GARY R. HERBERT
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# State of Utah
DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
*Executive Director*

**Division of Oil, Gas and Mining**
JOHN R. BAZA
*Division Director*

June 22, 2010

Chris Faulhaber
Granite Construction Co.
PO Box 30429
Salt Lake City, UT 84130-0429

Subject: Initial Review of Notice of Intention to Commence Large Mining Operations, Granite Construction Company, Morgan Facility Mine, M/029/0008, Morgan County, Utah

Dear Mr. Faulhaber:

The Division has completed a review of your Notice of Intention to Commence Large Mining Operations for the Morgan Facilities Mine, which was received April 19, 2010. The attached comments will need to be addressed before tentative approval may be granted.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by sending replacement pages of the original mining notice using **redline and strikeout** text, so we can see what changes have been made. After the notice is determined technically complete and we are prepared to issue final approval, we will ask that you send us two clean copies of the complete and corrected plan. Upon final approval of the permit, we will return one copy stamped "approved" for your records.

The permit fee for the Morgan Aggregate Facility small mine (S/029/0007) for 2009-2010 was received July 20, 2010, but an additional fee needs to be paid because this small mine is being converted to a large mine. Please submit an additional $350.00 for 2009-2010. The permit fee for 2010-2011, $500.00 for a large mine, will be due July 29, 2010.

The Division will suspend further review of the Notice of Intention until your response to this letter is received. If you have any questions in this regard please contact me at 801-538-5261 or Leslie Heppler, at 801-538-5257. Thank you for your cooperation in completing this permitting action.

Sincerely,

Paul B. Baker
Minerals Program Manager

PBB:lah:vs
Attachment: Review
O:\M029-Morgan\S0290007-MorganAggregateFacility\draft\REV1-3508-05132010.doc

**Initial REVIEW OF NOTICEOF INTENTION**
**TO COMMENCE LARGE MINING OPERATIONS**
**Granite Construction Company**
**Morgan Facilities Mine**
**M/029/0008**
**June 22, 2010**

## General Comments:

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 1 | General | Submittal should be formatted to easily incorporate additional revisions and amendments. A listing of maps should be included in the Table of Content. | lah | |
| 2 | General | Based on the responses received, the Division might have additional comments. Surety is to be upgraded. | lah | |
| 3 | General | Additional comments from the Division might be generated in the final review based on receiving the completed final NOI. A cover to cover review will need to be done on the final plan before it is stamped approved. | lah | |
| 4 | All | Include a placeholder in the Appendix for all other agencies' letters and approvals, include all that apply, such as DEQ, DAQ, SHPO, or any Morgan City or County requirements. It would be logical to add the list on page iii under Appendix G. | lah | |
| 5 | Page 24 | Final document is to signed. | lah | |

## R647-4-104 - Operator's, Surface and Mineral Ownership

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 6 | Page 2 | 104.5 – The legal description is incorrect. Please include legal description of disturbance in Section 36 of Township 4 North, Range 2 East. | lah | |

## R647-4-105 - Maps, Drawings & Photographs

### General Map Comments

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 7 | Maps all | The Division recommends that all maps be labeled in the lower right hand corner according to industry standards. As presented there are several maps with the same number, and the figure number could be deleted during scanning due to the location of the text. | lah | |
| 8 | Maps all | Map should not have a figure number and a drawing number. As written in the text the permit refers to a figure number. Either eliminate the drawing number or eliminate the figure number and change the text. | lah | |
| 9 | All Maps | Please show the proposed disturbed/bonded area on all maps. | lk lah | |

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 10 | All maps | Figure 4 has a scale of 1"=200', but this is not correct. Check all scales on the maps. The scale on map 110.2-1 is good; please submit most maps at that scale (1'=200'), as the map is readable and easy to understand. | lah | |

