DEQ
Montana Department of Environmental Quality

Air, Energy & Mining Division

GREAT PLAINS MINING, LLC

EXPLORATION LICENSE NO. 00816

Amendment No. 2

COLUMBIA GOLD PROJECT

LEWIS AND CLARK COUNTY, MT

March 20, 2026
Draft Environmental Assessment

TABLE OF CONTENTS

TABLE OF TABLES

TABLE OF FIGURES

PROJECT OVERVIEW

COMPANY NAME: GREAT PLAINS MINING, LLC
EA DATE: March 20, 2026
PROJECT: Columbia Gold
PERMIT/LICENSE: EXPLORATION LICENSE NO. 00816
AMENDMENT #: Amendment 2 (AMD2)

Location

(46.948465°, -112.511792°) County: Lewis and Clark
PROPERTY OWNERSHIP: FEDERAL ☐ STATE ☐ PRIVATE ☒

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 Montana environment. The proposed action is considered to be a state action that may have an impact on the Montana 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. DEQ may not withhold, deny, or impose conditions on the permit based on the information contained in this Environmental Assessment. § 75-1-201(4), Montana Code Annotated (MCA).

Proposed Action

DEQ would approve Amendment 2 (AMD2) to Exploration License No. 00816 (Exploration License) for Great Plains Mining, LLC (GPM) – Columbia Gold Project, if DEQ has determined that GPM has met the criteria set forth in 82-4-332, MCA. If DEQ approves AMD2, the Exploration License would remain in effect, subject to annual renewal. GPM could continue to renew the Exploration License provided it remains in compliance with all bonding and reclamation obligations.

Purpose and Need

DEQ's purpose and need for conducting this environmental review is to evaluate and act upon GPM's January 26, 2026, application for an Exploration License Amendment under the Metal Mine Reclamation Act (MMRA), Sections 82-4-301, MCA, *et seq*. GPM paid the required application and processing fees on January 16, 2026. Pursuant to Section 82-4-332(2), MCA, the application was determined to be complete and acceptable on March 9, 2026.

GPM proposes this action to collect additional subsurface geological information through core drilling to further characterize mineralization at the Columbia Gold Project area (project area), building on prior exploration conducted under AMD1. Exploration drilling would occur on private land located approximately 14 miles East of Lincoln in Lewis and Clark County, Montana. The proposed activities are limited to exploration drilling and associated temporary disturbance. The exploration license would not authorize mining. Any future proposal for mining would require a separate application, review, and permitting decision, and is not analyzed in this EA.

The proposed action would include up to 21 drill holes, each drilled from its own drill pad, with total drilled footage not to exceed 14,359 feet and a maximum depth of 2,296 feet per hole. Each drill pad would be constructed to dimensions of approximately 50 feet long by 35 feet wide and up to 1 foot deep and would contain two internal drill sumps, each excavated to about 40 feet long by 6 feet wide and up to 3 feet deep to contain drill cuttings and drilling fluids.

In support of the drilling operations, GPM proposes approximately 818 feet of overland vehicle travel on temporary access routes, up to 12 feet wide. No new constructed access roads are proposed. One laydown area would be constructed to dimensions approximately 200 feet long by 100 feet wide and up to 1 foot deep. Drill core would be transported to an existing offsite core processing facility located at 5605 Martin Drive, Lincoln, MT 59639. Core processing typically includes cleaning, photographing, and visually inspecting the core to document the depths of geologic features of interest. Cores are then usually cut lengthwise, with one half sent to an offsite laboratory for chemical assays, and the remaining half archived as a permanent record in case additional sample materials are required. Core analyses are used to characterize subsurface geology, make estimates of mineral grades, and provide structural and geotechnical data. No new disturbance would occur at the offsite facility. Water used for the activities described in the proposed action would be supplied from an existing domestic water well (GWIC 70592) located on private land in Section 23 of Township 14 North, Range 9 West, and transported to the project area via water truck. No new disturbance is proposed at the water source location.

Total new surface disturbance under AMD2 would be limited to approximately 1.53 acres. Exploration activities would occur on private land within the existing Columbia Gold project area and would not authorize mining, ore processing, or construction of long-term facilities. GPM would implement best management practices for erosion control, spill prevention, and waste management and would reclaim all disturbed areas in accordance with the approved reclamation plan and MMRA requirements within the required timeframe. The applicant proposed that exploration operations would commence upon DEQ's acceptance of the required reclamation bond and would be completed within approximately 6 to 8 weeks.

Table 1: Summary of Activities Proposed in Application

Summary of Proposed Activities in Application	
General Overview	GPM (applicant) proposes exploration core drilling on private lands at the Columbia Gold Project site, located in Sections 20 and 29, Township 14 North, Range 7 West, in Lewis and Clark County, approximately 14 miles east of Lincoln, Montana. The proposed AMD2 would include up to 21 drill holes, with total drilled footage not to exceed 14,359 feet and a maximum depth of 2,296 feet per hole. Drilling would occur with one drill rig for a total of 21 drill pads, each constructed to dimensions of approximately 50 feet long by 35 feet wide and up to 1 foot deep. Each drill pad would contain two internal drill sumps, excavated to approximately 40 feet long by 6 feet wide, excavated to a maximum depth of 3 feet. The one drill rig would drill each drill hole and then move to the next site. Drilling would occur 24 hours per day, seven days a week with two separate crews for daytime and nighttime operations. In support of the drilling operations, the applicant proposes approximately 818 feet of overland vehicle travel along temporary access routes, up to 12 feet wide. One laydown area would be constructed to dimensions approximately 200 feet long by 100 feet wide and up to 1 foot deep. Core would be transported to an existing offsite processing facility located at 5605 Martin Drive, Lincoln, MT 59639 in Section 14, Township 14 North, Range 8 West. The core would be logged and dispatched as necessary. Two geologists would be present on site during daytime hours for the duration of the drilling program. The applicant is proposing up to **1.53 acres** of total new surface disturbance across a privately owned, patented claim block approximately 430 acres in size. The applicant proposed that the action be completed no later than **May 1, 2026**, and initial reclamation be completed no later than **September 1, 2026**. These dates are contingent upon DEQ's acceptance of the required reclamation bond and issuance of an authorization letter. The applicant estimates that the proposed action could be completed within approximately 6 to 8 weeks. Final reclamation of all surface disturbances authorized under AMD2 must be completed no later than two years following the conclusion of exploration activities unless otherwise incorporated into an Operating Permit.
Proposed Dimensions	

Drill pads (#)	21
Drill pad dimensions (xyz)	Maximum of 50 feet x 35 feet x 1 foot
Internal Drill Sumps (#)	42
Internal Drill Sump Dimensions (xyz)	40 feet x 6 feet x 3 feet
Drill Holes (#)	21
Maximum Drill Hole Depth (z)	2,296 feet below ground level
Cumulative Drill Footage (z)	14,359 feet
Overland travel (xy)	818 feet x 12 feet
Laydown Area (#)	1
Laydown Area dimensions (xyz)	200 feet x 100 feet x 1 foot
Total new surface disturbance	**1.53 acres**
Specific Proposed Activities	
Duration and timing	The applicant proposed that the action be completed no later than **May 1, 2026**, and initial reclamation be completed no later than **September 1, 2026**. These dates are contingent upon DEQ's acceptance of the required reclamation bond and issuance of an authorization letter. The applicant estimates that the proposed action could be completed within approximately 6 to 8 weeks. Final reclamation of all surface disturbances authorized under AMD2 must be completed no later than two years following the conclusion of exploration activities unless otherwise incorporated into an Operating Permit. Work hours are estimated to be up to 24 hours per day (2 x 12-hour shifts), up to 7 days per week.
Equipment	Exploration and Reclamation operations would be completed with the following equipment or similar: • 1 – Drill Rig (Boart Longyear LF90) • 1 – 2,500-gallon Water Truck (Kenworth T800) • 1 – 2,500-gallon Fuel Truck (Kenworth T800) • 1 – Excavator (Cat 310) • 1 – Bulldozer (Cat D6) • 3 – Personal Vehicles (Ford F150) • 2 - Light Plant (Allmand Night-Lite Pro)
Location and analysis area	**Location:** 46.948465°, -112.511792°

	Distance from the nearest town/city: On private lands at the Columbia Gold Project site, located in Sections 20 and 29, Township 14 North, Range 7 West, in Lewis and Clark County, approximately 14 miles east of Lincoln, Montana. The off-site processing facility is located on private land in Section 14, Township 14 North, Range 8 West, in Lewis and Clark County, approximately 5.5 miles east of Lincoln, Montana. The off-site domestic well (GWIC #70592, DNRC Water Right #76F-13158) is located on private land in Section 23 of Township 14 North, Range 9 West, in Lewis and Clark County, approximately 1.5 miles west of Lincoln, Montana. **Analysis Area:** The area being analyzed for this environmental review is identified in each resource area below. Refer to Location Map and any other maps below.
Personnel on-site	There would be two crews working 12-hour shifts per day and the crew would consist of the following personnel: • 2 – Geologist • 1 – Driller • 2 – Drill Helper • 1 – Supervisor
Structures	• 1 – 1,000-gallon fuel container • 2 – water bladder tanks (3,000 gallons) • 1 – 3 cubic yard dumpster • 2,400 feet of 2-inch diameter HDPE temp water lines • 1 – Portable Toilet
Proposed action water source	The applicant proposes that proposed action water would be supplied from a domestic water well source (GWIC #70592) located on private land in Section 23 of Township 14 North, Range 9 West (46.949665°, -112.708359°), and transported to the project area via water truck and stored in two 3,000-gallon water bladders located at the laydown area. GPM estimates that up to 1,000 gallons per day may be used to cool and lubricate the drill bit, clean the bit-rock interface to optimize cutting performance and to carry drill cuttings out of the hole. Wet drilling also suppresses dust for safer working conditions for drilling personnel.
Air quality	The applicant proposes that all equipment would utilize factory emission controls. If fugitive dust is observed, vehicles would travel at a reduced speed as necessary. The applicant is required to comply with applicable local, county, state, and federal air quality requirements.
Supplemental lighting	The applicant proposes to conduct exploration drilling up to 24 hours per day. Supplemental lighting would be used between approximately 4:00 p.m. to 8:00 a.m., adjusted seasonally as necessary. The applicant proposes the use of the following best management practices to mitigate light pollution;

	• Directional/downward-facing lights • Light shrouds/shields
Water quality	The applicant proposes that sediment control structures would be located adjacent to the drill sites and access routes to mitigate sediment transport. Stormwater impacting the drill sites during a precipitation event would generally be expected to infiltrate into the subsurface. Stormwater leaving the drill sites could carry sediment from the disturbed soils and non-sediment contaminants from drilling operations. The applicant proposes the following best management practices to mitigate erosion and transport of sediment and non-sediment contaminants off-site. • plastic drill sump liners • secondary containment for hazardous substances • spill prevention and response kits • sediment traps The applicant is required to comply with the applicable local, county, state, and federal requirements pertaining to water quality.
Erosion control and sediment transport	Surface disturbances associated with the proposed exploration activities have the potential to result in erosion of disturbed soil. Sediment has the potential to be transported off-site via stormwater. The applicant proposes use of the following best management practices to minimize sediment transport from surface disturbances: • sediment traps The applicant is required to comply with the applicable local, county, state, and federal requirements pertaining to erosion control and sediment transport.
Solid waste	The applicant proposes that any solid waste produced by the operation would be collected in one 3 cubic yard dumpster and hauled to the landfill located in Lincoln, Montana, as necessary. The applicant is required to comply with the applicable local, county, state, and federal requirements pertaining to the disposal of solid waste material.
Cultural resources	The applicant has not proposed any actions that would reduce any potential impacts to cultural resources. However, if an unanticipated resource is encountered, the applicant has stated that all work would stop immediately within a 100-foot radius of the discovery, DEQ and the State Historic Preservation Office (SHPO) would be notified within 24 hours, and no work would resume until a professional assessment has been completed and written authorization to proceed has been received. SHPO has noted that several previously recorded historic sites occur within the proposed exploration boundary areas and, based on these sites and the anticipated ground disturbance, has concluded that the proposed

