

Montana DEQ

Final Environmental Assessment

Proposed Hard Rock Operating Permit No. 00200 Potentate Mining, LLC



Contents

COMPLIANCE WITH THE MONTANA ENVIRONMENTAL POLICY ACT	3
PROPOSED ACTION	3
PURPOSE AND NEED	3
Table 1: Summary of activities proposed in Operating Permit No. 00200.	4
Figure 1: Operating Permit No. 00200 Project Location.	6
Figure 2: Operating Permit Boundary and Permitted Disturbance Area Proposed under Operating Permit No. 00200.....	7
SUMMARY OF POTENTIAL PHYSICAL AND BIOLOGICAL IMPACTS:	8
1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE.....	8
2. WATER QUALITY, QUANTITY, AND DISTRIBUTION.....	9
3. AIR QUALITY	9
4. VEGETATION COVER, QUANTITY AND QUALITY	10
5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS	10
6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES	11
7. HISTORICAL AND ARCHAEOLOGICAL SITES	12
8. AESTHETICS.....	12
9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY	12
10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES	13
11. HUMAN HEALTH AND SAFETY	13
12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION....	14
13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT	14
14. LOCAL AND STATE TAX BASE AND TAX REVENUES.....	14
15. DEMAND FOR GOVERNMENT SERVICES.....	15
16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS	15
17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES.....	16
18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING.....	16
19. SOCIAL STRUCTURES AND MORES	16
20. CULTURAL UNIQUENESS AND DIVERSITY	16
21. PRIVATE PROPERTY IMPACTS	17
22. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES	17
ALTERNATIVES CONSIDERED	17
PUBLIC INVOLVEMENT	17
RESPONSE TO PUBLIC COMMENTS.....	18
OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION	18
CUMULATIVE IMPACTS	18
NEED FOR FURTHER ANALYSIS AND SIGNIFICANCE OF POTENTIAL IMPACTS.....	19
Table 2: Summary of potential impacts that could result from Operating Permit No. 00200.....	20
SUMMARY	22

**Montana Department of Environmental Quality
Air, Energy, & Mining Division
Hard Rock Mining Bureau
ENVIRONMENTAL ASSESSMENT**

COMPANY NAME: Potentate Mining LLC

EA DATE: June 25, 2021

PROJECT: Sapphire Ranch Mine

PENDING OPERATING PERMIT NO.: 00200

LOCATION: 46.274049°, -113.599918° **COUNTY:** Granite

PROPERTY OWNERSHIP: FEDERAL ___ STATE ___ PRIVATE X

COMPLIANCE WITH THE MONTANA ENVIRONMENTAL POLICY ACT

Under the Montana Environmental Policy Act (MEPA), Montana agencies are required to prepare an environmental review for state actions that may have an impact on the human environment. The proposed action is considered to be a state action that may have an impact on the human environment and, therefore, the Department of Environmental Quality (DEQ) must prepare an environmental review. This environmental assessment (EA) will examine the proposed action and alternatives to the proposed action and disclose potential impacts that may result from the proposed and alternative actions. DEQ will determine the need for additional environmental review based on consideration of the criteria set forth in Administrative Rules of Montana (ARM) 17.4.608.

PROPOSED ACTION

Potentate Mining LLC (Potentate) is applying for a Hard Rock Mine Operating Permit to mine sapphires and gold from near-surface deposits. The application for Operating Permit No. 00200 was submitted on February 28, 2020, and additional information was submitted in response to deficiency comments on June 15, 2020, and July 15, 2020. On July 15, 2020, Potentate submitted a complete application for an operating permit. Pursuant to 82-4-337(1)(d), MCA, the application complied with the substantive requirements of the Metal Mine Reclamation Act (MMRA). DEQ issued Draft Permit No. 00200 on October 6, 2020.

PURPOSE AND NEED

DEQ's purpose and need in conducting this environmental review is to act on the application submitted by Potentate to mine sapphires and gold.

Table 1: Summary of activities proposed in Operating Permit No. 00200.

Summary of Activities Proposed in OPERAING PERMIT NO. 00200	
General Overview	The proposed application includes a proposed permit area of about 2,800 acres. The area permitted for disturbance within the permit boundary would be about 2,321 acres. Mining at the project area would occur for approximately 6 months of the year from May to October for up to 40 years. Mining would occur in blocks ranging in size from 25-35 acres. Mined ore would be processed on-site by dry screening and the use of a wash plant. The wash plant is located in the upper reaches of Sapphire Creek. Potentate would divert water from Sapphire Creek for processing ore.
Dimensions and Quantities of Disturbance Proposed in OPERAING PERMIT NO. 00200	
Mining Blocks	There are about 75 potential mining blocks.
Block dimensions	25-35 acres
Total new surface disturbance	Up to 2,321 acres, with a maximum disturbance of 100 acres at any given time.
Proposed Actions in OPERAING PERMIT NO. 00200	
Duration and timing	<ul style="list-style-type: none"> -The project would be completed within approximately 30-40 years following approval of Operating Permit No. 00200. -Final reclamation of all surface disturbances would be required to be completed no later than 2 years following conclusion of project. -Annual reclamation would include backfilling mining blocks and application of approved seed mix to the backfilled area. -Final reclamation would occur at the end of mine life.
Equipment	<ul style="list-style-type: none"> - 400 BRP Can-Am 4-wheeler - 329FL and 325C CAT excavator - Mac OTR haul truck - 950M CAT front end loader or 420E CAT backhoe -D8H and D8K CAT dozer -Volvo ATH Articulated Haul Trucks - John Deere pump generator (60 kW / 80.46 hp) -Terex Finlay Dry Screening Plant -Ford Fuel Truck -Cummings Generator (250 kW) -John Deere Pump Generator (60kW) -Ingersoll-Rand Generator (20 kW)
Location and Analysis Area	<ul style="list-style-type: none"> - The proposed project would be located on private land about 15 miles west of Philipsburg, MT in Granite County, MT. - The area being analyzed as part of this environmental review includes the immediate project area (Figure 1) as well as immediate downstream water sources and neighboring lands surrounding the analysis area as reasonably appropriate for the impacts being considered.
Personnel Onsite	-21 seasonal workers and 3 full time staff
Structures	<ul style="list-style-type: none"> -Shop/warehouse building -Mobile trailer - 3 wash plants -Sorting Facility - 4 conex steel containers -3 ponds with a total capacity of approximately 11 acre-feet -1 diversion dam and pond on Sapphire Creek -3 holding cells for dewatering slimes from the wash plant and clarifier - 1 fuel tank in a lined, bermed cell
Proposed Actions in Operating Permit No. 00200 (continued)	
Project Water Source	- Water would be pumped from a collection pond in the flow path of Sapphire Gulch. Potentate has received a "310" Permit from the Granite County Conservation District. Potentate holds a

