



June 20, 2024

Division of Reclamation, Mining and Safety
1313 Sherman Street
Room 215
Denver, Colorado 80203

Attn: Amy Yeldell

Please find enclosed a Request for Technical Revision (TR) Cover Sheet, response to inspection questions, tabulated mine plan quantities, and a check for the required TR fee. The TR includes clarification on sequencing and quantities of the mining and reclamation activities in support of calculating a revised financial warranty value for the Eagle-Gypsum Mine, CDRMS Permit M-1984-041, in Eagle County.

This letter is in response to the Minerals Program Inspection Report issued on March 25, 2024. Pending the clarifications provided within this TR, the Eagle-Gypsum Mine will continue to follow the stipulations outlined in the original approval and subsequently approved TRs.

Regards,

Tim Strack
Plant Manager

Attachments: 1) Request for Technical Revision Cover Sheet
2) Response to Inspection Questions
3) Tabulated Mine Plan Quantities
4) Exhibits D – Mining Plan
5) Exhibit E – Reclamation Plan
6) Exhibit H-K – Wildlife, Soils, Vegetation, and Climate
6) Required TR Fee Payment

American Gypsum Company – 740 Highway 6 – PO BOX 980 – Gypsum, CO 81637 – Mine Office 970-524-8121



COLORADO DIVISION OF RECLAMATION, MINING AND SAFETY

1313 Sherman Street, Room 215, Denver, Colorado 80203 ph(303) 866-3567

REQUEST FOR TECHNICAL REVISION (TR) COVER SHEET

File No.: M- _____ Site Name: _____

County _____ TR# _____ (DRMS Use only)

Permittee: _____

Operator (If Other than Permittee): _____

Permittee Representative: _____

Please provide a brief description of the proposed revision: _____

As defined by the Minerals Rules, a Technical Revision (TR) is: “a change in the permit or application which does not have more than a minor effect upon the approved or proposed Reclamation or Environmental Protection Plan.” The Division is charged with determining if the revision as submitted meets this definition. If the Division determines that the proposed revision is beyond the scope of a TR, the Division may require the submittal of a permit amendment to make the required or desired changes to the permit.

The request for a TR is not considered “filed for review” until the appropriate fee is received by the Division (as listed below by permit type). Please submit the appropriate fee with your request to expedite the review process. After the TR is submitted with the appropriate fee, the Division will determine if it is approvable within 30 days. If the Division requires additional information to approve a TR, you will be notified of specific deficiencies that will need to be addressed. If at the end of the 30 day review period there are still outstanding deficiencies, the Division must deny the TR unless the permittee requests additional time, in writing, to provide the required information.

There is no pre-defined format for the submittal of a TR; however, it is up to the permittee to provide sufficient information to the Division to approve the TR request, including updated mining and reclamation plan maps that accurately depict the changes proposed in the requested TR.

Required Fees for Technical Revision by Permit Type - Please mark the correct fee and submit it with your request for a Technical Revision.

<u>Permit Type</u>	<u>Required TR Fee</u>	<u>Submitted</u> (mark only one)
110c, 111, 112 construction materials, and 112 quarries	\$216	<input type="checkbox"/>
112 hard rock (not DMO)	\$175	<input type="checkbox"/>
110d, 112d(1, 2 or 3)	\$1006	<input type="checkbox"/>

Attachment 2 – Response to Inspection Questions

- / What is the maximum disturbed area to be reclaimed at any given time? (Please clarify conceptually and, if possible, numerically what/when is the “worst-case scenario”.) What is the maximum length and height of highwalls to be backfilled on site at any given time, broken out by pit? (Alternatively, what is the maximum amount of backfill material requiring placement at any given time?)
 - » The current financial warranty includes the coverage for planned activities that are in the far future (+20 years). It is the intent to redefine the scope associated to the financial warranty into five-year increments, thus acknowledging the progressive reclamation efforts being performed onsite (i.e. the lower pit is fully reclaimed prior to mining the east pit, reducing the financial warranty scope).

Given the duration of the Mine Plan provided (65+ years) it is suggested to focus on a narrower 5-year look ahead window to consider bonding amounts. The sequencing of the mine does not begin to influence the East Pit footprint until 2049. Thusly is recommended to focus on areas impacted within the next 5-years and negate those that have not been disturbed nor will be for an extended amount of time. Mine plan activities are chronologically listed within Attachment 2 – Tabulated Mine Quantities.xlsx. Associated material volumes are straight-line distributed across the duration of the activity.

It is recommended that a revised 2024-2028 financial warranty amount considering the “worst-case scenario” includes reclamation of the lower pit, reclamation of the beginning of the upper pit development (2027-2028), and access roads.
- / How much rock is on site to build the Upper Pit 6900 Access Road Stormwater Channel (TR-11) and how much will need to be purchased and imported? What is the expected source and unit cost of imported material.
 - » Currently there is not the appropriate equipment onsite to separate and classify 6-inch D50 riprap material. Therefor material needed to construct the Upper Pit 6900 Access Road Stormwater Channel (TR-11) will be imported. The approximate volume of 6-insh D50 riprap required for construction is 1,025 CY. Multiple aggregate suppliers in the region offer adequate material for the design with pricing ranging from \$50-65/CY.
- / What is the total length of 4ft high fence to be removed adjacent to BLM trails?
 - » There is 1,635ft of 4ft high fence installed north of the Upper Pit to prevent accidental access from BLM trails located north of the Mine and proposed East Pit area.
- / The reclamation plan states that 6-12” of topsoil will be replaced. Generally, topsoil isn't that deep on site. How will a deficiency of topsoil be addressed?
 - » Referencing Section 3.6 - Growth Media Handling within the Exhibit D – Mining Plan:

The estimated 244,000 cubic yards of growth medium is not a sufficient volume of material to cover the proposed disturbance (including the Upper Pit expansion, East Pit, and roads) post- reclamation grading with 6 to 12 inches of growth medium. Additional growth medium would be required, using finer-grained inert overburden or intraburden

Attachment 2 – Response to Inspection Questions

encountered during open pit mining. This finer-grained material would be mixed with native growth medium (where possible), placed in uncompacted layers (6 to 12 inches deep) over regraded slopes, and track-walked to promote vegetation growth.

- » It is estimated that at 6" of growth medium coverage, the 244,000 cubic yards of growth material will cover 98% of the disturbed area. If 12" of growth medium coverage is needed in areas, the available stock pile could cover as little as 48% of the total disturb area. Factoring in a 5-year window from 2024-2028, all activities pertain to the Lower Pit, Upper Pit, and Access Roads. Eliminating the East Pit reduces the needed growth material volume by 72,000 cubic yards and 144,000 cubic yards, for 6 inch and 12 inch over respectively.

Area Name	Estimate Acres of Disturbance	CY of Growth Medium Needed at 6" of Cover	CY of Growth Medium Needed at 12" of Cover
Lower Pit	70.0	55,600	111,200
Upper Pit	77.5	63,000	126,000
East Pit	90.0	72,000	144,000
Access Roads	72.5	57,400	114,800
	Totals:	248,000	496,000

- / Regarding drilling actives within the permit boundary: How many holes may be open at any one time? How and when will holes be plugged and abandoned? What is the maximum size and depth of exploration holes? (Note that exploration outside of the permit boundary should continue to be addressed through a separate exploration permit)

- » Holes will be plugged as soon as practical after drilling, estimating up to 20 holes open at any given time. Drill diameter ranges from 3 to 8 inches and the maximum depth is 200 ft. Referencing Section 2.9 – Exploration Operations of Exhibit D – Mining Plan:

Drilling was performed in 2006 to determine the estimated depth of overburden in the East Pit and the approximate extents and depth of gypsum in both the Upper Pit and East Pit areas. Due to limitations during drilling (access, drilling methods/drill refusal), the maximum gypsum depth within the Upper Pit and East Pit is unknown; additional drilling may be performed as the Upper Pit and East Pit depths progress, within the approved pit disturbance limits, to refine the pit layouts. Additional drilling would be performed using rotary or coring methods, with borehole diameters varying from 3 to 8 inches and depths up to 200 feet. Drilling campaigns would include up to 100 holes per drilling program, and holes would be plugged as soon as practical after drilling, resulting in as many as 20 open holes at any given time. Drilling programs may also include boreholes and sampling for geotechnical data. Drilling permits (including drill hole plugging and reclamation) would be obtained prior to drilling and drill holes would be plugged in a manner appropriate to water conditions encountered during drilling. Potential areas for additional exploration drilling are identified on Drawings 06 and 08.

Attachment 2 – Response to Inspection Questions

- » Drill holes will be plugged with cement grout at confining layers above aquifers and backfilled with drill cuttings where water is not present. Referencing Section 3.1 – Drill Hole Plugging of Exhibit E – Reclamation Plan:

Drilling may occur throughout the active mining phase of the proposed Upper Pit expansion and East Pit development. Prior to completing additional drilling, American Gypsum would develop drilling plans and obtain required permits, including drill hole plugging and reclamation plans. Drill holes would likely be mined out as the Upper Pit and East Pit are developed; however, drill holes would still be plugged to prevent impacts to aquifers (i.e. mixing), impacts to beneficial uses, downward/upward water loss, surface water flowing into the hole, or an open surface hazard. Drill holes would be plugged in a manner appropriate to water conditions encountered during drilling, according to procedures outlined in the BLM Solid Minerals Reclamation Handbook (BLM, 1992) and Colorado Division of Water Resources (CO DWR) Code of Colorado Regulations (CCR) 2 CCR 402-2 (CO DWR, 2018). This would include the following:

- *Removing casing;*
- *If more than one aquifer was perforated in single drill hole, backfilling with a cement grout plug at the confining layer above aquifers;*
- *Backfilling unconfined/unconsolidated aquifers to the static water level with drill cuttings, clean sand, or clean gravel;*
- *If water is not encountered, backfilling with drill cuttings; and*
- *Backfilling the upper 5 feet (minimum) with clean native clay, cement, or high solid bentonite grout, including adequately compacting fill to prevent settling.*
- *Materials used for backfilling would be clean, inert, and free from contaminants.*

[illegible]

Key:

Storage = Final Placement

Waste = Cut material to be relocated into storage

Gypsum = taken off site

Attachment 3 (Continued)

