

# TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

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January 24, 2006

TO: Internal File

THRU: Wayne Western, Lead, Bonding *WNW*

FROM: Joe Helfrich, Biology *JH*

RE: Phase II Bond Release, Arch Western Bituminous Group, LLC. Gordon Creek 2, 7, & 8 Mines, C/007/0016, Task ID #2384

**SUMMARY:**

On December 12, 2005, the Division received an application for Phase II bond release for the Gordon Creek # 2, 7, & 8 mines. The company is applying for a bond release for 146,578.00. This includes the 32.52 acres of reclaimed mine disturbance. The mines are located in Bryner Canyon approximately 20 miles northwest of Price, Utah and can be located on the Jump Creek 7.5 minute quadrangle map. This memo will include a review of the Biology Section of the regulations.

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**TECHNICAL ANALYSIS:**

**RECLAMATION PLAN**

**GENERAL REQUIREMENTS**

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

**Analysis:**

The reclamation plan for the Gordon Creek mines can be found in Volume 1, Section 3, pages 3-29 through 3-77 and Figures 3-1 through 3-7. This Section of the plan addresses the reclamation of the Gordon Creek 2, 7, & 8 mines, the old fan portal area, and Sweets pond. The Sweets Pond area has received final bond release.

Appendix 2-9 has been provided as the application for Phase II bond release of the Gordon Creek 2, 7, & 8 mines. Included are:

- Bond release figures for current reclamation activities,
- Copies of letters for the notification of the phase II bond release application to landowners, agencies, and water companies,
- A copy of the newspaper advertisement for Phase II Bond release, and
- The Vegetation monitoring study for the reclaimed areas is included in the Bond release application.

**Findings:**

The information in this Section of the approved Mining and Reclamation Plan and Phase II bond release application is adequate to meet the requirements of this Section of the regulations.

**POSTMINING LAND USES**

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

**Analysis:**

The Postmining Land use for the Gordon Creek Mines is addressed in Volume 1, Section 4, and pages 4-55 through 4-57 of the approved MRP. The land use is designated as Wildlife Habitat. Reclamation and revegetation practices have resulted in the establishment of wildlife populations, (deer, elk, bear, raptors, birds, small mammals), and vegetation on the reclaimed area.

**Findings:**

The information in this Section of the approved Mining and Reclamation Plan and Phase II bond release application is adequate to meet the requirements of this Section of the regulations.

**PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES**

Regulatory Reference: 30 CFR Sec. 817.97; R645-301-333, -301-342, -301-358.

**Analysis:**

At the completion of backfilling, grading, surface roughening and seeding the reclaimed area was fenced to prevent livestock from grazing on the newly established vegetation. A three-celled sediment pond was constructed at the lower end of the reclaimed area to collect sediment from the reclaimed area during the initial years of vegetation establishment and prevent off site deposition of sediments to Gordon Creek. The area was also posted as no trespassing by the surface owner.

**Findings:**

The information in this Section of the approved Mining and Reclamation Plan and Phase II bond release application is adequate to meet the requirements of this Section of the regulations.

**REVEGETATION**

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

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**Analysis:**

**Revegetation: General Requirements**

Final seeding for the reclaimed areas occurred in October 1998 using a combination of native and introduced plant species. A copy of the final seed mix, (Table 3-3), is included in the application.

**Revegetation: Timing**

Section 3.5.5.4 page 3-57 of the approved MRP details the schedule that was used to complete the reclamation of the Gordon Creek mines. Reclamation, mulching and seeding were completed in October of 1998 in accordance with the approved schedule.

**Revegetation: Mulching and Other Soil Stabilizing Practices**

Section 3.5.5.3 page 3-56 of the approved MRP describes the type of mulch and application rates in pounds per acre that were used to complete the reclamation of the Gordon Creek mines.

**Revegetation: Standards For Success**

Section 3.5.5.7 pages 3-59 through 3-61 of the approved MRP describe the standards for success the established vegetation would be measured against. Also known as a reference area this vegetative community is described as Mountain Brush/Grassland. The application includes a vegetation monitoring report for the year 2003. Quantitative and qualitative data were taken on the vegetation of the reclaimed areas in accordance with the monitoring requirements of the MRP, (Section 3.5.5.7 page 3-62). The results of the data were as follows:

**Reclaimed Areas**

Total mean living cover was estimated at 64.20%. This cover estimate was comprised of 57.21% forbs, 40.52% grasses and 2.26% shrubs. Woody species were estimated at 266 plants per acre.

Diversity indices included the average number of species per square meter at 3.720, the total diversity using MacArthur index at 10.752, and the total number of species encountered at 30.

### **Reference Area**

Total mean living cover was estimated at 51.88%. This cover estimate was comprised of 3.4% forbs, 53.13% grasses and 43.47% shrubs. Woody species were estimated at 2,225 plants per acre.

Diversity indices included the average number of species per square meter at 2,750, the total diversity using MacArthur index at 5.495, and the total number of species encountered at 15.

A number of conclusions may be drawn from this data and they are discussed in the report prepared by Mt. Nebo Scientific as Appendix 2-9. Based on this data, monthly inspections since reclamation, (approximately 60) and monthly records of no discharge from the sediment pond, the reclaimed site is stable, well vegetated and not contributing any suspended solids to the watershed outside of the reclaimed area.

### **Findings:**

The information in this Section of the approved Mining and Reclamation Plan and Phase II bond release application is adequate to meet the requirements of this Section of the regulations.

## **STABILIZATION OF SURFACE AREAS**

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

### **Analysis:**

Reclamation techniques used to stabilize surface areas included backfilling and grading to approximate original contour, surface roughening, reestablishment of watershed drainages utilizing various sizes of rip rap, proper soil replacement, construction of sediment ponds to prevent off site deposition of sediments and seed distribution using a combination of native and introduced plant species.

### **Findings:**

The information in this Section of the approved Mining and Reclamation Plan is adequate to meet the requirements of this Section of the regulations.

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**MAPS, PLANS, AND CROSS SECTIONS OF RECLAMATION  
OPERATIONS**

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-323, -301-512, -301-521, -301-542, -301-632, -301-731.

**Analysis:**

**Final Surface Configuration Maps**

Plate 3-7 of the MRP describes the final surface configurations for the reclaimed area. Plates 3-8A through 3-8H provide cross Sections of the reclaimed area.

**Findings:**

The information in this Section of the approved Mining and Reclamation Plan is adequate to meet the requirements of this Section of the regulations.

**RECOMMENDATIONS:**

The application is recommended for approval.