductions associated with any removed equipment. Emissions associated with the new portable screening plant will increase above the previously permitted level at the Golden Sunlight Mine.

All information included in the EA is derived from the permit application, discussions with the applicant, analysis of aerial photography, topographic maps, and other research tools.

Table 1. GSM Proposed Actions Summary

Proposed Action	
General Overview	The following equipment will be removed from the site:-primary, secondary and tertiary crushers from the permit An updated Best Available Control Technology Analysis (BACT) given the material properties of the high moisture ore in place of the wet scrubber requirements for the fine ore processing (FOP) unit, and the fine ore reclaim and conveyor area To add equipment associated with a portable screening plant, with a throughput capacity up to 300 tons per hour (TPH)
Proposed Action Estimated Disturbance	
Disturbance	No new land disturbance will occur. All changes are inside existing structures or on land already utilized for mining purposes
Proposed Action	

Duration	**Construction**: Approximately 3 days will be needed to install the water spray bars and build the earthen ramp for the portable screening plant. **Operational Life**: Equipment has the functionality of 20-30 years depending on maintenance efforts. GSM would be expected to continue to be operational as long as economic conditions are favorable.
Construction Equipment	Minor equipment will be utilized for the limited construction required.
Personnel Onsite	GSM employees 60 full time employees. No new jobs are required for these actions.
Location and Analysis Area	**Location**: The proposed action is located at the Barrick Golden Sunlight Mine in Whitehall, Montana whose street address is 453 U.S. Highway 2 East, Whitehall, MT 59759. This parcel is located within Section 16 of Township 2 North, Range 03 West, Jefferson County, Montana. **Analysis Area**: The area being analyzed as part of the environmental review includes the land owned by Golden Sunlight Mines - the portion that is currently an existing mine.
Air Quality	The Draft EA will be attached to the Preliminary Determination Air Quality Permit which would include all enforceable conditions for operation of the emitting units. Any revisions to the EA would be addressed and included in the Final EA attached to the Department's Decision.
Conditions Incorporated into the Proposed Action	The conditions developed in the Preliminary Determination of the MAQP dated May 30, 2023, set forth in Sections II. A-D.

PURPOSE AND BENEFIT FOR PROPOSED ACTION

DEQ's purpose in conducting this environmental review is to act upon GSM's air quality permit application No. 1689-10 to remove the primary, secondary, and tertiary crushers from the permit. The application also requested modifying the existing BACT analysis to rely on the high moisture content in the reprocessed tailings and add a portable screening plant.

The benefits of the proposed action, if approved, include: reducing the water usage across the facility by updating the BACT for the high moisture ore. Removing equipment no longer in use. The request also adds a portable screening plant to the permit and no longer having it permitted/owned by a contracted company.

REGULATORY RESPONSIBILITIES

In accordance with ARM 17.4.609(3)(c), DEQ must list any federal, state, or local, authorities that have concurrent or additional jurisdiction or environmental review responsibility for the proposed action and the permits, licenses, and other authorizations required. GSM must conduct its operations according to the terms of its permit, the CAA, §§ 75-2-101, *et seq*., MCA, and ARMs 17.8.101, *et seq*.

Upon review of the air quality permit application, GSM would need to modify their Title V Operating Permit with the proposed changes within 12 months after commencing construction, ARM 17.8.1205.

GSM must cooperate fully with, and follow the directives of, any federal, state, or local entity that may have authority over GSM's mine. These permits, licenses, and other authorizations may include: City of Whitehall, Jefferson County Weed Control Board, Occupational Safety and Health Administration (worker safety), DEQ AQB (air quality) and Water Protection Bureau (groundwater and surface water discharge; stormwater), and Montana Department of Transportation and Jefferson County (road access).

GSM's proposed actions would be located within the perimeter of the current GSM property boundary. The mine is currently located on approximately 6,205 acres.

1. TOPOGRAPHY, GEOLOGY AND SOIL QUALITY, STABLITY AND MOISTURE:

The Barrick Golden Sunlight Mine (GSM) is located approximately three miles south of the Boulder Mountains and approximately 22 miles south of the Elkhorn Mountains, as referenced by the topographical map on the Montana DEQ GIS website. At an elevation of 5200 feet mean sea level (MSL).

Direct Impacts: The information provided above is based on the information provided to DEQ for the proposed project detailing the geology of the local area. Available information includes the permit application, analysis of aerial photography, topographic maps, information provided for the permit application from GSM's, and other research tools. None of the planned disturbance at the site is considered first time disturbance. Soils would be disturbed during operation of the proposed action. There would be no impact expected to topography and geology.

Secondary Impacts: No secondary impacts to topography, geology, stability, and moisture would be expected because the proposed changes are located within the existing GSM property.

2. WATER QUALITY, QUANTITY, AND DISTRIBUTION

No wetlands have been identified at this site. The removal of the primary, secondary, and tertiary crushers, along with the modification of the BACT analysis, and addition of the portable screening plant, would directly change the water quantity distribution and decrease the overall water consumption.

Direct Impacts: The information provided above is based on information provided by the applicant for the purpose of obtaining the pending air quality permit. GSM has not submitted any changes to their water quality or Montana Pollutant Discharge Elimination System (MPDES) stormwater permit. GSM has indicated within the application that an additional permit modification would need to be made to the existing Title V permit to reflect the changes in this permit application following the approval of this permit application.