				Year Count									
				1	2	3	4	5	6	7	8	9	
				2020	2021	2022	2023	2024	2025	2026	2027	2028	
Activity	Material	Cut (-) Fill (+)	Amount	Unit									
1 - Fall 2020 Mining Progress					1 - Fall 2020 Mining Progress								
Partial Lower Pit Road	Storage	+	403000	YD3	403,000 YD3 Storage								
Upper Pit Floor El. 7046 to 7030	Waste		172000	YD3	172,000 YD3 Waste								
Upper Pit Floor El. 7046 to 7030	Gypsum		0.37	MT	0.37 MT Gypsum								
2 - Lower Pit Extent					2 - Lower Pit Extent								
Lower Pit El. 6600	Waste		1642000	YD3	1,642,000 YD3 Waste								
Lower Pit El. 6600	Gypsum		3.52	MT	3.52 MT Gypsum								
Lower Pit Road	Storage		1484000	YD3	1,484,000 YD3 Storage								
Upper Pit 6900 Access Road	Storage		256000	YD3	256,000 YD3 Storage								
Growth Medium Stockpile	Storage		16000	YD3	16,000 YD3 Storage								
Upper Pit 6900 Access Road Extension to 7030 Pit	Waste		138000	YD3	138,000 YD3 Waste								
East Pit Initial Clear and Grub	Waste		16000	YD3	16,000 YD3 Waste								
3 - Upper Pit North Extent													
Lower Pit West Waste Rock Dump	Storage		1153000	YD3	1,153,000 YD3 Storage								
Lower Pit Road	Storage		331000	YD3	331,000 YD3 Storage								
Lower Pit East Waste Dump	Storage		253000	YD3	253,000 YD3 Storage								
Upper Pit Floor El. 7030 to 6930	Waste		1887000	YD3	1,887,000 YD3 Waste								
Upper Pit Floor El. 7030 to 6930	Gypsum		4.05	MT	4.05 MT Gypsum								
Upper Pit Backfill	Storage		99000	YD3	99,000 YD3 Storage								
4 - Permitted Upper Pit													
East Pit Access Road	Storage		538000	YD3									
Upper Pit Floor El. 6930 to 6900	Waste		511000	YD3									
Upper Pit Floor El. 6930 to 6900	Gypsum		1.05	MT									
5 - Revised Upper Pit Access Road													
Realigned Upper Pit 6900 Access Road	Waste		97000	YD3									
East Pit Access Road	Storage		296000	YD3									
Upper Pit Floor El. 6900 to 6890	Waste		170000	YD3									
Upper Pit Floor El. 6900 to 6890	Gypsum		198000	MT									
6 - Upper Pit Expansion													
Lower Pit Closure El. 6660	Storage		2194000	YD3									
Upper Pit North Waste Rock Dump	Storage		665000	YD3									
Upper Pit Floor El. 6890 to 6760	Waste		2898000	YD3									
Upper Pit Floor El. 6890 to 6760	Gypsum		3.39	MT									
7 - Upper Pit Interior Benches													
Lower Pit West Waste Rock Dump Raise	Storage		1415000	YD3									
Upper Pit Central Waste Rock Dump	Storage		256000	YD3									
Upper Pit Floor El. 6760 to 6560	Waste		1761000	YD3									
Upper Pit Floor El. 6760 to 6560	Gypsum		2.06	MT									
Upper Pit East Waste Rock Dump	Storage		33000	YD3									
8 - East Pit Initial Development													
Upper Pit North Waste Rock Dump El. 7200	Storage		162000	YD3									
Upper Pit South Waste Rock Dump El. 6560 to 6675	Storage		1011000	YD3									
East Pit Floor El. 7210	Overburden		528000	YD3									
East Pit Floor El. 7210	Waste		651000	YD3									
East Pit Floor El. 7210	Gypsum		0.54	MT									
9 - East Pit North Extension													
Upper Pit South Waste Rock Dump El. 6675 to 6830	Fill		4495000	YD3									
East Pit Fill El. 7210 to 7060	Overburden		499000	YD3									
East Pit Fill El. 7210 to 7060	Waste		3963000	YD3									
East Pit Fill El. 7210 to 7060	Gypsum		4.64	MT									
10 - East Pit Central Extent													
Upper Pit South Waste Rock Dump El. 6830 to 6950	Storage		4364000	YD3									
East Pit Floor El. 7060 to 6940	Waste		4836000	YD3									
East Pit Floor El. 7060 to 6940	Gypsum		5.66	MT									
East Pit Waste Rock Dump	Storage		558000	YD3									
11 - East Pit South Extent													
Upper Pit South Waste Rock Dump El. 6950 to 7000	Storage		165000	YD3									
East Pit Floor El. 6940 to 6900	Waste		1943000	YD3									
East Pit Floor El. 6940 to 6900	Gypsum		2.27	MT									
East Pit Waste Rock Dump	Storage		275000	YD3									
12 - East Pit Reclaimed													
Upper Pit North Waste Rock Dump Excavated for East Pit Reclamation	Waste		303000	YD3									
Upper Pit South Waste Rock Dump Excavated for East Pit Reclamation El. 7000 to 6790	Waste		7401000	YD3									
East Pit Reclaimed	Storage		163000	YD3									
East Pit Reclaimed	Storage		7705000	YD3									
13 - Lower Pit and Upper Pits Reclaimed													
Lower Pit West Waste Rock Dump Excavated for Upper Pit Reclamation	Waste		2624000	YD3									
Upper Pit Road Reclaimed	Storage		146000	YD3									
Upper Pit Road Reclaimed	Storage		17000	YD3									
Lower Pit East Waste Rock Dump Excavated for Upper Pit Reclamation	Waste		253000	YD3									
Growth Medium Stockpile Reclaimed	Storage		16000	YD3									
Upper Pit Reclaimed	Storage		3312000	YD3									
Upper Pit Reclaimed	Storage		339000	YD3									
East Pit Road Reclaimed	Storage		28000	YD3									
East Pit Road Reclaimed	Storage		14000	YD3									

Attachment 3 (Continued)

10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047

3 - Upper Pit North Extent

4 - Permitted Upper Pit
538,000 YD3 Storage
511,000 YD3 Waste
1.05 MT Gypsum

5 - Revised Upper Pit Access Road
97,000 YD3 Waste
296,000 YD3 Storage
170,000 YD3 Waste
198,000 Tons Gypsum

6 - Upper Pit Expansion
2,194,000 YD3
665,000 YD3 Storage
2,898,000 YD3 Waste
3.39 MT Gypsum

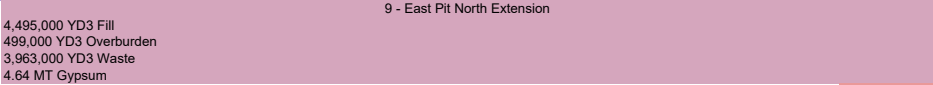
7 - Upper Pit Interior B
1,415,000 YD3 Storage
256,000 YD3 Storage
1,761,000 YD3 Waste
2.06 MT Gypsum
33,000 YD3 Storage

Attachment 3 (Continued)

29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066



8 - East Pit Initial Development
162,000 YD3 Storage
1,011,000 YD3 Storage
528,000 YD3 Overburden
651,000 YD3 Waste
535,000 Tons Gypsum



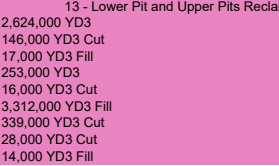
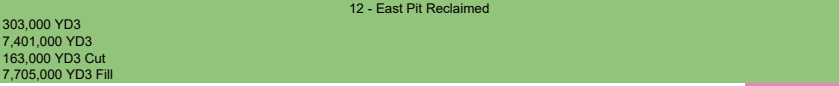
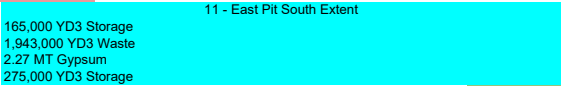
4,495,000 YD3 Fill
499,000 YD3 Overburden
3,963,000 YD3 Waste
4.64 MT Gypsum



4,364,000 YD3 Storage
4,836,000 YD3 Waste
5.66 MT Gypsum
558,000 YD3 Storage

Attachment 3 (Continued)

48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085



67
2086

imed

Attachment 4

EXHIBIT D

MINING PLAN

2.0 MINING PLAN

The proposed Modification would be a continuation of current mining operations. According to existing permits, the existing Upper Pit will be mined within the approved boundary of the 2002 permit (BLM, 2002; CO DRMS, 2001), to an estimated Upper Pit floor elevation of 6900 feet amsl. The existing Mine Office would remain in its current location north of the Lower Pit, along with the existing equipment laydown yards and parking lots (shown on Drawing 01).

The Upper Pit footprint would be expanded to a pit floor elevation of 6760 feet amsl, with 1H:1V pit face slopes and 10-foot wide flat benches constructed every 40 vertical feet of development. To accommodate the lower pit extents, a portion of the Upper Pit 6900 Access Road (BLM, 2019; CO DRMS, 2019a) would be mined out and the road alignment would be modified by constructing a new road northeast of the Upper Pit 6900 Access Road. Once the Upper Pit floor reaches an elevation of 6760 feet amsl, the pit configuration would be modified to increase the pit depth without impacting the overall footprint. This would create interior benches to an ultimate pit floor elevation of 6560 feet amsl as shown on Drawings 06 and 07.

Before the Upper Pit is exhausted, American Gypsum plans to develop a new area to the east of the Upper Pit (East Pit). Approximately 1.19 million cubic yards (2.1 million tons) of overburden would be removed from the East Pit area prior to reaching usable gypsum and used as construction material for the East Pit Access Road. This estimate is based on previous drill data and experience at the Lower Pit and Upper Pit. Existing site roads would be used to access the East Pit during initial overburden removal while the main East Pit Access Road is being constructed. The East Pit Access Road would be constructed through a partially-backfilled section of the Upper Pit to connect the East Pit to the modified Upper Pit 6900 Access Road (BLM, 2019; CO DRMS, 2019a). As the East Pit progresses to its ultimate planned elevation of 6900 feet amsl, the East Pit Access Road within the East Pit footprint would be mined out to maintain the same elevation as the pit floor (Drawing 08).

Mining methods are anticipated to remain the same throughout the Upper Pit and East Pit development. Intraburden removed during Upper Pit mining activities would be used as backfill material for progressive reclamation activities in the Upper Pit. Overburden and intraburden removed from the East Pit area would be used to construct the East Pit Access Road and as backfill material for progressive reclamation activities in the Upper Pit and East Pit.

