

## **Exhibit D – Reclamation Plan**

(a) Timing, procedure, criteria and materials for overburden replacement

As stated above in Exhibit C – (c) overburden is minimal and is sufficient quality to be used in base course and fill material. Fractured/weathered basalt blocks and un-graded talus/colluvial material will be mined and hauled unless used onsite for the access ramps or storm-water berms. There will be no stockpiles of waste rock or overburden. Any topsoils/usable surface material or usable crusher fines will be stockpiled for reclamation. If topsoil stockpiles are to be left for more than 1 growing season, they will be seeded with the recommended seed mix provided by the DRM&S for the M-1994-022 permit. (DMG 5-12-94 Pre-Operation Inspection Report, attached) Mr. Charles Peacock (and the SCD Supervisors) with the Colorado First SCD-NRCD in Craig, Colorado, have been contacted as to comments and recommendations. A copy of the DRM&S Reclamation recommendations made for the previous operator was sent for SCD approval. The SCD recommendation is to continue to use the DMG's 5-12-94 recommendations. Find copies of the communication with SCD in Exhibit J- Mailing Notices

Reclamation will commence when the floor of the pit is level with County Road 1 on the 5.0 acre site, which is 6600 feet level on the elevation map. Overburden and top soil is minimal so it will be spread with a trackhoe, loader or dozer. If it is to be hauled it will be loaded into trucks. Since overburden and top soil is minimal it will be spread at a 4 inch depth on 65%+, which is an estimated 5 +/- acres, of the mining disturbance, especially on flats surfaces and unconsolidated surfaces.

The 3.25 acre site will be reclaimed when it will not be needed as a storage site. The site will have the top 6-12" inches of topsoil removed and stockpiled and seeded to the west side of the storage site.

(b) The maximum gradient of reclaimed slopes.

The maximum gradient of reclaimed slopes will be 3:1. These slopes will be located along the western and northern pit perimeters as shown on the Exhibit E – Reclamation Plan Map, and will have an average slope length of 30 to 40 feet. These slopes are expected to grade into possible high angle to near vertical un-weathered outcrop similar to the current reclaimed existing site topographic profile only slightly expanded to the west and north of the 1.34 "previously mined and reclaimed area" shown on the map and photographs. Possible total length of stabilized un-weathered high angle slopes to sheer face high wall along the (western and) mostly north side of an ultimate 6 acre disturbed area would be approximately 500 feet in length. The residual high wall would be located generally along the "east-west" 20 year limit line shown on the Exhibit E Map.

The vertical walls will be left vertical walls, and will not be seeded. The 3:1 slopes with fines and rock will be hydro seeded according to the specification. The 3:1 slopes in non-consolidated material will have a high percent of rock with very little fines and it will be hydro seeded. The 5.0 acres to be mined is not fenced. The proposed slope configuration for the 3.25 acre stockpile area is the slope that is present now.

(c) Specific measures to be taken to re-vegetate the site.

1. Stockpiled surface material is minimal so it will be spread even. Fines and useable other crusher fines will be replaced over the final grade surface on the lower grade slopes and flatter operations area. Steep higher angle slopes and rock face will be mined at this time to un-weathered rock and scaled and stabilized similar to the current site topographic profile.

The 3.25 acre storage area will have, 6-12" inches of top soil will be stripped and stockpiled on the south side of the disturbed area. The rock and other materials will be bladed with a blade and removed. The number of acres in the lower grade will be an estimated 2 acres and the flatter operation area will be an estimated 2 acres.

The quality of fines will not be soil sampled. At present, a healthy grass and shrub community are growing on the fines from the 1.34 acres that was previously mined and reseeded.

2. Any surface material/topsoil stockpiles will be seeded if left longer than one growing season. **The method of reclamation will be as per the attached pre-mine application recommendation supplies by the DRM&S for the M-1994-022 permit. (The 5-12-94 Pre-Operation Inspection Report): 2-ton of straw mulch/acre and weed control will be as necessary. Seedbeds will be firm and clean tilled as possible with the limited rocky surface material available at the site. Final slopes in unconsolidated material graded to no steeper than 3:1. Steeper slopes in competent bedrock may be steeper but should blend in with the natural terrain and must be stable. All level areas and graded slopes to be seeded and vegetated.**

3. Species recommended or reclamation and Stockpiles: (Rate should be doubled for broadcast seeding)

**5 Acres (5 acre site)**

Bluebunch Wheatgrass	5.0 PLS per acre
Western Wheatgrass	2.9 PLS per acre
Crested Wheatgrass	2.0 PLS per acre
Indian Ricegrass	1.0 PLS per acre