	action has the potential to affect cultural properties; SHPO therefore recommends that a cultural resource inventory be conducted to determine whether additional sites are present and whether they would be impacted. DEQ also recommends the Applicant comply with SHPO and conduct a cultural resource inventory. The applicant is required to comply with the applicable local, county, state, and federal requirements pertaining to cultural resources.
Hazardous substances	The applicant proposes to store or handle the following hazardous substances on-site during exploration and reclamation operations: • 1 – 1,000 gallons of diesel fuel • 2 – 5-gallons of gasoline The operator proposes the following best management practices to manage hazardous substances: • Spill kits • Regular Equipment Maintenance • Secondary Containment The secondary containment of hazardous substances like petroleum products utilized would be capable of holding 110% of the largest vessel's capacity. The applicant must comply with all applicable local, county, state, and federal regulations concerning hazardous substances.
Reclamation Plans	This proposed action would not be located within core, general, or connectivity habitat for sage grouse. The applicant proposes that reclamation activities would be implemented upon completion of exploration. During operations, ongoing concurrent reclamation would occur as drill pads are no longer needed; these areas would be re-contoured to approximate pre-disturbance conditions and promptly seeded before moving to the next drill pad location. Soil would be salvaged from areas to be disturbed before drill pad construction and stockpiled for future reclamation. Upon completion of exploration activities, all drill holes would be plugged according to ARM 17.24.106, and have the casing (protective metal pipe installed into the drill hole to prevent collapse and compromise of the drilling operation) removed or cut off below the surface. Exploration drill holes would be plugged with bentonite or a similar compound from the bottom of the hole to within five to ten feet of the surface, and with cement from the top of the bentonite to the surface. All drill fluids and cuttings would be contained within the constructed drill sumps. See Section 2 (Water Quality, Quantity, and Distribution) for information about the type of drilling fluid used and the potential impacts. All drill cuttings, which are fragments of rock liberated downhole during the coring process and carried back

	to the surface by the recirculated drilling mud, would be disposed of down-hole or buried in the drill sumps, and drill sites would be recontoured to approximate pre-existing conditions. The stockpiled soil would be spread over the drill disturbance areas and seeded. Reclamation and reseeding would be conducted as soon as practicable after the completion of drilling to mitigate the potential for long-term impact. **Concurrent Reclamation:** To reduce the duration and extent of surface disturbance, initial regrading of disturbed areas and replacement of stockpiled soils would occur as soon as practicable after work is completed at each drill site. **Final Reclamation:** Following cessation of exploration, final reclamation would consist of full recontouring of all disturbed areas and the application of a native seed mix, with the intent of establishing self-sustaining, weed-free vegetation over at least two subsequent growing seasons. **Weed control plan:** The applicant proposes that herbicides would be applied to surface disturbances as necessary to control noxious weeds. An approved weed-free native seed mix would be used for reclamation, and all reclamation would be monitored for weed infestations. **Structures to remain:** The applicant proposes that no new project-related disturbance or structures would remain unreclaimed after completion of the proposed action. Should the Applicant, who is also the landowner, propose that any structures or disturbances remain following the completion of the proposed action, the Applicant shall submit a statement describing the proposed legitimate post-mining land use, subject to review by DEQ. The existing off-site processing facility and domestic well would not be reclaimed under this proposed action and would continue to operate under separate local, county, and state approvals, as applicable.
	Cumulative Impact Considerations
General setting	The project area features moderately to steeply sloping mountainous terrain with a mix of low shrubs, grassy openings and stands of mature conifer forest. Many access roads and previously disturbed and reclaimed areas related to previous exploration activities are present within the area analyzed.
Past actions	Past actions in the area include mining, milling, mining related activities, and exploration for placer and lode deposits periodically from the mid-1800's to present.

	The applicant has previously conducted exploration drilling under Exploration License No. 00816, Amendment 1(AMD1). The AMD1 proposed action scope and environmental review was transferred from Canyon Resources Corporation (previously Seven-Up Pete Joint Venture) Exploration License No. 00497 to GPM in 2016, following an exploration license application and subsequent posting of the required performance bond. The majority of the reclamation required under AMD1 has been completed. For more details please refer to the continued discussion under "Mining District History" in Section 1. "Geology, Stability, and Moisture".
Present actions	**Exploration:** GPM's Exploration License No. 00816, AMD1 project remains active and reclamation yet to be completed relates solely to minor re-grading and revegetation of an approximately 6 foot by 6 foot by 5 foot depression/pit and continued monitoring for revegetation and weed control of partially reclaimed past disturbances. **Other:** Some recreationalists participate in travel and recreation in the greater project area, including on the US Forest Service Road 1841. Local traffic exists along the preexisting public roads, including Highway 200 between the proposed action's water source location, Lincoln, MT, and the patented claim block. Local residences and businesses actively withdraw water at the proposed action's water source location. For more details on present actions taking place within the areas analyzed please refer to the continued discussions in each Potential Impact - Sections 1-23.
Related future actions	The Applicant may submit additional applications to amend the exploration license, which DEQ would review pursuant to the MMRA and rules adopted under the MMRA at that time. Any subsequent approvals would undergo a separate environmental review under MEPA.

Figure 1: Project Area Map

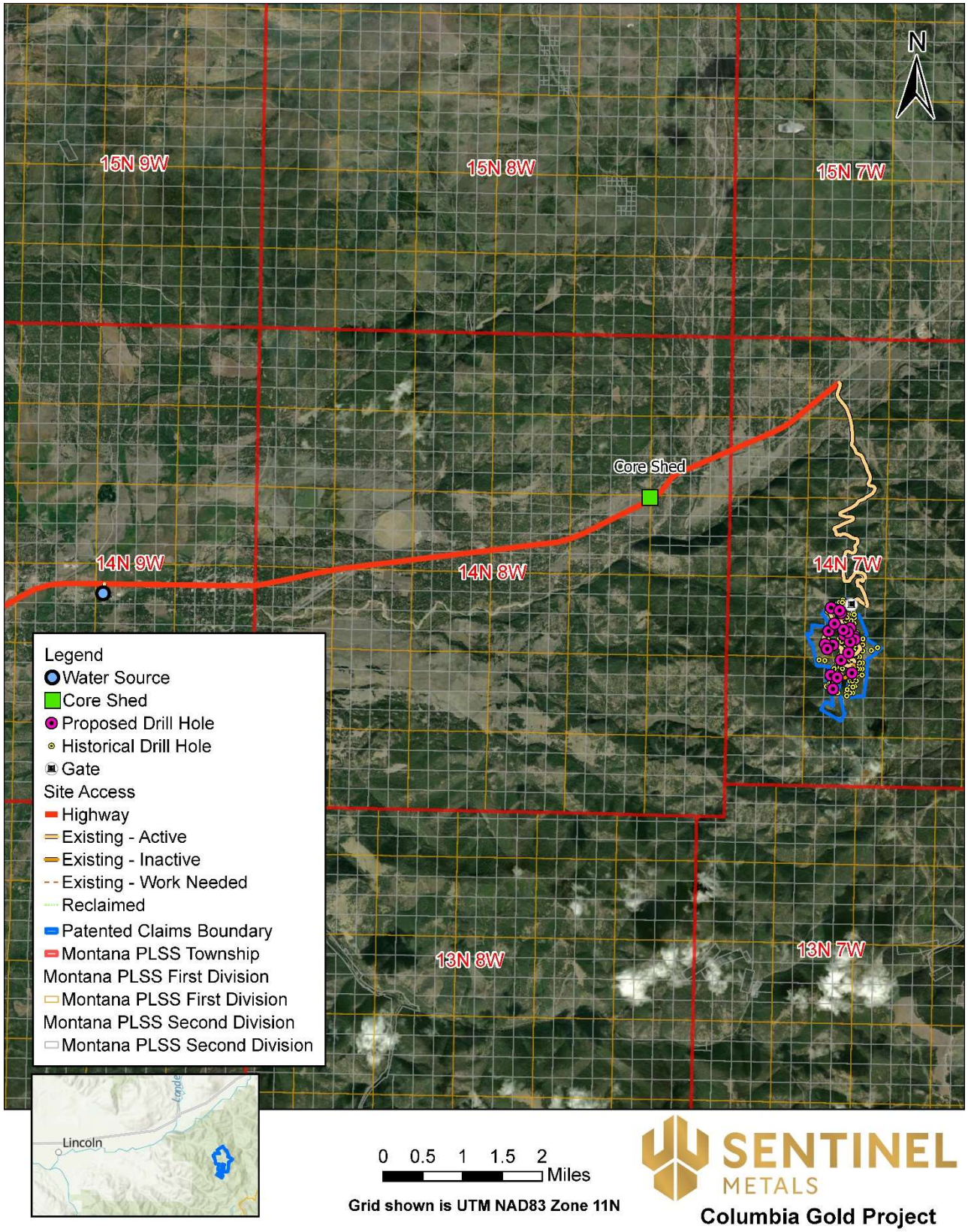


Figure 2: Map of Proposed Exploration Activities

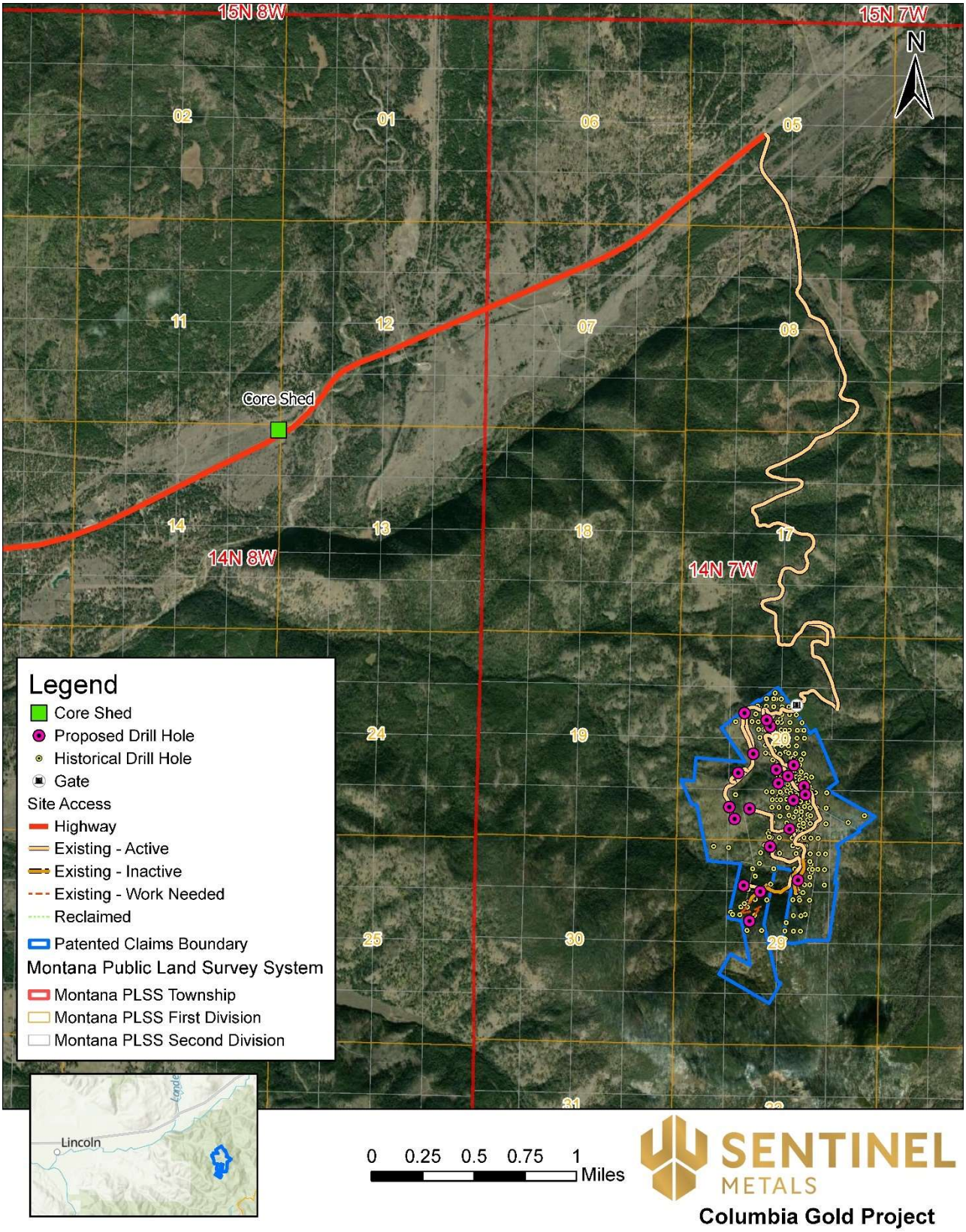
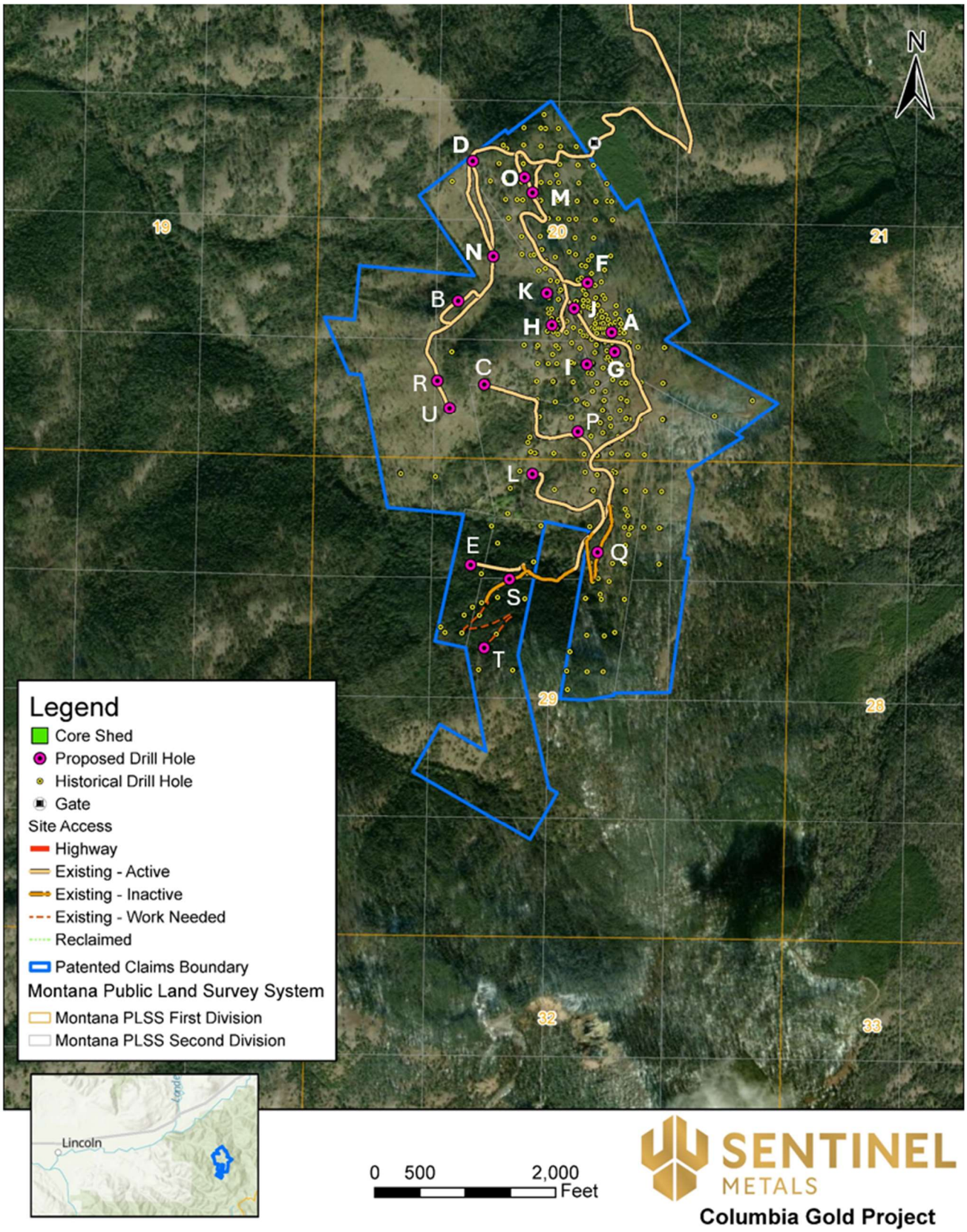