	<p>Statement of Claim water right (76E 133059) for 2.45 CFS on Sapphire Gulch creek with a priority date of January 6, 1903. The beneficial use for this water right is mining.</p> <ul style="list-style-type: none"> - Project water would generally be recirculated. - Water may be transported to the wash plant from an off-site source through a pipeline from holding ponds adjacent to the West Fork of Rock Creek.
Supplemental Lighting	<ul style="list-style-type: none"> - Allmand Light Plant - Equipment and vehicles would have lights for operating in low light conditions.
Air Quality	<ul style="list-style-type: none"> - When conditions would require, a water truck would be used for dust suppression. - Potentate received Air Quality Permit No. 5248-00 on August 13, 2020 - Existing exhaust controls on motorized equipment would be maintained.
Water Quality	<p>Potentate has obtained a permit for authorization of stormwater discharges associated with industrial activities for the mining and processing at the Sapphire Ranch Mine with the Montana Department of Environmental Quality – Water Quality Division (DEQ-WQD).</p> <ul style="list-style-type: none"> - Potentate has prepared an industrial Stormwater Pollution Protection Plan (SWPPP) under Sector J, Standard Industrial Code (SIC) 1499 as required to protect State waters from pollutants, primarily sediment.
Erosion Control and Sediment Transport	<ul style="list-style-type: none"> - Best management practices (BMPs), including but not limited to, berms, v-ditches, straw wattles, hay bales, and silt fences may be used to mitigate stormwater interaction with loosened soil near each test pit/trench and capture stormwater before reaching a stream. - Existing timber debris and overland grasses would be used to assist with filtering sediment from transported stormwater. - Stripped duff and deadfall would be spread and placed to enhance vegetation growth and minimize sediment transport from stormwater runoff. - Seeding would be performed after reclamation or before winter shutdown.
Solid Waste	<ul style="list-style-type: none"> - Refuse would be bagged and properly disposed of each week, or as needed.
Cultural Resources	<ul style="list-style-type: none"> - Mine activities are proposed on privately owned surface and mineral rights. On March 2, 2020, the Montana State Historic Preservation office concurred with a Class 1 Cultural Resource Inventory for the Sapphire Ranch Mine for the Operating Permit Application No. 00200. - Cultural resources would not be expected to be impacted by the proposed mine plan. In the event that archeological resources not identified in the Class I survey are encountered during mine operations, activities would be halted and the DEQ-HRMB and Montana SHPO will be contacted within 5 days of discovery.
Hazardous Substances	<ul style="list-style-type: none"> - The following hazardous substances would be located at the project site: fuel, motor oil, hydraulic oil, gear oil, lubricating grease, ethylene glycol and propylene glycol (antifreeze), power steering fluid, brake fluid, and propane. - Potentate filed a Toxic Spill Contingency Plan for the handling of these fluids with the Montana State Fire Marshal.
Reclamation Plans	<ul style="list-style-type: none"> - Each mine block would be reclaimed at the end of the mining season annually. - Excavated materials would be returned to the test pit/trench and graded to match surrounding topography. - Salvaged topsoil and/or cover soil would be replaced and an approved seed mix would be applied at a minimum seeding rate of 25 pounds per acre. - Vegetative debris (duff, deadfall, etc.) that was stripped during test pitting/trenching would be replaced as a protective mulch on the disturbed areas and to minimize erosion. - The reclamation would be monitored for weeds and treated as necessary the following spring/summer. - Topsoil and/or cover soil would be roughened, and broadcast seeded with an approved seed mix. - Final reclamation would commence at the end of mine life. Mine features including the wash plant, clarifier, ponds, diversion dam, and support structures would be reclaimed upon final closure of the operation.

Figure 1: Operating Permit No. 00200 Project Location.