The discontinuance of the wet scrubber for the BACT of the high moisture ore would decrease the water usage from the Jefferson River by approximately 3.6 million gallons per month (43.2 MG annually) at a plant design with 80% availability.

Precipitation and surface water would not be anticipated to affect the proposed changes, which would occur in enclosed buildings.

There would be beneficial impacts to water quality and quantity, as the water source for the wet scrubber that would no longer be used for BACT would pull water from the Jefferson River nearby. Therefore, no longer utilizing this wet scrubber would have a beneficial impact on the Jefferson River. No negative impacts of significant statewide and societal importance would be expected.

Secondary Impacts: The Jefferson River stream flows would not be drawn down for the wet scrubber use and downstream base flows could be higher due to the decreased water usage.

3. AIR QUALITY:

Any stationary source falling under one of the 28 source categories listed in the "major stationary source" definition in ARM 17.8.801(22) would be a major stationary source if it emits, or has the potential to emit, 100 tpy or more of any regulated Prevention of Significant Deterioration (PSD) pollutant, except for GHGs. The Barrick Golden Sunlight Mine is a "mine", which is one of the 28 listed source categories and has the potential to emit 100 tpy or more of a regulated PSD pollutant. A proposed action is considered a significant modification under the PSD rules if the proposed action's emission increase exceeds the PSD significant thresholds under ARM 17.8.818. The project emissions from GSM's proposed action, which includes emissions from new sources and increases to existing sources, does not qualify as a major PSD modification as demonstrated in Table 2 below.

Table 2: GSM Project Only Potential to Emit Emissions Increase Summary

Pollutant	Potential to Emit (tpy)	PSD Significant Modification Threshold (tpy)	Project-Only Emissions Increase PSD Significant? (Yes or No)
PM	11.52	25	No
PM_{10}	4.47	15	No
$PM_{2.5}$	0.75	10	No

Direct Impacts: Expected emissions from the proposed action, as submitted in the air quality permit application, are in Table 1. Each pollutant is less than the PSD significant modification threshold; therefore, the proposed action would not require PSD review. No analysis of greenhouse gases is required for a non-major PSD facility.

Air quality standards, set by the federal government and DEQ are enforced by the AQB and allow for pollutants at the levels permitted within the MAQP. Once the current projects are complete, project emissions would include particulate matter (PM) species of PM, PM_{10}, and $PM_{2.5}$. These emissions come from material transfer—stockpile to screening plant hopper, screening, conveyor transfer points, pile forming, and the portable screening plant.

Air pollution control equipment must be operated at the maximum design for which it is intended ARM 17.8.752(2). As part of the air quality permit application, GSM submitted a Best Available Control Technology (BACT) analysis for the high moisture ore and the portable screening plant. These proposed limits were reviewed by DEQ and incorporated into MAQP #1689-10 as federally enforceable conditions. These permit limits cover PM, PM_{10}, and $PM_{2.5}$ with associated ongoing compliance demonstrations, as determined by DEQ.

During construction and installation of new equipment, fugitive dust may be generated from earth work and from the portable screening plant. Pursuant to ARM 17.8.304(2), fugitive dust emissions would need to meet an operational visible opacity standard or 20 percent or less averaged over 6 consecutive minutes. Pursuant to ARM 17.8.308(1), GSM is required to take reasonable precautions to control emissions of airborne particulate matter from all phases of operation including material transport. Reasonable precautions would include items such the use of water spray and/or chemical dust suppression would be used to minimize dust emissions. Air quality standards are regulated by the federal Clean Air Act, 42 U.S.C. 7401 *et seq.* and CAA, § 50-40-101 *et seq.* MCA, and are implemented and enforced by DEQ's AQB. As stated above, GSM is required to comply with all applicable state and federal laws. Minor air quality impacts would be anticipated for the proposed action.

Secondary Impacts: Impacts from the operation of GSM would be restricted by an MAQP and therefore would have minor secondary air quality impacts.

4. VEGETATION COVER, QUANITY AND QUALITY:

The operation of the portable screening plant would have minor effects on the vegetation in the area. The portable screening plant has been onsite, but previously operated/permitted by a third-party company, so no new impacts would be anticipated.
The change in BACT for the high moisture ore would have no effect as it is enclosed within a building. The removal of the primary, secondary, and tertiary crushers would have no effect on vegetation cover as it is a removal of equipment from inside an existing building.

Direct Impacts: As the proposed action would be located within the GSM mine, the vegetation is very limited at the site. Minor impacts could occur as the portable screening plant would be moved throughout the facility, but it is an existing mine site therefore the equipment would present minor impacts on vegetation.

Secondary Impacts: No secondary impacts would be expected since land disturbance at the mine would occur in an area with previous mining activity.