**105.1 - Topographic base map, boundaries, pre-act disturbance**

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 11 | Figure 1 | Scale is incorrect; correct and resubmit map. | lah | |
| 12 | Omission | The Division cannot locate the property boundaries ownership of all lands affected by mining. Use a scale that best shows the operation, perhaps 1"=200'. | lah | |
| 13 | Omission | The Division cannot locate on the base map perennial, intermittent, or ephemeral streams, springs and other bodies of water; buildings, landing strips, electrical transmission lines, water wells, oil and gas pipelines, existing wells or boreholes, or other existing surface or subsurface facilities within 500 feet of the proposed mining operations. If an item does not exist in the area, note in text. | lah | |
| 14 | Omission | The Division cannot locate on the base map, known areas which have been previously impacted by mining or exploration activities within the proposed land affected. Please show the locations of the current 5-acre permits. | lah | |
| 15 | Figure 2 | The topographic base map is not readable due to the scale. Please change the scale and resubmit the map, and label features in the legend. This map appears to show the same information as Figure 3. | lah | |

**105.2 - Surface facilities map**

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 16 | Figure 3 | The topographic base map is not readable due to the scale. Please change the scale and resubmit the map. Use a scale that best shows the operation. | lah | |
| 17 | Figure 3 | Surface facilities to be shown on the need to include, but not be limited to, buildings, stationary mining/processing equipment, roads (including proposed roads), utilities, power lines, proposed drainage control structures, and the location of topsoil storage areas, overburden/waste dumps, tailings or processed waste facilities, disposal areas for overburden, solid and liquid wastes, wastewater discharge treatment and containment facilities, and the location of known test borings, pits, or core holes. The map needs to include a border clearly outlining the extent of the surface area proposed to be affected by mining operations, and the map should also show the number of acres proposed to be affected.;. If an item does not exist in the area, please note in the text. | lah | |

**105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)**

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 18 | Omission | Please include a geology map of the area. | lah | |

## R647-4-106 - Operation Plan

### 106.2 - Type of operations conducted, mining method, processing etc.

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 19 | | The plan needs to include more detail about the operation. Section 106.6 discusses "chain and effect", but nothing is listed regarding phased mining | lah | |

### 106.3 - Estimated acreages disturbed, reclaimed, annually

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 20 | Page 4 | Include actual estimates of disturbed and reclaimed acres in the text. Include max/min and totals in Appendix D. The Division understands that the figures are estimates and can be modified in an amendment. Nothing is shown in Appendix D relating to reclaimed acres. | lah | |

### 106.4 - Nature of materials mined, waste and estimated tonnages

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 21 | Page 4 | Include actual estimates of materials mined and materials to be wasted. Include max/min and totals in Appendix D. | lah | |

### 106.5 - Existing soil types, location, amount

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 22 | Page 4 | The 2nd paragraph under this heading needs to be corrected. The "C" horizon is the lower of the soil horizons and would have the least amount of plant material. It is likely that the intent of this paragraph was to say that most of the available plant *growth* material is limited to the upper "C" horizon. Please correct. | lk | |
| 23 | Omission | The soil analysis did not include "%percent organic matter". It is likely that this is one of the major limiting factors for vegetation establishment. The analysis did not include basic fertility analysis. Please provide a lab analysis for the soil materials that will be used for reclamation. This analysis needs to include pH, EC (electrical conductivity), SAR (sodium adsorption ratio), CEC (cation exchange capacity), total nitrogen, nitrate nitrogen, phosphorus (as $P_2O_5$), and potassium (as $K_2O$). | lk | |

### 106.6 - Plan for protecting & re-depositing soils

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 24 | Page 8 | The operator needs to comply with the Mineral Rules (R-647 et al), not SMCRA, which apply only to *coal mining* operations (R645). | lk | |