Figure 3. Map of Drill Pad and Access Route Locations.



SUMMARY OF POTENTIAL IMPACTS

The impact analysis will identify and estimate whether the impacts are direct or secondary impacts. Direct impacts occur at the same time and place as the action that causes the impact. Secondary impacts are a further impact to the Montana 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 will be described.

Cumulative impacts are the collective impacts on the Montana environment from the Proposed Action when considered in conjunction with other past and present actions related to the Proposed Action by location or 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. The projects identified in **Table 1** were analyzed as part of the cumulative impacts assessment for each resource.

1. Geology and Soil Quality, Stability, and Moisture

The area of proposed exploration would be located on private lands within the historic Lincoln Mining District, approximately 14 miles east of Lincoln, in Lewis and Clark County, Montana.

Mining District History

The Lincoln Mining District encompasses Lincoln Gulch, McClellan Gulch, Seven-Up-Pete Gulch, Keep Cool Creek, Liverpool Creek and Stonewall Mountain. Noted primarily for placer deposits, first discovered by Richard Evans and D.W. Culp in 1865, lode deposits were discovered in Seven-Up-Pete Gulch in 1886 by W.F. Howe. The most extensively developed mines in the Lincoln Mining District were the Columbia (located in the Hogum Creek sub-basin), Last Chance and Rover mines (both located in the Seven-Up-Pete sub-basin), which collectively generated approximately 12 tons of ore over a ten-year period. A mill was erected at the Last Chance mine, but no production was credited to it. Mining activity in the area had largely ceased by 1926 (Lyden 1948; Montana Bureau of Mines, undated). The historical Columbia Mine is located in the southwest quarter of Section 20, Township 14 North, Range 7 West, in Seven-Up-Pete Gulch.

In more recent history, exploration activities such as trenching and drilling were conducted by Western Energy Company under Exploration License No. 00294 as late as the 1980's. At some point in time, the project was transferred to Canyon Resources Corporation, under Exploration License No. 00466. Seven-Up Pete Joint Venture, a joint venture comprising of CR Montana Corporation and Phelps Dodge Mining Company, a division of Phelps Dodge Corporation, acquired the project and transferred the project to Exploration License No. 00497 in the early 1990's. Exploration License No. 00497 was transferred to CR Montana Corp on February 20, 2009. CR Montana Corp continued exploration activities at the site until approximately 2015. GPM acquired the Seven-Up Pete/Columbia Gold project in 2016 following bankruptcy proceedings and chose to transfer the incomplete project to Exploration License No. 00816 under GPM on October 26, 2016 after posting bond and assuming environmental liability for the project. The scope of activities performed by GPM under Exploration License No. 00816 has been referred to Amendment 1, or AMD1 of Exploration License No. 00816.

Since that time, GPM has conducted some exploration drilling and trenching under AMD1 at the Columbia Gold project area. Noxious weed management and revegetation monitoring is actively conducted at the site. Under AMD1, minor re-grading and revegetation of an approximately 6 foot by 6 foot by 5 foot depression/pit has yet to be completed.

The proposed action for AMD2 would include up to 1.53 acres of additional surface exploration drilling for the purposes of further defining mineral resources. Surface drilling under AMD2 would occupy similar ground as what has already been disturbed and reclaimed under AMD1. All disturbance would be contained within the privately owned patented lode claim boundary.

Geology

The Lincoln Mining District is noted primarily for placer deposits. The Crater Mountain volcanic complex area lies within the Elliston quadrangle, a structurally complex region along the Lewis and Clark Fault Zone at the eastern margin of the Cordilleran fold-thrust belt (McDonald et al., 2020). This zone includes major thrust faults, which reflect Late Cretaceous-Paleocene compression forces, and later-stage high-angle faults, coinciding with Eocene-Oligocene crustal extension (Foster et al., 2010; Scarberry et al., 2019).

The oldest rocks are Mesoproterozoic Belt Supergroup strata, deposited about 1,500 to 1,370 million years ago (Ma) in the Helena Embayment. This sequence, nearly 8,000 meters thick, includes siltite, argillite, quartzite and dolomitic limestones of the Greyson Formation, Ravalli Group, Piegan Group and Missoula Group (Evans et al., 2000; Winston and Sears, 2013).

Unconformably overlying these Belt rocks are Eocene-Oligocene volcanic deposits forming the Crater Mountain volcanic field. These exceeded one kilometer in thickness and record three eruptive phases: early Eocene dacite and tracyandsite flows (ca. 48-46 Ma), middle Eocene rhyolite lava and pyroclastic tuffs (~40 Ma), and late Eocene to early Oligocene alkaline mafic lavas and intrusions (~37-30 Ma) (McDonald et al., 2020). These volcanic phases reflect prolonged magmatism during regional crustal extension.

Soil Types

The majority of soils in the approximately 430 acre patented claim block/project area have a moderate erosion hazard rating, indicating that some erosion is likely and erosion-control measures may be needed (Natural Resource Conservation Service, 2025). These include:

- Argic Cryoborolls-Mollic Cryoboralfs complex, mountain ridges (16.2%, 69.3 acres),
- Typic Eutroboralfs-Typic Argborolls complex, mountain slopes (14.4%, 61.9 acres),
- Typic Cryoboralfs, Mountain slopes, steep (11.5%, 49.5 acres), and;
- Mollic Cryoboralfs, landslides (8.7%, 37.4 acres) (Natural Resource Conservation Service, 2026).

Erosion control measures may differ depending on the actual location of a drill pad within the greater project area.

The southwestern portion of the project area contains soils with a slight erosion hazard rating, indicating that erosion is unlikely under normal climatic conditions. This area is dominated by Typic Cryoboralfs, mountain slopes (49.0%, 210.2 acres) and Typic Cryochrepts, colluvial toeslopes and basins (0.1%, 0.5 acres) (Natural Resource Conservation Service, 2026). No

unusual or unstable geologic features (such as active faults, landslides, or karst features) are present, and no fragile or distinctly erosive or unstable soils are present within the patented claim block.

The analysis area for geology and soils is the approximately 430-acre patented claim block, located in Sections 20 and 29, Township 14 North, Range 7 West, in Lewis and Clark County, approximately 14 miles east of Lincoln, Montana. The Applicant must comply with the applicable local, county, state, and federal requirements for erosion control and sediment transport. The Applicant proposes the use of sediment traps as a best management practice (BMP) to mitigate erosion and sediment transport offsite.

Direct Impacts:

The proposed action would result in the displacement of soil and rock to the dimensions of constructed drill pads and sumps as described in Table 1. The applicant proposes to construct 21 drill pads and drill up to 21 drill holes, with each pad measuring about 50 feet by 35 feet and 1 foot deep, including internal sumps approximately 40 feet by 6 feet and 3 feet deep, for a total of approximately 1.53 acres of surface disturbance. Drill holes would not exceed 2,296 feet in depth, with a combined total not to exceed 14,359 feet. To support operations, the applicant proposes approximately 818 feet of overland travel, up to 12 feet wide, and one laydown area, approximately 200 feet by 100 feet and up to 1 foot deep, would be constructed. Rock would be removed during drilling, although the volume or mass of the resulting core or rock chip samples from drilling would be negligible compared to materials removed from approximately 1.53 acres of surface excavation.

Secondary Impacts:

The proposed action could result in soil disturbance and minor subsequent erosion of disturbed soil, and sediment could be transported offsite via stormwater. Surface soil disturbance could allow for the establishment of weeds. Weed control during and after exploration activities is a requirement. Noxious weeds are further addressed in “Section 4. Vegetation Cover, Quantity, and Quality”.

Cumulative Impacts:

Cumulative impacts to soil stability from the proposed action, including increased potential for soil erosion and area instability, could impact soil stability from previous exploration activities conducted under AMD1 in the area, which remains active and reclamation yet to be complete relates solely to minor regrading, revegetation and weed control. The additional disturbance of up to 1.53 acres, some on previously disturbed ground, with application of erosion-control BMPs and reclamation, is expected to make only a minor, short-term contribution to the cumulative effects on soil stability and geologic conditions and would not measurably change long term geologic or soil stability characteristics in the project area vicinity.

2. Water Quality, Quantity, and Distribution

Surface Water and Runoff:

The analysis area for water resources encompasses both the Hogum Creek drainage basin and the Seven-Up-Pete drainage basin, as well as off-site drainage pathways and potential groundwater and surface water systems that may occur beneath or downgradient of these areas (e.g., Seven-Up-Pete Creek and Hogum Creek, both tributaries of the Blackfoot River). A prominent north-south trending topographic high at about 6,320 feet above mean sea level (amsl) separates the two drainage basins. This ridgeline forms a distinct surface-water divide, causing runoff from the Hogum Creek sub-basin to generally flow east toward Hogum Creek, while drainage in the Seven-Up-Pete sub-basin primarily flows west toward Seven-Up-Pete Creek. The water supply area at GWIC well #70592, located on private land in Section 23 of Township 14 North, Range 9 West, is also included as a separate groundwater analysis area.

The western portion of the patented lode claim lies within the Seven-Up-Pete sub-basin, which drains approximately 4.6 square miles and receives a mean annual precipitation of 23 inches (Streamstats, USGS). The nearest surface water body to the project area is Seven-Up-Pete Creek, which is located 1,400 feet downgradient from drill pad site “E” (Figure 3).

The eastern portion of the patented lode claim lies within the Hogum Creek sub-basin, which drains approximately 8.2 square miles and receives a mean annual precipitation of 24 inches (Streamstats, USGS). The nearest surface water body to the project area is Hogum Creek, which is located 1,350 feet downgradient from the proposed laydown area.

Groundwater: Drill Site Areas

The Groundwater Information Center (GWIC) indicates that within the Seven-Up-Pete and Hogum Creek sub-basins, 23 well sites and boreholes are located within Sections 16-21 and Sections 28-33 of Township 14 North, Range 7 West. Of the 23 well sites and boreholes, 9 are domestic and 14 are for monitoring. The project area is characterized by its rugged, mountainous terrain. Because of this irregular topography, even short, linear distances between two points may cross a water table divide or enter an independent drainage. This effect may introduce error or affect the analysis of the water table within the project area. An interpreted water-table (potentiometric) surface was derived by DEQ for the purposes of this analysis in the exploration drilling areas based on static water levels from 12 of the 14 monitoring wells, excluding 2 monitoring wells for which static water level information was unavailable from GWIC. Based on interpreted elevations, groundwater would generally flow northeast in the project area. Any groundwater encountered at Drill Pad “M” would likely migrate in that direction. The nearest domestic well lies about 3,900 feet downgradient (northeast) and is the closest potential receptor if drilling fluids were to impact groundwater quality or conditions.

