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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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TO: File

THRU: Joe Helfrich, Permit Supervisor

THRU: Daron Haddock, Permit Supervisor

FROM: Robert Davidson, Soils Reclamation Specialist RAD
Paul Baker, Reclamation Specialist Paul Baker by RAD

RE: Experimental Practices - Test Plot Amendment, West Ridge Resources, Inc., West Ridge Mine, ACT/007/041-99B, Folder #2, Carbon County, Utah

SUMMARY:

The first Permit Application Package (PAP) submittal for the West Ridge mine was received on January 26, 1998. The Division completed and replied with their initial Technical Analysis response on August 20, 1998. West Ridge Resources resubmitted the PAP on October 7, 1998, and the Division responded with a Technical Analysis on November 27, 1998. A third submittal was received on January 11, 1999. The Division responded with memos from each of the review team disciplines on January 27, 1999. A fourth submittal was received on February 1, 1999 in response. The Division of Oil, Gas and Mining approved the Permit Application Package and issued the Permit on April, 1, 1999. The Regional Director, United States Department of the Interior, Office of Surface Mining, approved the Experimental Practice for in-place topsoil protection on March 10, 1999. Federal Mine Plan approval was given on June 30, 1999.

During site construction, a reduction in the extent of the mine site disturbance area resulted in necessary changes being made for the design and installation of the Experimental Practice's Test Plot. The current amendment contains the proposed changes to the Test Plot portion of the approved Mine Reclamation Plan (MRP). This Technical Analysis reviews the soils portion of the current amendment.

TECHNICAL ANALYSIS:

REQUIREMENTS FOR PERMITS FOR SPECIAL CATEGORIES OF MINING

EXPERIMENTAL PRACTICES

Regulatory Reference: 30 CFR Sec. 785.13; R645-302-210, -302-211, -302-212, -302-213, -302-214, -302-215, -302-216, -302-217, -302-218.

Analysis:

Field Trials

In order to evaluate the effects of the geotextile and fill over the existing in-place topsoil resources, a test plot study area was established in the upper right fork northeast of the topsoil stockpile. The purpose for the test plots is to evaluate the experimental practice reclamation plan proposed for the mine yard area. After the test plot area is constructed, the study cut/fill area will remain intact for five years to simulate the mine yard operation phase. Following the five year period, reclamation of the study plot area will be performed to actually implement and test the final reclamation plan.

Construction History Overview

Mine site evaluation during the early stages of construction resulted in a reduction in the upper extent of the mine site disturbed area. As a result, the topsoil stockpile is located further down in the right fork than is portrayed in the approved MRP. The experimental test plot area remained in its originally designated location because both Strych and Midfork soils are assessable within a suitable area that contained approximately half of each soil type. Some departure and modification of the original test plot study as explained in the MRP was necessary since the area was now isolated from the main facility area. Attached is a copy of FIELD NOTES - WEST RIDGE MINE SITE, Experimental Practice Test Plot Area, that describes in detail the measures taken to modify the study to bring the Test Plot Study into compliance.

Test Plot Overview

The test plot site will be established during the initial construction phase of the West Ridge Mine. The study plots are located in upstream area of the right fork. The study plot area is separated from the main mine yard and is located northeast of the topsoil stockpile.

Similar to the actual construction of the mine yard for preserving soils in-place and providing construction fills from adjacent cut slopes, topsoil will not be salvaged from the west half of the test plot area, but soil and construction fills will be salvaged and cut from the east half of the test plot area. The test plot development sequence will be as follows:

- Prior to fill or topsoil stockpile placement, the western half of the study area will be covered with geotextile where undisturbed Strych and Midfork topsoil will be protected in-place.

- Topsoil will be separately salvaged from the eastern half of the study area. Midfork topsoil will be placed and stockpiled on the southeast plot area, overlaying the in-place geotextile protected Midfork topsoil. The salvaged Strych soil will be temporarily set aside.

- After topsoil is stripped, the north quarter of the test plot area will be cut and excavated to provide construction fill for the western half. The cut and excavation areas are created to simulate the cut slopes of the mine yard.

- Prior to placing the topsoil on the Strych Topsoil Stockpile/Geotextile portion of the test plot, the cut and excavated fill material from the eastern half will be placed and compacted to a depth of about 6 feet. After fill placement, the placed, compacted fills will be covered with geotexitile fabric, then the salvaged Strych soil will be stockpiled over the geotextile covered fills.

- Both the Midfork and Strych cut areas and Strych and Midfork topsoil stockpile areas will be roughened and seeded with the interim reclamation seed mix.

Test Plot Reclamation

After the test plot area is constructed, the cut/fill area will remain intact for five years to simulate the operation phase of the mine yard. Following the five year period, reclamation will be performed on the test plot area to actually implement and test the final reclamation plan in comparison to conventional reclamation techniques. Appendix 2-6 contains a complete discussion of the experimental practice test plot plan. The resulting four test plots will be grouped into two categories, the "removed topsoil test plot" and the "in-place topsoil test plot".

After the surface treatments have been applied, the plots will be seeded with the final reclamation seed mix. Canyon sweetvetch will also be seeded on the test plots. Because of the small area to be treated, the seed will be broadcast on the surface and raked in by hand. Straw mulch will be applied over the seed bed of the test plot at a rate of 2,000 pounds per acre. Then the surface will be sprayed with a mulch and tackifier.

The test plot area will be accessed via the extreme edge of the topsoil stockpile and the adjacent cutslope during late summer or early fall. Any compaction or disturbance to the stockpile surface will be ripped and reseeded following completion of the test plot installation and reclamation of this area.

Vegetation monitoring will compare the results of plant growth between the experimental practice in-place soils to replaced topsoil. Monitoring will compare re-vegetation response for each soil type (Strych and Midfork) for each of the two soil surfaces (channel bottom and hillside). For example, comparisons will be made between in-place soils and replaced soils for the channel bottom soils consisting mainly of Strych; likewise, comparisons will be made for hillside Midfork soils. The experimental test plot area will also be compared with the reference area for the Douglas Fir/Maple vegetation type. Vegetation will be monitored for five years or until a determination of success has been made for the experimental practice. WEST RIDGE Resources will consult closely with the Division regarding the results of the test plot study. Should the results show a need to revise the reclamation plan, WEST RIDGE Resources will work with the Division to amend the plan and incorporate the changes needed to ensure reclamation of the mine yard area will be successful. As a last resort, West Ridge Resources will utilize the soil borrow area for obtaining soils to reclaim the site if the experimental practice is determined to be unworkable.

Findings:

Information provided in the application is considered adequate to meet the requirements of this section.