Production capacity from the Mine is estimated to continue at a nominal rate of 500,000 tons of gypsum shipped to the wallboard plant per year, with a maximum of 600,000 tpy. This mining rate results in approximately 80 to 100 trucks per day traveling from the Mine to the wallboard plant.

2.1 Commodity

The primary commodity is gypsum. There is no secondary commodity.

2.2 Scope of Operation

The proposed mining activities would consist of the following:

Road construction (Drawings 06 and 16):

Remove a portion of the Upper Pit 6900 Access Road (BLM, 2019; CO DRMS, 2019a) to accommodate the Upper Pit expanded footprint, including constructing an interior pit road to access lower benches of the Upper Pit;

Construct a new section of road from approximate elevation 6946 feet amsl on the Upper Pit 6900 Access Road to an Upper Pit elevation of 6958 amsl feet. This would include demolishing the riprap collar on the 30-inch culvert inlet proposed as part of the Upper Pit 6900 Access Road (BLM, 2019; CO DRMS, 2019a), installing a new 230-foot long section of 30-inch culvert where the proposed road fill crosses an existing drainage to create a continuous 30-inch culvert. The riprap apron at the culvert outlet (BLM, 2019; CO DRMS, 2019a) would remain intact throughout the culvert's operational life;

Construct a new road through the partially reclaimed northern section of the Upper Pit;

Construct a new road across the existing intraburden storage area and on native ground to the East Pit. This would include constructing a new 130-foot long 24-inch diameter culvert, riprap collar (inlet), and riprap apron (outlet) where the road fill crosses an existing drainage. Drawing 10 shows culvert details;

Abandon, regrade, and reclaim as much of the original haul road and Upper Pit 6900 Access Road (BLM, 2019; CO DRMS, 2019a) as possible throughout operations (although there will likely be a short period of time where all three roads would be in use at the same time); and

Throughout road construction and operation, following Best Management Practices (BMPs) for fill slopes to stabilize surface soils and reduce erosion potential. BMPs may include revegetating or installing erosion protection measures (straw wattles, silt fence, hay bales). Appropriate erosion protection would be determined by conditions encountered during operations.

Open pit mining activities (Drawings 06 through 09):

Expand the Upper Pit by approximately 11.7 acres outside the approved boundary from the 2002 permit (BLM, 2002; CO DRMS, 2001). The maximum pit footprint would be excavated to a pit floor elevation of approximately 6760 feet amsl. If additional gypsum is present in the pit footprint and groundwater is not encountered (identified through additional drilling), interior benches would be constructed to bring the pit floor elevation to approximately 6560 feet amsl. Drilling permits (including drill hole plugging and reclamation) would be obtained prior to drilling and drill holes would be plugged

in a manner appropriate to water conditions encountered during drilling. Potential drilling areas are identified on Drawing 06; and

Develop the new East Pit, including removing an average overburden depth of 20 feet.

The East Pit would be excavated to an anticipated pit floor elevation of 6900 feet amsl as shown on Drawings 08 and 09. Additional drilling may be required to further explore the gypsum depth (potential drilling areas shown on Drawing 08). Drilling permits (including drill hole plugging and reclamation) would be obtained prior to drilling and drill holes would be plugged in a manner appropriate to water conditions encountered during drilling.

Material hauling:

Haul gypsum to American Gypsum's wallboard plant or existing on-site stockpiles;

Haul overburden and intraburden to new road construction areas, on-site storage, or to inactive pit areas for progressive reclamation; and

Haul intraburden to in-pit storage areas (inactive areas of the pits) and maintaining stockpiles.

Progressive (or concurrent) reclamation (Drawings 06 and 08):

Backfill inactive pit areas with overburden and intraburden to 2.5H:1V overall slopes where possible.

Final reclamation (Drawings 11 through 13):

Regrade any areas within the Upper Pit, East Pit, or access roads associated with the proposed disturbance area (listed above) to 2.5H:1V slopes or flatter, achieving 3H:1V where possible;

Remove culverts and associated riprap collars/aprons through road crossings, including excavating road fill to pre-construction topography to expose culverts, re-establishing natural drainages at pre-construction grades, and regrading remaining road fill to 2.5H:1V or shallower;

Install riprap or other erosion protection measures where necessary (such as re-established native drainage channels); and

Revegetate disturbed areas.

Drawing 04 shows types and locations of disturbance associated with the proposed Modification.

2.3 Period of Operation

Mining in the Upper Pit is ongoing; based on current mining rates (approximately 500,000 tpy), mining in the Upper Pit can continue to support American Gypsum's wallboard plant needs for an additional 15 to 25 years (depending on the quality of gypsum encountered). For the East Pit, clearing and grubbing/overburden removal is anticipated to begin in 2021. The East Pit is expected to support mining activities for an additional 26 years (duration may vary depending on the quality of gypsum encountered).

2.4 Annual Operation

Mining is expected to take place year-round with periodic breaks not to exceed 4 days to accommodate holidays or poor weather conditions that may impact the ability to safely traffic mine access roads. The Mine typically hauls material 5 days per week (Monday through Friday) and typically operates from 6 a.m. to 5 p.m. Infrequently, the Mine operates on Saturdays, limited to hauling 4 Saturdays per year.

2.5 General Schedule of Operations

Table 2.1 illustrates the estimated schedule of operations.

TABLE 2.1: ESTIMATED SCHEDULE OF OPERATIONS

Phase	Activity	Mining Year ^[1]
Operational – Upper Pit (Permitted)	Active mining to the approved limits from the 2002 permit (BLM, 2002; CO DRMS, 2001)	Year 1 to Year 12
Operational – Upper Pit Expansion	Active mining to a pit floor elevation of 6760 feet amsl (maximum footprint extents), including using intraburden for progressive reclamation (3:H:1V maximum slope)	Year 12 to Year 15
Operational – Upper Pit Interior Benches	Active mining of interior pit benches to a pit floor elevation of 6560 feet amsl (pending drilling confirmation/continuous gypsum at depths exceeding 6760 feet amsl), including using intraburden for progressive reclamation (2.5H:1V maximum slope)	Year 15 to Year 25 ^[2]
Progressive Reclamation – Upper Pit	Placing intraburden/overburden in the Upper Pit, including forming the East Pit Access Road, with a 2.5H:1V maximum slope	Year 1 to Year 15 ^[2]
Reclamation – Upper Pit (Full Footprint, excluding active portion of East Pit Access Road)	Placing intraburden/overburden in the Upper Pit with a 2.5H:1V maximum slope, covering with 6 to 12 inches of growth medium, and revegetating with a native seed mixture	Year 16 to Year 26 ^[2]
Site Development – East Pit	Using existing roads to perform initial clearing and grubbing, stockpiling growth medium (if encountered during clearing and grubbing) within existing disturbance areas, removing overburden for haulage to the Upper Pit or East Pit Access Road	Year 2 to Year 10
Operational – East Pit	Active mining to a pit floor elevation of 6900 feet amsl, including using intraburden for progressive reclamation (2.5H:1V slope) where possible and stockpiling intraburden within the East Pit for future reclamation regrading	Year 15 to Year 41
Reclamation – East Pit	Regrading intraburden to an overall 2.5H:1V slope, covering with 6 to 12 inches of growth medium, and revegetating with a native seed mixture (includes portion of East Pit Access Road through the East Pit)	Year 41 to Year 42

Note: ^[1] Approximate timing estimated assuming Year 1 is 2019.

^[2] Remaining durations assume Upper Pit is operational for 15 years; though it may provide gypsum for a total of 25 years.

2.6 Roads and Utilities

2.6.1 Roads

The proposed Upper Pit expansion area would be accessed using approximately 1.32 miles of existing access roads (starting at the Mine entrance location shown on Drawing 03). Roads were cleared of vegetation before construction. Juniper and pinion trees removed during vegetation clearing were stockpiled outside the construction area for use in future reclamation. Roads were constructed using cut-to-fill methods, with a 50-foot wide road to accommodate two lanes of traffic with safety berms and side drainage ditches. Culverts were installed where the road crossed drainages. Haul roads will be reclaimed as described in existing permits (CO DRMS, 2001; BLM, 2002).

The 1.32 miles of existing roads used to access the proposed Upper Pit expansion area includes approximately 0.06 miles of the approved Upper Pit 6900 Access Road (BLM, 2019; CO DRMS, 2019a). As the Upper Pit progresses past a pit floor elevation of 6900 feet amsl, a second road (approximately 0.08 miles long) would be constructed utilizing the partially reclaimed northern section of the Upper Pit and the southern section of the Upper Pit 6900 Access Road would be abandoned. As the Upper Pit depth increases, interior roads would be incorporated into the Upper Pit to continue accessing the lower portions of the Upper Pit. Drawing 16 shows the conceptual road configuration. Interior roads would be developed as the pit is developed and are not shown on the ultimate pit configuration shown on Drawings 06 and 07; the conceptual internal Upper Pit road configuration may be modified during operations but would be constructed within permitted disturbance areas.

The East Pit would also be accessed via approximately 1.32 miles of existing access roads, 0.8 miles of the new Upper Pit 6900 Access Road, extending east across the Upper Pit and existing intraburden storage, and approximately 0.2 miles of road within a new disturbance area before terminating at the East Pit. Another 0.28 miles of the new East Pit Access Road would be constructed within the East Pit footprint and would be removed as the East Pit is mined, leaving only 0.02 miles of the road within areas previously undisturbed (excluding the East Pit disturbance area).

All new roads would be 50 feet wide (including safety berms), with 1.5H:1V cut and fill slopes to tie into existing topography (using cut-to-fill methods where possible and utilizing inert intraburden for the remaining fill). Roads would have a maximum 8% longitudinal grade and would be graded with a high point in the center (crown) of the road (at 1.0%) so stormwater runs off the road. Culverts would be installed where the road fill crosses drainages (culvert details are shown on Drawing 10). Finished road fill slopes (that are not intended to see traffic) would be track-walked and revegetated immediately after construction or as soon as weather allows using an approved seed mixture.

The Upper Pit/East Pit Access Road construction would require approximately 536,000 cubic yards of cut and 1.415 million cubic yards of fill. An additional 163,000 cubic yards of material would be removed from the Upper Pit 6900 Access Road (BLM, 2019; CO DRMS, 2019a) to accommodate the increased Upper Pit footprint and used as fill material for road construction or backfill for progressive reclamation activities. The remaining 716,000 cubic yards of fill required

for road construction will consist of intraburden/overburden from the Upper Pit and East Pit development. Drawings 06 and 07 show the Upper Pit and East Pit Access Roads just prior to East Pit development. Drawing 08 shows the East Pit Access Road configuration at the end of East Pit development.