In the Seven-Up-Pete sub-basin, including drill pad sites “B”-“E”, “L”, “N” and “P”-“U” (Figure 3), the elevation of the projected water table ranges from 6,088 feet to 5,588 feet amsl. Holes drilled in this area have projected total depth elevations ranging from 5,823 feet (328 feet below ground surface) to 3,675 feet amsl (2,296 feet below ground surface), which are deeper than the interpreted static water level, indicating that groundwater is expected to be intercepted during drilling operations.

In the Hogum Creek sub-basin, including Drill Pads “A”, “F”-“K”, “M”, and “O” (Figure 3), the elevation of the water table ranges from 6,307 feet to 5,725 feet amsl. Holes drilled in this area have projected total depth elevations ranging from 6,019 feet (157 feet below ground surface) to

5,277 feet amsl (1,082 feet below ground surface), which are deeper than the interpreted static water level, indicating that groundwater is expected to be intercepted during drilling operations.

The Applicant has not proposed any special considerations regarding scenarios where drilling operations would interact with the groundwater table, but if groundwater is intercepted, the Applicant must comply with the drill hole plugging rules detailed in ARM 17.24.106 to maintain compliance.

Groundwater: Water Supply Area

The applicant proposes that proposed action water would be supplied from a domestic water well source (GWIC #70592) located on private land in Section 23 of Township 14 North, Range 9 West (46.949665°, -112.708359°). The Department of Natural Resources and Conservation (DNRC) has on file a Certificate of Water Right (#76F-13158) associated with the groundwater well (GWIC #70592), indicating a senior water right date of June 1, 1977. The appropriation is designated for industrial purposes from March 1 to November 1, inclusive, each year, and shall not exceed 85 gallons per minute or 32 acre-feet per annum. This well was drilled in May of 1977 to a total depth of 60 feet, with a static water level of 3 feet, or approximately 4,502 feet amsl. A 3-hour pump test yielded 99 gallons per minute. GWIC indicates that within an approximately one-mile buffer around the water well source, 415 well sites, 9 monitoring boreholes and 2 springs are located within Sections 13-15, and Sections 22-27 of Township 14 North, Range 9 West. Of the 424 well sites and boreholes, 307 are domestic, 16 are commercial, 8 are for fire protection, 7 are geotechnical, 2 are irrigation, 61 are for monitoring, 14 are for public water supply, 3 are for stockwater, and 6 are for undefined use. On average, wells are about 40 feet deep, with static water levels around 10 feet and average reported yields near 30 gallons per minute.

No new surface disturbance is proposed at this location, with operations consisting solely of the withdrawal of up to 1,000 gallons of water per day, which would be transported to the drill sites via water truck, and stored at the patented mining claims in two 3,000-gallon bladder tanks. Proposed action water would be used to cool and lubricate the drill bit, clean the bit-rock interface to optimize cutting performance and to carry drill cuttings out of the hole. Wet drilling also suppresses dust for safer working conditions for drilling personnel.

The patented mining claims in Sections 20 and 29, Township 14 North, Range 7 West of the project area do contain wetland, riverine, and riparian classifications, but no proposed activities are within or directly adjacent to them. (See Figure 4 below). These classifications include 1 acre of semipermanently flooded palustrine aquatic bed, 19 acres of temporarily flooded palustrine emergent, 25 acres of temporarily flooded palustrine scrub-shrub, 1 acre of upper perennial riverine and 13 acres of forested lotic riparian (MTNHP, 2026).

Figure 4. Map of the Patented Mining Claims with Wetland and Riparian Areas

Direct Impacts:

Surface Water and Runoff:
As explained above, the topographic divide between the Seven-Up-Pete and the Hogum Creek sub-basins results in different potential pathways for runoff. Precipitation and surface water would generally be expected to infiltrate into the shallow subsurface and be retained within pore spaces in the unsaturated soil or vadose zone, and potentially utilized by vegetation. Infiltrating runoff is not expected to reach the groundwater table in sufficient quantity to impact the aquifer or influence water quality beyond baseline conditions.

Surface water leaving the proposed disturbance areas during a heavy storm could carry sediment from disturbed surfaces and soil. As discussed in the section below, sumps would be constructed at each drilling location to contain recirculated drilling fluid, with reported dimensions indicating an estimated capacity of no more than 720 cubic feet (approximately 5,400 gallons) in each sump. In order to comply with ARM 17.24.105, the applicant must confine drilling fluids as well as waste cuttings from drilling operations to the drill site by the use of storage tanks or sumps or dispose of the fluids or waste in accordance with an approved plan. In the unlikely event that an inadvertent release of drilling fluid to the surface took place, it would be a violation of ARM 17.24.105 and a violation would be issued, following the regular compliance structure. Practically, the drilling fluids would not be handled similarly to a fuel or water release. The drilling fluids would likely act as a thin mud or paste with increased viscosity (i.e., decreased fluidity), and would likely be contained within the drill pad area by the stormwater and sediment controls. The Applicant proposes the use of BMPs such as sediment traps to mitigate fugitive sediment transport and plastic liners, secondary containment, and spill prevention and response kits to maintain surface water quality.

Groundwater:
Surface elevations in the Seven-Up-Pete sub-basin from 5,756 feet to 6,217 feet amsl, while the Hogum Creek sub-basin, the surface elevations range from 6,160 feet to 6,411 feet amsl. The Applicant proposes drilling to a maximum depth of 2,296 feet from the surface. Except for potentially shallow drillholes, it is expected that groundwater would be encountered during drilling operations. However, the hydrologic setting (i.e., the distance between groundwater and the surface, in a transmissive unconfined aquifer) indicates that artesian flow would not be expected to occur from the drillholes, eliminating the potential impacts from uncontrolled flow of groundwater and groundwater-containing drilling fluids coming back up to the surface.

Under the proposed drilling activity, it would be necessary to use water or some type of drilling fluid to cool the drill bit, to lubricate the advancing hole, and to remove cuttings from the bit face up to the surface. Current practice in the drilling industry is to use one or more types of synthetic polymer or mud products to increase the viscosity of water. The proposed drilling fluids are classified as synthetic based drilling muds, because the polymer component is often made from synthetic organic compounds like esters, ethers, or olefin isomers. Compared to traditional water or oil-based fluids, the synthetic polymers provide high drilling efficiency, while exhibiting low toxicity and they degrade to environmentally benign products (Burke and Veil, 1995). These regulated, commercially-supplied additives are non-toxic and biodegradable, and are unlikely to compromise the water quality of groundwater encountered during drilling.

All exploration drill holes would be required to be reclaimed in accordance with ARM 17.24.106, which includes plugging with bentonite or a similar compound from the bottom of the hole to within five to ten feet of the surface, and with cement from the top of the bentonite to the surface. The proposed surface drilling activity, and the resulting drillholes prior to plugging, are unlikely to influence the elevation or the quality of groundwater.

Drill sumps, 40 feet x 6 feet x 3 feet depressions, would be constructed at each surface drilling location to contain recirculated drilling fluid, with reported dimensions indicating an estimated capacity of no more than 720 cubic feet (approximately 5,400 gallons) in each sump. Each sump would likely contain fine sediment produced by drilling and the drilling fluid would consist primarily of the fresh water sourced from the private water supply and any drilling fluid additives proposed, which may include: polymer, foam, mud, lost circulation material, and rod lube.

Drill sumps containing drilling fluid would be allowed to evaporate or pumped dry, and the drilling fluids would be transported and repurposed for continuous use at the next planned drill sump location. The last drill sumps in use would be allowed to dry and the plastic liners removed and disposed of before recontouring the drill pads to match adjacent undisturbed lands.

Due to the thick sequence of unsaturated bedrock between the surface and groundwater table (approximately 100 to 130 feet below surface), in the unlikely event that any fluids from the drilling sumps infiltrates into the vadose zone (unsaturated rock), the fluids would not reach groundwater or significantly affect the groundwater elevation or water quality as they would likely be attenuated by the unsaturated pore space.

Proposed Action Water Source:
The proposed activities at the water source (GWIC #70592) include the withdrawal of up to 1,000 gallons of water per day and filling a water transport truck to convey water from the source location to the drilling project area.

The transfer of fresh water from the water source to the transport truck would have similar impacts to surface water runoff from a stormwater producing event, as described above. The transfer of water would be controlled by piping and valving at the water source.

The withdrawal of up to 1,000 gallons of water per day from the water source (a private domestic well), would represent new demand for the well and the valley-bottom aquifer that it accesses, but this volume would be minor and/or insignificant compared to the regular daily demand by residences and commercial uses and the size of the aquifer.

The applicant is required to comply with the applicable local, county, state, and federal requirements pertaining to water quality.

Secondary Impacts:

Storm water impacting the sites during a precipitation event would generally be expected to infiltrate into the subsurface, however, storm water leaving the sites could carry sediment from the disturbed soils and non-sediment contaminants from drilling operations. The applicant proposes the use of plastic liners, secondary containment, spill prevention/response kits and

sediment traps as BMPs to mitigate erosion and transport of sediment and non-sediment contaminants off-site.

Cumulative Impacts:

Cumulatively, the proposed exploration drilling could add a small, temporary increment of disturbance to a watershed already affected by historical mining in the Seven-Up-Pete and Hogum Creek sub-basins. Because the proposed action would disturb only a limited area on or near previously disturbed ground, implement erosion and sediment-control BMPs, proposes to use drilling fluids managed in lined sumps and reused between pads, reclaim all drill holes in accordance with ARM 17.24.106, and obtain up to approximately 1,000 gallons per day of water from an existing domestic well rather than develop new water sources, its contribution to cumulative impacts on surface-water and groundwater quality is expected to be minor and not significant.

3. Air Quality

The Scapegoat Wilderness is the closest Class 1 Airshed to the project site, at 11 miles due northwest. The immediate area complies with the National Ambient Air Quality Standards. This proposed action would not be expected to impact the immediate areas airshed.

The Applicant proposes to reduce speed while traveling and to maintain factor emissions controls on all equipment and vehicles as BMPs to minimize impacts to air quality. Wet drilling would suppress dust for safer working conditions for drilling personnel. The Applicant is required to obtain any other necessary permits related to air quality as required by state, local, and federal law.

Direct Impacts:

Dust particulates could be produced or become airborne during exploration and reclamation operations. Mechanized equipment would produce some exhaust fumes. Dust could also be produced while traveling along existing roads to and from the project area. The Applicant would be expected to maintain compliance with ARM 17.8.308, requiring the need to take reasonable precautions to control airborne particulate matter.

Although the proposed action could result in fugitive dust and equipment exhaust, it would not be expected to impact the Scapegoat Wilderness Class 1 Airshed due to the small scale of activity and distance between the proposed action and the airshed, in conjunction with implementation of BMPs.

Secondary Impacts:

No secondary impacts to air quality would be expected from the proposed action.

Cumulative Impacts:

Cumulative impacts to air quality from the proposed action could add to impacts from existing traffic and general recreational activities in the greater project area in the use of public lands in the vicinity of the proposed action.

4. Vegetation Cover, Quantity, and Quality

Land cover in the approximately 430-acre patented claim block mapped using the Montana Natural Heritage Program varies and is dominantly classified as Rocky Mountain Lodgepole Pine forest (39%, 1,977 acres), Rocky Mountain montane Douglas-fir forest and woodland (35%, 1,777 acres), Rocky Mountain Ponderosa pine woodland and savanna (7%, 373 acres), insect-killed forest (5%, 272 acres), montane sagebrush steppe (5%, 275 acres) (MTNHP, 2026).

Table 2. Montana Natural Heritage Project Environmental Summary- Species Occurrence and Potential Occurrence.