5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:

DEQ conducted research using the MTNHP website and ran the query titled "Species of Concern" dated March 3, 2022 and the following species of concern are verified to be in Jefferson County: Townsend's Big-eared Bat, Black-tailed Prairie Dog, Spotted Bat, Wolverine, Hoary Bat, Long-eared Myotis, Little Brown Myotis, Fringed Myotis, Long-legged Myotis, Swift Fox, Northern Goshawk, Golden Eagle, Great Blue Heron, Burrowing Owl, Ferruginous Hawk, Veery, Brown Creeper, Mountain Plover, Evening Grosbeak, Bobolink, Pileated Woodpecker, Pinyon Jay, Cassin's Finch, Loggerhead Shrike, Black rosy-Finch, Gray-crowned Rosy-Finch, Lewis's Woodpecker, Clark's Nutcracker, Long-billed Curlew, Sage Thrasher, Green-tailed Towhee, Blue-gray Gnatcatcher, Flammulated Owl, Thick-billed Longspur, Brewer's Sparrow, Great Gray Owl, Pacific Wren, Western Toad, Westslope Cutthroat Trout, Suckley Cuckoo Bumble Bee, Western Pondhawk, Boreal Whiteface, A Springtail, Western Pearlshell, and A Cave Obligate Harvestman. Using the search polygon, none of these species of concern have been observed in the GSM operating location.

Direct Impacts: The potential impact (including cumulative impacts) to terrestrial, avian and aquatic life and habitats would be negligible, due to the long-term industrial nature of the site.

Secondary Impacts: No secondary impacts would be expected to terrestrial, avian and aquatic life and habitats stimulated or induced by the direct impacts analyzed above.

6. UNIQUE, ENDANGERRED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:

As described in Section 5 above, DEQ conducted a search using the MTNHP webpage. The search used a polygon that overlapped the site and produced the list of species of concern identified in Section 5 of this EA.

Direct Impacts: Among the SOC from the MTNHP list, these species would not be displaced by the proposed actions do not change any of the physical aspects of the site. The potential impact (including cumulative impacts) to species would be negligible as none are located within the polygon feature of the MTNHP webpage.

Secondary Impacts: The proposed action would have no secondary impacts to endangered species because the permit conditions are protective of human and animal health and all lands involved in the proposed action and the area is already an existing mine site.

7. HISTORICAL AND ARCHAEOLICAL SITES:

The Montana State Historic Preservation Office (SHPO) was contacted to conduct a file search for historical and archaeological sites within Section 16 Township 2 North,

Range 3 West. SHPO provided a letter dated May 4, 2023, that indicated there have been five sites within the designated search location. The type of sites that have been recorded include several identified as "Precontact Rock Alignment(s)" , "Precontact Lithick Material Concentration", and "Fossil Marine Reptile". It is SHPO's position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places. If any structures are within the Area of Potential Effect, and are over fifty years old, SHPO recommends that they be recorded, and a determination of their eligibility be made prior to any disturbance taking place. SHPO recommended that since this project was located within a section owned by the State of Montana DNRC, a DNRC Archaeologist was contacted as well. Under the recommendation of the DNRC archaeologist, it was determined there would be no significant impacts due to the proposed actions occurring within the GSM mine operational area.

However, should structures need to be altered, or if cultural materials are inadvertently discovered during this proposed action, SHPO requests their office be contacted for further investigation.

Direct Impacts: Although the search by SHPO has identified some historical and archaeological sites, this project would not be expected to impact any new locations that are not already in industrial activity. Therefore, no impacts to historical and archeological sites would be expected.

Secondary Impacts: No secondary impacts on historical and archaeological sites would be anticipated since the proposed action are located on land currently in industrial use.

8. SAGE GROUSE EXECUTE ORDER:

The project would not be in core, general, or connectivity sage grouse habitat, as designated by the Sage Grouse Habitat Conservation Program (Program) at: http://sagegrouse.mtgov.

Direct Impacts: The proposed action would not be located within Sage Grouse habitat, so no direct impacts would occur.

Secondary Impacts: No secondary impacts to sage grouse or sage grouse habitat would be expected since the proposed action would not be located within Sage Grouse habitat.

9. AESTHETICS:

This site is approximately 6,205 acres. Within the permit boundary, most of the property is privately owned by Golden Sunlight Mines, Inc. Approximately 30% is owned by the Bureau of Land Management (BLM) and about 2.5% is owned by the State of Montana. The proposed actions would occur on privately owned land. The proposed actions would occur on privately owned land. The closest residence from the Mill facility is approximately 1.9 miles to the south. From the Tailings Impoundment (Screening Plant location), the nearest residential property is 1.3 mile to the south. From the permit boundary edge, the nearest residential property is approximately 0.5 miles East.

Direct Impacts: There would be temporary construction activities including noise and dust from the installation of the earthen ramp for the portable screening plant. There would be temporary construction for the installation of the water spray bars, but with negligible noise and dust. The earthen ramp would require one day of work and the water spray bars would require two days of work. Impacts would be negligible and short-term. Noise levels would not be expected to change beyond the mine boundary.

Secondary Impacts: The permit action would not expect to have an impact on the aesthetics because it would be situated on property currently in industrial use and its noise would not be expected to differ any from the surrounding GSM property.

10. DEMANDS ON ENVIRONEMNTAL RESOURCES OF LAND, WATER, AIR OR ENGERY:

The site is in an area zoned as Industrial Rural (IR) with the nearest residence located 0.5 miles away. The site is an existing mine site. With the change in BACT, by removing the wet scrubber as the primary solution for the high moisture ore, the water usage would decrease.

