



State of Utah  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt  
Governor  
Kathleen Clarke  
Executive Director  
Lowell P. Braxton  
Division Director

1594 West North Temple, Suite 1210  
PO Box 145801  
Salt Lake City, Utah 84114-5801  
801-538-5340  
801-359-3940 (Fax)  
801-538-7223 (TDD)

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April 29, 2002

**TO:** Internal File

**THRU:** Susan M. White, Senior Reclamation Specialist/Team Lead *SMW*

**FROM:** Priscilla W. Burton, Senior Reclamation Specialist/Soils *PWB*

**RE:** Appendix 3-P: Wild Horse Ridge Tank Seam Pad and Access Roads, CO-OP Mining., Bear Canyon Mine, C015025-AM02B.

**SUMMARY:**

On February 19, 2002, the Division received a permit amendment for development of the No 4 Mine access road (¼ mile in length) and pad area (2.5 acres) with three portals into the Tank Seam on Wild Horse Ridge. The useful life of these portals is estimated to be eighteen years. Tank seam coal (#4 Mine) will be dropped by chute into the Blind Canyon seam (#3 Mine) and transported to the tippie by the overland conveyor. Portal pad development includes the construction of a retaining wall to widen the pad area and movement of approximately 11,000 cubic yards of soil into place.

A total of 2.55 acres will be added to the Bear Canyon Mine disturbed area for a total of 39.72 acres disturbed.

**TECHNICAL ANALYSIS:**

**GENERAL CONTENTS**

**PERMIT APPLICATION FORMAT AND CONTENTS**

Regulatory Reference: 30 CFR 777.11; R645-301-120.

**Analysis:**

Attachment B contains the slope stability analyses conducted by URS Corporation. This attachment is mistakenly labeled Soil Resource Inventory and Assessment on page 3P-17.

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Page 3-7 and page 8-35 indicate that the Wild Horse Ridge Soil information is found in Appendix 8-F. Appendix 8-G Wild Horse Ridge Tank Seam Soil Resource Inventory and Assessment should also be mentioned.

Table 8.11-1 Final Grading Test Sample Density indicates the number of samples that will be taken of the soils after grading for analysis as outlined in Table 8.9-1. Table 8.9-1 is a reclamation area summary and does not suggest analytical methods.

Page 8G-6 of Appendix 8G Wild Horse Ridge Tank Seam Soil Resource Inventory and Assessment appears to be in rough form and should be finalized before submittal. For instance, Section 3.2 comes before section 3.0 on the page and Section 3.2 is not complete.

**Findings:**

The information provided is not clear and concise. Before approval, the Permittee must provide the following in accordance with:

**R645-301-120**, Correct the labeling for Attachment B on page 3P-17 to read Slope Stability Analyses.

Include a statement on page 3-7 and page 8-35 that the location of the Wild Horse Ridge Tank Seam Soil Resource Inventory and Assessment is in Appendix 8-G.

Correct the first sentence of the second paragraph on page 8-44 to accurately state the location of the description of the methods of chemical analysis after grading of soils.

Provide a finalized copy of Appendix 8G Wild Horse Ridge Tank Seam Soil Resource Inventory and Assessment.

**REPORTING OF TECHNICAL DATA**

Regulatory Reference: 30 CFR 777.13; R645-301-130.

**Analysis:**

URS Corporation; 756 East Winchester Street, Suite 400, Salt Lake City, conducted the slope stability analyses for the Tank Seam expansion at Wild Horse Ridge (Attachment B of Appendix 3P).

Mr. Dan Larsen of EIS Environmental & Engineering Consulting, 31 North Main St., Helper Utah conducted the Wild Horse Ridge Tank Seam Soil Reserves Investigation and Assessment (Appendix 8-G).

**Findings:**

The information provided is adequate for reporting of Technical Data.

## ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

## GEOLOGIC RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.22; R645-301-623, -301-724.

**Analysis:**

Section 3.5.8.1 of the MRP indicates that samples will be taken in new sections during future development where indicated on Plate 3-4. Samples will be analyzed according to Table 3K-1 and results will be included in Appendix 6-C.

**Findings:**

The amendment does not include information as outlined by Section 3.5.8.1 of the Mining and Reclamation Plan. Prior to approval and in accordance with:

**R645-301-731.300**, Provide information on roof and floor sampling for the #3 Blind Canyon and #4 Tank Seam Mines to update Appendix 6C (geologic sampling) and update Plate 3-4 with sampling locations.

## SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

**Analysis:**

A soil survey for the Tank Seam area expansion on Wild Horse Ridge was conducted in October 2001 (Appendix 8G). Soils of the portal were classified as loamy-skeletal, mixed,

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Typic Calciborolls (Guben) and loamy-skeletal, mixed Typic Haploborolls (Datino) on the basis of two pits TSP-1 and TSP-2. These classifications were supported by eleven hand dug holes (N11 – N21). Ten hand dug holes (N1 – N10) were used to verify the Guben Pathead soils and Doney-Cabba-Podo soils along the access road. Locations of the pits and shallow excavations are shown on the Soils Map that accompanies Appendix 8G.

Samples of the A and B horizons were collected and analyzed by Inter-Mountain Laboratory, Farmington, New Mexico. Pit TSP-2 is located in Datino soil adjacent to the road along the second hairpin turn above the Blind Canyon Seam portals. TSP-2 was sampled down to 20 inches (sample number P5).

Pit TSP-1 was located in Guben soil alongside the road just below the third hairpin turn above the Blind Canyon Seam portals. TSP-1 was sampled down to 40 inches (samples numbered P1 – 3). Calcic horizons were identified in the field at 9 inches and 24 inches and verified by analysis.

A composite of soil from Notesite 21 at the pad area was combined with the surface soils from TSP-1 and labeled P4.

The nutrient status of the top eight inches of soil at TSP-1 was 5.0 mg/kg Nitrate-N, 3.0 mg/Kg Phosphorous, and 170 mg/Kg Potassium. The nutrient status of the top eight inches of soils at TSP-2 were not sampled separately, but were added to a composite of soils in the pad area (P4). The P4 sample was less fertile than the top eight inches of TSP-1 with 1.0 mg/kg Nitrate-N, 3.2 mg/Kg Phosphorous, and 310 mg/Kg Potassium in the upper seven inches. (This analytical result does not reflect the quality of the soil in TSP-2.) In both pits, SAR values were 0.2 or less and Electrical Conductivity was under 0.9 mmhos/cm.

The TSP-2 samples are noticeably lower in carbonates than those of TSP-1. Neutralization Potential of the calcic horizon in TSP-1 was over 300 t/kt compared with less than 10 t/kt at the 10 inch depth in TSP-2. (The calcic horizon was not indurated and did not restrict root growth.)

The field notes support the salvage of eight inches of topsoil (A horizon) along the road and at locations of pad development and switchback widening. Field notes and the NRCS soil description indicate that the A and B horizon for the Guben and Datino soils could be salvaged to a depth of sixteen inches.

**Findings:**

The information provided is adequate for the Soils Resource requirements of the Regulations.

## OPERATION PLAN

### TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

#### Analysis:

##### Removal and Storage

Table 3.3-1 Surface Disturbance Summary indicates that the No.4 Mine Access Road will be 2.0 acres (2000 feet long, page 3D-7A) and the Wild Horse Ridge Portal Pad area will be 0.55 acres. The pad will be supported by a retaining wall (page 3A-7). Roads will be made of subsoils and/or imported gravels. Road base analyses are presented in Appendix 8-E.

Development of the site will begin from the Blind Canyon seam. Topsoil will be removed from road and pad cuts as noted on page 8G-7 of App 8-G. That is to a depth of eight inches from most of the site and to a depth of 20 inches where pockets of a brown sandy loam BW horizon were noted along the northeast edge of the portal site. This loam is lighter in color than the subsoil. "The subsoil can be readily identified by its lighter color as a result of the increased calcium carbonate content and lower amount of organic matter."

Field notes and the NRCS soil description in Appendix 8G indicate that the A and B horizons for the Guben and Datino soils could be salvaged to a depth of sixteen inches. Since the mine is operating with a deficit of salvaged topsoil, expansion at Wild Horse Ridge presents an opportunity to salvage and store soils that could be utilized in reclamation of the Tipple yard.

A total of 1,300 cu yds will be salvaged (page 8-35 and Table 3P-1 and Table 8.9-5 Summary Table). Topsoil will be stored in the Wild Horse Ridge Tank Seam Topsoil Stockpile located "inside the bend of the corner (Page 3P-3)." The topsoil stockpile location is shown on Plate 8-5G. Page 7K-11 indicates the 0.31 acre topsoil storage area will be protected from road drainage by a berm. Details of stockpile construction are shown in Appendix 3-P.