Documented	MT Status	Species Group	Common Name	Scientific Name	Habitat	Distribution	USFS	USFS_HLC	BLM
Occurrences	PSOC	Vascular Plants	Austin's Knotweed	Polygonum austiniae	Rock/Talus	Present	SENSITIVE; SCC	SCC	
Occurrences	SOC	Birds	American Goshawk	Astur atricapillus	Mixed conifer forests	Resident Year Round			
Occurrences	SOC	Birds	Flammulated Owl	Psiloscops flammeolus	Dry conifer forest	Migratory Summer Breeder	SENSITIVE; SCC	SCC	SENSITIVE
Occurrences	SOC	Birds	Pacific Wren	Troglodytes pacificus	Moist conifer forests	Resident Year Round			
Occurrences	SOC	Fish	Westslope Cutthroat Trout	Oncorhynchus lewisi	Mountain streams, rivers, lakes	Resident Year Round	SENSITIVE; SCC	SCC	SENSITIVE
Occurrences	SOC	Mammals	Wolverine	Gulo gulo	Boreal Forest and Alpine Habitats	Resident Year Round	SENSITIVE		THREATENED
Occurrences	SOC	Mammals	Canada Lynx	Lynx canadensis	Subalpine conifer forest	Resident Year Round			THREATENED
Occurrences	SOC	Mammals	Grizzly Bear	Ursus arctos	Generalist	Resident Year Round			THREATENED
Occurrences	SOC	Mammals	Fisher	Pekania pennanti	Mixed conifer forests	Resident Year Round	SENSITIVE		SENSITIVE

Documented	MT Status	Species Group	Common Name	Scientific Name	Habitat	Distribution	USFS	USFS_HLC	BLM
Other Potential Species	PSOC	Birds	Boreal Owl	Aegolius funereus	Conifer forest	Resident Year Round			
Other Potential Species	PSOC	Birds	Great Gray Owl	Strix nebulosa	Conifer forest near open meadows	Resident Year Round			SENSITIVE
Other Potential Species	PSOC	Birds	Rufous Hummingbird	Selasphorus rufus	Riparian shrub	Migratory Summer Breeder			
Other Potential Species	PSOC	Birds	Western Screech-Owl	Megascops kennicottii	Riparian forest	Resident Year Round			
Other Potential Species	PSOC	Birds	Ovenbird	Seiurus aurocapilla	Deciduous forest	Migratory Summer Breeder			
Other Potential Species	PSOC	Invertebrates	Indiscriminate Cuckoo Bumble Bee	Bombus insularis	Alpine, montane meadows, shrubsteppe, prairie grassland	Resident Year Round			
Other Potential Species	PSOC	Mammals	Dwarf Shrew	Sorex nanus	Rocky habitat	Resident Year Round			
Other Potential Species	PSOC	Mammals	North American Porcupine	Erethizon dorsatum	Mixed forest	Resident Year Round			
Other Potential Species	PSOC	Vascular Plants	Hare's foot Locoweed	Oxytropis lagopus var. conjugans	Sagebrush (low elevation)	Present			
Other Potential Species	PSOC	Vascular Plants	Roundleaf Sundew	Drosera rotundifolia	Fens	Present			
Other Potential Species	PSOC	Vascular Plants	Small Yellow Lady's-slipper	Cypripedium parviflorum	Fens, damp mossy woods, seepage areas, and moist forest-meadow ecotones	Present	SENSITIVE; SCC	SCC	
Other Potential Species	PSOC	Vascular Plants	Rydberg's Parsley	Musineon vaginatum	Stony, usually calcareous, soil or talus in open, often Douglas-fir forest and woodlands	Present			
Other Potential Species	SOC	Birds	Cassin's Finch	Haemorhous cassinii	Drier conifer forest	Resident Year Round			
Other Potential Species	SOC	Birds	Clark's Nutcracker	Nucifraga columbiana	Conifer forest	Resident Year Round	SCC		
Other Potential Species	SOC	Birds	Evening Grosbeak	Coccothraustes vespertinus	Conifer forest	Resident Year Round			
Other Potential Species	SOC	Birds	Pileated Woodpecker	Dryocopus pileatus	Moist conifer forests	Resident Year Round			
Other Potential Species	SOC	Birds	Black-backed Woodpecker	Picoides arcticus	Conifer forest burns	Resident Year Round	SENSITIVE		SENSITIVE
Other Potential Species	SOC	Birds	Varied Thrush	Ixoreus naevius	Moist conifer forests	Migratory Summer Breeder			
Other Potential Species	SOC	Birds	Harlequin Duck	Histrionicus histrionicus	Mountain streams	Migratory Summer Breeder	SENSITIVE		
Other Potential Species	SOC	Birds	Green-tailed Towhee	Pipilo chlorurus	Shrub woodland	Migratory Summer Breeder			
Other Potential Species	SOC	Birds	Veery	Catharus fuscescens	Riparian forest	Migratory Summer Breeder			SENSITIVE
Other Potential Species	SOC	Birds	Sprague's Pipit	Anthus spragueii	Grasslands	Migratory Summer Breeder			SENSITIVE
Other Potential Species	SOC	Fish	Bull Trout	Salvelinus confluentus	Mountain streams, rivers, lakes	Resident Year Round			THREATENED
Other Potential Species	SOC	Invertebrates	Western Bumble Bee	Bombus occidentalis	Urban, montane/steppe grassland and shrubland	Resident Year Round	SENSITIVE		SENSITIVE
Other Potential Species	SOC	Invertebrates	Suckley's Cuckoo Bumble Bee	Bombus suckleyi	Montane/steppe grassland and shrubland	Resident Year Round			
Other Potential Species	SOC	Invertebrates	Western Pearlshell	Margaritifera falcata	Mountain streams, rivers	Resident Year Round	SENSITIVE; SCC	SCC	SENSITIVE
Other Potential Species	SOC	Mammals	Long-eared Myotis	Myotis evotis	Forest	Resident Year Round			
Other Potential Species	SOC	Mammals	Silver-haired Bat	Lasionycteris noctivagans	Riparian and forest	Resident Year Round			
Other Potential Species	SOC	Mammals	Northern Hoary Bat	Lasiurus cinereus	Riparian and forest	Migratory Summer Breeder			SENSITIVE
Other Potential Species	SOC	Mammals	Western Pygmy Shrew	Sorex eximius	Open conifer forest, grasslands, and shrublands, often near water	Resident Year Round			
Other Potential Species	SOC	Mammals	Long-legged Myotis	Myotis volans	Conifer forest	Resident Year Round			
Other Potential Species	SOC	Mammals	Little Brown Myotis	Myotis lucifugus	Generalist	Resident Year Round	SENSITIVE		
Other Potential Species	SOC	Mammals	Townsend's Big-eared Bat	Corynorhinus townsendii	Caves in forested habitats	Resident Year Round	SENSITIVE		SENSITIVE
Other Potential Species	SOC	Mammals	Fringed Myotis	Myotis thysanodes	Riparian and dry mixed conifer forest	Resident Year Round			SENSITIVE
Other Potential Species	SOC	Vascular Plants	Floriferous Monkeyflower	Mimulus floribundus	Vernally moist cliffs and streambanks	Unknown			
Other Potential Species	SOC	Vascular Plants	Wavy Moonwort	Botrychium crenulatum	Various Mesic Sites	Present	SENSITIVE; SCC	SCC	
Other Potential Species	SOC	Vascular Plants	Letterman's Needlegrass	Stipa lettermanii	Talus and Grasslands (low-elevation)	Present	SCC	SCC	
Other Potential Species	SOC	Vascular Plants	Lanceleaf Moonwort	Botrychium lanceolatum	A variety of habitats, generally at high elevations	Present	SENSITIVE		
Other Potential Species	SOC	Vascular Plants	Least Moonwort	Botrychium simplex	Montane mesic meadows, grasslands, and disturbed sites	Present	SENSITIVE		
Other Potential Species	SOC	Vascular Plants	Small-winged Sedge	Carex stenoptila	Grasslands (Montane)	Present			
Other Potential Species	SOC	Vascular Plants	Whitebark Pine	Pinus albicaulis	Subalpine forest, timberline	Present	SENSITIVE		THREATENED
Other Potential Species	SOC	Vascular Plants	Western Joepye-weed	Ageratina occidentalis	Rock/Talus	Present	SENSITIVE		
Other Potential Species	SOC	Vascular Plants	Stalked Moonwort	Botrychium pedunculosum	Forests (Mesic bottmlands)/Open sites	Present	SENSITIVE; SCC		
Other Potential Species	SOC	Vascular Plants	Wood Lily	Lilium philadelphicum	Moist, usually calcareous, soils in meadows, grasslands, fens, and woodlands	Present			
Other Potential Species	SOC	Vascular Plants	Flatleaf Bladderwort	Utricularia intermedia	Fens (Aquatic)	Present	SENSITIVE		
Other Potential Species	SOC	Vascular Plants	Musk-root	Adoxa moschatellina	Rock/Talus	Present	SENSITIVE; SCC	SCC	
Other Potential Species	SOC	Vascular Plants	Upward-lobed Moonwort	Botrychium ascendens	Various Mesic Sites	Present	SENSITIVE		
Other Potential Species	SOC	Vascular Plants	Peculiar Moonwort	Botrychium paradoxum	Meadows (Mesic Montane/Subalpine)	Present	SENSITIVE; SCC	SCC	SENSITIVE
Other Potential Species	SOC	Vascular Plants	Panic Grass	Dichanthelium acuminatum	Wet soils around edges of hot springs	Present			
Other Potential Species	SOC	Vascular Plants	Water Bulrush	Schoenoplectus subterminalis	Wetland/Riparian	Present	SENSITIVE; SCC	SCC	
Other Potential Species	SSS	Birds	Bald Eagle	Haliaeetus leucocephalus	Riparian forest	Resident Year Round	SENSITIVE		SENSITIVE

A search of MTNHP in the project area identified vascular plant habitat and potential habitat for 16 Species of Concern (SOC) and 5 Potential Species of Concern (PSOC). The USFS Species of Conservation Concern in Forests search identified 14 species as sensitive. The BLM has classified 1 vascular plant as sensitive and 1 as threatened. (See Table).

Noxious weeds have been observed in the project area during previous DEQ inspections, including some varieties of mullein, knapweed, thistle, and hound's-tongue.

Direct Impacts:

The vegetation cover as described above would be removed or disturbed within the approximately 1.53 acres of surface disturbance proposed. Exploration activities that could affect the vegetation cover, quantity, and quality include the grubbing, scraping, trampling, and removal of vegetative cover not already affected by previous actions to develop drill pads, drill sumps, overland travel, and other proposed action disturbances related to exploration activities.

Secondary Impacts:

Land disturbance at the site and overland travel between drill sites may result in the propagation of noxious weeds. Any surface disturbances would be reclaimed and seeded with a weed-free seed mix. The project area would be subject to the 2017 Montana Noxious Weed Management Plan and any additional measures required by the Lewis and Clark County Weed Control Board. Weed control is a condition of an exploration license, and the applicant would be required to mitigate the spread of noxious weeds.

Cumulative Impacts:

Cumulative impacts on vegetation cover, quantity, and quality from the proposed action could add to existing impacts from existing roads and from previous exploration activities conducted under AMD1 within the project area. Reclaimed areas are expected to re-establish cover comparable to surrounding disturbed lands.

5. Terrestrial, Avian, and Aquatic Life and Habitats

The approximately 430-acre patented claim block is not located within core, general, or connectivity habitat for sage grouse. The proposed action has the potential to temporarily displace species occurring within the proposed disturbance area for six to eight weeks during exploration activities. Common wildlife, such as birds, mammals, amphibians, and invertebrates, may utilize the project area and could be temporarily displaced while machinery and equipment are used for excavation, drilling and transport of proposed action materials. Displaced wildlife are expected to find other suitable habitats in the surrounding undeveloped, national forest land and may return to the project area following completion of exploration and reclamation activities.

Direct Impacts:

Impacts on terrestrial, avian, and aquatic life and habitats may include increased ambient noise levels from the drilling equipment and temporary displacement of wildlife within the project area. Impacts to noise levels are further discussed in "Section 8. Aesthetics."

Wildlife could experience increased orientation or disorientation from additional illumination and be attracted to or repulsed by the increased light glare. This increased light could affect foraging, reproduction, communication, and other behaviors (Longcore and Rich, 2004). Any impacts that could occur to terrestrial, avian and aquatic life due to lighting impacts would last for the duration of low light activities under the proposed action.

Secondary Impacts:

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

Cumulative Impacts:

No cumulative impacts to terrestrial, avian, and aquatic life and habitats would be expected because terrestrial and avian life could relocate and return.

6. Unique, Endangered, Fragile, or Limited Environmental Resources

A search of MTNHP in the project area identified bird, invertebrate, fish and mammal habitats and potential habitats for 30 Species of Concern (SOC), 8 Potential Species of Concern (PSOC) and 1 Species of Special Status (SSS). The USFS Species of Conservation Concern in Forests search identified 12 species as sensitive. The BLM has classified 13 species as sensitive and 4 as threatened. (See Table). Habitat within the approximately 430-acre patented claim block is common throughout the larger ecosystem, and any displaced animal could find other suitable habitats in the surrounding undeveloped, national forest land and return to the project area after the proposed action's conclusion.

Direct Impacts:

Impacts to other unique, endangered, fragile, or limited environmental resources could include increased ambient noise levels from drilling operations and temporary displacement of susceptible animals in the project area. The potential impacts are limited and short-term as the activity described in the proposed action consists of primarily of minor construction related activities and the operation of one drill rig and the associated operational equipment for six to eight weeks at the project area. The proposed action would not impact wildlife habitat that is uncommon or limited as the 1.53 acres of disturbance is comparable to the remaining habitat within the approximately 430 acre privately owned claim block and the surrounding adjacent public lands. Impacts to noise levels are further discussed in “Section 8. Aesthetics.” The proposed action is not proposing to disturb wetlands or riparian habitat.

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 would be expected.

Cumulative Impacts:

No cumulative impacts to unique, endangered, fragile, or limited environmental resources would be expected.

7. Historical and Archaeological Sites

The Montana Cultural Resource Database under SHPO indicates that there are inventoried and historical sites within Sections 20 and 29, Township 14 North, Range 7 West.