**106.8 - Depth to groundwater, extent of overburden, geology**

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 25 | Page 11 | The text notes a well located on Figure 3, yet there is no well shown on Figure 3 or noted in the legend. Add location on the map and to the legend. | lah | |
| 26 | Page 11 | The Northern Morgan Canal should be shown on the map and added to the legend | lah | |
| 27 | Page 11 | Note the elevations of springs and relate these elevations in the text to the elevation at which mining will occur. Show the springs on map and include them in the legend. | lah | |
| 28 | Page 12 | Under the geologic description, it is noted that the limestone has localized areas of laminated units, Lake Bonneville sediments (up to 12 feet thick) are also noted and geologic dips up to 41 degrees. The x-sections note highwall angles up to 45 degrees, but slope stability is not addressed in the NOI. Please discuss slope stability in relationship to geology under the impacts section of the NOI. | lah | |

**106.9 - Location & size of ore, waste, tailings, ponds**

| omment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 29 | Page 12 | Show location of primary stockpiles on the map and not the maximum size of the stockpiles. | lah | |

**R647-4-107 – Operation Practices**

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 30 | Pages 13, 14, 15 | Much of this information should be reported under section R-647-4-106. The rules in R647-4-107 are operational standards rather than requirements for the plan. Please provide (move) the information to the plan section of the permit. | lah | |
| 31 | Page 14 | Note – after section 107.4 is moved to 106, please show in the text the percent containment of the secondary containment for the deleterious materials. | lah | |

**R647-4-109 - Impact Assessment**

**109.1 - Impacts to surface & groundwater systems**

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 32 | Figure 110.2-3 | The hydraulic calculations for the reclaimed drainage channel section coming down the highwall are not on this figure. The gradient of this section of channel is 100 percent. This would produce a significantly higher velocity at the base of the highwall than the calculated 5 fps at this point where the channel then changes slope to 0.5 percent. A stilling basin or plunge pool would be prudent at that point in the channel. Please discuss the stability of the reclaimed channel at the base of the highwall. The plan also states that the channel coming down the highwall will be an excavated channel. How will this be accomplished in solid bedrock? | TM | |

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 33 | Figure 2 | There are no hydraulic calculations for operational site structures. There is a figure 2 contained in the SWPP showing the location of ponds, etc.. Please provide the dimensions and hydraulic characteristics for these structures. Table 4 found on page 17 provides a runoff estimate of 18.7 acre-ft for the Metz Hollow drainage. Please provide the dimensions and hydraulic characteristics for operational structures. | TM | |

**109.4 - Slope stability, erosion control, air quality, safety**

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 34 | Page 19 | Include documents from DEQ (including DAQ) in the Appendix. | lah | |
| 35 | Page 19 para 1 | Does the author mean angle of "repose?" Slope stability engineering does not use words such as "around." The slope stability section of the NOI needs to be corrected to follow industry standards. Slope angles should vary depending upon the dip of the stratigraphy in relation to the bearing of the slope wall. Commit in the NOI to maintain an adequate factor of safety. | lah | |
| 36 | Page 19 Para 2 & 3 | Note in the text the location of the appendix in which the DAQ and DEQ documents can be found. | lah | |

**R647-4-110 - Reclamation Plan**

**110.2 - Reclamation**

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 37 | Page 20 para 1 | Please show the haul road on a map and include it in the legend. | lah | |
| 38 | Page 20 Para 2 | The text says no highwalls are to be created, yet the plan maps and cross sections indicate a highwall. Correct the text and address the rule. | lah | |
| 39 | Page 20 Section A) | The text says that benches will be topsoiled, yet figure 110.5-1 says topsoiling the benches will be "dependent on soil availability." Calculations need to be done to determine whether there will be adequate soil for the benches. Include verbiage in text discussing what will be done if the soil surveys have a higher degree of variability than projected, i.e., what remedial measures will be taken. | lah | |
| 40 | Page 20 Section B) | Please note comments listed above by TM and modify text in this section to comply with the newly created Metz Hollow high angle water feature and the new drainage course for final reclamation. | lah | |
| 41 | Page 21 | Portable equipment is to be included in the bond calculations. | lah | |