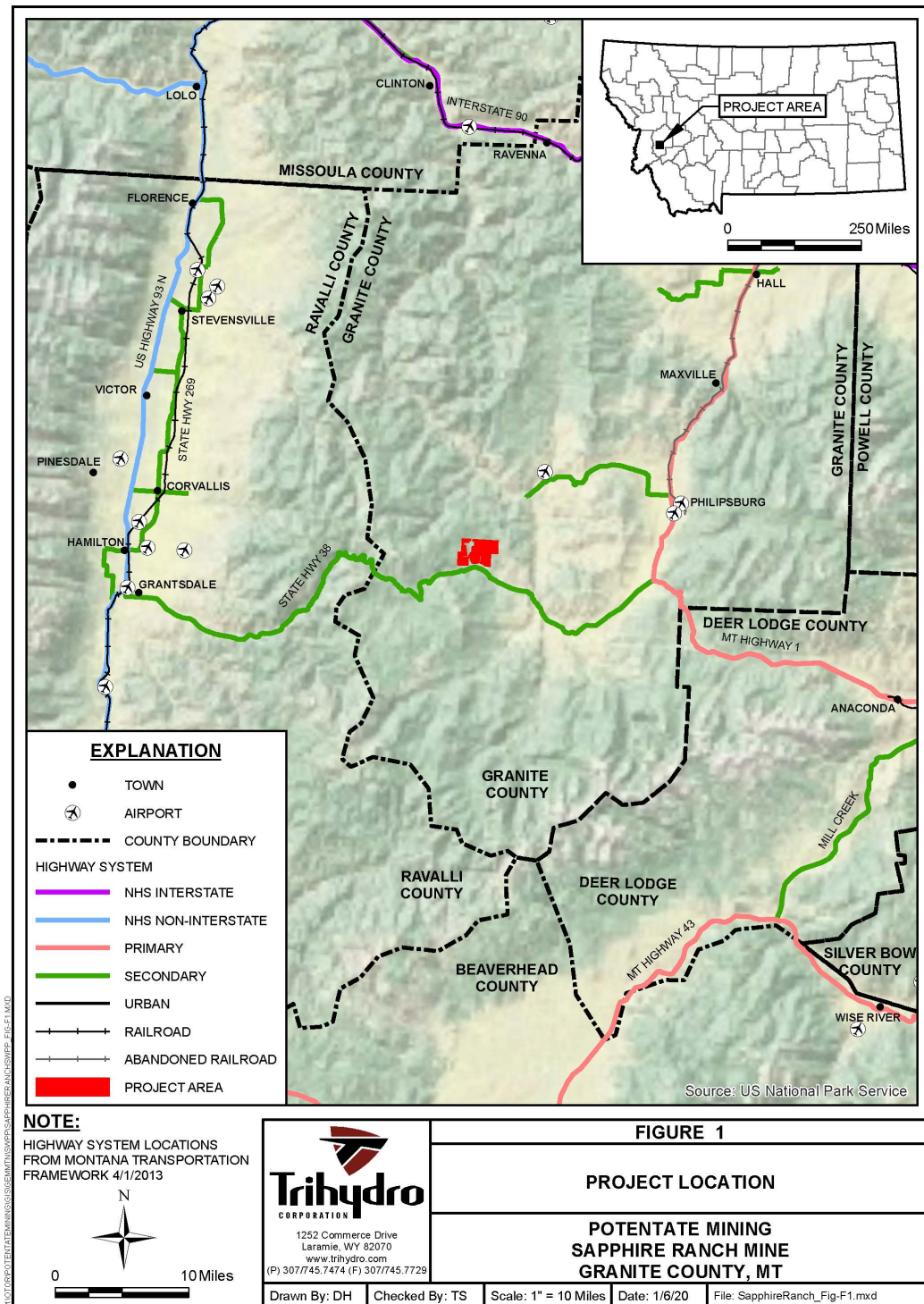
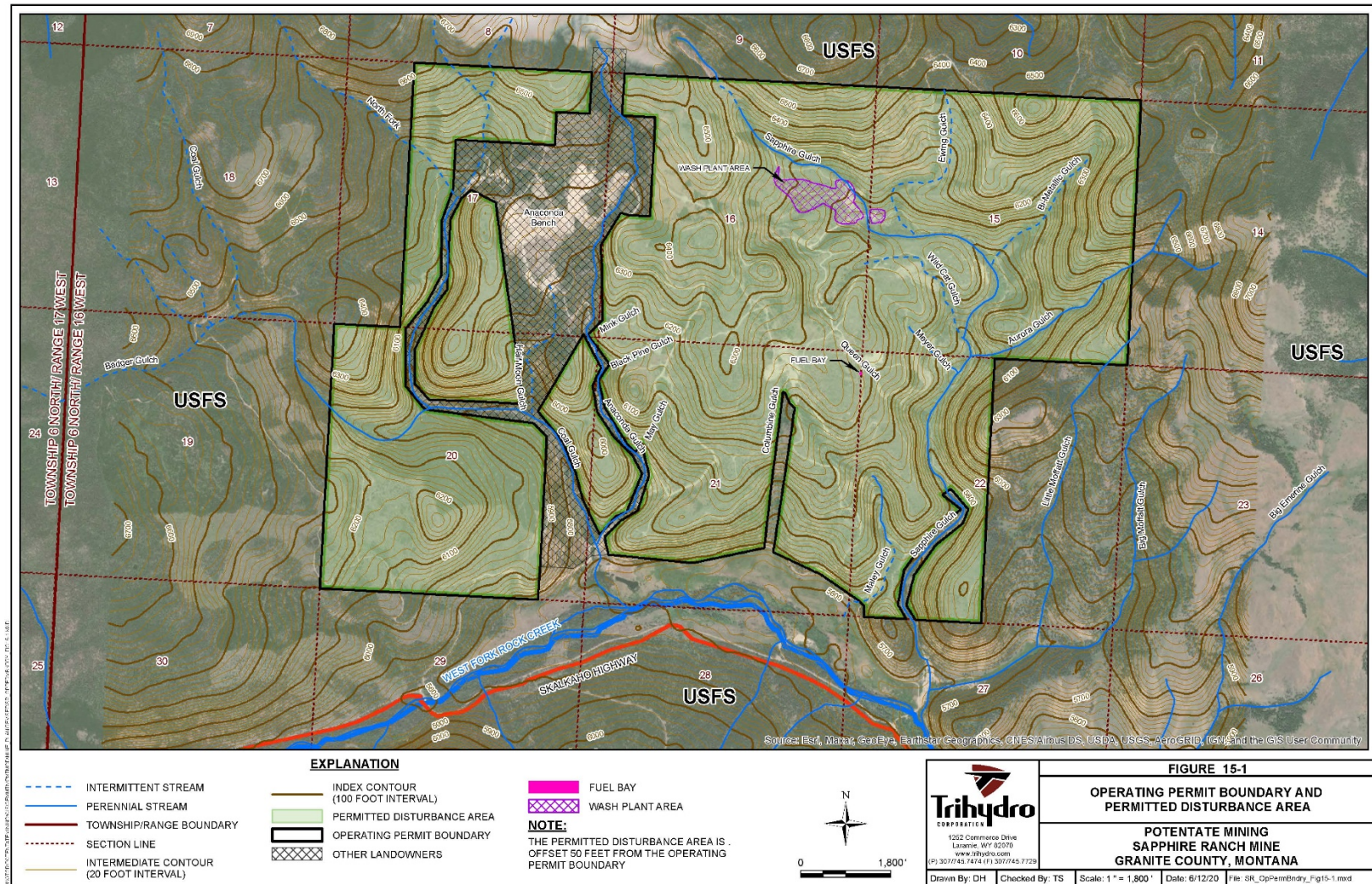


Figure 2: Operating Permit Boundary and Permitted Disturbance Area Proposed under Operating Permit No. 00200.



SUMMARY OF POTENTIAL PHYSICAL AND BIOLOGICAL IMPACTS:

The impact analysis will identify and analyze direct and secondary impacts of the proposed operation. Direct impacts occur at the same time and place as the action that causes the impact. Secondary impacts are 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 would occur, the impacts analysis will estimate the duration and intensity of the impact.

1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE

Are soils present, which are fragile, erosive, susceptible to compaction, or unstable? Are there unusual or unstable geologic features? Are there special reclamation considerations?

The area of proposed mine would be located entirely on private land within the historic Rock Creek Mine District about 15 miles west of Phillipsburg in Granite County, MT. The mine district and the project area have extensive historic and modern mining and logging disturbance. The mine would be targeting alluvial sapphires from the Rock Creek Volcanics.

Potentate has proposed a variety of BMPs to reduce potential for erosion and sediment transport. In addition to installed man-made BMPs, Potentate would spread existing timber debris and stripped duff and deadfall to create surface roughness and enhance vegetation growth and minimize sediment transport from stormwater runoff. Seeding would be performed after reclamation or before closing down for the winter.