The State Historic Preservation Office (SHPO) stated that there are a few previously recorded historic sites located within the proposed exploration boundary areas. A total of 19 Historic Properties are located within or near the approximately 430-acre patented claim block. Historic Properties are sites that are eligible for or potentially eligible for listing on the National Register of Historic Places (NRHP). Seventeen sites are listed as Undetermined, 1 is listed as Eligible to the NRHP, and 1 site is listed as Ineligible to the NRHP.

Based on these previously recorded sites, and the ground disturbance required by this undertaking, SHPO feels that this proposed action has the potential to impact historic resources. SHPO therefore recommends that each record be updated, and a formal determination of eligibility be made prior to any disturbance taking place.

The proposed action is occurring on private land and would be the property of the Applicant.

Direct Impacts:

If there is to be any disturbance to the 1 listed Eligible site, it may be considered an effect to a historic resource. Unidentified cultural or historic resources could be disturbed by exploration activities. If any structures are within the disturbance area, 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.

Secondary Impacts:

No secondary impacts on historical or archaeological sites would be expected from the proposed action.

Cumulative Impacts:

No cumulative impacts on historical and archaeological resources would be expected from the proposed action.

8. Aesthetics

The proposed activities would occur on a privately owned, approximately 430-acre patented claim block. The project area is located adjacent to public US Forest Service (USFS) roads throughout the greater Crater Mountain area, however the area is sparsely populated, typical to the rural mountainous setting in the adjacent lands. The project area could be visible to the public traveling along local, unpaved USFS roads. There would be no permanent change to the topography or the viewshed. Noise associated with the proposed action may be heard where sound related to the proposed action has not been fully diminished by distance or another sound-dampening feature.

An existing offsite processing facility located at 5605 Martin Drive, Lincoln, MT 59639 is visible from US Highway 200. However, all core processing activities would be conducted indoors away from public view.

The Applicant proposes to perform 2, 12-hour shifts, 24 hours a day. Two trailer mounted portable light plants (Allmand Night-Lite Pro or equivalent) would be deployed at the project area as necessarily for low light operations during the operational hours of 4:00pm – 8:00 am daily. Light pollution controls proposed include the use of downward-facing, shielded lights and directional lighting.

Portable light towers are widely used on a variety of construction sites. The primary advantages of portable lights are their ability to be positioned at different sections within and across the work zone. The mounting heights typically range from six feet to a fully extended 30 feet and the light pole is usually rotatable 360 degrees. Other lighting systems used that could be used during operation would be lights on headlights from equipment and trucks (Nafakh, Davila, Zhang, et. Al, 2022).

Light impacts can be described in several forms. These forms of light impacts are described as spill light, glare, and sky glow. Spill light or stray light is the amount of light that leaves a specific site. Spill light can be controlled by taking measurement of vertical illuminance at the property boundary line or the edge of the road allowance (Nafakh, Davila, Zhang, et. al, 2022). Glare is the light that shines horizontally. Sky glow is a term that refers to the increased sky brightness caused by electric light scattering into the atmosphere, most notably from outdoor lighting in urban areas (Nafakh, Davila, Zhang, et. al, 2022).

Direct Impacts:

The proposed action could be temporarily visible to or heard by the sparsely populated surrounding area and to receptors located at observation points that are unobstructed by topography or forested vegetation. The sites could be visible from portions of: US Highway 200, and Forest Roads 1825 and 1841, and Forest Trail 499, in the vicinity of the drill pads. Aesthetic impacts from exploration and reclamation activities would include views of heavy equipment like the drill rig, excavations, passenger vehicles, and miscellaneous equipment related to drilling and transporting core drilling. Light from light towers may be visible to receptors during low-light operations. Noise associated with the proposed action could be heard where sound related to the proposed action has not been fully diminished by distance or another sound dampening feature. Sources of noise could include the operation of heavy equipment, construction activities, and travel. Final reclamation would be required within 2 years of completion of the proposed action.

Secondary Impacts:

No secondary impacts to area aesthetics would be expected from the proposed action.

Cumulative Impacts:

Cumulatively, the proposed action would add a short-term increment of visible equipment, construction activity, lighting, and noise in the project area, within a landscape effected by travel and previous exploration activities conducted under AMD1 in the area. These visual and noise effects are expected to be minor and temporary, with final reclamation required within two years after exploration concludes.

9. Demands on Environmental Resources of Land, Water, Air, or Energy

Proposed action water would be supplied from an existing water well (GWIC #70592) located on private land in Section 23 of Township 14 North, Range 9 West (46.949665°, -112.708359°). The applicant estimates that up to 1,000 gallons per day may be used. Water would be transported to the project area via water trucks. No other local land, water, air, or energy resources would be used as part of this project.

Direct Impacts:

The proposed action would consume up to 1,000 gallons of water per day during drilling activities, a resource that is not limited in the surrounding area. No direct impacts of land, air or energy are expected from this proposed action.

Secondary Impacts:

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

Cumulative Impacts:

Cumulatively, the proposed action's use of up to 1,000 gallons of water per day of well water would add a small increment to existing demands on the water table, and to water use associated with residential and commercial development in the area of the private well, and is not expected to measurably affect overall water availability or water table capacity. No additional cumulative impacts on the environmental resources of land, air or energy are expected from the proposed action.

10. Impacts on Other Environmental Resources

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

- Montana Department of Natural Resource and Conservation (DNRC)
- Montana Department of Environmental Quality (DEQ)
- Montana Department of Transportation (MDT)
- Lewis and Clark County
- United States Department of Interior, Bureau of Land Management (BLM)
- United States Forest Service (USFS)

Direct Impacts:

No direct impacts on other environmental resources would be expected from the proposed action.

Secondary Impacts:

No secondary impacts on other environmental resources would be expected from the proposed action.

Cumulative Impacts:

No cumulative impacts to other environmental resources would be expected from the proposed action.

11. Human Health and Safety

The Applicant would be required to adhere to all applicable state and federal safety laws. Exploratory drilling 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. The proposed action would occur on private land with no access to the general public.

Direct Impacts:

Direct impacts to human health and safety to the Applicant's exploration staff could occur from this proposed action, however compliance with OSHA standards would substantially reduce risk. The respiration of exhaust fumes and the ingestion of dust generated by equipment during exploration operations and reclamation would be minimized with proper personal protection equipment. Increases in operation-related traffic would likely occur. The daily traffic that would be leaving the site could vary greatly.

Secondary Impacts:

Fugitive dust that leaves the project area and is not dispersed by air movement could be deposited near the project area, which could cause irritation with varying degrees of severity to receptors who come into contact with that dust. ARM 17.8.308 would require the applicant to take reasonable precautions to control airborne particulate matter.

Dust impacts from the proposed action would be mitigated by implementing wet drilling.

Cumulative Impacts:

No cumulative impacts on human health and safety would be expected from the proposed action.

12. Industrial, Commercial, and Agricultural Activities and Production

The proposed action would occur on land that has been impacted by previous exploration activities conducted under AMD1 in the area.

Direct Impacts:

No direct impacts on industrial, commercial, and agricultural activities and production in the area would be expected from the proposed action.

Secondary Impacts:

No secondary impacts to industrial, commercial, and agricultural activities and production in the area would be expected from the proposed action.

Cumulative Impacts:

No cumulative impacts to industrial, commercial, and agricultural activities and production in the area would be expected from the proposed action.

13. Quantity and Distribution of Employment

Existing employees would likely be utilized for this operation at the patented claim block and offsite processing facility, but the Application did not state whether additional employees would be hired or not. It is not anticipated that this proposed action would create, move, or eliminate jobs.

Direct Impacts:

Direct impacts on quantity and distribution of employment would not likely result from this proposed action. The proposed action plan calls for several limited-duration contracted and otherwise employed people at the site. No lasting positive or negative impacts to employment would be expected from this proposed action.

Secondary Impacts:

No secondary impacts to quantity and distribution of employment would be expected from the proposed action.

Cumulative Impacts:

No cumulative impacts on the quantity and distribution of employment would be expected from the proposed action.

14. Local and State Tax Base and Tax Revenues

The proposed action would have a limited increase in tax revenue related primarily to payroll taxes from the proposed action and the purchase of some local goods and services.

Direct Impacts:

Some limited benefit to the local and state economy could result from this proposed action through wages, withholding taxes, and local spending by workers and the company. However, due to the short-term nature of the proposed action, only minimal tax revenue from income, property, or gross receipts is expected.

Secondary Impacts:

No secondary impacts to local and state tax base and tax revenues would be expected from the proposed action.

Cumulative Impacts:

The proposed action would provide only a small, temporary addition to the existing local and state tax base associated other economic activity in the Lincoln, MT area, and no notable cumulative impacts on local or state tax revenues are expected from the proposed action.

15. Demand for Government Services

The proposed action would be located on private lands using private, and public access roads and would add a minimal amount of traffic to existing roads in the immediate project area. The applicant proposed that one round-trip per day would be made from the proposed action water source, located at 1644 Thompson Road, Lincoln, MT 59639, to the Columbia Gold Project site, which would include a water truck travelling along Montana Highway 200 for approximately 10 miles, and West Hogum Creek road for a distance of 4.7 miles. Additionally, round-trips would be made as necessary in passenger vehicles to transport drill core from the Columbia Gold project area to the core processing facility located at 5605 Martin Drive, Lincoln MT, 59639, approximately 7.5 miles one-way from the project site along the roadways previously identified.

Site access would rely on existing public access roads and existing roads on private lands. All operations would be subject to local, seasonal restrictions as they apply.

Direct Impacts:

Some impacts on the demand for government services could result from this proposed action through increased vehicle traffic on local roadways.

Secondary Impacts:

No secondary impacts to the demand for government services would be expected from the proposed action.

Cumulative Impacts:

No cumulative impacts to demand on government services would be expected from the proposed action.

16. Locally Adopted Environmental Plans and Goals

The proposed action would occur on public and private lands. The project area would be subject to any plans or rules set forth by USFS, Lewis and Clark County, the 2017 Montana Noxious Weed Management Plan.

DEQ is aware of the following policies and plans:

- The Lincoln Planning Area Growth Policy
- Blackfoot Drought Response Plan
- Blackfoot Subbasin Plan
    - Blackfoot River Watershed Restoration Pan
- Hogum Wildfire Resilience Project – USFS Lincoln Ranger District
- Blackfoot Non-winter Travel Plan – USFS Lincoln Ranger District

None of the above listed plans would impact the issuance of an exploration license as long as the application complies with the requirements of the MMRA. The applicant would be required to comply with all laws and to obtain all required permits, licenses, or approvals for operation.

Direct Impacts:

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

Secondary Impacts:

No secondary impacts from or to locally adopted environmental plans and goals would be expected because of the proposed action.

Cumulative Impacts:

No cumulative impacts from or to locally adopted environmental plans and goals would be expected from the proposed action.

17. Access to and Quality of Recreational and Wilderness Activities

The proposed action would occur on private land accessed via existing USFS roads. West Hogum Creek Road (FR #1841), from Highway 200 to the locked gate at the patented claim block boundary, is presently open year-round for access without a special use permit, under the current Blackfoot Non-Winter Travel Plan for the Lincoln Ranger District. Additional road use permits may be required by the USFS to traverse public land parcels adjacent to the patented claim block should any be identified. The proposed action is located near the terminus of a USFS road and there are no designated wilderness areas in the immediate vicinity, and there are no maintained formal access points to recreational opportunities on USFS lands within or adjacent to the project area.

The preexisting offsite processing facility is also located on private land and would be accessed via US Highway 200.

Direct Impacts:

The proposed action would occur on private lands surrounded by National Forest land managed by the United States Forest Service. No impacts to the access of recreational activities are expected. A commonly desired quality of public lands used by recreationists is the isolation and distance from human activity. The quality of recreational activities within the immediately surrounding National Forest lands could be impacted similarly in scale, quality, and duration as the impacts described in Section 8. “Aesthetics”.

Secondary Impacts:

No secondary impacts to the access and quality of recreational opportunities would be expected from the proposed action.

Cumulative Impacts:

Cumulatively, the proposed action would add impacts similar to those described in Section 8. “Aesthetics”. These visual and noise effects are expected to be minor and temporary, with final reclamation required within two years after exploration concludes.

18. Density and Distribution of Population and Housing

Lincoln is a town in Lewis and Clark County, MT, and had a population of approximately 1,230 people as of the 2020 census conducted by the United States Census Bureau. Lewis and Clark County had a population of approximately 70,973 as of the 2020 Census.

Direct Impacts:

Due to the short-term project duration and the temporary nature of the proposed action, no impact to population density and housing would be expected from this proposed action.

Secondary Impacts:

No secondary impacts to population density and housing would be expected from the proposed action.

Cumulative Impacts:

No cumulative impacts to population density and housing would be expected from the proposed action.

19. Social Structures and Mores

The proposed action would occur entirely on a privately owned patented claim block in an area that has been subject to mining and other industrial activities since the 1800's. The surrounding areas contain a mix of sparse residential and undeveloped national forest use, and the proposed short-term exploration would be consistent with this existing character. Due to the short-term project duration and location on previously disturbed land, it is not anticipated that this proposed action would disrupt native or traditional lifestyles or communities.