**110.5 - Revegetation planting program**

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 42 | Page 21, part A | Plans state that approximately 20,000 $yds^3$ of soil will be distributed, yet in the soils information it states that 27,000 $yds^3$ will be salvaged. Where will the other 7,000 $yds^3$ be used? | lk | |
| 43 | Page 21, Part B | Do not rake areas after ripping. Please leave the area as rough as possible. This helps with moisture retention, erosion control, and vegetation establishment. | lk | |
| 44 | Page 22, Part C | It is unlikely that the proposed final seed mix for revegetation will produce a permanent and diverse vegetation community capable of supporting the intended post mining land use. The seed mix needs to include a minimum of 3-5 species each of grasses, forbs and shrubs. Please refer to the attached recommended seed mix. If this mix is acceptable, please incorporate it into the plan. | lk | |
| 45 | Map 110.5-5 | Include the seed mix recommended by the Division on the map | lah | |
| 46 | Page 22, Part D | The preferred seeding method is broadcast seeding, over hydro-seeding. Seeding should be planned for late fall (spring seedings are generally unsuccessful unless the area is irrigated). | lk | |
| 47 | Page 22, Part E | The use of commercial fertilizers is discouraged, unless the soil fertility is extremely low. It is likely that the application of 10 tons/acre of composted manure or biosolids will provide the best fertilizer/soil amendment that is practical. However, until the soil analysis (see comment under R647-4-106.5) is provided, this cannot be fully evaluated. | lk | |

**R647-4-112 - Variance**

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 48 | | No variances are requested; no further review is needed for variances. | lah | |

**R647-4-113 – Surety**

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 49 | Appendix H | Please provide the Division with detailed reclamation cost estimates. The Division has standardized forms that can be used. Please provide detailed information on the amount of material to be handled, equipment productivity and costs. The three main reference sources the Division uses are the Caterpillar Handbook, R. S. Means, and Equipment Watch's Blue Book. The Division can provide information from those references upon request. The Division will also supply copies of the Division's bonding worksheets in either electronic or hard copy upon request. | whw | |
| 50 | Page 23 | Appendix H does not match what is listed in the text. | lah | |

**R647-4-115 – Confidential Information**

| Comment # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---|---|---|---|---|
| 51 | Page 23 | The reclamation cost estimate cannot be held as confidential. The lease agreement is not required by rule, and the Division recommends that the lease agreement be removed from the NOI and that the text include a statement that you have the right to enter the property, as you have a lease agreement with the surface and mineral owners. | - lah | |

Attachment: Recommended Seed Mix

Recommended Revegetation Species List
for

**Granite Construction Company.**
**Morgan Facility**
**M/029/008**

| Common Name | Species Name | *Rate lbs/ac (PLS) |
|---|---|---|
| Tall wheatgrass | *Agropyron elongatum* | 1.0 |
| Bluebunch wheatgrass | *Agropyron spicatum* | 2.0 |
| 'Piute' orchard grass | *Dactylis glomerata 'Piute'* | 0.5 |
| 'Magnar' Basin Wildrye | *Elymus cinereus 'Magnar'* | 2.0 |
| 'Ephraim' Crested wheatgrass | *Agropyron cristatum 'Ephraim'* | 0.5 |
| Ladak alfalfa | *Medicago sativa* | 0.5 |
| Yellow sweetclover | *Melilotus officinalis* | 0.5 |
| Palmer penstemon | *Penstemon palmerii* | 0.5 |
| Small burnet | *Sanguisorba minor* | 1.5 |
| Mountain big sagebrush | *Artemisia tridentata vaseyana* | 0.1 |
| Rubber rabbitbrush | *Chrysothamnus nauseosus* | 0.25 |
| Forage kochia | *Kochia prostrata* | 0.5 |
| Bitterbrush | *Purshia tridentata* | 1.0 |
| | Total | 10.85 lbs/ac |

*This the recommended broadcast seeding rate.