2.6.2 Haul Routes

According to existing permits, roads are two lanes, and traffic patterns follow right-hand traffic conventions (except for the existing minor site access roads used for maintenance, overburden removal, and progressive reclamation activities). No new minor site access roads would be needed under this proposed Modification.

For the proposed Modification, trucks would carry gypsum from the Upper Pit to the new 0.08-mile long access road (west), to the remaining 0.06-mile long section of the Upper Pit 6900 Road (west) (BLM, 2019; CO DRMS, 2019a), to the existing haul road (west, then south), to Trail Gulch Road (south), cross over I-70, and continue southeast on Highway 6 to American Gypsum's wallboard plant. The total haul route would be approximately 3.17 miles from the western edge of the Upper Pit and 3.49 miles from the western edge of the East Pit (internal pit roads excluded).

2.6.3 Other Utilities

The Mine Office would remain in its current location north of the Lower Pit. The Mine Office is a temporary building; there are no power or water lines to the site. No additional utilities such as power, water, or communication lines are anticipated within the proposed disturbance area. Power to the Mine Office is provided by a Multi Quip 70-kilowatt (kw) generator (Table 2.2).

2.7 Equipment

Table 2.2 lists anticipated equipment used during the active mine life and reclamation.

TABLE 2.2: ANTICIPATED EQUIPMENT BY PHASE

Equipment	Location ^[1]	Manufacturer	Size	Quantity	Model Year
<i>Operational – Upper Pit</i>					
Rotomill	Current operating pit (varies)	Wirtgen	220SM	1	2017
Rotomill	Current operating pit (varies)	Wirtgen	2200SM	1	2005
Front End Loader	Current operating pit (varies)	CAT	980	2	2017, 2007
Tracked Excavator	Staging Area	CAT	328DL	1	2014
Truck/Trailer with Bottom Dump	Staging Area	MACK	CHU613	5	2015-2017
Truck/Trailer with Bottom Dump	Staging Area	International	HX520	1	2018/2016
Articulated Dump Truck	Staging Area	CAT	730	1	2015

Equipment	Location ^[1]	Manufacturer	Size	Quantity	Model Year
<i>Reclamation – Upper Pit</i>					
Tracked Excavator	Staging Area	CAT	328DL	1	2014
Bulldozer	Staging Area	CAT	D9	1	1987
Articulated Dump Truck	Staging Area	CAT	730	1	2015
<i>Site Development – East Pit</i>					
Tracked Excavator	Staging Area	CAT	328DL	1	2014
Bulldozer	Staging Area	CAT	D9	1	1987
Articulated Dump Truck	Staging Area	CAT	730	1	2015
<i>Operational – East Pit</i>					
Rotomill	Current operating pit (varies)	Wirtgen	220SM	1	2017
Rotomill	Current operating pit (varies)	Wirtgen	2200SM	1	2005
Front End Loader	Current operating pit (varies)	CAT	980	2	2017, 2007
Tracked Excavator	Staging Area	CAT	328DL	1	2014
Truck/Trailer with Bottom Dump	Staging Area	MACK	CHU613	5	2015-2017
Truck/Trailer with Bottom Dump	Staging Area	International	HX520	1	2018/2016
Articulated Dump Truck	Staging Area	CAT	730	1	2015
<i>Reclamation – East Pit</i>					
Tracked Excavator	Staging Area	CAT	328DL	1	2014
Bulldozer	Staging Area	CAT	D9	1	1987
Articulated Dump Truck	Staging Area	CAT	730	1	2015
<i>Other</i>					
Water Truck	Staging Area	International	7600	1	2016
Fuel/Lube Truck	Staging Area or Current operating pit (varies)	International	4900	1	1999
Repair Truck	Staging Area	GMC	5500	1	2005
Grader	Staging Area	CAT	143H	1	1996
Pickup Trucks	Staging Area	Ford	F250	3	2002, 2015, 2016
Generator	Mine Office/Staging Area	Multi Quip	70 kw	1	2015
Generator	Varies – Active Pit Development Area	Wanco	30 kw	1	2016

Note: ^[1] For mobile equipment, location refers to where equipment is parked at the end of shift.

Mining activities proposed herein would not significantly impact equipment used or frequency of use. Trucks would continue to travel on the existing roads (and proposed roads) at a rate of approximately 80 to 100 trucks per day, typically 5 days per week. When not in use, trucks would be parked in existing parking areas near the existing Mine Office shown on Drawing 01.

2.8 Soil, Waste, and Mineable Material

Based on field observations and previous permits, there is no true “topsoil” at the Mine. Intact (native) growth medium is sparse and consists mainly of weathered gypsum (gypsite) and residual volcanic ash. Previous permits and investigations reported depths of volcanic ash ranging in thickness from 3 inches to 2 feet (isolated pockets as deep as 2 feet are typically found in dry creek beds); this material would be salvaged along with other growth medium during East Pit clearing and grubbing activities and stockpiled with maximum side slopes of 2H:1V in the growth medium stockpile shown on Drawing 06 for future use as growth medium during reclamation activities. Where salvaged growth medium contains biological soil crust material, the stockpiled depth would be limited to a depth of 4 feet to promote continued algae, fungi, and lichen formation and assist in stabilizing the growth medium stockpile surface. If stockpiled growth medium is dormant more than 6 months, the stockpile will be revegetated using an approved seed mixture to stabilize surface material and inhibit weed growth.

Overburden was estimated for the East Pit only. No overburden is expected to be encountered in the Upper Pit area, as the pit is being actively mined and overburden was removed in the early stages of mining. Non-economic material encountered during mining is classified as intraburden (waste). The East Pit was anticipated to have a similar gypsum-to-intraburden ratio as the operational Upper Pit, assuming 55% of the material encountered during mining (by weight) is usable gypsum. Where the proposed East Pit depth exceeds the operational Upper Pit depth, the gypsum-to-intraburden ratio was estimated assuming only 40% of the pit material (by weight) is usable gypsum. As the Upper Pit and East Pit are developed, American Gypsum would propose additional drilling to refine these estimates and may modify the overall pit depth or footprint if drill data or continued mining activities do not produce usable gypsum. Material estimates are summarized in Table 2.3. The conceptual growth medium stockpile location is shown on Drawings 06 and 08.

TABLE 2.3: SOIL, WASTE, AND MINEABLE MATERIAL SUMMARY

Material	Thickness (feet)	Quantity (Million tons) ^[1]	Details on Use, Stockpiling, or Method of Disposal
Growth Medium	From 3 inches to 2 feet; assumed average of 6 inches	0.4	Salvageable material would be stockpiled in locations shown on Drawings 06 and 08 (if necessary) and used for progressive reclamation
Overburden (East Pit)	From 0 to 50 feet, assumed average of 20 feet	2.1	Used to construct the East Pit Access Road (overburden removal would be accessed via existing roads until the East Pit Access Road is constructed)
Intraburden – Upper Pit ^[2]	Varies	10.0	Material used for Upper Pit progressive reclamation, access road construction, or placed/stockpiled within inactive portions of the Lower Pit and Upper Pit for final reclamation
Mineable Material (Gypsum) – Upper Pit ^[3]	Varies	6.7	Gypsum used at American Gypsum's plant to manufacture wallboard
Intraburden – East Pit	Varies	19.7	Material used for East Pit progressive reclamation, access road construction, or stockpiled within inactive portions of the Upper Pit and East Pit for final reclamation
Mineable Material (Gypsum) – East Pit	Varies	13.2	Gypsum used at American Gypsum's plant to manufacture wallboard

Notes: ^[1] Calculated volumes converted to tonnages using 100 pounds per cubic foot (pcf) for growth medium and 130 pcf for overburden, intraburden, and gypsum.

^[2] Upper Pit material summaries do not include mining the Upper Pit to the approved limits, assumed to correlate with a pit floor elevation of 6900 feet amsl. Material summaries include development associated with the proposed Upper Pit expansion below 6900-foot elevation.

2.9 Exploration Operations

Drilling was performed in 2006 to determine the estimated depth of overburden in the East Pit and the approximate extents and depth of gypsum in both the Upper Pit and East Pit areas. Due to limitations during drilling (access, drilling methods/drill refusal), the maximum gypsum depth within the Upper Pit and East Pit is unknown; additional drilling may be performed as the Upper Pit and East Pit depths progress, within the approved pit disturbance limits, to refine the pit layouts. Additional drilling would be performed using rotary or coring methods, with borehole diameters varying from 3 to 8 inches and depths up to 200 feet. Drilling campaigns would include up to 100 holes per drilling program, and holes would be plugged as soon as practical after drilling, resulting in as many as 20 open holes at any given time. Drilling programs may also include boreholes and sampling for geotechnical data. Drilling permits (including drill hole plugging and reclamation) would be obtained prior to drilling and drill holes would be plugged in a manner appropriate to water conditions encountered during drilling. Potential areas for additional exploration drilling are identified on Drawings 06 and 08.

2.10 Operating Practices

The proposed activities would be a continuation of current mining operations, where a rotomill grinds shallow layers (approximately 6 inches) of gypsum and intraburden in the active pit. Gypsum is hauled via 25-ton truck/trailers to American Gypsum's wallboard plant approximately 1.6 miles south of the Mine entrance. Intraburden is stockpiled or stored on-site, used to construct access roads, or used as backfill material in progressive reclamation activities.

2.10.1 Mining Methods

The Upper Pit expansion and the East Pit would be mined using the same methods as used in the current Upper Pit operations. A rotomill continuous milling machine removes the top surface of gypsum and intraburden with an active working width of approximately 10 to 12 feet. The pit floor grades to drain to low area within the pit that temporarily contains surface water runoff within the pit footprint, with a 2-foot high perimeter berm to provide additional surface water controls. The rotomill constructs pit slopes at 1H:1V, with 10-foot wide benches constructed every 40 vertical feet. Intraburden is separated from gypsum (based on visual classification between material types) with a loader and stockpiled on the active pit floor prior to being hauled outside the pit.

Gypsum is hauled directly to American Gypsum's wallboard plant using over-the-road trucks and trailers with a 25-ton capacity. Intraburden is hauled to various locations, used to construct roads, as backfill material in progressive reclamation activities, or stockpiled/stored within approved disturbance areas. For the East Pit, overburden would be removed prior to active mining, using existing site access roads while overburden is excavated for use as fill material for the East Pit Access Road construction.