**Double if Broadcast**

**4.8 Acre Storage Site Plue Stockpiles**

Green Needlegrass	5.5 PLS per acre
Western Wheatgrass	2.9 PLS per acre
Basin Wildrye	1.0 PLS per acre
Indian Ricegrass	1.0 PLS per acre

**Double if Broadcast**

A total of 10.9 PLS will be required per acre of reclamation on the 6.0 using a drill. (Rate should be doubled for broadcast seeding)

Stockpiled storage area, access roads and processing areas will be ripped and disked before seeding. No soil amendments or fertilizer will be used on the reclamation areas. As we observe the amount of fines at the mine site there will be adequate soil material to support plant growth. (Look at pictures of the site behind the final configuration for reclamation)

4. The seeding operation shall be drill seeded on the flat surfaces. **(but will more likely be hydro seeded due to steep rocky slopes)** As stated above in 2, **2-ton straw crimped mulch/acre and weed control will be surface material available at the site. Final slopes in unconsolidated material graded to no steeper than 3:1. Steeper slopes in competent bedrock may be steeper but should blend with the natural terrain and must be stable. All level areas and graded slopes to be seeded and vegetated.** The adjacent 4.8 acres is used as a storage area. The storage site area will be ripped, disked and stored topsoil will be added to the

storage site. The site will then be drilled and mulched with above material. The site and seeding will be prepared and seeded in late Fall or early Spring with available moisture.

5. (a) The fines from the mine site will be moved no more than 150'. The volume is hard to estimate since we are working in rock walls. 400-500 yards of material will be with a dozer. 40 hrs at \$175/hr = \$7000. Hydro seeding will be used on the 6 acres that will be needed to be reclaimed. The cost is per acre which includes seed and equipment. Six acres is a high estimate that will be disturbed.
- (b) Trackhoes will be used to remove small debris and scale back rock. Sheer walls that are on the west and south will be left as is. We will not work under there as it is too dangerous. Rock scaling will take a trackhoe 1 day @\$500/day. Consolidate rock will meet final reclamation grade. The cost to remove shed is \$250 to pick up with skidsteer and loader and put on a trailer and haul to one of our other pits. Cost of installing permanent storm water controls is \$2500. No fence was ever constructed so a new one will not be constructed.
- (d) There will be no ponds, streams or other impoundments constructed as part of reclamation activities. The future use of the site is planned as rangeland/wildlife habitat. All permanent man-made structures shown on the Exhibit E and Exhibit L Maps will remain. There has never been a fence on the east boundary of the permit. So no fence will be built upon reclamation.
- (e) There will be no waste rock dumps, underground openings, and plant facilities constructed or used during the mining activities and as such no reclamation treatment is necessary for these items. Storage shed on the mine site will be removed for reclamation. Storm-water control features such as berms ditches and silt fences will be used as part of the active mining activities. Silt fencing will be removed prior to the final grade operation of reclamation and disposed of offsite. Berms, ditches and haul roads will be incorporated into the final grade prior to topsoil application. The final grade as possible at such a vertically outcropping site will have a general slope of 3:1 max in unconsolidated material. Natural BMP's will remain past reclamation. **The catch bench installed to on the North/Northeast slope will remain to continue to keep the county roads clear of debris.** The benches will use berms and swaled and sediment traps constructed out of rock from the site to aide in storm-water control and erosion. Activities will disturb approximately 5 acres total. Since large boulders and rock may be lifted from the surface anywhere in the 5 acres (if desired and accessible).
- (f) Reclamation Costs: After a period of 20 years the site will have reached a point of approximately 5 acres maximum disturbance. Generally, by the date, lower slopes will have already been graded up to a final high-wall location and final reclamation activities will commence. It is estimated that a total of one week will required for the final reclamation of the site. Most reclamation at the site will be scaling the high-wall and re-grading the flatter operations area and lower slopes (and less), remove and incorporate any sediment berms and ditches, and provide a final grade and place surface material/topsoil. An additional 2 days is estimated for seedbed preparation and seeding. Rock scaling may take a single day as most weathered rock would have been removed already down to the competent bedrock via the mining.

Total reclamation costs are as follows:

Bulldozer (d-6 incl. mob)	-	40 hours @ 175/hour	= \$7000.00
Remove Shed	-		= \$ 250.00
Rock Scaling	-	1 day @ 800/day	= \$ 800.00
Install Permeant Storm-Water	-		= \$2500.00
Hydro Seed Trackfier	-	5 acres @ 800/acre	= \$4000.00
Monitoring	-		<u>= \$1250.00</u>
Drill Seeded and Mulched	-		= \$ 500.00
Straw	-		= \$ 400.00
Total estimated reclamation cost			= \$16,700.00

This cost estimate includes fuel, mobilization, operator and associated labor