Direct Impacts:

No unusual or unstable geologic features are present, and no fragile or particularly erosive or unstable soils are present. The mine could result in erosion of some disturbed soil (Table 2), however, the erosion potential is minor because of the use of BMPs during mining. BMPs including, but not limited to, berms, v-ditches, straw wattles, hay bales, and silt fences may be used to mitigate stormwater interaction with loosened soil near each test pit/trench and capture stormwater before reaching a stream. Salvaged overburden and/or soil would be replaced after mining and then contoured to match the surrounding topography. Stripped duff and deadfall would be spread to enhance vegetation growth and minimize sediment transport from stormwater runoff. Concurrent reclamation would include application of an approved seed mix.

The proposed project would have up to 2321 acres of disturbance area. Potentate has committed to limiting disturbance at any given time to 100 acres. This 100-acre limit would be achieved with concurrent reclamation in the fall of each mining season. Surface soil disturbance could allow for the establishment of weeds. Weed control is a condition of an operating permit and Potentate would be required to control the spread of noxious weeds. If noxious weeds are observed, the weeds would either be treated or physically removed (pulled and bagged) to prevent further spread of the undesirable species. Prompt replacement of topsoil and slash debris would facilitate the growth environment for native seeded and planted species. The Weed Management plan was reviewed and approved by the Granite County MSU Extension Agent on October 19, 2020.

Due to concurrent reclamation proposed in the fall of each mining season and the commitment to use BMPs in disturbed areas impacts to the geology, soil quality, stability and moisture would not be significant (Table 2).

Secondary Impacts:

There are no expected secondary impacts to the geology. Soil quality, stability and moisture are

not expected to have secondary impacts due to the BMPs proposed by the applicant.

2. WATER QUALITY, QUANTITY, AND DISTRIBUTION

Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?

The project area receives an average of 23.26 inches of precipitation annually (StreamStats, 2020). Sapphire Gulch stream which is a tributary of the West Fork of Rock Creek is located within the proposed disturbance area. Potentate received a “310” permit to construct a dam under the Montana Streambed and Land Preservation Act from the Granite County Conservation District on October 8, 2014.

Project water would be sourced from a constructed retention pond created by a dam across the upper reach of Sapphire Gulch stream with a pump and associated hoses. This water would be used to process ore. Potentate provided stream flow measurements in the operating permit application “Section 10.3.2 Stream Flow Rate”. Estimated flow at the location of the dam ranged from 0.004 cubic feet per second (CFS) to 1.95 CFS. Potentate process water may also be sourced from holding ponds outside the permit boundary adjacent to the West Fork of Rock Creek. These holding ponds are within the permit boundary for Hard Rock Mine Operating Permit No. 00044 and were installed in the late 1980s to process ore at the Yellow Dog Sapphire Mine.

The National Wetland Inventory identified several wetlands associated with Sapphire Gulch stream in the immediate project area, although none are proposed to be disturbed as part of this project. Wetlands include emergent freshwater and riparian wetlands.

A search of the Groundwater Information Center (GWIC) indicated that one domestic well is located nearby, but over 1-mile from the project site. No impacts to this well are expected to occur due to the distance from the project area.

Direct Impacts:

Precipitation and project water would generally be expected to infiltrate into the porous gravel alluvium, however, any surface water that may leave the site could carry sediment from disturbed soils (Table 2). Potentate would divert up to 100 per cent of the flow from the upper reach of Sapphire Gulch stream during the life of the project. However, the area of the Sapphire Gulch Stream that contributes flow to the point where the dam is constructed is approximately 0.6 square miles. The watershed for Sapphire Gulch stream is approximately 3.1 square miles. Potentate holds a Statement of Claim water right (76E 133059) for 2.45 CFS on Sapphire Gulch creek with a priority date of January 6, 1903. The beneficial use for this water right is mining. Due to the limited area of the Sapphire Gulch stream watershed upgradient of the dam any impacts to surface water would not be significant as a result of this project.

No direct impacts to groundwater are expected to occur due to project activities.

Secondary Impacts:

No secondary impacts to water quality, quantity and distribution are expected.

3. AIR QUALITY

Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?

Potentate would utilize a water truck for dust abatement when they determined conditions existed that required dust suppression. Slash burning would not be performed and original equipment manufacturer exhaust

controls on equipment would have not been modified. Existing exhaust controls on mine equipment would be maintained.

Direct Impacts:

Dust particulate could be produced or become airborne during mining (Table 2). Mechanized equipment would produce some exhaust fumes. Dust could also be produced while driving on/off site (Table 2). The operator would be required to maintain compliance with Montana's law regarding the need to take reasonable precautions to control airborne particulate matter.

As a result of the relatively minor airborne emissions that would be generated from this project, impacts to air quality would not be significant as a result of this project (Table 2).

Secondary Impacts:

No secondary impacts to air quality are expected.

4. VEGETATION COVER, QUANTITY AND QUALITY

Will vegetative communities be significantly impacted? Are any rare plants or cover types present?

Land cover in the project area varies, but generally includes Lodgepole pine-dominated forest and woodland (MTNHP, 2020). Subalpine spruce, Douglas-fir, and Aspen are also present. A search of the MTNHP identified potential habitat for 25 vascular plant species of concern (SOC), two of which are also US Forest Service (USFS) sensitive or candidate species. Missoula Phlox, a USFS sensitive species, was recorded near the project area in 2015. Whitebark Pine has been observed adjacent to the proposed permit boundary and is a candidate for federal listing under the Endangered Species Act. Both the Missoula Phlox and Whitebark Pine have habitat ranges in most of western Montana. The quantity of disturbed habitat for these plants is minimal in nature due to the vast habitat documented in western Montana and the relatively small size of this project.

Eighteen noxious or invasive plants have been identified in the greater project area.

Direct Impacts:

Land disturbance at the site may result in propagation of noxious weeds (Table 2). Any surface disturbances would be reclaimed and seeded with an appropriate seed mix. If the operating permit was approved, weed control during and after mine activities would be a requirement. The project area would be subject to the noxious weed management plan as described in "Section 15.25 Weed Management" of the operating permit application. Based on concurrent reclamation plans and a commitment weed control impacts to vegetative cover, quantity or quality resulting from this project would not be significant (Table 2).

Secondary Impacts:

No secondary impacts to vegetation cover, quantity and quality are expected.

5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS

Is there substantial use of the area by important wildlife, birds or fish?

Common wildlife such as elk, mule deer, moose, black bears and mountain lions may utilize the project area and may be temporarily displaced while machinery and equipment are operating. Sapphire Gulch creek is likely fishless because it is a small tributary and has been heavily disturbed by historic mining.