The Upper Pit and East Pit would be developed to allow for progressive or concurrent reclamation, where a portion of the completed pit is to be backfilled using overburden or intraburden removed after gypsum removal. This approach minimizes additional disturbance areas for overburden or intraburden storage, essentially using completed portions of the pit to store overburden or intraburden. Where possible, slopes will be backfilled to planned reclamation grades (2.5H:1V or shallower) to minimize material re-handling.

Although the primary mining method would be rotomills, drilling and blasting may be required throughout pit development. Periodically, isolated zones of hard anhydrite are encountered during open pit mining. The rotomill is unable to process the hard anhydrite, requiring drilling and blasting to continue pit development. In the past 12 years of operation, drilling and blasting has only been used twice. For the Upper Pit expansion and East Pit development, drilling and blasting may be used but would be extremely rare. If blasting is required for pit development, blasting agents would include ammonium nitrate/fuel oil (AN/FO). Blasting would be performed using cast booster and nonelectric and/or electric blasting caps. Since blasting will be subcontracted, blasting materials and equipment will not be stored on site; blasting materials will only be on site temporarily during blasting programs. Proper approvals would be obtained, and any required notifications made prior to blasting.

Table 2.4 summarizes mining type by ton and estimated surface disturbance. For quantity estimates, it was assumed 1% of the total mining would be performed using drilling and blasting.

TABLE 2.4: MINING METHOD SUMMARY

Type or Mining Method	Quantity of Material Removed (tons)	Estimated Area of Surface Disturbance (acres)
Upper Pit – Roto-Milling ^[1]	15.0	11.58
Upper Pit – Drilling/Blasting ^[1]	1.7	0.12
East Pit – Roto-Milling	29.6	81.76
East Pit – Drilling/Blasting	3.3	0.83
TOTAL	49.6	94.29

Notes: ^[1] Upper Pit material summaries and acreages do not include mining the Upper Pit to the approved permit boundary, assumed to correlate with a pit floor elevation of 6900 feet amsl.

If needed during the proposed mining activities, American Gypsum would contract a specialized contractor to perform drilling and blasting. Any necessary approvals would be obtained, and notifications made.

2.10.2 Underground Operations

No underground operations are anticipated for the Upper Pit and East Pit (and associated appurtenances).

2.11 Use and Occupancy

The proposed disturbance area would be used and occupied in a similar manner as the existing Mine, including all relevant permits. This includes items such as mining pits and access roads. There are no proposed changes to the Mine entrance or associated fences, gates, or signs. There are also no new structures (such as buildings) or enclosures associated with the proposed Modification. Drawing 15 shows a map of existing facilities at the Mine Office and staging area. Table 2.2 contains a list of all equipment currently used at the Mine and proposed for continued use as a part of this Modification, including locations where equipment is left at the end of shift.

A 4-foot high wire fence has been installed north of the Upper Pit to prevent accidental access from BLM trails located north of the Mine and proposed East Pit area. Signs have been installed to alert recreationists to the potential hazard ahead.

The original Notice of Occupancy was submitted to the BLM on 03 October 1996. The updated Notice of Occupancy and site claim map was submitted to the BLM on 03 August 2016. The site claim map is included on Drawing 03; the list of applicable claims is shown in Table 2.5.

TABLE 2.5: CLAIM INFORMATION

CMC Number	Claim Name	Claim Type
CMC-230034	EGL #82	Unpatented
CMC-230035	EGL #83	Unpatented
CMC-230036	EGL #84	Unpatented
CMC-230037	EGL #85	Unpatented
CMC-230038	EGL #86	Unpatented
CMC-251155	EGL #88	Unpatented

CMC-230041	EGL #89 ^[1]	Unpatented
CMC-230042	EGL #90 ^[1]	Unpatented
CMC-230043	EGL #91 ^[1]	Unpatented
CMC-230044	EGL #92 ^[1]	Unpatented
CMC-230045	EGL#93	Unpatented
CMC-230053	EGL #101 ^[1]	Unpatented
CMC-230054	EGL #102 ^[1]	Unpatented
CMC-230055	EGL #103 ^[1]	Unpatented
CMC-230056	EGL #104 ^[1]	Unpatented
CMC-230112	JER #1 ^[1]	Unpatented

Note: ^[1] Claims are within permitted disturbance limits (BLM, 2002; CO DRMS, 2001).

American Gypsum would maintain all right, title, and interest in and to each of the claims included as part of this Plan of Operations.

American Gypsum's use of public lands involves the continued use of roads and the maintenance of gates, fences, and signs. In accordance with 43 CFR § 3715, Table 2.6 documents structures on public lands that are reasonably incident to American Gypsum's mining activities. Drawings 03 and 15 show the detailed locations of surface facilities.

TABLE 2.6: FACILITIES ON PUBLIC LANDS

Structure	Location	Estimated Period of Use	Schedule for Removal and Reclamation
Mine access and haul roads	Drawing 03	Duration of mine life	See reclamation plan
Mine entrance gate	Drawing 03	Duration of mine life	See reclamation plan
Shop and office facilities	Drawings 03 and 15	Duration of mine life	See reclamation plan
Growth medium stockpile	Drawing 03	Through initial reclamation	See reclamation plan
Mine pits	Drawing 03	Duration of operations	See reclamation plan
Equipment staging areas	Drawing 15	Duration of mine life	See reclamation plan

2.12 Hazmat

Gypsum is processed into wallboard directly at the plant; there are no on-site processing facilities and therefore no processing chemicals or acid-producing materials used or stored at the Mine.

Hazardous materials would not be stored within the proposed disturbance area. Spills would be reported and managed according to American Gypsum's Spill Prevention, Control, and Countermeasure (SPCC) Plan (Environmental Solutions, 2019).

2.13 Rock Characterization and Handling Plans

During drilling, material was classified as "gypsum" or "waste" (intraburden), characterizing intraburden as material with less than 85% gypsum. During active mining, material is characterized as gypsum or intraburden based on visual observations.

2.13.1 Materials Characterized

Table 2.7 lists materials characterized, and method used for characterization.

TABLE 2.7: CHARACTERIZATION METHODS

Material	Characterization Method
Waste Rock (Intraburden)	Less than 85% gypsum as defined by a combined moisture test during exploration
Ore (Gypsum)	Greater than 85% gypsum as defined by a combined moisture test during exploration
Pit backfill rock (Intraburden)	See Waste Rock (Intraburden)
Cap/cover materials (Growth Medium)	Visual observations and historical information

2.13.2 Approach/Procedure for Characterization

During active mining, the rotomill grinds layers of gypsum and intraburden in approximately 6-inch layers. Intraburden is typically intermixed with gypsum, clearly identified by the distinct color variation. Gypsum is white in color while intraburden is a darker tan/brown color. Equipment operators (reporting to the Mine Superintendent) are responsible for segregating materials into separate stockpiles within the active pit, which are loaded and hauled to American Gypsum's wallboard plant (gypsum) or used for progressive reclamation, access road construction, or stockpiled within inactive portions of the Lower Pit, Upper Pit, and East Pit for final reclamation (intraburden/overburden).

2.13.3 Waste Rock (Intraburden/Overburden) Management Plan

Overburden is defined as material above the East Pit gypsum with little to no gypsum content, ranging in depth from 0 feet to 82 feet (using drilling data). Overburden would be removed during pre-production prior to active mining in the East Pit only. Intraburden is defined as inert, non-economic material to be removed during the East Pit and Upper Pit progression.

2.14 Quality Assurance Plan for Proposed Activities

A Quality Assurance Plan (QAP) is included as Appendix C. The QAP covers activities associated with culvert installation (including bedding, backfilling, and erosion controls) and road construction.

2.15 Spill Contingency Plan

Gypsum is processed into wallboard directly at the plant; there are no on-site processing facilities and therefore no processing chemicals or acid-producing materials used or stored at the Mine.

During operations, care would be taken to ensure that no oil, fuel, or lubricants are discharged onto the ground. Any spills or discharges would immediately be reported to the BLM, followed by prompt cleanup and remediation. Spills would be reported and managed according to American Gypsum's SPCC Plan (Environmental Solutions, 2019).

2.16 Monitoring and Inspections

Monitoring (surface and groundwater quality and quantity, air quality, revegetation, stability, noise levels, etc.) would be conducted as required by existing approvals.

Throughout operation, American Gypsum would perform additional inspections according to Table 2.8.

TABLE 2.8: INSPECTION SCHEDULE

Component	Inspection Frequency	Inspection Items
Culverts	<ul style="list-style-type: none"> - Quarterly - After high rainfall event (greater than 1.5 inches in 24 hours) 	<ul style="list-style-type: none"> - Obstructions or other blockage that may inhibit flow - Signs of buckling or crushing of culvert material - Excessive erosion or loss of erosion control measures (riprap collars/aprons)
Road Fill/ Embankments	<ul style="list-style-type: none"> - Weekly 	<ul style="list-style-type: none"> - Signs of geotechnical instability (bulging at toe, cracks at crest, sloughing, etc.) - Signs of erosional instability (material washing out, erosion gullies, exposed rocks without fine matrix, etc.) - Signs of subsidence such as depressions or unintentional low areas
Pit Slopes ^[1]	<ul style="list-style-type: none"> - Weekly - After high rainfall event (greater than 1.5 inches in 24 hours) - After seismic activity (magnitude greater than 3.0 within 50 miles of the pit) - If conditions vary significantly from previous inspection 	<ul style="list-style-type: none"> - Cracks, bulges, or other signs of movement - Fractures in pit walls - Signs of subsidence such as depressions or unintentional low areas - Seeps or springs emanating from pit walls - In-pit stormwater storage "low area" away from pit wall
Pit Berms	<ul style="list-style-type: none"> - Daily - After high rainfall event 	<ul style="list-style-type: none"> - Berms intact, continuous - Berm height adequate - No ponding water behind berms
Reclaimed and/or Backfilled Slopes ^[2]	<ul style="list-style-type: none"> - Weekly - After high rainfall event 	<ul style="list-style-type: none"> - Signs of geotechnical instability (bulging at toe, cracks at top of slope, sloughing, etc.) - Signs of erosional instability (material washing out, erosion gullies, exposed rocks without fine matrix, etc.) - Signs of subsidence such as depressions or unintentional low areas

Note: ^[1] Pit slope inspections will be documented on an inspection form and/or log with photographs to document conditions.

^[2] Inspections/monitoring for erosional success is discussed under exhibit E.

