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DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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February 20, 2001

TO: [REDACTED]

THRU: Wayne H. Western, Project Team Lead *WHW*

FROM: Priscilla W. Burton, Soils Reclamation Specialist *PB*

RE: Midterm Amendment, Lodestar Energy Inc., Horizon Mine [REDACTED] MT99-3

SUMMARY:

The Division is required to review each active permit during its term, in accordance with R645-303-211. At the mid-point of the Horizon Mine permit term (April 1999), the Horizon Mining and Reclamation Plan (MRP) review was initiated. The first TA was dated April 23, 1999. The second TA was dated July 28, 2000. This review is the Division's third look at the mid-term amendment.

This submittal was very difficult to review, because it is not a stand-alone document, it adds to the previous submittal, but the page numbers do not correlate with the previous submittal.

TECHNICAL ANALYSIS:

ENVIRONMENTAL RESOURCE INFORMATION

SOILS RESOURCE INFORMATION

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

Analysis:

Soil descriptions for #63, Midfork family-Podo association; #72, Pathead-Curecanti family association; #107, Shupert-Winetti complex; #109 Silas-Brycan loams; #124, Uinta family-Podo association are found in Chapter 8.

TECHNICAL MEMO

Findings:

The requirements of this section of the regulations are considered adequate.

OPERATION PLAN

TOPSOIL AND SUBSOIL

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

Analysis:

The following soils issues were identified in the last Mid Term permit review:

- the Division is unable to make a determination verifying the topsoil stockpile volumes as shown in the Appendix 8-1 Topsoil Stockpile Table.
- The current topsoil stockpile dimensions, configuration, cross sections and resulting depth, area, and soil volumes need to be determined

Topsoil for reclamation of the 5.49 acres is available from three sources:

1. interim reclamation sites (Areas D & E on Plate A, Appendix 8-1) that hold 779 cubic yards of topsoil soil in a layer 20 inches deep (according to the submittal section 3.5.2);
2. from the topsoil pile that was created in November of 1996; and,
3. as a last resort, from the slopes of Areas A, B, and C which hold 975 cubic yards from the county road construction in a layer 11 inches deep (according to the existing MRP section 8.8.1) .

At its creation, the topsoil pile stored 13, 741 cubic yards of consolidated material. The reason the Division is requesting a recalculation of the volume within the topsoil stockpile is that the Permittee disturbed the pile and an unknown volume of soil material was lost. Incredibly, the April 25, 2000 submittal suggested there were 22,090 cubic yards in the topsoil pile. This table is riddled with multiplication errors and ultimately, the author of the table did not use the correct formula for calculating volumes using cross sections. The average end area method should be used.

The cover letter accompanying this submittal states that the Permittee has not yet been able to determine the volume of material remaining in the topsoil pile. As no new information has been received from the Division for review, the following key points from the July 28, 2000 Technical Analysis are reprinted here for reference:

In the current approved MRP, Appendix 8-1 "Topsoil Stockpile Table" shows a surveyed 10,993 in-place cubic yards in the topsoil stockpile...

Topsoil Stockpile Table provided in Appendix 8-1 was created by two separate surveys, once in May of 1997 and again in September/October 1997...

In November 1999, Horizon dug several test pits within the topsoil stockpile boundary to verify the amount of topsoil in the stockpile...

Plate 8-3, Topsoil Stockpile and Cross-Sections, shows... that soil has been excavated from the area, not stockpiled, with operations topography below the pre-mining topography. The current topsoil stockpile dimensions, configuration, cross sections and resulting depth, area, and soil volumes need to be determined...

Also identified in the last Mid Term permit review:

- topsoil lacks protection within the contemporaneous reclamation areas (Plate A, App 8-1 and Section 3.5-1.)

Several slopes (Plate A, Appendix 8-1) in the disturbed area have been dressed with topsoil and seeded in accordance with R645-301-234.300. However, no sediment control has been placed at the base of these interim or contemporaneously reclaimed slopes to catch soil before it is washed down onto the operations pad. The Division recommends that a silt fence is employed to retain the soil on the slopes. The MRP narrative should describe its use. Slopes which have been layered with topsoil should be designated as topsoil storage areas on the surface facilities map and on site with signs.

Findings

Information provided in the proposed amendment is not considered adequate to meet the requirement of this section. Prior to approval, the permittee must provide the following in accordance with:

R645-301-231.100, Describe in the MRP narrative what measures will be taken to protect the topsoil which is being stored in layer on interim reclamation slopes.

R645-301-234.300, Include on Plate 3-1 and in the narrative in section 3.3.5.1 topsoil layered on the interim reclamation slopes as "topsoil storage areas."

R645-301-231.400, R645-301-120 and R645-301-130, 234.200, Calculate the volumes of topsoil in the stockpile and update Appendix 8-1, Topsoil Stockpile Table.