Direct Impacts: During construction of the proposed action there would be minor increase in energy use to construct the equipment in the application. Once operational, energy and electric demands would continue for the duration of the facility's lifetime at or near current levels. Water usage would decrease, as discussed in Section 2. Water for the wet scrubber that would no longer be utilized is pumped out of the Jefferson River system. See the Air Quality and Water Quality sections of the EA to review the potential impacts from the proposed action regarding air and water resources.

Secondary Impacts: These changes would be expected to have no secondary impact from the proposed actions.

11. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES:

The site is zoned as Industrial Rural (IR). With the change in BACT, by removing the wet scrubber as the primary solution for the high moisture ore, the water usage would decrease.

Direct Impacts: No other environmental resources have been identified in the area beyond those discussed above. Hence, there would be no impact on other environmental resources.

Secondary Impacts: No secondary impacts on other environmental resources are anticipated as a result of the proposed actions.

12. HUMAN HEALTH AND SAFETY:

The applicant would be required to adhere to all applicable state and federal safety laws. The access to the public would continue to be restricted to this property.

Direct Impacts: Negligible changes in impacts to human health and safety would be anticipated as a result of the proposed action.

Secondary Impacts: No secondary impacts on human health and safety would be anticipated as a result of the proposed action.

13. INDUSTRIAL, COMMERICIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:

The site is currently zoned Industrial Rural. There is no agricultural activity at the site**.**

Direct Impacts: Impacts on the industrial, commercial, and agricultural activities and production in the area would be negligible.

Secondary Impacts: No secondary impacts on industrial, commercial, and agricultural activities and production would be anticipated as a result of the proposed actions.

14. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:

There are approximately 60 (about 45 GSM employees and 15 contractors) employed at GSM. No new jobs would result from these proposed actions.

Direct Impacts: The proposed action would have negligible impacts on the overall distribution of employment.

Secondary Impacts: No secondary impact would be expected on long-term employment from the proposed actions.

15. LOCAL AND STATE TAX BASE AND TAX REVENUES:

The proposed action would be expected to have minor impacts on the local and state tax base and tax revenue as equipment is being removed and the addition of the portable screening plant had been onsite in the past.

Direct Impacts: Local, state, and federal governments would be responsible for appraising the property, setting tax rates, collecting taxes, from the companies, employees, or landowners benefiting from this operation. A minor impact would be expected on the tax base and revenue with the proposed action.

Secondary Impacts: No secondary impacts to local and state tax base and tax revenues would be anticipated as a result of the proposed action.

16. DEMAND FOR GOVERNMENT SERVICES:

The proposed action would be expected to have minor impacts on the government services.

Direct Impacts: Compliance review and assistance oversight by DEQ AQB would be conducted in concert with other area activity when in the vicinity. The proposed action would have only minor impacts on demand for government services, mainly through oversight by DEQ AQB.

Secondary Impacts: No secondary impacts would be anticipated on government services with the proposed action.

17. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:

Based on the information provided by GSM, this site is zoned as Industrial Rural (IR) and already operating as an existing mine site. It would be unlikely to have any impact relative to any locally adopted community planning goals.

Direct Impacts: No impact from the proposed actions would be expected relative to any locally adopted community planning goals.

Secondary Impacts: No secondary impacts on the locally adopted environmental plans and goals would be anticipated as a result of the proposed actions.

18. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:

The current site of the proposed action is in an industrial rural (IR) zoned area and is currently an operational mine site. Recreation opportunities are located to the north of the proposed action via activities in the Bull Mountain Range. No wilderness areas or other recreational sites are in the vicinity.

Direct Impacts: There would be no impacts to the access to wilderness activities as none are in the vicinity of the proposed action.

Secondary Impacts: No secondary impacts to access and quality of recreational and wilderness activities would be anticipated as a result of the proposed action.

19. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:

The proximity of the proposed action to the City of Whitehall would accommodate housing needs for workers.

Direct Impacts: The project would not add to the population or require additional housing, therefore, no impacts to density and distribution of population and housing would be anticipated.

Secondary Impacts: No secondary impacts on density and distribution of population and housing would be anticipated as a result of the proposed actions.

20. SOCIAL STRUCTURE AND MORES:

Based on the required information provided by GSM, DEQ is not aware of any native cultural concerns that would be affected by the proposed action on this existing mine.

Direct Impacts: The proposed action would be located on an existing mine site, no disruption of native or traditional lifestyles would be expected, therefore, no impacts to social structure and mores would be anticipated.

Secondary Impacts: No secondary impacts on social structures and mores would be anticipated as a result of the proposed operations.

21. CULTURAL UNQUENESS AND DIVERSITY

Based on the required information provided by GSM, DEQ is not aware of any unique qualities of the area that would be affected by the proposed action on this existing mine.

Direct Impacts: No impacts on cultural uniqueness and diversity would be anticipated from this project.

Secondary Impacts: No secondary impacts on cultural uniqueness and diversity would be anticipated as a result of the proposed actions.