If conditions are observed that may be an early indicator of geotechnical instability (pits, reclaimed/backfilled areas, and road slopes), American Gypsum would inform the appropriate state and federal agencies (namely, BLM and CO DRMS) via telephone or email, increase inspection frequency, and (depending on the severity) would engage an engineering consultant to observe conditions and provide recommendations. If necessary, the impacted area would be blocked off until the potential hazard could be further evaluated or mitigated. Corrective actions would be completed as appropriate to the conditions encountered and plans would be submitted

to the appropriate state and federal agencies prior to beginning work if not in accordance with this Modification.

2.17 Interim Management Plan for Cessation of Activities

The proposed activities are a continuation of existing mining activities and there is no anticipated break or gap by American Gypsum between existing and proposed mining activities. However, if temporary cessation of mining activities are determined to be required, American Gypsum would perform the activities outlined below to prevent undue and unnecessary degradation of facilities, lands, and resources during an unplanned period of non-operation.

2.17.1 Measures to Stabilize Excavations and Workings

Pit slopes and pit floors would be assessed and any minor grading would be performed to ensure drainage into a low area of the pit floor, located away from pit walls (only minor grading would be required to prepare the pits for a temporary shutdown, as this would be part of normal operational practices);

Pit berms would be inspected and repaired as necessary to maintain a continuous berm around pits;

Stockpiles and un-vegetated progressive reclamation slopes would be stabilized;

Sediment control structures would be cleaned out to maintain the full capacity; and

Sediment control structure outlets (standpipes, spillways, etc.) would be inspected and repaired as necessary.

2.17.2 Measures to Isolate or Control Toxic or Deleterious Materials

Dust suppression surfactants or other chemicals or deleterious materials (none anticipated) would be relocated to the Plant.

2.17.3 Provisions for the Storage or Removal of Equipment, Supplies, and Structures

Equipment would be removed from the Mine; and

Temporary facilities such as restrooms, office trailers, etc. would be locked and secured.

2.17.4 Measures to Maintain the Project Area in a Safe and Clean Condition

The Mine would generally be inspected and cleaned up. All garbage would be removed from the Mine and any loose material (i.e. boxes, packaging, etc.) would be removed or otherwise secured in locked office buildings;

Roads would be assessed to ensure the road grades drain at approximately 1% on either side of the road (from the road centerline) to prevent water accumulation (roads will be maintained as such during normal mining operations and only minor grading may be required during a temporary shutdown);

Road berms would be inspected and repaired as necessary; and

Roads, including cut and fill slopes, would be inspected to ensure all stormwater runoff reports to existing sediment control structures (roads will be maintained as such during normal mining operations and only minor grading would be required to prepare the roads for a temporary shutdown).

2.17.5 Plans for Monitoring Site Conditions during Periods of Non-Operation

Site conditions would be inspected every 14 days or following periods of rainfall exceeding 1.5 inches in a 24-hour period.

2.17.6 Schedule of Anticipated Periods of Temporary Closure

No temporary closures are planned or anticipated. If a temporary closure is necessary, American Gypsum would notify state and federal agencies in writing within 90 days after work is suspended for more than 120 days. The notification would state the nature and reason for suspension of work, the anticipated duration of the suspension, and any event that would be reasonably expected to result in either the resumption of activities or the abandonment of the operation.

Attachment 5
EXHIBIT E
Reclamation Plan

3.0 RECLAMATION PLAN

Reclamation would be carried out progressively or concurrently with mining activities because of the need to dispose of inert, un-economic material (intra-burden/overburden) as mining progresses. Overburden and intra-burden from each successive mining stage would be backfilled and stockpiled in the area of the depleted stage above the area of active mining. Intra-burden/overburden storage areas would be partially removed and used as backfill material for the final pit areas, with remaining material regraded to a 2.5H:1V (or flatter) slope. To create a final surface that mimics natural topography, extremely long slopes would be shortened by creating a bench or grade break and periodic downslope channels would be incorporated into the reclamation grading. Drawing 11 shows conceptual reclamation grading for the pits and roads included with this Modification.

Following active mining and pit reclamation, haul roads would be regraded to expose culverts, using excavated material as backfill in remaining reclamation activities for the pits and roads. Culverts would be removed and native drainage channels would be re-established at pre-construction grades (ranging from grades less than 5% to over 50%). Erosion protection measures such as rock vortex weirs or riprap would be installed as necessary based on the conditions encountered during channel grading.

Backfill material in all reclaimed slope areas would be compacted and sloped at a 2.5H:1V slope, and track-walked with a dozer or similar equipment to roughen the reclaimed slope prior to revegetation. Track-walking and revegetating reclaimed slopes would limit erosion and promote surface water infiltration. Growth medium stockpiled from clearing operations would be placed on the re-sloped areas in layers of 6 to 12 inches. The reclamation seed mixture used with successful current reclamation efforts would be seeded during the fall months. If the accumulation of growth medium stockpiles exceeds the on-going reclamation and revegetation requirement (not anticipated), excess growth medium stockpiles would also be seeded during the fall months to facilitate stabilization.

Juniper and pinion trees cleared ahead of the active mining area would be utilized in the reclamation process, placed perpendicular across reclaimed slopes. Pinion and juniper slash cleared at the Lower Pit have historically added success to revegetation plots. The technique has consisted of placing slash over plots graded with volcanic ash growth medium and then seeding the plot. The slash has shown to aid revegetation by providing shade for the early seedlings, helping to stabilize and control erosion of the plots, and eventually adding organic nutrients back into the soil.

Table 3.1 lists required information and where it can be found in the provided reclamation maps.

TABLE 3.1: RECLAMATION MAP GUIDE

Required Information	Drawing Number
Gradient of all reclaimed slopes	Drawing 11
Cross-sections of reclaimed slopes	Drawing 12
Where vegetation will not be established and general areas for shrub or tree planting	Drawing 11 (all reclaimed areas would receive the same revegetation treatment)
Shore configuration of ponds and shallow areas if future land use is for wildlife	N/A
Average thickness of replaced intraburden/overburden by reclamation area or phase	Drawings 12 and 13
Average thickness of replaced growth medium by reclamation area or phase	Drawing 12

3.1 Drill Hole Plugging

Drilling may occur throughout the active mining phase of the proposed Upper Pit expansion and East Pit development. Prior to completing additional drilling, American Gypsum would develop drilling plans and obtain required permits, including drill hole plugging and reclamation plans. Drill holes would likely be mined out as the Upper Pit and East Pit are developed; however, drill holes would still be plugged to prevent impacts to aquifers (i.e. mixing), impacts to beneficial uses, downward/upward water loss, surface water flowing into the hole, or an open surface hazard.

Drill holes would be plugged in a manner appropriate to water conditions encountered during drilling, according to procedures outlined in the BLM Solid Minerals Reclamation Handbook (BLM, 1992) and Colorado Division of Water Resources (CO DWR) Code of Colorado Regulations (CCR) 2 CCR 402-2 (CO DWR, 2018). This would include the following:

- Removing casing;

- If more than one aquifer was perforated in single drill hole, backfilling with a cement grout plug at the confining layer above aquifers;

- Backfilling unconfined/unconsolidated aquifers to the static water level with drill cuttings, clean sand, or clean gravel;

- If water is not encountered, backfilling with drill cuttings; and

- Backfilling the upper 5 feet (minimum) with clean native clay, cement, or high solid bentonite grout, including adequately compacting fill to prevent settling.

Materials used for backfilling would be clean, inert, and free from contaminants.

3.2 Regrading/Reshaping

The Upper Pit and East Pit would be backfilled using overburden or intraburden from open pit mining activities. Backfill material would be regraded to 2.5H:1V slopes or shallower, covered with 6 to 12 inches of growth medium, and track-walked using a dozer or similar equipment to aid in revegetation. Where possible, regrading will attempt to mimic surrounding topography, incorporating benches on long slopes and periodic downslope channels.

Following active mining and pit reclamation, haul roads would be regraded using cut-to-fill methods. In the case of the Upper Pit 6900 Access Road, the stand-alone reclamation grading included with the permit submittal (Tierra Group, 2019) would need to be revised to accommodate

the larger Upper Pit. The reclamation grading shown on Drawing 11 reflects the proposed changes to the Upper Pit 6900 Access Road to accommodate the larger Upper Pit footprint.

The original haul road would be abandoned and reclaimed during the Upper Pit development. Since the Upper Pit 6900 Access Road partial removal cannot occur until the new Upper Pit Access Road (shown on Drawing 06) is constructed, there would likely be two segments of the Upper Pit Access Road operating during the Upper Pit and East Pit development. As the Upper Pit encroaches on the southern half of the Upper Pit 6900 Access Road, the road will be abandoned and reclaimed. Based on construction timing, there may be a short window of time where all three roads on west side of the Upper Pit are actively used. Efforts would be made to reduce this time period and reclaim roads no longer needed as soon as possible.

3.3 Mine Reclamation

Mine reclamation would be ongoing throughout the active mining phase, as overburden and intraburden removed during gypsum mining would be used to backfill the Upper Pit and East Pit. Backfilling the Upper Pit and East Pit concurrently with mining activities achieves the following:

- Reduces the level of effort required post-mining;
- Reduces the portion of exposed steep slopes; and
- Provides a storage repository for overburden and intraburden within disturbed areas, thus reducing the overall Mine footprint and surface disturbance.

3.4 Riparian Mitigation

Dry creek beds at the Mine rarely flow (only during isolated major storms). Following cessation of mining activities, culverts (constructed to convey flows under road fills during storm events) would be removed and road fill excavated to reestablish native drainage channels. As necessary, based on the conditions encountered during culvert removal, natural channels would be constructed with rock vortex weirs or isolated sections of riprap lining to prevent erosion.

3.5 Wildlife Habitat Rehabilitation

After cessation of mining activities, disturbed areas would be regraded and revegetated to provide wildlife habitat according to existing permits.

3.6 Growth Medium Handling

Growth medium removed from the native ground surface during East Pit clearing and grubbing activities would be stockpiled west of the Upper Pit (Drawings 06 and 08). An estimated 244,000 cubic yards of growth medium would be removed from the East Pit area, using an assumed depth of 6 inches over the northern two-thirds of the East Pit footprint. All material removed during clearing and grubbing (including volcanic ash, biological soil crust, etc.) will be stockpiled in the location identified on Drawings 06 and 08, although efforts will be made to salvage biological soil crust in shallower areas of the stockpile.