Table 8.3-2 Soil Unit Acreages Within the Disturbed Area indicates that 1.09 acres of Datino-Guben (DG) soils will be salvaged. Page 8-43 states that there will be no construction or soil movement in the 0.76 acres of TS-16, because this is an existing recreational road.

Subsoils will be compacted on the outside of the two switchbacks shown on Plate 2-4G to allow the road to widen in these points.

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**Findings:**

The information provided is not adequate to clarify topsoil handling. Prior to approval and in accordance with:

**R645-301-232.100**, Where the road will be widened in TS-16 to accommodate mine traffic, account for topsoil removal in Tables 8.9-5.

**R645-301-232.200**, Consider the salvage and storage of sixteen inches of soil (the A and B horizons) from the Guben and Datino soils.

**R645-301-521.165**, Label the area of topsoil storage on Surface Facilities Plate 2-4G.

**SPOIL AND WASTE MATERIALS**

Regulatory Reference: 30 CFR Sec. 701.5, 784.19, 784.25, 817.71, 817.72, 817.73, 817.74, 817.81, 817.83, 817.84, 817.87, 817.89; R645-100-200, -301-210, -301-211, -301-212, -301-412, -301-512, -301-513, -301-514, -301-521, -301-526, -301-528, -301-535, -301-536, -301-542, -301-553, -301-745, -301-746, -301-747.

**Analysis:**

**Coal mine waste**

Section 3.5.8 of the MRP indicates that 150 cu yds of coal mine waste may be temporarily stored (15 days) on the main storage pad shown on Plate 2-4C. Drainage from this temporary location goes to Sediment Pond A.

Final storage of coal mine waste is permitted at the Hiawatha (C/007/011) in Slurry Pond 5A. Prior to shipping to Hiawatha, material will be tested for acid/toxic properties according to Table 3K-1.

**Findings:**

The information provided is adequate with regard to spoil and waste disposal requirements of the Regulations.

## RECLAMATION PLAN

### TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

#### Analysis:

##### Redistribution

Cut and Fill calculations are shown in Table 3P-1 on page 3P-4. Calculations were developed from Plates 2-4G, Plate 3-2G and 3-7G using AutoCad Quicksurf 3-D modeling software. Resulting cross-sections are found in Attachment A (Note: the scale changes with each cross-section). Plate 3-7G shows the locations of the cross-sections.

Table 8.9-1 Reclamation Area Summary includes areas TS-16 (0.76 acres) and TS-17 (1.79 acres) for the Wild Horse Ridge Tank Seam, for a total of 2.55 additional acres. Table 8.3-2 Soil Unit Acreages Within the Disturbed Area indicates that the Wild Horse Ridge Tank Seam development will add 2.4 acres to the total disturbed acreage. Total disturbed acreage on Tables 8.3-2 and 8.9-1 does not appear to be in agreement.

Eight inches of topsoil will be replaced over the regraded area (page 3P-6).

Two samples will be drawn from the re-graded subsoils of the WHR Tank Seam Upper Pad to be tested for suitability.

#### Findings:

The information provided is not adequate to clarify topsoil redistribution. Prior to approval and in accordance with:

**R645-301-242**, Check itemization of total disturbed acreage on Table 8.3-2 and Table 8.9-1 for agreement.

### HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

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**Analysis:**

**Acid and toxic-forming materials**

During final reclamation, subsoils will be tested with the frequency outlined in Table 8.11-1 for acid/toxic parameters. The MRP describes final placement of coal mine waste in Section 3.5.8.

**Findings:**

The information provided is adequate to protect the hydrologic balance as required by the Regulations.

**STABILIZATION OF SURFACE AREAS**

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

**Analysis:**

A slope stability analysis conducted by URS Corporation, Salt Lake City, Utah, is provided in Attachment B. Subsoil will be compacted in 12 inch lifts. During operations, exposed slopes will be covered with erosion control matting as described in Appendix 7-K (page 3P-5). During reclamation, slopes will be roughened with pocking and erosion control matting will be used as described in Section 3.6.11 (page 7K-23).

**Findings:**

The information provided is adequate for the stabilization requirements of the Regulations.

**RECOMMENDATION:**

Additional information is requested before approval.