Direct Impacts:

Impacts to terrestrial, avian and aquatic life and habitats would potentially include temporary displacement of animals, although habitat found within the project area is common throughout the larger ecosystem (Table 2). Any displaced animals could find other suitable habitat nearby and return to the project area shortly after the project conclusion. Although some elk and other wildlife habitat may be impacted until the project disturbance is reclaimed, ample non-developed land exists around the proposed exploration site for the temporarily displaced animals. Based on plans for concurrent reclamation and proximity of abundant surrounding habitat impacts to terrestrial, avian, amphibious, and aquatic life and habitat would not be significant.

Secondary Impacts:

No secondary impacts to terrestrial, avian and aquatic life and habitats stimulated or induced by the direct impacts analyzed above are expected.

6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?

A search of the MTNHP identified potential habitat for 83 mammal, reptile, invertebrate, bird, and amphibian SOC, potential SOC, sensitive, or threatened species. Habitat for these species is common and not unique to the project area.

The following SOC are likely to occur in or near the project area: Wolverine, Fisher, Great Blue Heron, and Northern Goshawk. No wildlife SOC have been recorded near the project area. Three vegetative SOCs have been observed adjacent to, but outside the proposed permit boundary; Missoula Phlox, Keeled Bladderpod, and Whitebark Pine.

There are several wetlands located within the project area, associated with Sapphire Gulch stream, although none are proposed to be disturbed as a result of this project.

Direct Impacts:

The project is in a remote area. While potential habitat for threatened and endangered species may exist, the surrounding area is comprised of large un-developed spaces including Beaverhead-Deerlodge National Forest land. Similar habitat exists in large areas surrounding the proposed project area. The proposed project is seasonal, with activities planned from May through October depending on weather conditions. Due to the seasonal nature of the proposed activities and the similar surrounding habitat the impacts to SOCs would be minor.

Impacts to unique, endangered, fragile or limited environmental resources would potentially include temporary displacement of birds or mammals (Table 2). Habitat within the project area is common throughout the larger ecosystem and any animals displaced could find other nearby suitable habitat and return to the project area shortly after the project conclusion.

Based on the common habitat available for the SOC likely to occur in or near the project area in the surrounding Beaverhead-Deerlodge National Forest land, impacts to unique, endangered, fragile or limited environmental resources would not be significant.

Secondary Impacts:

No secondary impacts to unique, endangered, fragile, or limited environmental resources that could be stimulated or induced by the direct impacts analyzed above are expected.

7. HISTORICAL AND ARCHAEOLOGICAL SITES

Are any historical, archaeological or paleontological resources present?

The Montana Cultural Resource Database under the State Historic Preservation Office indicates that historic sites and inventoried areas are present in at least portions of the project area. The project is located on private land. On March 2, 2020, the Montana State Historic Preservation office concurred with a Class 1 Cultural Resource Inventory for the Sapphire Ranch Mine for the proposed Operating Permit Application, No. 00200. Cultural resources would not be expected to be impacted by the proposed mine plan. In the event that archeological resources not identified in the Class I survey are encountered during mine operations, activities would be halted and the DEQ-HRMB and Montana SHPO will be contacted within 5 days of discovery.

Direct Impacts:

The proposed mine would occur on private land. Some resources may be impacted as part of this project, however the impact to historical and archaeological sites would be would not be significant (Table 2).

Secondary Impacts:

No secondary impacts to historical and archaeological sites are expected.

8. AESTHETICS

Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?

The proposed mine would occur on private land. The project area would not be expected to be visible roadways that border the private land. The nearest year-round resident is at least 1.5 miles to the south of the project site. Potentate would limit disturbance to 100 acres at a time during mine life. Reclamation would be required to be completed within two years of the end of the proposed project unless a longer period of project disturbance was incorporated into the proposed Operating Permit.

Direct Impacts:

The proposed project may be visible to viewers located on public spaces at observation points that are unobstructed by topography or forested vegetation (Table 2). Aesthetic impacts from mine would not be excessive to receptors in the area. Potentate would limit the disturbance area to 100 acres by performing concurrent reclamation of the mine blocks. Final reclamation would be required within two years of completion of the project unless a longer period of project disturbance was incorporated into the proposed Operating Permit. Because the project area would not visible from public spaces or roadways impacts to aesthetics would not be significant (Table 2).

Secondary Impacts:

No secondary impacts to area aesthetics are expected as a result of the proposed work.

9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY

Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?

The proposed project would use water pumped from an impoundment pond behind a dam on the upper reach of Sapphire Gulch stream for processing ore. Potentate holds a Statement of Claim water right (76E 133059) for 2.45 cubic feet per second (CFS) on Sapphire Gulch creek with a priority

date of January 6, 1903. The beneficial use for this water right is mining. Potentate provided stream flow measurements in the operating permit application “Section 10.3.2 Stream Flow Rate”. Estimated flow at the location of the dam ranged from 0.004 cubic feet per second (CFS) to 1.95 CFS. Potentate process water may also be sourced from holding ponds outside the permit boundary adjacent to the West Fork of Rock Creek. No other local resources of land, water, air, or energy would be used as part of this project.

Direct Impacts:

Any impacts on the demand on environmental resources of land, water, air or energy would not be significant as a result of this project.

Secondary Impacts:

No secondary impacts to environmental resources of land, water, air, or energy are expected.

10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES

Are there other activities nearby that will affect the project?

DEQ searched the following websites or databases for nearby activities that may affect the project, however no other projects were identified:

- Montana Department of Natural Resource and Conservation (DNRC)
- Montana Department of Transportation
- Granite County
- United States Department of Interior, Bureau of Land Management (BLM)
- United States Forest Service (USFS)

Direct Impacts:

Impacts on other environmental resources are not likely to occur as a result of this project because of the lack of additional projects identified.

Secondary Impacts:

No secondary impacts to other environmental resources are expected as a result of the proposed work.

11. HUMAN HEALTH AND SAFETY

Will this project add to health and safety risks in the area?

The applicant would be required to adhere to all applicable state and federal safety laws. Industrial work such as the work proposed by the applicant is inherently dangerous. The Occupational Safety and Health Administration (OSHA) has developed rules and guidelines to reduce the risks associated with this type of labor. Few, if any, members of the public would be in the general project proximity during mine operations.

Direct Impacts:

Impacts to human health and safety would not be significant as a result of this project.

Secondary Impacts:

No secondary impacts to human health and safety are expected as a result of the proposed work.

12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION

Will the project add to or alter these activities?

Direct Impacts:

As noted in the cumulative impacts analysis below, this project would add to the impacts of mining in the greater project area, however all disturbance related to this project would be reclaimed at the conclusion of the project. Final reclamation would be required to be completed within two years of completion of the project, unless a longer period of disturbance was incorporated into the proposed operating permit. Impacts on the industrial, commercial, and agricultural activities and production in the area would not be significant.