The estimated 244,000 cubic yards of growth medium is not a sufficient volume of material to cover the proposed disturbance (including the Upper Pit expansion, East Pit, and roads) post-reclamation grading with 6 to 12 inches of growth medium. Additional growth medium would be required, using finer-grained inert overburden or intraburden encountered during open pit mining. This finer-grained material would be mixed with native growth medium (where possible), placed in uncompacted layers (6 to 12 inches deep) over regraded slopes, and track-walked to promote vegetation growth.

3.7 Revegetation

Areas disturbed during proposed mining activities would be regraded, track-walked, and hydroseeded according to previous approvals (BLM, 2019) using an approved and certified weed-free seed mix. No seeding would occur until seed tags and or/other official documentation of the correct seed mix are submitted and approved by the BLM (BLM, 2013). Table 3.2 lists the proposed seed mixture, including application rate in pounds per acre (lb/ac).

TABLE 3.2: PROPOSED SEED MIXTURE

Species	Variety	Application Rate (lb/ac)
Bluebunch wheatgrass	CO/UT source preferred or Anatone, Goldar	2.8
Bottlebrush squirreltail	Fish Creek (preferred) or VNS	1.4
Thickspike wheatgrass	Critana (preferred) or Bannock	2.5
Indian ricegrass	White River (preferred) or Paloma or Nezpar	2.5
Sandberg bluegrass	UP CO (preferred) or High Plains or VNS	0.4
Muttongrass	Ruin Canyon (preferred) or VNS	0.3
Yellow rabbitbrush or Rubber rabbitbrush	Chrysothamnus viscidiflorus or Chrysothamnus nauseosus, CU/UT source preferred	0.25
Winterfat	CO/UT source preferred	1.5

Approved fertilizers (BLM, 2016) may be used but are not anticipated based on previous experience.

Revegetation success will be determined and monitored according to the BLM Northwest Colorado District Recommended Outline for Surface Reclamation Planning (BLM, 2013) using current methods (USDA, 2017). An Annual Reclamation Report would be submitted by 31 December each year. If revegetation is not successful or making progress toward meeting successful revegetation criteria by the third growing season, additional action would be taken such as reseeding or adding soil amendments. Historically, there have been areas where revegetation attempts have not been successful, but the reclaimed surface does not erode and does not allow weed growth. Similar surfaces may be encountered during reclamation activities for the proposed Modification and would be inspected annually for signs of erosion or weed growth. If conditions change, additional revegetation efforts may be implemented.

3.8 Deleterious Materials

Gypsum is processed into wallboard directly at the plant; there are no on-site processing facilities and therefore no processing chemicals or acid-producing, toxic, or deleterious materials used or stored at the Mine.

3.9 Buildings, Structures, and Support Facilities

No new buildings, structures, or support facilities would be constructed as part of the mining activities described herein. Reclamation activities for existing support facilities are included in previous permit applications. Table 3.3 summarizes existing buildings and foundations at the Mine Office and staging area. All buildings are located on land managed by the BLM.

TABLE 3.3: EXISTING MINE OFFICE/STAGING AREA BUILDINGS

Building	Description	Foundation Dimensions (feet)	Foundation Type
Used Oils Tank	1,000-gallon tank	4.0 × 11.5	Cinder blocks
Flammable Cabinet	Metal storage cabinet	4.0 × 10.5	Railroad ties
Clear Diesel Tank	4,000-gallon tank	8.0 × 16.5	Steel I-beams
Dyed Diesel Tank	10,000-gallon tank	11.0 × 30.0	Steel I-beams
Generator	Multi Quip 70-kw	4.0 × 11.0	Steel I-beams
Main Breaker Box	Electrical panel box	4.5 × 11.0	Steel I-beams
Parts Storage 1	Woodshed	13.0 × 33.0	Cinder blocks
Parts Storage 1 (Outer)	Reinforced concrete pad	11.0 × 15.5	6-inch thick reinforced concrete pad (12-inch rebar grid)
Maintenance Shop	Metal frame building with tarp cover	42.0 × 44.0	6-inch thick reinforced concrete (12-inch rebar grid)
Parts Storage 2	Tractor trailer	9.0 × 42.0	Trailer with tires
Parts Storage 3	Woodshed	11.5 × 13.0	Wood floor
Mine Office	Single-wide trailer	14.5 × 56.5	Cinder blocks
Propane Tank	200-gallon capacity	4.0 × 8.5	Cinder blocks
Block Heater Breaker Box	Electrical panel box with wood frame cover	4.5 × 7.5	6-inch thick reinforced concrete (wire reinforcement)

3.10 Post-Closure Management

Post-closure activities would consist primarily of monitoring and inspecting reclaimed areas, with minor maintenance as necessary.

Reclaimed slopes would be inspected for signs of geotechnical instability (bulging at toe, cracks at crest, sloughing, etc.) annually for a period of 5 years after reclamation grading is complete. If necessary, slopes would be regraded to eliminate any ponding or potential impacts from surface water or regraded to shallower slopes. Regraded slopes would be revegetated.

Reclaimed slopes would be monitored for revegetation success, for a minimum of 3 years after the last revegetation efforts. If necessary, slopes would be revegetated and monitored for an additional 3 years for revegetation success.

Re-established drainage channels (where culverts were removed) would be inspected for signs of erosional instability (material washing out, erosion gullies, exposed rocks without fine matrix, etc.). Inspections would be performed annually and after heavy rainfall events (greater than 1.5 inches in 24 hours, corresponding to the 10-year, 24-hour event) for a period of 5 years after reclamation grading is complete. If necessary, additional erosion protection such as rock vortex weirs, riprap, or riprap splash pads or aprons would be installed if inspections showed signs of excessive erosion in the re-established drainage channels.

Attachment 6

EXHIBIT H – K

H. WILDLIFE INFORMATION

I. SOILS INFORMATION

J. VEGETATION INFORMATION

K. CLIMATE INFORMATION

5.0 OPERATIONAL AND BASELINE ENVIRONMENTAL INFORMATION

5.1 Air Quality

The closest Clean Air Act Class I areas are Flat Tops Wilderness to the northwest, Eagles Nest Wilderness to the east, and Maroon Bells Snowmass Wilderness to the south. The closest air quality monitoring stations are in Rifle, Colorado.

The Gypsum Plant operates under Colorado Department of Public Health and Environment Operating Permit 95OPEA041, first issued in June 1997, revised April 2019, and expiring 01 April 2024. Permits would be revised with the appropriate regulatory agencies as necessary to accommodate the proposed mining activities described herein.

5.2 Climate and Hydrology

The area is classified as Zone VI climate, a continental subarctic climate (Dfc) according to the Koppen climate classification system (Britannica, 2016). This describes an area of less than 12 inches of annual precipitation (usually falling as snow), low humidity, and long, cold winters. Average maximum temperatures range from 34°F (January) to 85°F (July). Average minimum temperatures range from 4°F (January) to 46°F (July). The site receives an annual average precipitation of 11 inches (Western Regional Climate Center, 2016).

Normal precipitation in the area produces virtually no surface runoff. Most of the stormwater is absorbed by dry soils and geologic fractures. Short-term runoff does occur during rare major storms.

The 10- and 100-year 24-hour precipitation depths were obtained from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 (Perica, et al., 2013) and were assumed to follow a Natural Resources Conservation Service (NRCS) Type II distribution. Precipitation depths for design storm events are shown in Table 5.1.

TABLE 5.1: NOAA DESIGN STORM DEPTHS

Storm Event	Precipitation Depth (inches)
10-year 24-hour	1.47
100-year 24-hour	2.21

There are dry creek beds within the proposed disturbance limits that flow during major storms, which are rare at the Mine. During normal precipitation events, most runoff infiltrates into dry soils or geologic fractures. These dry creek beds rarely flow with appreciable water. Stormwater from

the Mine, including disturbance areas described herein, ultimately reports to the Eagle River located south of I-70.

The depth to groundwater at the Mine is not known; however, groundwater has not been encountered in either the Lower Pit or Upper Pit to date.

Drawing 03 shows dry creek beds, streams, springs, and rivers (mostly un-named) in relation to the proposed Upper Pit and East Pit.

5.3 Geology and Soils

5.3.1 Geology

The site is predominantly the Eagle Valley Evaporite (IPee), with unconsolidated deposits (Qg) in the river valley to the south and basalt (Tbb) in the mountains to the north according to available geology mapping (Tweto et al., 1978). Definitions for these geologic units are included below and are shown in relation to the mine site in Figure 5.1:

IPee: Eagle Valley Evaporite (Pennsylvanian) – Gypsum, anhydrite, and interbedded siltstone and minor dolomite; contains thick salt at depth in some places, as shown by wells drilled for oil and gas. Intertongues with Minturn, Belden, and Maroon Formations and grades into fine-grained clastic rocks of Eagle Valley Formation. Diapiritic in structural configuration in many places, especially in large area in central part of quadrangle. Thickness indeterminate;

Qg: Unconsolidated deposits (Pleistocene): Young gravels (Bull Lake and younger) – Stream, terrace, and outwash gravels; and

Tbb: Basalt of Bimodal Suite (Pliocene and Miocene) – Dense black resistant alkali basalt in lava-flow layers 5 to 200 feet thick, and interbedded tuffs and volcanic conglomerates. Greatest preserved thicknesses are 900 feet on White River Plateau and 800 feet on Grand Mesa. Ages determined from several locality range from 8 to 23 million years.