22. PRIVATE PROPERTY IMPACTS:

The proposed action would take place on the privately-owned portion of the land. The analysis below in response to the Private Property Assessment Act indicates no impact. DEQ does not plan to deny the application or impose conditions that would restrict the regulated person's use of private property so as to constitute a taking. Further, if the application is complete, DEQ must take action on the permit pursuant to § 75-2-218(2), MCA. Therefore, DEQ does not have discretion to take the action in another way that would have less impact on private property—its action is bound by a statute.

There are private residences in the area of the proposed action. The closest residence is located approximately 0.5 miles from the east side of the permit boundary. There are other residences that are approximately 1.9 miles south of the Mill facility and approximately 1.3 miles south from the Tailings Impoundment (Screening Plant Location).

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (6)].
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property? (consider economic impact, investment-backed expectations, character of government action)
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?

	X	7c. Has government action lowered property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?
	X	Takings or damaging implications? (Taking or damaging implications exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b; the shaded areas)

Based on this analysis, the Department determined there are no taking or damaging implications associated with this permit action.

23. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:

Due to the nature of the proposed action, no further direct or secondary impacts would be anticipated from this project.

ADDITIONAL ALTERNATIVES CONSIDERED:

No Action Alternative: In addition to the analysis above for the proposed action, DEQ is considering a "no action" alternative. The "no action" alternative would deny the approval of the proposed action. The applicant would lack the authority to conduct the proposed activity. Any potential impacts that would result from the proposed action would not occur. The no action alternative forms the baseline from which the impacts of the proposed action can be measured.

Other Ways to Accomplish the Action: In order to meet the project objective to remove equipment no longer used there was no other way to accomplish this action other than removing these items from the current permit. For updating the BACT analysis, other BACT options were analyzed but found to be unnecessary due to the high moisture content of the material being run through the wet scrubber that was BACT previously. The addition of the portable screening plant could be continued through the use of a third-party company, but the addition of this plant would not significantly increase emissions and therefore the emissions would not be substantially different due to this proposed action.

If the applicant demonstrates compliance with all applicable rules and regulations as required for approval, the "no action" alternative would not be appropriate. Pursuant to, § 75-1-201(4)(a), (MCA) DEQ "may not withhold, deny, or impose conditions on any permit or other authority to act based on" an environmental assessment.

CUMULATIVE IMPACTS:

Cumulative impacts are the collective impacts on the human environment within the borders of the proposed action when considered in conjunction with other past and present actions related to the proposed action by location and generic type. Related future actions must also be considered when these actions are under concurrent consideration by any state agency through preimpact statement studies, separate impact statement evaluation, or permit processing procedures.

Currently, there is an air quality permit application from GSM requesting removal of equipment no longer in use, updating the BACT, and the addition of the portable screening plant. No other permit applications for this facility are currently pending before DEQ. Although additional permits may be necessary for this facility in the future, without a pending permit application containing the requisite information, DEQ cannot speculate about which permits may be necessary or which permits may be granted or denied. For example, at this time DEQ does not have sufficient information to determine whether or not a modification is required to the MPDES permit—and therefore cannot predict whether there would be a discharge associated with this proposed action. There could, therefore, be additional cumulative impacts (*e.g.* to water) associated with this facility in the future, but those impacts would be analyzed by future environmental reviews associated with those later permitting actions. (For example, if GSM applies for a MPDES permit modification DEQ will analyze the cumulative impacts of the already issued air quality permit and the then-pending MPDES permit.) This environmental review analyzes only the proposed action

submitted by GSM, which is the air quality permit regulating the emissions from the equipment as listed in the "proposed action" section, above.

There are other sources of industrial emissions in the vicinity. The GSM would have emissions including CO, VOCs, SO_2, NO_X and particulate matter as detailed in MAQP #1689-10. In this area, there is also K&L Mortuaries, operating under MAQP#3882-00, which emits CO, VOCs, SO_X, NO_X, and particulate matter, PM.

Collectively, these sources and the proposed action could all contribute to the ambient air quality and when future permit actions occur at GSM, these actions could require future analysis. The proposed action would not be expected to have any discernable impact. No change in the EPA air quality designation would be expected. As of April 30, 2023, Jefferson County was designated as an Unclassifiable/Attainment area for all criteria pollutants.

DEQ considered potential impacts related to this project and potential secondary impacts. Due to the limited activities in the analysis area, cumulative impacts related to this proposed action would be minor. The cumulative table for any direct and secondary impacts is located at the very end of this EA. See Table 3.

PUBLIC INVOLVEMENT:

Scoping for this proposed action consisted of internal efforts to identify substantive issues and/or concerns related to the proposed action. Internal scoping consisted of internal review of the EA document by DEQ Air Permitting staff.

Internal efforts also included queries to the following websites/ databases/ personnel:
- Montana State Historic Preservation Office
- Montana DEQ
- Jefferson County
- Montana Natural Heritage Program
- Montana Cadastral Mapping Program

A fifteen day public comment period occurs along with the Preliminary Determination on MAQP #1689-10 and is posted to the DEQ website.

