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State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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April 12, 2000

Dan Meadors, General Manager
Canyon Fuel Company, LLC
HC 35 Box 380
Helper, Utah 84526

Re: Midterm Review Outstanding Deficiencies, Canyon Fuel Company, LLC, Skyline Mine, ACT/007/005-MT99, Outgoing File

Dear Mr. Meadors:

The Division has completed a review of the information we received on March 22, 2000 which was intended to address issues relative to the Midterm Review. Unfortunately there still remain deficiencies in your plans that must be resolved. The enclosed technical analysis describes the problems. You should review it carefully and prepare a response that will address the deficiencies. We will expect your response by no later than May11, 2000.

On a related note we did receive a letter from Chris Hansen dated April 4, 2000 which discusses the mine site sediment pond discharge. The letter was very informative and we have a better understanding of the discharge system. Unfortunately, the information is not submitted in a format that can be inserted in the your Mining and Reclamation Plan(MRP). We request that you submit the information in the form of an amendment that can be inserted into the MRP. This should also be submitted by the May 11th date.

Please call if you have any questions.

Sincerely,

Daron R. Haddock

Daron R. Haddock
Permit Supervisor

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Enclosure
cc: Chris Hansen, Canyon Fuel Company, LLC
Price Field Office
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April 7, 2000

TO: Internal File

THRU: Daron Haddock, Permit Supervisor

FROM: Wayne H. Western, Reclamation Specialist III

FROM: Michael Suflita, Reclamation Hydrologist

RE: Review of Midterm Response, Canyon Fuel Company, LLC, Skyline Mine
ACT/007/005-MT99

SUMMARY:

Proposed changes to the Skyline Mine were received on March 22, 2000, after three request for extensions. These changes were in response to the midterm review. During the midterm the Division found problems with the highwall elimination plan and the sediment pond design.

The information in the proposed amendment is not considered adequate to meet the requirements of the coal rules. The Permittee should make the changes to the amendment as outlined below.

TECHNICAL ANALYSIS:

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: R645-300-730

Analysis:

The original Midterm Review sent on November 23, 1999 contained an analysis of the sediment pond, specifically detailing the problems associated with NPDES discharge violations and discharges of longwall emulsion fluids. The current submittal has no information on this subject at all. Therefore,

those deficiencies remain as explained before. The finding from the original Midterm Review is cited for this analysis.

Findings:

The current operation of the Skyline Mine is not considered adequate to meet this regulation. Accordingly, the Permittee must address those deficiencies as found within this Technical Analysis (the original Midterm Review) and provide the following in accordance with the requirements of:

R645-301-730, The Permittee must give the Division a detailed plan that included changes the main minesite sediment pond to eliminate NPDES discharge violations and stop discharges of longwall emulsion fluid to the pond and/or Eccles Creek.

RECLAMATION PLAN

APPROXIMATE ORIGINAL CONTOUR RESTORATION

Regulatory Reference: 30 CFR Sec. 784.15, 785.16, 817.102, 817.107, 817.133; R645-301-234, -301-270, -301-271, -301-412, -301-413, -301-512, -301-531, -301-533, -301-553, -301-536, -301-542, -301-731, -301-732, -301-733, -301-764.

Analysis:

The Permittee proposes to reclaim the mine site to approximate original contours except the area by State Road 264 and the cutslopes above the mine access road. The Permittee wants those areas to be exempt from the AOC requirements because the cut material from the construction of State Road 264 was used for fill at the mine site. Since State Road 264 cannot be reclaimed, the Permittee will have excess fill at the site. Therefore, the mine site cannot be restored to the original elevation. Also, some slopes cannot be returned to their premining configuration without reducing the safety factor below the regulatory requirements. Therefore, the reclaimed slopes must be gentler than the premining slopes.

The Division believes that the site can be restored to AOC. AOC does not mean that the pre and post mining surfaces are identical. Rather, AOC means that the drainages in the reclaimed area will complement the surrounding natural drainages and that the site blends into the existing topography. Senate Report No. 28 on Senate Bill S.7 in 1974 shows a legislative intent to distinguish between elevation and configuration by stating:

It must be emphasized that the requirement to return to approximate original contour does not necessarily mandate the attainment of original elevation.

A request for an AOC variance can only be made through a significant revision, not an amendment. Thus, the Division must deny the request to allow some areas to be reclaimed to non AOC standards because the request was not included in a significant revision. If the Permittee wants to apply for an AOC variance then they must submit a request as outlined in R645-301-270.

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:

R645-302-270, The Permittee must give the Division a formal request for a variance from the approximate original contour requirements as stated in R645-301-270, or remove the statements that the mine must be reclaimed to the approximate original contours. Note: the Division believes that the site can be reclaimed to AOC standards. See the analysis section for details.