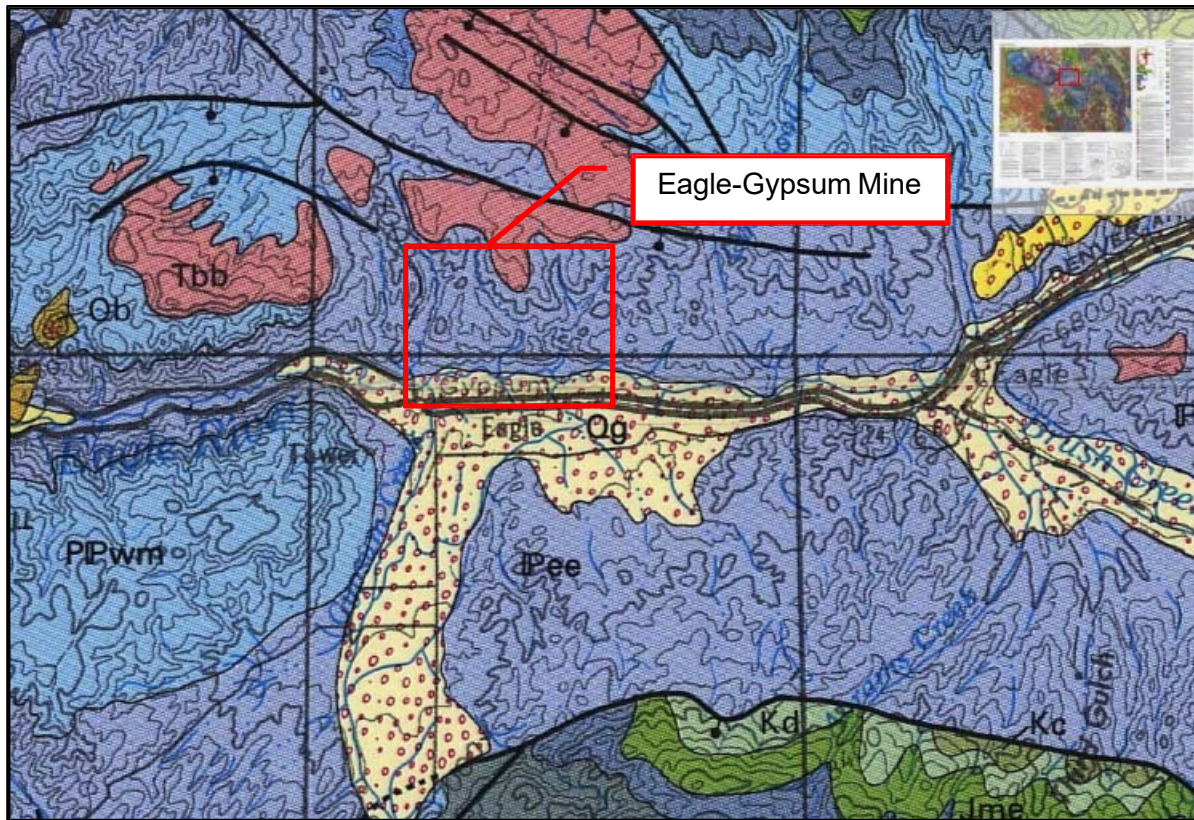


FIGURE 5.1: GEOLOGICAL MAP (AREA TAKEN FROM TWETO ET AL., 1978)

5.3.2 Soils

There is virtually no topsoil at the Mine; vegetation typically grows in areas consisting of weathered gypsum (gypsite) and residual volcanic ash. Previous permits and investigations reported depths of volcanic ash ranging in thickness from 3 inches to 2 feet. The NRCS soil resource report (NRCS, 2016) shows the proposed Upper Pit expansion and East Pit consist of Soil Group B (Gypsum land–Gypsiorthids complex, 12% to 65% slopes) and Soil Group D (Torriorthents–Camborthids–Rock outcrop complex, 6% to 65% slopes). Hydrologic soil groups are classified by the minimum rate of infiltration achieved for bare soil after prolonged wetting. Group A soils have the lowest runoff potential and highest infiltration rates, while Group D soils have the highest runoff potential and lowest infiltration rates. Group A soils have the lowest erosion potential and Group D soils have the highest erosion potential (United States Department of Agriculture (USDA), 1986).

Local terminology for the land type is “Gypsum Badlands”. Existing sparse “topsoil” in the area consists solely of weathered gypsum (gypsite) and residual volcanic ash. Historically, there has been virtually no interest in the area for agricultural uses or from the Soil Conservation District.

Ridge topsoils consist primarily of gypsite mixed with weathered residue of other clastic sediments inter-bedded with the gypsum. Exploration drilling has shown that the clastic sediments do inter-bed at depth with the gypsum zones. The steep side hill slopes are essentially gypsum rock

outcroppings with a thin gypsite crust that grades thorough weathered gypsum to solid gypsum rock. Experience has shown that these gypsite crusts vary in thickness from 3 inches to 2 feet. The gypsite crusts generally contain some silty-clayey material due to the weathering of inter-bedded clastic sediments.

In summary, the surface in the area can mainly be described as gypsum and weathered gypsum (gypsite) outcroppings with intermingled basins of volcanic ash. The gypsum outcroppings predominate in the area as evidenced by the lack of vegetation in areas other than the intermingled volcanic ash basins.

Drawing 05 shows the soils map from the NRCS soil resource report for the site (NRCS, 2016), along with aerial imagery.

There are no known cave resources in the proposed disturbance area. Should any caves be discovered in the process of developing the Upper Pit expansion, East Pit, or associated roads, American Gypsum would notify the BLM.

5.4 Cultural Resources

A Class III cultural resources survey was conducted in 2001 on 157 acres for Mine features proposed at that time. No previously-recorded sites or isolated finds were noted. The Mine area was expected to have low potential for cultural resources due to steep slopes and location between the 'Flat Tops' Wilderness Pinyon-Juniper woodlands and the Eagle River Valley.

A cultural resources survey was conducted during the summer of 2018 in the proposed Upper Pit expansion area. A second cultural resources survey was conducted in the summer of 2019 to cover gaps in previous surveys near the existing sediment control ponds previously approved by CO DRMS as TR-06 and TR-07 (CO DRMS, 2003; CO DRMS, 2006). Other areas of proposed disturbance have been covered by previous surveys conducted between 1989 and 2017. According to the surveys, the steep landscape is not conducive to archaeological preservation. No sites have been documented in the area.

5.5 Paleontology

The main geologic formation in the Mine area, Eagle Valley Evaporite, is not included on the BLM's list of formations in the CRVFO Planning Area with paleontological resources (BLM, 2015). Included on the list is Basalt of Bimodal Suite (Tbb), which is listed as having a moderate to unknown, or high potential to yield fossils. No paleontological resources have been uncovered to date during mining operations.

5.6 Vegetation

According to the BLM CRVFO Record of Decision and Approved Resource Management Plan (BLM, 2015), the BLM lands near the Mine are comprised of pinyon-juniper woodlands and sagebrush shrublands. Previous permit documents note that vegetation cover in undisturbed areas of the Mine consists mainly of sagebrush and greasewood. Vegetation is sparse on steeper slopes; some areas include solid gypsum rock outcroppings. Like the existing mining area, the

density and size of vegetation is inversely proportional to the steepness of the slopes and the presence of solid gypsum rock outcroppings.

NRCS soil group boundaries correlate well with vegetation (Drawing 05, Section 5.6.1); Soil Group D (high runoff and low infiltration) areas are typically devoid of vegetation while Soil Group B (fairly low runoff and higher infiltration) areas are more highly vegetated. Steeper slopes typically have little to no vegetation, as they typically consist of gypsum outcrops or are crusted with gypsite. Based on aerial photography and site reconnaissance, the southern extent of the proposed Upper Pit expansion consists mostly of gypsum outcrops or gypsite and little to no vegetation is present. Similarly, the southern portion of the East Pit area is comprised of gypsum outcrops or gypsite, while the northern portion shows signs of vegetation. There are also biological soil crusts (consisting of algae, fungi, and lichens) throughout the proposed disturbance area.

Juniper and pinion trees cleared ahead of the active mining area would be utilized in the reclamation process. Pinion and juniper slash cleared at the existing Mine have added success to revegetation plots. The technique has consisted of placing slash over plots graded with volcanic ash growth medium and then seeding the plot. The slash has shown to aid revegetation by providing shade for the early seedlings, helping to stabilize and control erosion of the plots, and eventually adding organic nutrients back into the soil.

5.6.1 Relationship of Vegetation to Soil Types

The steep slopes encrusted with gypsite support virtually no vegetation. However, flatter areas tend to be layered by a thin crust of volcanic ash that varies from depths of 3 inches to several feet in some areas. This volcanic ash was apparently deposited over the area during the last active period of the Dotsero volcano. The volcanic ash essentially serves as the indigenous topsoil for the area and supports the growth of the pinion and juniper stands in the flatter area. Deposits of the volcanic ash tend to occur in basins that intermingle with hummocks of gypsum outcroppings. Hummock units vary from 4 to 20 feet in maximum dimension.

Successful reclamation efforts at the existing operation have shown that the indigenous volcanic ash can be utilized as a growth medium. The procedure in that area has consisted of removing volcanic ash basins ahead of the active mining area and stockpiling this material for later use in reclamation. There is enough organic content in the ash to support the growth of dry land vegetation. Successful reclamation plots (located on the east side of the Lower Pit and northeast corner of the Upper Pit based on field observations) were previously realized at the existing operation with a seed mixture consisting of Indian Rice Grass (Nezpar), Critana Thickspike Wheatgrass, Sodar Stream Bank Wheatgrass, and Salina Wild Rye (Centex, 2001). This seed mixture was used historically but is not proposed as part of this Modification.

5.7 Fish and Wildlife

There are no perennial streams or water bodies near the Mine, so there is no habitat for fish. The nearest perennial stream is Eagle River, south of I-70, about a mile downslope from the Mine. Short-term runoff does occur during rare major storms and would be captured by stormwater management systems. Best management practices are in place at the Mine for the protection of surface water resources.

Wildlife in the areas adjacent to the Mine is typical of that found in the Pinyon/Juniper Woodland of the Colorado Plateau Physiographic Region. The BLM CRVFO Resource Management Plan (RMP) includes the Mine area in designated elk summer and winter range, and mule deer summer and winter range. Since 1990, sightings of deer or elk in the Mine area have been rare.

Limited wildlife habitat is present near the Mine. Due to active mining operations and the lack of available water, wildlife use of the Mine is minimal.

Raptors may use the undisturbed habitat areas for foraging. Inventories noted from the 1970's found that golden eagles and red-tailed hawks nest on the cliff complex paralleling I-70 south of the Mine. Other raptors likely to hunt or nest in the vicinity include kestrels, sharp shinned hawks, and northern harriers (BLM, 1990a).

Migratory birds may occupy undisturbed shrublands or pinyon/juniper habitat near the Mine. Migratory birds are protected by the Migratory Bird Treaty Act.

5.8 Socioeconomics

The Town of Gypsum is a Home Rule Municipality located in Eagle County, Colorado. The population was 6,477 at the 2010 census and estimated to be 7,117 in 2017 (United States Census Bureau (USCB), 2018). Gypsum is the home of an American Gypsum drywall plant and Mine. Eagle County, Colorado has a total of 105 mines, including occurrences and historic or inactive mines; 16 of the 105 mines are listed as producing (Diggings, 2019).

The Mine is within the boundaries of the Gypsum Planning Area identified in the Town of Gypsum Conceptual Recreational Trails Plan (Olsson Associates, 2017).

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accompanied by payment.