Direct Impacts:

No direct impacts on social structures and mores would be expected from the proposed action.

Secondary Impacts:

No secondary impacts on social structures and mores would be expected from the proposed action.

Cumulative Impacts:

No cumulative impacts to social structures and mores would be expected from the proposed action.

20. Cultural Uniqueness and Diversity

The proposed action would be conducted in an area that has been affected by historical mining and recent exploration activities, and the surrounding area already contains a mix of residential and mining-related uses. Given the proposed action's small scale, short duration, and location on previously disturbed private land, it is not expected to alter the cultural character, uniqueness, or diversity of the affected communities.

Direct Impacts:

It is not anticipated that this proposed action would cause a shift in some unique quality of the area. No direct impacts to cultural uniqueness and diversity would be expected from the proposed action.

Secondary Impacts:

No secondary impacts to cultural uniqueness and diversity would be expected from the proposed action.

Cumulative Impacts:

No cumulative impacts to cultural uniqueness and diversity would be expected from the proposed action.

21. Private Property Impacts

The proposed action would take place on private lands. DEQ's approval of AMD2 to Exploration License No. 00816, with conditions, would not 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 MMRA and demonstrate compliance with those requirements or have been agreed to by the applicant. Further, if the application is complete, DEQ must take action on the permit pursuant to ARM 17.24.119. DEQ, therefore, does not have discretion to take alternative action that would have less impact on private property. Therefore, DEQ's approval of an amendment to Exploration License No. 00816 would not have private property-taking or damaging implications.

Montana's Private Property Assessment Act, Section 2-10-101, *et seq.*, MCA establishes an orderly and consistent internal management process for state agencies to evaluate their proposed actions under the "Takings Clauses" of the United States and Montana Constitutions, as those clauses are interpreted and applied by the United States and Montana Supreme Courts.

Section 2-10-104, MCA, required Montana's Attorney General to develop guidelines, including a checklist, to assist state agencies in identifying and evaluating proposed agency actions that may result in the taking or damaging of private property. In turn, Section 2-10-105(1) and (2), MCA, set out a process for each State Agency to evaluate whether a State action may result in an unconstitutional taking of private property. Those provisions direct that:

A. Each state agency shall assign a qualified person or persons in the state agency the duty and authority to ensure that the state agency complies with this part. Each state agency action with taking or damaging implications must be submitted to that person or persons for review and completion of an impact assessment. The state agency may not take the action unless the review and impact assessment have been completed, except that the action with taking or damaging implications may be taken before the review and impact assessment are completed if necessary to avoid an immediate threat to public health or safety.

B. Using the attorney general's guidelines and checklist, the person shall prepare a taking or damaging impact assessment for each state agency action with taking or damaging implications that includes an analysis of at least the following:

i. the likelihood that a state or federal court would hold that the action is a taking or damaging;

ii. alternatives to the action that would fulfill the agency's statutory obligations and at the same time reduce the risk for a taking or damaging; and

iii. the estimated cost of any financial compensation by the state agency to one or more persons that might be caused by the action and the source for payment of the compensation.

DEQ has utilized the Montana Attorney General's Checklist and analytical Flowchart revised in January 2011 to evaluate the legal impact to property rights resulting from the proposed action. These flowchart questions have been applied by DEQ to the proposed action area, which takes place on private land owned by the applicant, as follows:

- Does the action pertain to land or water management or environmental regulation affecting private real property or water rights? Answer: Yes.
- Does the action result in either a permanent or indefinite physical occupation of private property? Answer: No.
- Does the action deprive the owner of all economically beneficial use of the property? Answer: No.
- Does the action require a property owner to dedicate a portion of property or to grant an easement? Answer: No.
- Does the action deny a fundamental attribute of ownership? Answer: No.
- Does the action have a severe impact on the value of the property? Answer: No.
- 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? Answer: No.

Given the results from the legal flowchart questions, DEQ has determined that the permit conditions are reasonably necessary to ensure and demonstrate compliance with applicable requirements of the MMRA, Section 82-4-301, *et seq.*, MCA, and have been sought by the applicant. Therefore, no taking or damaging of private property rights will occur because of DEQ's approval of the Permit Application.

22. Other Appropriate Social and Economic Circumstances

Given the proposed action's limited scale and duration, location on previously disturbed private land, and lack of permanent facilities or population changes, no other appropriate social or economic circumstances beyond those described in this EA are anticipated.

23. Greenhouse Gas Analysis

When greenhouse gases (GHGs) are emitted by any source, they become well-mixed globally due to their long lifetimes in the atmosphere (i.e., tens of years for methane to thousands of years for carbon dioxide) and atmospheric mixing, primarily driven by differential heating and synoptic-scale weather patterns, which distribute the gases throughout the planet, leading to a relatively uniform concentration of these gases across the globe. In general, GHG emissions from

sources that are not considered a fossil-fuel activity, as defined by § 75-1-220, MCA, contribute to an overall negligible increase of GHG concentrations in the global atmosphere, not local airsheds, causing a marginal global greenhouse effect (i.e., solar energy trapped in the earth's atmosphere from GHGs, resulting in higher average surface temperatures). Localized industrial source GHG emissions do not have direct impacts on climate, public health and associated impacts to the environment on a local or statewide scale.

DEQ is required to evaluate GHG emissions for statutorily defined fossil fuel activities. 2025 Mont. Laws ch. 348, § 1. However, this exploration activity is excluded from the definition of fossil fuel activities and therefore a GHG assessment is not mandatory. *Id.*, § 4(7)(b)(iii). Instead, to determine if a GHG assessment is needed, DEQ applies the normal MEPA standard of whether GHG emission impacts are potentially significant because of a proposed action, in this case exploration activities. ARM 17.4.609(3)(d)–(e).

DEQ concludes that the authorization of exploration activities pursuant to 82-4-332, MCA, would likely have negligible effect on increased GHG entering the atmosphere, and therefore any additional assessment of GHG is not necessary for purposes of this EA.

PROPOSED ACTION ALTERNATIVES

Pursuant to ARM 17.4.609, when an applicant proposes an action with the potential to have an impact on the Montana environment, the associated EA must include a description of reasonable alternatives. For the purposes of MEPA, and the minimum requirements of ARMs 17.4.607 and 17.4.609 for EAs, the alternatives analysis must include the "no action" alternative. The "no action" alternative represents the baseline condition in which the proposed activity does not occur. However, if the applicant demonstrates compliance with all applicable rules and regulations required for approval, the "no action" alternative would not be appropriate. Rather, the "no action" alternative forms the baseline from which the impacts of the proposed action can be measured. Pursuant to section 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. Therefore, if an application meets all the requirements for permit approval, DEQ cannot require any alternative to the project as described in the permit application, including a "no action" alternative.

No Action Alternative:

In addition to the proposed action, DEQ also considered the "no action" alternative. Under the "no action" alternative, DEQ would not approveAMD2 to Exploration License No. 00816, and data from AMD2 exploration activities would not be collected. Baseline conditions would persist and only previously authorized AMD1 exploration and associated reclamation would continue. No additional 1.53 acres of disturbance from drilling up to 21 drill holes would occur, and any other potential impacts authorized under AMD2 would not occur. However, DEQ does not consider the "no action" alternative appropriate because the Applicant has demonstrated compliance with all applicable rules and regulations as required for approval. For purposes of MEPA, the no-action alternative forms the baseline from which the proposed action's impacts can be measured.

CONSULTATION

DEQ engaged in internal and external efforts to identify substantive issues and/or concerns related to the proposed action. Internal scoping consisted of internal review of the environmental assessment document by DEQ staff.

External scoping efforts also included queries to the following websites/ databases/ personnel:

- Montana State Historic Preservation Office (SHPO)
- Montana Department of Natural Resource and Conservation (DNRC)
- Montana Department of Environmental Quality (DEQ)
- Montana Department of Transportation (MDT)
- Lewis and Clark County
- US Geological Society – Stream Stats (USGS)
- Montana Natural Heritage Program (MTNHP)
- Montana Cadastral Mapping Program
- Montana Groundwater Information Center (GWIC)
- Montana Bureau of Mines and Geology (MBMG)
- United States Environmental Protection Agency (EPA)
- United States Department of Interior, Bureau of Land Management (BLM)
- United States Forest Service (USFS)

PUBLIC INVOLVEMENT

Under MEPA, an agency is responsible for providing opportunities for public review consistent with the seriousness and complexity of the environmental issues associated with the proposed action and the level of public interest. For purposes of this proposed action, the method of accomplishing public review include publishing a news release or legal notice to announce the availability of an EA, summarizing its content and soliciting public comment, and distributing copies of the draft EA for review and comment. Any public comment received for this EA will be summarized below.

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION

The proposed action would be located on private lands with public roads utilized for transportation. All applicable state and federal rules must be adhered to, which, at some level, may also include other state, federal, or tribal agency jurisdiction.

This environmental review analyzes the proposed action submitted by the applicant. Any impacts from the proposed action would be short-term and would be fully reclaimed at the conclusion of the proposed action, and thus, would not contribute to the long-term cumulative effects of mining in the area.

The other permits this Proposed Action may have to receive are the following:

- Montana Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activity
- USFS Special Use Permit (road use)

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

NEED FOR FURTHER ANALYSIS AND SIGNIFICANCE OF POTENTIAL IMPACTS

When determining whether the preparation of an environmental impact statement (EIS) 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.

As described in this EA, the proposed action would authorize additional surface and underground exploration activities that would disturb up to approximately 1.53 acres, all on private lands within an approximately 430-acre patented claim block that has been affected by prior exploration under AMD1.

The EA analysis indicates that, with implementation of applicable BMPs and compliance with applicable federal, state, and local requirements, the remaining impacts on Montana's environment of the proposed action would be low to moderate in intensity, localized in extent, and short term in duration. Applicable BMPs are described briefly below, as well as throughout the EA in applicable resource sections and Table 1 and Table 3.

BMPs to mitigate erosion, sediment movement, and water resource impacts include: specific drill depth requirements, the use of plastic drill sump liners, secondary containment, spill prevention & spill response kits, and sediment traps. Additionally, where possible, soil would be salvaged and replaced during reclamation, then seeded with an adequate and approved seed mix. Weed control would be implemented consistent with Lewis and Clark County requirements.

BMPs to mitigate impacts to air quality include: retaining factory-installed emissions equipment and controls and reduced speed while traveling.

Further, reclamation of disturbed lands to comparable utility and stability as adjacent undisturbed land would mitigate impacts to wildlife and habitats.

Geology/soils, water, and air resources would experience only small, temporary increments of additional disturbance and emissions within an area already substantially affected by previous exploration activities and reclamation is required within two years after exploration is complete. The proposed action would use an existing water source (up to 1,000 gallons per day) rather than construct new groundwater withdrawals and would plug exploration drill holes in accordance with ARM 17.24.106.

For social and economic resources, the EA concludes that the proposed action would have only limited, short term positive effects on local employment and tax revenues, would not displace existing industrial, commercial, or agricultural activities, and would be generally consistent with the long standing mixed mining and exploration character of the project area. The limited impacts on employment, tax base, housing, neighborhood character, and demand for government services are not expected to result in substantial growth inducing or growth inhibiting effects or conflicts with locally adopted plans, goals, or regulations under ARM 17.4.608. The EA also finds that the proposed action would not result in substantial changes to social structures, cultural uniqueness and diversity, or private property impacts, and would not conflict with local, state, or federal laws, requirements, or formal plans.

Approval of the proposed action 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 additional license, amendment, or operating permit applications to conduct further exploration or mining, DEQ would conduct a separate permitting and environmental review process and make a permitting decision based on the criteria set forth in the MMRA and applicable MEPA requirements. Issuance of this amendment does not predetermine the level of environmental review for any future proposals; that determination would be made on a case specific basis using the criteria in ARM 17.4.608. Based on consideration of the criteria set forth in ARM 17.4.608, and the analysis presented in this EA , DEQ has determined that the proposed action, Amendment 2 to Exploration License No. 00816, is not expected to significantly impact the quality of Montana's environment. Preparation of an EA is therefore the appropriate level of environmental review under MEPA, and an EIS is not required for this action.