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

The Division reviewed the highwall elimination plan submitted on March 22, 2000. The plan for highwall elimination is given in Section 4.4.2 of the amendment and on drawings 4.4.2-1B and 4.4.2.AA. In the text the Permittee states that all highwalls will be backfilled. However, the location of the highwalls is not shown on the drawings. Therefore, the Division cannot verify that all highwalls will be eliminated.

Some cut slopes will be left as shown on drawings 4.4.2-1B and 4.4.2.AA. In Section 4.4.2, Grading and Final Contour, the Permittee states:

> Final cut slopes in this area will be contoured to a one horizontal to one vertical slope (1h:1v) with 8-foot-wide benches provided at 30-foot height intervals. . . . The Permittee will develop cutslopes with 1h:2v slopes in competent rock only and will develop cutslopes with 1h:1v (maximum) slopes in less competent materials such as soil and colluvium.

The cross sections do not show the 8-foot-wide benches. That information is needed to verify slope stability.

The reclaimed slopes, shown on drawings 4.4.2-1B and 4.4.2.AA, are straight with a 2h:1v angle. Long straight slopes will erode more quickly that concave slope or slopes with breaks. The Permittee must show that the slopes shown on drawings 4.4.2-1B and 4.4.2.AA minimize erosion or change the

shape of the slope.

Some cutslopes may be reclaimed if the slope angles were increased. The Division needs the Permittee to show what the maximum slope angle could be used to get a 1.3 safety factor.

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:

R645-301-542.310, The Permittee must show the location of the benches that will be left after final reclamation.

R645-301-553.130, The Permittee must show what the maximum slope angle can be and still have that the slopes achieve a 1.3 safety factor. The Permittee should also consider concave slopes when they try to eliminate cutslopes.

R645-301-533.140, The Permittee will either show how the straight slopes will be constructed to minimize erosion or use other slope configurations such as concave slopes or slope breaks.

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.

Analysis:

Sediment Control Measures

The submittal consists of two drawings and text revisions, all of which relate to the Reclamation Plan of the Mining and Reclamation Plan (MRP). The new drawings are certified by a Registered Professional Engineer and include the following:

- 4.4.2-1B1, Minesite Reclamation Stream Gradients
- 4.4.2-1BA, Skyline Minesite Reclaim Topography

As indicated in the cover letter, the intent of the submittal is primarily to eliminate the highwalls and return the minesite to Approximate Original Contour at Reclamation. The earthwork is the main consideration however, several hydrologic considerations also need to be addressed. These comments are made after comparison of the approved MRP drawings and text to the submittals. In the MRP the following were consulted.

- Drawing 4.4.2-1B1, Minesite Reclamation Stream Gradients
- Drawing. 4.4.2-1A, Mine Surface Facilities Reclamation Plan
- Volume 5, Engineering Calculations, Section 18, Reclaimed Channel Designs

The proposed stream channels have steeper slopes than those in the MRP. This appears to be due to a couple of factors. First, by reading the drawings, the upstream end of the 48-inch culvert is 3-feet higher in the submittal. The proposed elevation for the culvert entrance is 8693 ft. while the elevation in the approved plan is 8690 ft. In addition, the proposed elevation for the discharge point of the 48-inch culvert into the 72-inch culvert, is 4-feet lower than in the approved plan. The elevation of the junction in the proposed plan is 8546 ft. while the elevation of the junction in the approved plan is 8550 ft. The net result is that the change in elevation from the proposed inlet to the junction with the 72-inch culvert is 7- feet greater than the approved plan. Second, the reclaimed stream channel is higher in some locations in the proposed plan. This may be an effort to bring the reclaimed slopes above the stream to a higher point, thus reclaiming further up the highwalls and cutslopes to eliminate them. This results in some stream reaches being much steeper than the original design. The following table summarizes these differences.

Stream Reach	Approved Slope (MRP)	Proposed Slope	Change Magnitude
A	0.0369	0.050	1.355 X increase
B	0.0452	0.0867	1.918 X increase
C	0.1506 to 0.0645	0.1390	1.293 X increase
D	0.1667	0.1867	1.120 X increase
E	0.0396	0.0470	0.843 X decrease

The original stream slope designs were more uniform than the proposed design. The proposed slopes have several smaller sections within stream reaches that are much steeper than the original design. The following chart summarizes the changes. The design slopes for each section are derived from Section 18, Reclaimed Channel Designs.

Stream Reach	Approved Slope (MRP)	Proposed Slope	Change Magnitude
B 14+00 to 15+00	0.0452	0.34	7.5 X greater
D 13+00 to 15+00	0.1667	0.24	1.4 X greater
E 4+00 to 5+00	0.0369	0.18	5 X greater

The new submittal did not contain any revised calculations for the riprap size and thickness for the reclaimed channels. Given the significant increases in the slope design, such calculations will be required to be sure the steeper proposed channels do not erode the riprap that was designed using the approved and, less steep slopes. This is particularly true since the riprap was sized using a velocity squared function. See Section 18, Reclaimed Channel Designs. The X^2 function goes up very rapidly and the riprap size and thickness will probably need to be modified. The Permittee will need to provide riprap design calculations, like those in Section 18, for all the reclamation channels using the proposed slopes for all reaches of the streams.