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION:

The proposed action would be fully located on the privately-owned portion of the GSM site. All applicable local, state, and federal rules must be adhered to, which, at some level, may also include other local, state, federal, or tribal agency jurisdiction. Other Governmental Agencies which could have overlapping or sole jurisdiction include but may not be limited to: City of Whitehall, Jefferson County Commission or County Planning Department (zoning), Jefferson County Weed Control Board, Occupational Safety and Health Administration (worker safety), DEQ AQB (air quality) and Water Protection Bureau (groundwater and surface water discharge; stormwater), DNRC (water rights), and MDT and Jefferson County (road access).

NEED FOR FURTHER ANALYSIS AND SIGNIFICANCE OF POENTIAL IMPACTS:

Under ARM 17.4.608, DEQ is required to determine the significance of impacts associated with the proposed action. This determination is the basis for the agency's decision concerning the need to prepare an environmental impact statement and also refers to DEQ's evaluation of individual and cumulative impacts. DEQ is required to consider the following criteria in determining the significance of each impact on the quality of the human environment:

1. The severity, duration, geographic extent, and frequency of the occurrence of the

impact.

"Severity" is analyzed as the density of the potential impact while "extent" is described as the area where the impact is likely to occur. An example could be that a project may propagate ten noxious weeds on a surface area of 1 square foot. In this case, the impact may be a high severity over a low extent. If those ten noxious weeds were located over ten acres there may be a low severity over a larger extent.

"Duration" is analyzed as the time period in which the impact may occur while "frequency" is analyzed as how often the impact may occur. For example, an operation that occurs throughout the night may have impacts associated with lighting that occur every night (frequency) over the course of the one season project (duration).

2. The probability that the impact will occur if the proposed action occurs; or conversely, reasonable assurance in keeping with the potential severity of an impact that the impact will not occur.

3. Growth-inducing or growth-inhibiting aspects of the impact, including the relationship or contribution of the impact to cumulative impacts.

4. The quantity and quality of each environmental resource or value that would be affected, including the uniqueness and fragility of those resources and values.

5. The importance to the state and to society of each environmental resource or value that would be affected.

6. Any precedent that would be set as a result of an impact of the proposed action that would commit the DEQ to future actions with significant impacts or a decision in principle about such future actions.

7. Potential conflict with local, state, or federal laws, requirements, or formal plans.

The significance determination is made by giving weight to these criteria in their totality. For example, impacts with moderate or major severity may be determined to be not significant if the duration of the impacts is considered to be short-term. As another example, however, moderate or major impacts of short-term duration may be considered to be significant if the quantity and quality of the resource is limited and/or the resource is considered to be unique or fragile. As a final example, moderate or major impacts to a resource may be determined to be not significant if the quantity of that resource is high or the quality of the resource is not unique or fragile.

Preparation of an EA is the appropriate level of environmental review under MEPA if statutory requirements do not allow sufficient time for an agency to prepare an environmental impact statement, pursuant to ARM 17.4.607. An agency determines whether sufficient time is available to prepare an environmental impact statement by comparing statutory requirements that establish when the agency must make its decision on the proposed action with the time required to obtain public review of an environmental impact statement plus a reasonable period to prepare a draft environmental review and, if required, a final environmental impact statement.

SIGNIFCANCE DETERMINATION

The severity, duration, geographic extent, and frequency of the occurrence of the primary, secondary, and cumulative impacts associated with the proposed action would be limited. GSM proposes to modify operations at the refinery as described in the MAQP#1689-10 application. The modification will occur completely on GSM property and will support the operations of this facility. All the GSM projects will be located on private land, within the city limits of Jefferson County, Montana. The estimated construction disturbance will be minimal at the mine and estimated to consist of approximately 6,205 acres. All on-going activities of GSM will be within the original GSM boundary.

DEQ has not identified any significant impacts associated with the proposed action for any environmental resource. Approving GSM's air quality permit application would not set precedent that commits DEQ to future actions with significant impacts or a decision in principle about such future actions. The GSM application requests the removal of the primary, secondary, and tertiary crushers, an updated BACT, and the addition of the portable screening plant.. If GSM submits another permit application, DEQ is not committed to approve those applications. DEQ would conduct a new environmental assessment for any subsequent air quality permit applications sought by GSM. DEQ would make a decision on GSM's subsequent application based on the criteria set forth in the CAA.

DEQ's issuance of a modified MAQP to GSM for this proposed operation also does not set a precedent for DEQ's review of other applications, including the level of environmental review. A decision of on the appropriate level of environmental review is made based on case-specific considerations of the criteria set forth in ARM 17.4.608.

DEQ does not believe that the proposed action would have any growth-inducing or growth-inhibiting aspects or that it conflicts with any local, state, or federal laws, requirements, or formal plans. Based on a consideration of the criteria set forth in ARM 17.4.608, the proposed state action would not be predicted to significantly impact the quality of the human environment. Therefore, at this time, preparation of an EA is determined to be the appropriate level of environmental review under MEPA.