TECHNICAL MEMO

R645-301-521, R645-301-521.150 and R645-301-521.165, Provide the topsoil stockpile dimensions (area, depth, cross sections).

RECLAMATION PLAN

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-244, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

Table 3-1 show the cut and fill estimates for the disturbed area. The disturbed area is 9.15 acres. An average cut of 2.67 feet over 3.211 acres will yield 13,810 CY. An average fill depth of 3.983 feet over 2.183 acres will require 13,476 CY. The MRP indicates on page 3-35 Section 3.5.4 and again in section 8.8, page 8-25, that topsoil will be spread 20 inches deep over the 5.49 acre regraded site, however, Plate B, Appendix 8-1 indicates that only 10 inches will be applied to the graded site.

Plate 5-5 is mentioned in section 3.5.2 as showing areas where topsoil layered on slopes will be redisturbed, but this plate could not be found. These areas are shown on Plate 3-7 as the lower slopes in Areas B, D, and E. Section 3.5.2 indicates that the topsoil from these slopes will be removed and safely stored in the topsoil pile. This section should also indicate the method to be used to ensure that the designated amount of soil is removed. Methods recommended by the Division in the The Practical Guide to Reclamation Manual, available on line at <http://www.dogm.nr.state.ut.us>, are the presence of a qualified soil scientist on site, pedestals, and staking.

Section 3.3.2.5 of the existing MRP discusses the coal mine waste buried within the operations pad. The existing MRP indicates that approximately 2500 - 2700 CY of waste are buried 4 feet deep within the pad (locations should be shown on a plate in Appendix 3-8 and on Plate 5-5). This information is restated in the submittal, page 3-44, under "Acid and Toxic Forming Materials." The plate in Appendix 3-8 is entitled Sweets Canyon, Pond Utilities. It did not have the information mentioned on coal mine waste burial locations. Plate 5-5 could not be located.

Coal mine waste burial locations are indicated on the recently submitted Plate 3-7, Reclamation Topography. This map shows coal mine waste buried very close to the drainage of Portal Canyon. And, it appears from this map and Plate 3-7A, Post Mining X-Sections, that the grading operations in areas G-G', H-H' and J-J' will uncover coal mine waste. In light of this fact, the Permittee should make plans to remove all topsoil layered in areas D and E (Plate A, Appendix 8-1 of the submittal) prior to grading, so that the slopes of areas D and E can be used as a coal mine waste burial location. The current grading plan does not adequately address this issue.

The plan has a commitment (page 3-39) that during reclamation excavation, if any waste is uncovered, it will be buried beneath 4 feet of non-toxic fill. It is likely that in recreating the approximate contours of the site, the coal mine waste will be encountered. This waste is high in boron and must be covered, as boron is toxic to plants.

Section 3.5.4.4 has been gutted with this submittal. Taken out were references to:

1. silt fences at the bottom of regraded slopes,
2. mulching during seeding,
3. matting on slopes > 2.5h : 1v.

Section 3.5.4 refers to temporary sediment control measures as needed under the heading of erosion and water pollution control. This section should refer to the measures outlined in section 3.5.5.3, Mulching, wherein it is described that 2000 lbs/acre of mulch will be incorporated into the topsoil and erosion control matting will be used on slopes > 2.5h : 1v.

Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Prior to approval, the permittee must provide the following in accordance with:

R645-301-242.400 Correct the discrepancy between the approved MRP (Sections 3.5.4 and 8.8) which indicate topsoil will be replaced to a depth of 20 inches and Plate B of Appendix 8-1 which incorrectly assumes a ten inch topsoil replacement depth.

R645-301-536.300 Locate Plate 5-5 and a Plate A in Appendix 3-8 delineating coal mine waste locations as indicated in the MRP section 3.3.2.5 and in the submittal page 3-44 under "Acid and Toxic Forming Materials."

R645-301-536.300 and R645-301-731.311 and R645-301-746 Describe in the narrative and show on a map a plan for removing the coal mine waste from the stream channel of Portal Canyon and identify a location for the burial of coal mine waste which will be uncovered during grading to final contour.

R645-301-242.400 Locate Plate 5-5 which shows areas where interim reclamation will be redisturbed to salvage the topsoil before grading as mentioned in section 3.5.2. of the submittal.

R645-301-244 Re-insert critical information from the plan concerning erosion control in Section 3.5.4.4. of the submittal and on page 3-43, "Erosion and Water Pollution Control.

TECHNICAL MEMO

R645-301-241 Indicate in section 3.5.2 the method(s) to be used to ensure quality control during the removal of 20 inches of topsoil from the interim reclamation slopes.

RECOMMENDATION:

This submittal does not completely address issues that were raised during the technical analysis dated July 28, 2000. Most importantly, the disposition of the coal mine waste buried in the fill is still in question. In addition, this submittal has taken much of the erosion control and other required information out of the MRP.

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