While additional riprap may be needed to accommodate the increased stream flow velocities, another option could also help the stream. The three streams, B, C, and D, all come together in a relatively short section of stream D. Constructing a pool in that location to absorb the energy of the flowing stream is possible. This would be like a step-pool system. The post-mining and pre-mining land use remains the same, namely wildlife/grazing habitat. See page 4-1. However, in conversations with the Permittee the Division learned that a possible post-mining use for the site is a Forest Service campground. Then the pool system would enhance the campsite. It would also enhance the habitat in the stream for fishing. The use of pools in the reclaimed site is only a suggestion, and the Permittee is free to propose whatever method they deem advisable to protect the reclaimed stream channels from erosion with the new steeper slopes.

The reclaimed slopes are designed at a uniform slope of 2-horizontal to 1-vertical. From a hydrologic standpoint the slopes would perform better if they were concave. That is, if the upper part of the slope were steeper than the lower part of the slope. This better approximates the natural slopes of eroded areas, and the natural slopes of all flowing streams. The result of a concave slopes is less erosion and better vegetation growth. Importantly, the slopes are also much more stable and will be less likely to slide. The toe of the slopes have more material to resist sliding and the top of the slopes have less material to cause sliding. In addition, less material would be handled during reclamation resulting in cost savings. There may need to be some compromise between the need to reclaim the highwalls and use concave slopes. The Permittee is asked to revise the slope design to accommodate those possibly conflicting requirements. Whatever the slopes' shape, the Permittee is requested to include the methods that will be used to roughen, mulch, and vegetate the slopes during reclamation.

Stream C has discontinuous labeling of the cross-section stations. They jump from 29+00 to 34+00. The stream reaches on 4.4.2-1BA, Skyline Minesite Reclaim Topography, needs to be labeled. They were labeled on the original drawings Dwg. 4.4.2-1A, Mine Surface Facilities Reclamation Plan and referenced by stream reach (A, B, etc.) on the new accompanying stream gradient drawing.

Findings:

In its present form, the submittal does not meet minimum regulatory requirements. Accordingly, the Permittee must address those deficiencies as found within this Technical Memo and provide the following, prior to approval, in accordance with the requirements of:

R645-301-732, 1) Revised calculations for the riprap size and thickness for all of the reclamation channels. 2)Revised designs to provide a concave shape to the reclaimed slopes of the minesite, consistent with the requirement to eliminate the highwalls. 3) Labeling of stream reaches on Dwg. 4.4.2-1BA and correction of cross-section stations.

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

The plan for highwall elimination is presented in Section 4.4.2 and on drawings 4.4.2-1B and 4.4.2.AA. The drawings are considered inadequate because:

- The cut and fill quantities do not have units
- The dashed lines are not referenced in the legend
- The highwalls are not shown on the cross sections. The Division needs to see the location of the highwalls to verify that they will be reclaimed.
- The Permittee needs to show the material that the cutslopes will be made in, such as rock or soil. The Division needs that information to verify slope stability.

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:

R645-301-121.100, The Permittee must give the units for the cut and fill quantities.

R645-301-121.100, The Permittee must state what the dashed line mean on drawings 4.4.2-1B and 4.4.2.AA.

R645-301-542.310, The Permittee must show the location of the highwalls. That information is needed to verify that all highwalls will be reclaimed.

R645-301-542.310, The Permittee must show what cutslopes will be made in rock and which slopes will be in earth.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Analysis:

Determination of Bond Amount

The Permittee needs to show the location of any concrete structures that will be left in place during final reclamation on the reclamation maps and cross sections. The Division needs that information to verify the bond amount.

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:

R645-301-830.130 and R645-301-542.310, The Permittee must the location of all concrete structures that will be left in place on the reclamation maps and cross sections.

RECOMMENDATIONS:

The Division should deny the amendment submitted on March 22, 2000. The Division should make sure that the Permittee understands that AOC does not mean that the reclaimed surface must be identical to the premining surface. Therefore, the proposed reclamation surface may meet the AOC requirements.

Additional Comment:

As a convenience to the Permittee, we would mention that Stream Alteration Permits are issued for only one year. This permit is issued by the Utah Water Rights Division. Since this permit will be required before reclamation activities begin, having that agency review the Reclamation Plan now may be expedient for the Permittee. The design is being revised with this submittal and it seems a good time to get all related reviews completed. Waiting until reclamation activities are begun may cause delays and changes in the design of the stream channel and/or reclaimed topography. The contact person is Daron R. Rasmussen, (801) 538-7377.