Environmental Assessment and Significance Determination Prepared By:

E. Hultin	**Air Quality Permitter**
Name	**Title**

EA Reviewed By:

J. Merkel	**Permitting Services Section Supervisor**
Name	**Title**

References

Air Quality Permit Application Received March 22, 2023
Response to Incompleteness DEQ Letter Air
Montana State Historical Preservation Office (SHPO) Report Received May 4, 2023
Montana Natural Heritage Program (Website Search Downloads) Last Download April 27, 2023
Montana Cadastral GIS Layer – Through-Out Project Up Until Decision Issuance
Air Quality Bureau Permitted Source List-GIS Layer
Air Quality Permit MAQP #3882-00
City of Whitehall Website

ABBREVIATIONS and ACRONYMS

AQB – Air Quality Bureau
ARM - Administrative Rules of Montana
BACT – Best Available Control Technology
BMP - Best Management Practices
CAA – Clean Air Act of Montana
CFR - Code of Federal Regulations
CO - Carbon Monoxide
DEQ – Department of Environmental Quality
DNRC – Department of Natural Recourses and Conservation
EA – Environmental Assessment
EIS – Environmental Impact Statement
EPA - U.S. Environmental Protection Agency
FCAA Federal Clean Air Act
GSM – Barrick Golden Sunlight Mine
MAQP – Montana Air Quality Permit
MCA – Montana Code Annotated
MEPA – Montana Environmental Policy Act
MPDES - Montana Pollutant Discharge Elimination System
MRI – Montana Renewables, Inc.
MTNHP - Montana Natural Heritage Program
NO_X - oxides of nitrogen
PM - particulate matter
PM_{10} - particulate matter with an aerodynamic diameter of 10 microns and less
$PM_{2.5}$ - particulate matter with an aerodynamic diameter of 2.5 microns and less
PPAA - Private Property Assessment Act
Program - Sage Grouse Habitat Conservation Program
PSD - Prevention of Significant Deterioration
SHPO - Montana State Historic Preservation Office
SOC - Species of Concern
SO_2 - sulfur dioxide
tpy – tons per year
U.S.C. - United States Code
VOC - volatile organic compound

Table 3. Summary of Potential Impacts from the GSM Project

Potential Impact	Affected Rsource and EA Section Reference	Severity, Extent, Duration, Frequency, Uniqueness and Fraigility (UF)	Probability Impact Would Occur	Cumulative Impacts	Proposed Measures to Reduce Impact (by applicant)	Significant (yes/no)
Soil Disturbance/Stormwater Runoff	I. TOPOGRAPHY, GEOLOGY, AND SOIL QUALITY, STABILITY AND MOISTURE. II. WATER QUALITY, QUANTITY, AND DISTRIUBTION	**S**-low: No major disturbance **E**-low: No major disturbance **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Certain	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine. Water usage will be decreased.	GSM will continue to follow reasonable precaustions for storm run-off and fugitive dust	No
VOC, NOX, CO, SO2, PM emission release as well as fugutive dust	III. AIR QUALITY	**S**-low: GSM conservatively identified all sources that will increase emissions **E**-low: Emissions increased for PM, PM2.5, and PM10 **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Certain	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine. GSM only discussed associated emissions increased.	Updating BACT	No
Impacts to Vegetation	IV. VEGETATION COVER, QUANTITY, AND QUALITY	**S**-low: GSM conservatively identified all sources that will increase emissions **E**-low: Area is already an open-pit mine **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unikely	There would be limietd change to the impact on this site from the proposed action as it is an exisiting open-pit mine. GSM will move the portable screening plant throughout the facility.	None proposed	No
Habitat Impacts	V. TERRESTRIAL, AVIAN, AND AQUATIC LIFE AND HABITATS	**S**-low: Species of concern were identfied for the county and GSM facility location **E**-low: No species of concern in the proposed area **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unikely	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine with no reports of these species of concern on the property.	None proposed	No

Potential Impact	Affected Rsource and EA Section Reference	Severity, Extent, Duration, Frequency, Uniqueness and Fraigility (UF)	Probability Impact Would Occur	Cumulative Impacts	Proposed Measures to Reduce Impact (by applicant)	Significant (yes/no)
Environmental Resources	VI. UNIQUE, ENDANGERED, FRAGILE, OR LIMITED ENVIRONMENTAL RESOURCES	**S**-low: No major disburances **E**-low: No major disburances **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation and an disturbances would be permanent **U/F**- Not unique or particularly fragile	Unikely	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine and has been previouosly disturbed	None propsed	No
Impacts to Historical and Archaeological Sites	VII. HISTORICAL AND ARCHAEOLOGICAL SITES	**S**-low: No major disburances **E**-low: No major disburances **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation and an disturbances would be permanent **U/F**- Not unique or particularly fragile	Unikely	Historical and archeological sies are associated with this area, but not in the section where the proposed actions are happening.	SHPO recommendations would be followed by GSM upon discovery of a historical site.	No
Sage Grouse	VIII. SAGE GROUSE EXECUTIVE ORDER	**S**-low: No major disburances **E**-low: No major disburances **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation and an disturbances would bepermanent **U/F**- Not unique or particularly fragile	Unikely	There would be limied change to the impact on this site from the proposed action as it is an exisiting open-pit mine not in sage grouse territory	None propsed	No
Noise and Visual Changes	IX. AESTHETICS	**S**-low: Noise would not be expected to increase above current levels **E**-low: Equipment will be removed from existing structures **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation and an disturbances would be permanent **U/F**- Not unique or particularly fragile	Unikely	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine and the changes are occurring in buildings	Changes are occurring inside existing buildings. Portable screening plant has been onsite in the past as well.	No