Secondary Impacts:

No secondary impacts to industrial, commercial, and agricultural activities and production are expected as a result of the proposed work.

13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT

Will the project create, move or eliminate jobs? If so, estimated number.

Direct Impacts:

Significant positive or negative impacts on quantity and distribution of employment would not likely result from this project. The project plan calls for up to 20 employees and/or contractors at the site. Most of the employees would be employed on a seasonal basis and are expected to be composed of individuals already living in Granite County. No lasting positive or negative impacts to employment are expected from this project.

Secondary Impacts:

No secondary impacts to quantity and distribution of employment are expected as a result of the proposed work.

14. LOCAL AND STATE TAX BASE AND TAX REVENUES

Will the project create or eliminate tax revenue?

The sale of sapphires creates local jobs, providing tax revenue to the state and/or the federal government.

Direct Impacts:

Some positive, yet limited, benefit to the local and state economy could result from this project. However, due to the nature of the proposed mine and the limited number of expected employees (20), minimal tax revenue from income or expenses are expected from this project. The impact to local and state tax base and tax revenue would not be significant.

Secondary Impacts:

Minor beneficial secondary impacts to local and state tax base and tax revenues would be expected as a result of the proposed work.

15. DEMAND FOR GOVERNMENT SERVICES

Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?

Montana Highway 38 (MT-38)/Skalkaho Road (a paved State of Montana-maintained roadway) would be used to access the private land roads associated with the project. MT-38/Skalkaho Road continues west past the main entrance to the project area over Skalkaho Pass and into the Hamilton Valley. MT-38/Skalkaho Road is gated and closed for the winter months approximately one-half mile past the Sapphire Ranch Mine access road.

Fire protection would be provided by the Philipsburg Volunteer Fire Department, located about 15 miles directly to the east of the project area. USFS lands surround the private land associated with the project area, and emergency response may also include the USFS. The Granite County Sheriff's Department and USFS may provide limited law enforcement presence to the surrounding area. Emergency Medical Services would be based in Missoula, MT, Philipsburg, MT or Drummond, MT, located at least 20 miles from the project area.

The proposed project would employ up to 20 full-time and/or part-time employees on a seasonal basis. The annual average daily traffic information shows relatively low traffic load levels of 20 vehicles per day along Skalkaho Road. This traffic count is expected to be higher during the summer months due to recreational opportunities in the area and the opening of MT-38/Skalkaho Road over Skalkaho Pass.

Direct Impacts:

The proposed project would be located on private land. Impacts not be significant on the demand for government services because of limited number of employees (20) and seasonal nature of the work. All operations would be subject to local, seasonal restrictions as they apply.

Secondary Impacts:

No secondary impacts to the demand for government are expected as a result of the proposed work.

16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS

Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?

The proposed mine would occur entirely on private land. The project area would be subject to the Weed Management Plan proposed in the operating permit application and approved by the Granite County extension agent on October 19, 2020.

Direct Impacts:

DEQ is not aware of any other locally adopted environmental plans or goals that would impact this proposed project or the project area. Impacts from or to locally adopted environmental plans and goals would not be expected as a result of this project.

Secondary Impacts:

No secondary impacts to the locally adopted environmental plans and goals are expected as a result of the proposed work.

17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES

Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?

The proposed mine would occur entirely on private land, with no access to public recreational opportunities. There are no designated wilderness or recreational areas in the vicinity of the project area.

Direct Impacts:

Based on the location of the proposed mine, impacts to the access or quality of recreational and wilderness activities are not expected to result from the project.

Secondary Impacts:

No secondary impacts to access and quality of recreational and wilderness activities are expected as a result of the proposed work.

18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING

Will the project add to the population and require additional housing?

Granite County had a population of 3,079 at the 2010 census. The proposed project area is remote, with the nearest residential house located at least 1.5 miles to the south of the project site. As noted above in “Section 13. Quantity and Distribution of Employment,” the proposed project would not be expected to add to or decrease the local population or employment. The proposed project would employ up to 20 full-time and/or part-time personnel, including subcontractors.

Direct Impacts:

Due to the seasonal nature of the proposed project and the proposed number of employees, no impact to population density and housing are expected from this project.

Secondary Impacts:

No secondary impacts to density and distribution of population and housing are expected as a result of the proposed work.

19. SOCIAL STRUCTURES AND MORES

Is some disruption of native or traditional lifestyles or communities possible?

Direct Impacts:

The proposed mine would occur entirely on private land. Due to the low population density nearby and history of sapphire mining in this area, no disruption of native or traditional lifestyles are expected.

Secondary Impacts:

No secondary impacts to social structures and mores are not expected as a result of the proposed work.

20. CULTURAL UNIQUENESS AND DIVERSITY

Will the action cause a shift in some unique quality of the area?

Direct Impacts:

The proposed project is located in a historic mining district, in an area with existing legacy mining disturbance. Due to the history of sapphire mining in this area, no impacts to cultural uniqueness and diversity are expected from this project.

Secondary Impacts:

No secondary impacts to cultural uniqueness and diversity are expected as a result of the proposed work.

21. PRIVATE PROPERTY IMPACTS

Are we regulating the use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants of financial assistance, and the exercise of the power of eminent domain are not within this category.) If not, no further analysis is required. Does the proposed regulatory action restrict the use of the regulated person's private property? If not, no further analysis is required. Does the agency have legal discretion to impose or not impose the proposed restriction or discretion as to how the restriction will be imposed? If not, no further analysis is required. If so, the agency must determine if there are alternatives that would reduce, minimize or eliminate the restriction on the use of private property, and analyze such alternatives.

The proposed project would take place on private land owned by the applicant. DEQ's approval of Operating Permit No. 00200 with conditions would affect the applicant's real property. DEQ has determined, however, that the permit conditions are reasonably necessary to ensure compliance with applicable requirements under the Metal Mine Reclamation Act and demonstrate compliance with those requirements or have been agreed to by the applicant. Therefore, DEQ's approval of Operating Permit No. 00200 would not have private property-taking or damaging implications.

22. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES

Due to the nature of the proposed mine, and the limited project duration, no further direct or secondary impacts are anticipated from this project.

ALTERNATIVES CONSIDERED

In addition to the proposed action, DEQ also considered a no action alternative. Under the no action alternative would deny the approval of Operating Permit No. 00200. The applicant would lack the authority to mine for minerals on private land. The applicant would still be allowed to conduct casual use-level activities but would not be able to use mechanized equipment. Any potential impacts that would be authorized under Operating Permit No. 00200 would not occur. Any potential impacts that would be authorized under the permit would not occur. However, DEQ does not consider the "no action" alternative to be appropriate because Potentate has demonstrated a willingness to comply with all applicable rules and regulations in the submitted proposal as required for permit issuance. The no action alternative forms the baseline from which the impacts of the proposed action can be measured.