Table 3: Assessment of Significance (ARM 17.4.608)

Affected Resource and Section Reference	Potential Impact	Severity[1], Extent[2], Duration[3], Frequency[4], Uniqueness and Fragility (U/F)	Probability impact will occur[5]	Cumulative impacts	Measures to reduce impact as proposed by applicant	Significance (yes/no)
1. Geology and Soil Quality, Stability, and Moisture	A. Displacement/excavation of rock and soil and drilling. B. Erosion of disturbed soil and weed propagation.	**A. Severity-Medium:** Of the approximately 1.53 acres of ground that would be disturbed, all disturbance aside from overland travel would result in the displacement movement of rock and soil. Drill cuttings/core would be removed. **Extent-Small:** Total surface area susceptible to displacement would be 1.53 acres. Up to 14,539 linear feet of core would be removed. **Duration- Short to Long Term:** Up to 2 years after completion or abandonment of exploration activities plus growing seasons. **Frequency:** Daily. **Unique/Fragile:** Not unique or particularly fragile. **B. Severity-Low:** Of the 1.53 acres of ground that would be disturbed, all disturbance would be susceptible to erosion and the propagation of weeds. **Extent-Small:** Total surface disturbance susceptible to erosion and weed propagation would be 1.53 acres. **Duration- Short Term:** Up to 2 years after completion or abandonment of exploration activities plus growing seasons. **Frequency:** During occasional storm events. **Unique/Fragile:** Not unique or particularly fragile.	A. Certain B. Possible	Erosion could add to cumulative impacts associated with potential erosion on existing roads, and from previous exploration activities conducted under AMD1 within the project area.	The Applicant proposes the use of; • and sediment traps as best management practices (BMPs) to mitigate erosion and sediment transport off-site. - Reclamation and seeding would be performed immediately after the conclusion of exploration operations Weed control is further discussed in "Section 4. Vegetation Cover, Quantity, and Quality".	No
2. Water Quality, Quantity, and Distribution	Erosion of disturbed soil into waterways, intercepting the groundwater table in the project area and 1,000 gallon per day withdrawal at the proposed action water source	**Severity-Low:** Of the 1.53 acres of ground that would be disturbed, all disturbance would be susceptible to erosion. The average depth for the proposed 21 drill holes is 684 feet, which would intercept the water table at approximately 5,459 amsl. Up to 1,000 gallons per day would be consumed during drilling operations. **Extent-Small:** Total surface disturbance susceptible to erosion would be 1.53acres. 21 drill holes are proposed. 1,000 gallons per day would be consumed during drilling operations. **Duration- Short Term:** Up to 2 years after completion or abandonment of exploration activities plus growing seasons and during drilling operations. **Frequency:** During occasional storm events, during drilling operations below the expected groundwater table at approximately 5,380 amsl, and during general drilling operations. **Unique/Fragile:** Not unique or particularly fragile.	Possible	Erosion could add to cumulative impacts associated with potential erosion on existing roads, and from previous exploration activities conducted under AMD1 within the project area. Intercepting the groundwater table during drilling operations could add to cumulative impacts associated with previous exploration activities conducted under AMD1. Proposed water withdrawals at the proposed action water source could add to cumulative impacts to the valley-bottom aquifer by nearby residence and commercial water users.	The Applicant proposes the use of the above BMPs to mitigate erosion and sediment transport off-site. - Drilling to depths below 3,675 to 6,019 feet amsl would encounter the groundwater table. The Applicant is required to reclaim drill holes in accordance with ARM 17.24.106 - Reclamation and seeding would be performed immediately after the conclusion of exploration operations.	No
3. Air Quality	erosion of disturbed soil/windblown emissions, e.g., equipment exhaust	**Severity-High:** Dust and other particulates would be generated during exploration operations and while driving on and off-site. Mechanized equipment would produce exhaust fumes. **Extent-Small:** Dust and exhaust fumes would be generated near moving/working equipment.	Certain	Dust and exhaust generated from the proposed action would temporarily add to the cumulative impacts from the other vehicles and engines operating in the area	The Applicant proposes the use of; • reduced speed while traveling,	No

Affected Resource and Section Reference	Potential Impact	Severity[1], Extent[2], Duration[3], Frequency[4], Uniqueness and Fragility (U/F)	Probability impact will occur[5]	Cumulative impacts	Measures to reduce impact as proposed by applicant	Significance (yes/no)
		Duration- Short Term: Up to 2 years after completion or abandonment of exploration activities plus growing seasons. **Frequency-Daily:** During exploration and reclamation operations. **Unique/Fragile:** Not unique or particularly fragile.		and to general recreational activities in the greater project area in the use of public lands near the proposed action..	• maintaining factory emissions controls on all equipment and vehicles, as BMPs to minimize the impacts to air quality. The Applicant would be expected to maintain compliance with ARM 17.8.308.	
4. Vegetation Cover, Quantity, and Quality	A. Displacement of vegetation B. Weed propagation associated with surface disturbance	**Severity-Medium:** The 1.53 acres of disturbance would be subject to the displacement of vegetation and the potential to propagate weeds. **Extent-Small:** Total surface disturbance subject to the displacement of the existing vegetation and susceptible to the propagation of weeds would be 1.53 acres. **Duration-Short Term:** Up to 2 years after completion or abandonment of exploration activities plus growing seasons. **Frequency-Twice:** After exploration and after reclamation activities. **Unique/Fragile:** Not unique or particularly fragile.	A. Certain B. Probable	The displacement of vegetation would add to cumulative impacts from previous exploration activities conducted under AMD1 within the project area. Weed propagation generated from the proposed action would temporarily add to the cumulative impacts in other areas where weeds already exist within and near the proposed action area.	- Any ground disturbed by exploration activities would be seeded with an approved seed mix. - Weed control measures proposed by the Applicant include • herbicidal spray application	No
5. Terrestrial, Avian, and Aquatic Life and Habitats	Increased ambient noise and the displacement of animals	**Severity-Low:** 1.53 acres of disturbance and associated activities would cause temporary animal displacement from the project area. **Extent-Small:** Increased ambient noise would impact animals where sound has not been obstructed by topography or forested vegetation. Any displaced animal could find other suitable habitats nearby and return to the project area shortly after the proposed action's conclusion. **Duration-Short Term:** Reclamation would be required within 2 years after completion or abandonment of exploration activities plus growing seasons. **Frequency-Daily**: During exploration and reclamation activities. **Unique/Fragile:** Not unique or particularly fragile.	Probable	No cumulative impacts to terrestrial, avian, and aquatic life and habitats would be expected.	None	No
6. Unique, Endangered, Fragile, or Limited Environmental Resources	displacement of unique or endangered animals	**Severity-Low:** 1.53 acres of disturbance would cause temporary displacement of unique and endangered animals from the project area. **Extent-Small:** Any displaced animal could find other suitable habitats nearby and return to the project area shortly after the proposed action's conclusion. **Duration-Short Term:** Reclamation would be required within 2 years after completion or abandonment of exploration activities plus growing seasons. **Frequency-Daily:** During exploration and reclamation activities. **Unique/Fragile:** Not unique or particularly fragile.	Possible	No cumulative impacts to unique, endangered, fragile, or limited environmental resources would be expected.	None	No
7. Historical and Archaeological Sites	Impacts to historical and archaeological sites	**Severity-Low:** Some disturbance associated with the proposed action could impact existing historical and archeological resources.	Probable	No cumulative impacts on historical and archaeological	None	No

Affected Resource and Section Reference	Potential Impact	Severity[1], Extent[2], Duration[3], Frequency[4], Uniqueness and Fragility (U/F)	Probability impact will occur[5]	Cumulative impacts	Measures to reduce impact as proposed by applicant	Significance (yes/no)
		Extent-Small: The presence of historical and archeological resources would be minimal within the project area proposed to be disturbed. **Duration-Long Term:** Any disturbance to archaeological sites would be permanent. **Frequency -Daily:** During exploration and reclamation activities. **Unique/Fragile:** Not unique or particularly fragile.		resources would be expected from the proposed action.		
8. Aesthetics	Project visibility and noise	**Severity-Medium:** Receptors would view heavy equipment, equipment related to drilling, and equipment transportation. Receptors could observe light during low-light operations from light towers in use. Receptors would hear noise from sources including the operation of heavy equipment, construction, and travel. **Extent-Small:** The proposed action would be visible to receptors from observation points unobstructed by topography or forested lands. Noise may be heard by receptors located in an area where sound related to the proposed action has not been fully diminished by distance or another sound-dampening feature. **Duration-Short term:** Reclamation would be required within 2 years after completion or abandonment of exploration activities plus growing seasons. **Frequency- Daily:** During exploration and reclamation activities. **Unique/Fragile:** Not unique or particularly fragile.	Certain	Impacts to area aesthetics generated from the proposed action could temporarily add to the cumulative impacts associated with travel and previous exploration activities conducted under AMD1 in the area.	The following BMPs are proposed to mitigate light pollution: • directional and downward facing lights, • light shrouds/shields	No
9. Demands on Environmental Resources of Land, Water, Air, or Energy	Water usage	**Severity-Low:** The proposed action would utilize approximately 1,000-gallons of water per day during drilling operations. **Extent-Small:** The water would be sourced from pre-existing water domestic water well source (GWIC #70592) located on private land in Section 23 of Township 14 North, Range 9 West. **Duration-Short Term:** Water would be consumed during drilling operations. **Frequency- Daily:** During exploration and reclamation activities. **Unique/Fragile**-Not unique or particularly fragile.	Unlikely	Consumption of up to 1,000 gallons of water per day could temporarily add to the cumulative impacts associated with residential and commercial water use in the area.	None	No
10. Impacts on Other Environmental Resources	No direct impacts on other identified environmental resources or projects that rely on the same lands or facilities are anticipated.	N/A	N/A	N/A	N/A	No
11. Human Health and Safety	Possible respiration, ingestion, or contact with dust	**Severity-Low:** Only exploration staff would be in the immediate vicinity during exploration operations. **Extent-Small:** Within the immediate area of operating equipment. **Duration-Short Term:** Respiration of exhaust fumes and the ingestion of dust produced by heavy equipment would only be during exploration or reclamation activities. Reclamation would be required	Unlikely	No cumulative impacts on human health and safety would be expected from the proposed action.	None	No

Affected Resource and Section Reference	Potential Impact	Severity[1], Extent[2], Duration[3], Frequency[4], Uniqueness and Fragility (U/F)	Probability impact will occur[5]	Cumulative impacts	Measures to reduce impact as proposed by applicant	Significance (yes/no)
		within 2 years after completion or abandonment of exploration activities, plus growing seasons. **Frequency- Daily:** During exploration and reclamation activities. **Unique/Fragile**- Not unique or particularly fragile.				
12. Industrial, Commercial, and Agricultural Activities and Production	No anticipated impacts	N/A	N/A	N/A	N/A	No
13. Quantity and Distribution of Employment	No anticipated impacts	N/A	N/A	N/A	N/A	No
14. Local and State Tax Base and Tax Revenues	Wages, withheld taxes, and local spending	**Severity-Low:** Workers and the companies participating in the proposed action. **Extent-Small:** The limited scale of the proposed action would only employ a minor amount of individuals. **Duration-Short Term:** Workers and the company would only have opportunity to collect wages, withhold taxes, and spend locally related to the proposed action during the 6 to 8 weeks of operations and within 2 years after completion or abandonment of exploration activities, plus growing seasons. **Frequency- Daily:** During exploration and reclamation activities. **Unique/Fragile**- Not unique or particularly fragile.	Likely	The proposed action would provide only a small, temporary addition to the existing local and state tax base associated with other economic activity in the Lincoln, MT area.	N/A	No
15. Demand for Government Services	Increased traffic	**Severity-Low:** Traffic would increase on a small number of public roads within the greater project area. **Extent-Small:** Increased traffic would occur along Highway 200 and West Hogum Creek Road. **Duration-Short Term:** Increased vehicle traffic would only occur during the 6 to 8 weeks of operation and within 2 years after completion or abandonment of exploration activities, plus growing seasons. **Frequency- Daily:** During exploration and reclamation activities. **Unique/Fragile**- Not unique or particularly fragile.	Certain	No cumulative impacts to demand on government services would be expected from the proposed action.	None	No
16. Locally Adopted Environmental Plans and Goals	No anticipated impacts	N/A	N/A	N/A	N/A	No
17. Access to and Quality of Recreational and Wilderness Activities	Project visibility and noise	**Severity-Medium:** Receptors would view heavy equipment, equipment related to drilling, and equipment transportation. Receptors could observe light during low-light operations from light towers in use. Receptors would hear noise from sources including the operation of heavy equipment, construction, and travel. **Extent-Small:** The proposed action could generate impacts similar to those described in Section 8. “Aesthetics” to recreationists in the immediately surrounding National Forest lands **Duration-Short term:** Project visibility and noise would only occur during the 6 to 8 weeks of operation and within 2 years after completion of abandonment of exploration activities, plus growing seasons.	Certain	The proposed action would add impacts similar to those described in Section 8. “Aesthetics”. These visual and noise effects are expected to be minor and temporary, with final reclamation required within two years after exploration concludes.	None	No

Affected Resource and Section Reference	Potential Impact	Severity[1], Extent[2], Duration[3], Frequency[4], Uniqueness and Fragility (U/F)	Probability impact will occur[5]	Cumulative impacts	Measures to reduce impact as proposed by applicant	Significance (yes/no)
		Frequency- Daily: During exploration and reclamation activities. **Unique/Fragile:** Not unique or particularly fragile.				
18. Density and Distribution of Population and Housing	No anticipated impacts	N/A	N/A	N/A	N/A	No
19. Social Structures and Mores	No anticipated impacts	N/A	N/A	N/A	N/A	No
20. Cultural Uniqueness and Diversity	No anticipated impacts	N/A	N/A	N/A	N/A	No

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

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