Potential Impact	Affected Rsource and EA Section Reference	Severity, Extent, Duration, Frequency, Uniqueness and Fraigility (UF)	Probability Impact Would Occur	Cumulative Impacts	Proposed Measures to Reduce Impact (by applicant)	Significant (yes/no)
Water Usage	X. DEMANDS ON ENVRONMENTAL RESOURCES OF LAND, WATER, AIR, OR ENERGY	**S**-low: Water usage will decrease **E**-low: Water usage will decrease **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Certain	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine, but water usage will decrease	None proposed	No
Water Usage	XI. IMPACTS ON ENVIRONMENTAL RESOURCES	**S**-low: Water usage will decrease **E**-low: Water usage will decrease **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Certain	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine, but water usage will decrease	None proposed	No
Safety	XII. HUMAN HEALTH AND SAFETY	**S**-low: No major impacts **E**-low: No major impacs **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unlikely	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine.	None proposed	No
Agricultural and Industrial Activities	XIII. INDUSTRIAL, COMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION	**S**-low: No major disturbances **E**-low: No major disturbances **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unlikely	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine.	None proposed	No

Potential Impact	Affected Rsource and EA Section Reference	Severity, Extent, Duration, Frequency, Uniqueness and Fraigility (UF)	Probability Impact Would Occur	Cumulative Impacts	Proposed Measures to Reduce Impact (by applicant)	Significant (yes/no)
Employment	XIV. QUANITITY AND DISTRIBUTION OF EMPLOYMENT	**S**-low: No new employment opportunities **E**-low: No new employment opportunties **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unlikely	There would be no impact from this proposed actions as no new jobs will be added for these actions	None proposed	No
Taxes	XV. LOCAL AND STATE TAX BASE AND TAX REVENUES	**S**-low: No major disturbances **E**-low: No major disturbances **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unlikey	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine.	None proposed	No
Government Sources	XVI. DEMAND FOR GOVERNMENT SERVICES	**S**-low: No major disturbances **E**-low: No major disturbances **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unlikely	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine.	None proposed	No
City Planning	XVII. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS	**S**-low: No major disturbances **E**-low: No major disturbances **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unlikely	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine.	None proposed	No

Potential Impact	Affected Rsource and EA Section Reference	Severity, Extent, Duration, Frequency, Uniqueness and Fraigility (UF)	Probability Impact Would Occur	Cumulative Impacts	Proposed Measures to Reduce Impact (by applicant)	Significant (yes/no)
Recreation	XVIII.ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVIITES	**S**-low: No major disturbances **E**-low: No major disturbances **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unlikely	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine.	None proposed	No
Population and Housing	XIX. DENSITY AND DISTRIBUTION OF POPULATION AD HOUSING	**S**-low: No major disturbances **E**-low: No major disturbances **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unlikely	There would be no impacts due to no new jobs being created and therefore not increasing the population density or the need for housing.	None proposed	No
Societal	XX. SOCIAL STRUCTURE AND MORES	**S**-low: No major disturbances **E**-low: No major disturbances **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unlikely	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine.	None proposed	No
Culture	XXI. CULTURAL UNIQUENESS AND DIVERSITY	**S**-low: No major disturbances **E**-low: No major disturbances **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unlikely	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine.	None proposed	No

Potential Impact	Affected Rsource and EA Section Reference	Severity, Extent, Duration, Frequency, Uniqueness and Fraigility (UF)	Probability Impact Would Occur	Cumulative Impacts	Proposed Measures to Reduce Impact (by applicant)	Significant (yes/no)
Property	XXII. PRIVATE PROPERTY IMPACTS	**S**-low: No major disturbances **E**-low: No major disturbances **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unlikely	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine.	None proposed	No
Other Impacts	XXIII. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES	**S**-low: No major disturbances **E**-low: No major disturbances **D/F**- Impacts from proposed action will continue throughout the duration of the mining operation **U/F**- Not unique or particularly fragile	Unlikely	There would be limited change to the impact on this site from the proposed action as it is an exisiting open-pit mine.	None proposed	No

Definitions are quantified as follows:

• Short-term: Short-term impacts are defined as those impacts that would not last longer than the proposed operation of the site.

• Long-term: Long-term impacts are defined as impacts that would remain or occur following shutdown of the proposed facility.

1. Severity describes the density at which the impact may occur. Levels used are low, medium, high.

The severity of an impact is measured using the following:

• No impact: There would be no change from current conditions.

• Negligible: An adverse or beneficial effect would occur but would be at the lowest levels of detection.

• Minor: The effect would be noticeable but would be relatively small and would not affect the function or integrity of the resource.

• Moderate: The effect would be easily identifiable and would change the function or integrity of the resource.

• Major: The effect would alter the resource.

2. Extent describes the land area over which the impact may occur. Levels used are small, medium, and large.

3. Duration describes the time period over which the impact may occur. Descriptors used are discrete time increments (day, month, year, and season).

4. Frequency describes how often the impact may occur.

5. Probability describes how likely it is that the impact may occur without mitigation. Levels used are: impossible, unlikely, possible, probable, certain

Permit Analysis Prepared by: Emily Hultin
Date: 05/08/2023