PUBLIC INVOLVEMENT

Public involvement for this proposed action consisted of internal and external efforts to identify substantive issues and/or concerns related to the proposed project. Notice of the Operating Permit application was published on March 10, 2020. Public involvement included a public comment period which ended on June 14, 2021.

Internal review of the environmental assessment document was completed by DEQ staff. The internal review included queries to the following websites/ databases/ personnel:

- Montana State Historic Preservation Office
- Montana Department of Natural Resource and Conservation (DNRC)
- Montana Department of Environmental Quality (DEQ)
- Montana Department of Transportation
- Granite County
- US Geological Society – Stream Stats
- Montana Natural Heritage Program
- Montana Cadastral Mapping Program
- Montana Groundwater Information Center
- Montana Bureau of Mines and Geology
- United States Forest Service (USFS)

RESPONSE TO PUBLIC COMMENTS

No comments have been received on the notice of the permit application or on the Draft EA.

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION

The proposed project would be fully located on private land. All applicable state and federal rules must be adhered to, which, at some level, may also include other state, federal, or tribal agency jurisdiction.

CUMULATIVE IMPACTS

Cumulative impacts are the collective impacts on the human environment within the borders of Montana 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 pre-impact statement studies, separate impact statement evaluation, or permit processing procedures.

This environmental review analyzes the proposed project submitted by the applicant. Impacts from the project would be temporary, would be reclaimed at the conclusion of the project, and would not contribute to the long-term cumulative effects of mining in the area. Final reclamation would be required within two years of completion of the project, unless a longer project disturbance was later incorporated into an Operating Permit. DEQ identified other mining or exploration projects in the area.

DEQ-regulated projects located near the proposed project site include:

- Four Small Miner Exclusion Statement (SMES) hard rock mining operations are located within two miles of the proposed project site.
- Two hard rock mining Exploration License projects are located within two miles of the proposed project site.
- One hard rock mining Operating Permit is located about 1.5 miles to the south of the proposed project site.
- One proposed hard rock mining Operating Permit is located adjacent and west the proposed project site.

No other DNRC, BLM, or USFS regulated projects were identified in the project vicinity.

DEQ considered all impacts related to this project and secondary impacts that may result. Cumulative impacts related to this project are identified in the Table 2. Cumulative impacts related to this project would not be significant.

NEED FOR FURTHER ANALYSIS AND SIGNIFICANCE OF POTENTIAL IMPACTS

When determining whether the preparation of an environmental impact statement is needed, DEQ is required to consider the seven significance criteria set forth in ARM 17.4.608, which are as follows:

1. The severity, duration, geographic extent, and frequency of the occurrence of the impact;
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 department to future actions with significant impacts or a decision in principle about such future actions; and
7. Potential conflict with local, state, or federal laws, requirements, or formal plans.

Table 2: Summary of potential impacts that could result from Operating Permit No. 00200.

Potential Impact	Affected Resource and Section Reference	Severity ¹ , Extent ² , Duration ³ , Frequency ⁴ , Uniqueness and Fragility (U/F)	Probability ⁵ impact will occur	Cumulative Impacts	Measures to reduce impact as proposed by applicant	Significance (yes/no)
Erosion of disturbed soil	Soil 1.) Geology	S -medium: Of the 2321 acres of ground that would be disturbed, all would be susceptible to erosion. The reclamation plan provides that Potentate would complete reclamation concurrently on the mine blocks and that a mine block no longer needed for operations would be re-graded, soiled and seeded as soon as practicable. Following reclamation, mine blocks would not be subject to further disturbance. Potentate would limit disturbance area at any one time to 100 acres. E -large: Total surface disturbance over the life of the mine susceptible to erosion would be 2321 acres D -Up to 42 years or 2 years after completion or abandonment of mine activities plus growing seasons. The reclamation plan provides that Potentate would complete reclamation concurrently on the mine blocks and that a mine block no longer needed for operations would be re-graded, soiled and seeded as soon as practicable. Following reclamation, mine blocks would not be subject to further disturbance. F -During occasional storm events. U/F -Not unique or particularly fragile.	Possible	Erosion would add to cumulative impacts associated with potential erosion on existing roads, mined surfaces, logged areas, and other historical disturbances in the proposed project area.	<ul style="list-style-type: none">- Best management practices (BMPs) including, but not limited to, berms, v-ditches, straw wattles, hay bales, and silt fences may be used to mitigate stormwater interaction with loosened soil near each test pit/trench and capture stormwater before reaching a stream.- Existing timber debris and overland grasses would be used to assist with filtering sediment from transported stormwater.- Stripped duff and deadfall would be spread and replaced to enhance vegetation growth and minimize sediment transport from stormwater runoff.- Seeding would be performed after reclamation or before closing down for the winter.	No
Weed propagation associated with surface disturbance	Soil & Vegetation 1.) Geology 4.) Vegetation	S -medium: All disturbed surfaces would be susceptible to weed propagation. E -medium: Total surface disturbance would be up to 2320 acres. Land surrounding the immediate project area would also be susceptible to weed propagation. D - Up to 42 years or 2 years after completion or abandonment of mine activities plus growing seasons. The reclamation plan provides that Potentate would complete reclamation concurrently on the mine blocks and that a mine block no longer needed for operations would be re-graded, soiled and seeded as soon as practicable. Following reclamation, mine blocks would not be subject to further disturbance. F -Twice: After excavation and after reclamation. U/F -Not unique or particularly fragile.	Probable	Weed propagation from this project would add to any other area weeds that already exist within and near the proposed project area.	<ul style="list-style-type: none">- Weed control would be a requirement of an operating permit. The project would be subject to the Weed Management Plan described in the permit application.- Disturbed land would be seeded with an appropriate weed free seed mix.- The reclamation would be monitored for weeds and treated as necessary the following spring/summer.	No
Impoundment and use of surface water	Surface water 2.) Water Quality, Quantity, and Distribution	S - Low: Surface water in Sapphire Gulch creek would be diverted and used for ore processing. Up to 100% of the water would be diverted at the dam. However, the dam is located near the headwaters of Sapphire Gulch Creek and only part of the watershed's runoff would be captured. The contributing drainage area for Sapphire Gulch Creek is 3.1 square miles. The upper portion of Sapphire Gulch Creek that is impounded behind the dam is 0.6 square miles. E -small: Total flow diverted would be up to 0.24 cubic feet per second (CFS). Water Right 76E 133059 00 is a Statement of Claim for 2.45 CFS on Sapphire Gulch with a priority date of January 6, 1903. The beneficial use for this water right is mining. D - Up to 40 years. F -Daily: During mine activities. U/F -Not unique or particularly fragile.	Certain	Flow diverted from Sapphire Gulch Creek would be retained and circulated in the ore processing facility.	-None proposed	No
Dust and equipment exhaust	Air 3.) Air Quality	S -medium: Potentate would limit disturbance acreage at any one time to 100 acres: Dust and other particulate would be generated during construction/reclamation and driving on/off site. Engines would produce some exhaust fumes. E -medium: Dust and exhaust fumes would be generated in proximity of moving/working equipment, and from dry exposed soil associated with test pits. Extent of impact to air quality depends on area to be disturbed at any one time and the haul distance from the mine block to the ore processing area. D - Up to 42 years or 2 years after completion or abandonment of mine activities plus growing seasons. Potentate would limit disturbance acreage at any one time to 100 acres. F -Daily: During mine and reclamation operations. U/F -Not unique or particularly fragile.	Certain	Dust and exhaust would add to the cumulative impacts from other vehicles/engines operating in the area, and to potential natural wildfire smoke moving through the area.	<ul style="list-style-type: none">- When conditions would require, a water truck would be used for dust suppression.- Slash burning would not be performed and OEM exhaust controls on equipment would have not been modified.- Existing exhaust controls would be maintained.	No

Potential Impact	Affected Resource and Section Reference	Severity ¹ , Extent ² , Duration ³ , Frequency ⁴ , Uniqueness and Fragility (U/F)	Probability ⁵ impact will occur	Cumulative Impacts	Measures to reduce impact as proposed by applicant	Significance (yes/no)
Displacement of animals (mainly elk)	Animals 5.) Terrestrial, avian and aquatic life.	S -low based on acreage to be disturbed at any one time and concurrent reclamation: Up to 100 acres of ground would be disturbed at one time. The reclamation plan provides that Potentate would complete reclamation concurrently on the mine blocks and that a mine block no longer needed for operations would be re-graded, soiled and seeded as soon as practicable. Following reclamation, mine blocks would not be subject to further disturbance. E -low: Total surface disturbance would be up to 100 acres at any one time. D - Up to 42 years. Reclamation would be required within 2 years after completion or abandonment of mine activities plus growing seasons. F -Up to 42 years in the ore processing facility. During mine and reclamation activity at each mine block. U/F -Not unique or particularly fragile.	Possible	Displacement of animals as a result of this project would add to the cumulative impacts associated with other nearby mining projects or recreational land use on public lands	-None proposed	No
Impacts to aesthetics	8.) Aesthetics	S -low: Some disturbed surfaces may be visible to nearby receptors. Potentate would limit disturbance acreage at any one time to 100 acres. E -low: Total surface disturbance at any one time would be limited to 100 acres and may be visible to receptors located at observation points that are unobstructed by topography or forested vegetation. Noise may be heard by receptors located in an area where sound related to the project has not been fully diminished by distance or another sound-dampening features D - Up to 42 years. Reclamation would be required within 2 years after completion or abandonment of mine activities plus growing seasons, unless the area is incorporated into an Operating Permit. Potentate would limit the total disturbed area at any one time to 100 acres. F -Daily: until reclamation is complete U/F -The viewshed would be diminished; however, the viewshed is not particularly unique or fragile in the greater project area.	Possible	Impacts to area aesthetics as a result of this project would add to the cumulative impacts associated with the other nearby mining or logging projects	-None proposed	No
Impacts to Historical and Archaeological Sites	7.) Historical and Archaeological Sites:	S - low E - low D - long-term, any disturbance to archaeological sites would be permanent F - Unknown U/F - The archaeological sites that may be disturbed are unknown and not documented	Possible	Impacts to historical and archaeological sites associated with the project would add to the cumulative impacts associated with the surrounding private land that has been developed for agriculture and other mining uses.	- Mine activities are proposed on privately owned surface and mineral rights. On March 2, 2020 the Montana State Historic Preservation office concurred with a Class 1 Cultural Resource Inventory for the Sapphire Ranch Mine for the Operating Permit Application, #00200. - Cultural resources would not be expected to be impacted by the proposed mine plan. In the event that archeological resources not identified in the Class I survey are encountered during mine operations, activities would be halted and the DEQ-HRMB and Montana SHPO will be contacted within 5 days of discovery.	No

- Severity describes the density at which the impact may occur. Levels used are low, medium, high.
- Extent describes the land area over which the impact may occur. Levels used are small, medium, and large.
- Duration describes the time period over which the impact may occur. Descriptors used are discrete time increments (day, month, year, and season).
- Frequency describes how often the impact may occur.
- Probability describes how likely it is that the impact may occur without mitigation. Levels used are: impossible, unlikely, possible, probable, certain

SUMMARY

The severity, duration, geographic extent and frequency of the occurrence of the impacts associated with the proposed mining would be limited. The applicant is proposing to disturb up to 2,321 acres. Project activity would be expected to be completed in approximately 30-40 years and would be required to be reclaimed within 2 years after completion or abandonment of mining unless a longer time period is incorporated into an Operating Permit. During mine life, Potentate would limit disturbed area to no more than 100 acres at any given time.

DEQ has not identified any significant impacts associated with the proposed mine activities for any environmental resource. Approval of Operating Permit No. 00200 does not set any precedent that commits DEQ to future actions with significant impacts or a decision in principle about such future actions. If the applicant submits another license or an operating permit application, DEQ is not committed to issuing those authorizations. DEQ would conduct an environmental review for any subsequent authorizations sought by the applicant that require environmental review. DEQ would make a permitting decision based on the criteria set forth in the Metal Mine Reclamation Act. Approval of Operating Permit No. 00200 does not set a precedent for DEQ's review of other applications for operating permits, including the level of environmental review. The level of environmental review decision is made based on a case-specific consideration of the criteria set forth in ARM 17.4.608.

Finally, DEQ does not believe that the proposed mine activities by the applicant have any growth-inducing or growth-inhibiting aspects or conflict 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 mine activities are not predicted to significantly impact the quality of the human environment. Therefore, preparation of an environmental assessment is determined to be the appropriate level of environmental review under MEPA.

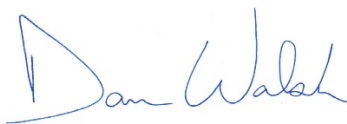
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06/25/2021

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Dan Walsh, Bureau Chief
Hard Rock Mining Bureau

Date